

Global report on neglected tropical diseases 2026

Mid-term evaluation of the road map implementation

Buruli ulcer
Chagas disease
Dengue and chikungunya
Dracunculiasis
Echinococcosis
Foodborne trematodiases
Human African trypanosomiasis
Leishmaniasis
Leprosy
Lymphatic filariasis
Mycetoma, chromoblastomycosis and other deep mycoses
Noma
Onchocerciasis
Rabies
Scabies and other ectoparasitoses
Schistosomiasis
Snakebite envenoming
Soil-transmitted helminthiases
Taeniasis and cysticercosis
Trachoma
Yaws

World Health Organization

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Foreword


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The global response to neglected tropical diseases has shown what can be achieved when countries, communities, health workers, researchers, partners and donors unite behind shared goals.

But progress is not the same as success. Gains can be uneven, and they can be reversed. Reaching the 2030 targets therefore requires us to examine honestly where we are advancing, where we are falling behind, and what we must do differently.

That is the purpose of the mid-term evaluation of the road map for neglected tropical diseases 2021–2030. Endorsed by the World Health Assembly in 2020 and launched on World Neglected Tropical Diseases Day in 2021, the road map provides the strategic blueprint for the global response to this diverse group of diseases and conditions.

This report takes stock of progress since the road map's launch. It assesses how close we are to its 2030 targets, identifies the actions that have driven advances, and highlights the challenges that continue to impede them. It also recognises the individuals, communities and organisations whose commitment has made that progress possible.

The evaluation itself reflects the collective character of the road map. Stakeholders from across the global neglected tropical diseases community contributed their expertise, experience and data, enabling open dialogue about both achievements and shortcomings.

This process also illustrates an essential part of WHO's work. Evidence and experience from the front line inform standards and guidance; countries and communities put them into practice; and evaluation, monitoring and feedback show us what is working, what is not, and how our approach must evolve.

I thank everyone who has contributed to implementing the road map during its first five years and to evaluating its impact. The clearest way to honour that work is to act on what this evaluation tells us: protect the gains already made, address the gaps it exposes, and sustain the commitment needed to achieve the 2030 targets.



Dr Tedros Adhanom Ghebreyesus
Director-General
World Health Organization



"Neglected tropical disease programmes possess immense strategic value that extends well beyond disease-specific outcomes, serving as a catalyst for advancing universal health coverage, strengthening primary health care, promoting health equity and accelerating progress towards the Sustainable Development Goals. In an increasingly complex global health landscape, marked by evolving epidemiological, environmental and financing challenges, sustaining NTD programmes is essential not only for eliminating these diseases but also for building resilient, people-centered health systems. Continued investment in NTD programmes therefore represents both a public health imperative and a strategic contribution to broader health and development objectives."

Dr Bruce Aylward
Assistant Director-General,
Health Promotion,
Disease Prevention and Care



"The mid-term evaluation confirms that the global NTD community made substantial progress in addressing the burden of these conditions during 2021–2025. However, these gains remain uneven and fragile. While several technical challenges are being successfully overcome, sustainability has emerged as the defining constraint of our time, one that could delay the achievement of the 2030 targets. New barriers demand innovative solutions, yet I am confident that the momentum generated by the road map endorsed by the World Health Assembly in 2020, together with its inherent flexibility, is strong enough to continue guiding the global response to the public health challenges posed by this diverse group of diseases and conditions throughout the remainder of the decade."

Dr Daniel Ngamije Madandi
Director,
Malaria and Neglected Tropical Diseases

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Abbreviations and acronyms

AI	artificial intelligence
DALY	disability-adjusted life-year
ESPEN	Expanded Special Project for Elimination of Neglected Tropical Diseases
FAO	Food and Agriculture Organization of the United Nations
GAT	Gap Assessment Tool
Gavi	Gavi, the Vaccine Alliance
GBD	Global Burden of Disease
GCSC	Global Coordination and Stewardship Committee
GHE	Global Health Estimates
GNARF	Global NTD Annual Reporting Form
MDA	mass drug administration
NTD	neglected tropical disease
OECD	Organisation for Economic Co-operation and Development
PAHO	Pan American Health Organization
PEP	post-exposure prophylaxis
PHC	primary health care
RDT	rapid diagnostic test
SDG	Sustainable Development Goal
STAG-NTD	Strategic and Technical Advisory Group for Neglected Tropical Diseases
TPP	target product profile
UHC	universal health coverage
UN	United Nations
WASH	water, sanitation and hygiene
WG-MER	Working Group on Monitoring, Evaluation and Research
WHO	World Health Organization
WOAH	World Organisation for Animal Health

Rationale and context

Neglected tropical diseases (NTDs) affect more than 1 billion people, predominantly those living in poverty, or remote or fragile settings, and with limited access to essential health services. *Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030* ("the road map"), endorsed by the Seventy-third World Health Assembly in 2020, set targets for the prevention, control, elimination and eradication of 20 diseases and disease groups, since expanded to 21 with the addition of noma in December 2023.

The year 2025 marked the midpoint of implementation of the road map, making it a timely moment to evaluate progress and recalibrate priorities for the second half of the decade. This mid-term evaluation examines implementation and impact during 2021–2025 and provides recommendations for 2026–2030. It applies a mixed methods approach, combining a quantitative analysis of 71 global indicators from existing reporting mechanisms with a structured qualitative assessment across 11 dimensions, conducted using the Gap Assessment Tool and informed by more than 350 experts, programme managers, policy-makers and partners. The evaluation was conducted and coordinated by the World Health Organization (WHO), with oversight provided by an independent committee of external experts representing all WHO regions; its results were reviewed by the Strategic and Technical Advisory Group for NTDs.

Main findings for 2021–2025

At the midpoint of implementation, current estimates for several indicators remain below their 2025 milestones and are not on track to reach the 2030 targets. The implementation of the road map is delivering real gains, notably a reduction in the number of people requiring interventions and an increase in the number of countries that have eliminated at least one NTD. However, the pace of progress is insufficient to achieve most 2030 targets, particularly in relation to financing, mainstreaming into health systems, surveillance and extending interventions to populations in fragile and hard-to-reach settings.

Qualitative findings across the three road map pillars

Pillar 1 – Accelerate programmatic action

The availability of normative guidance increased, with about 260 NTD publications released by WHO since 2021, and capacity-building scaled up, with the inclusion of several NTD training courses in the WHO Academy learning platform. New medicines and vaccines reached important regulatory and prequalification milestones, notably fexinidazole, moxidectin, paediatric praziquantel and prequalified dengue and approved chikungunya vaccines. Published WHO target product profiles for diagnostics address the diagnostic test gaps for 15 diseases. However, diagnostics for some diseases still lack sufficient sensitivity to confirm interruption of transmission as prevalence falls, and drug resistance is now confirmed for some medicines. More than 11.5 billion doses of medicines have been distributed to over 110 countries, ensuring access to preventive chemotherapy and management of cases. In addition, supply chain governance strengthened through new coordination mechanisms, although constraints persist at country level in customs clearance, warehousing and stock management. Sustained advocacy contributed to several formal commitments, including the World Health Assembly's recognition of World NTD Day (2021), the launch of the Kigali Declaration on Neglected Tropical Diseases (2022) and the adoption of resolution HRC62/21 on "Human rights and neglected tropical diseases" by the United Nations Human Rights Council (2026).

Pillar 2 – Integration, mainstreaming and cross-cutting approaches

Progress in the components of this pillar has been uneven. Integration across NTD programmes has progressed, and mainstreaming into national health systems has advanced, mainly at the point of service delivery, through co-delivery with immunization, antenatal care, school health and noncommunicable disease services. Change in underlying health system functions has been more limited. NTD interventions remain largely outside universal health coverage

packages in most endemic countries, and data systems remain fragmented. Case detection and management are not systematically embedded in primary health care and national health information systems. Multisectoral collaboration has progressed, including agriculture-based vector control and cross-border frameworks, while collaboration with the water, sanitation and hygiene (WASH) sector remains limited. Attention to equity and inclusion has increased. Mainstreaming therefore remains structurally incomplete: co-delivery has not yet translated into shared service packages, financing and information systems.

Pillar 3 – Country ownership and sustainability

Country ownership has strengthened, although unevenly. A growing number of countries have included NTDs in their national health strategies, and dedicated domestic budget commitments are emerging at national and subnational levels. The financing landscape has contracted, and most national programmes remain substantially dependent on external funding; this remains concentrated among a limited number of donors, in the absence of a pooled mechanism. Significant reductions in external financial contributions place prior public health gains at risk. Programmatic effort has focused on intervention delivery rather than on the policy processes that support sustained ownership, and institutional responsibility for NTDs remains fragmented across multiple departments, which are not well coordinated in many countries.

Progress against quantitative indicators

Measured against baseline, the road map has made important progress on several indicators. The number of people requiring interventions against NTDs fell to 1.41 billion in 2024, a 36% reduction since 2010 and a 19% reduction since 2020. By June 2026, 63 countries had eliminated at least one NTD, up from 42 at the end of 2020, and 90 acknowledgement processes had been completed. Togo became the first country to eliminate four diseases. Among the 10 cross-cutting indicators, several have advanced: the integrated treatment coverage index for preventive chemotherapy reached its highest value since 2020, and the number of countries adopting integrated strategies for skin-related NTDs exceeded the 2030 target 6 years ahead of schedule. Progress was also registered in the integration of NTDs into national health strategies, essential service packages and disability management guidelines.

Nevertheless, current estimates for most indicators remain below the 2030 targets. Progress on overarching global indicators of disease burden is slow: disability-adjusted life-years fell by only 18% between 2015 and 2021, from 17.18 million to 14.14 million but have stagnated since 2020. Both the dracunculiasis (Guinea-worm disease) and yaws eradication programmes require accelerated progress to achieve the 2030 eradication targets. Several cross-cutting indicators are also progressing at a slow pace. Vector-borne NTDs remain a particular concern, with the number of dengue deaths increasing while the case fatality rate has decreased, which may reflect earlier detection and improvements in case management. Incomplete data reporting constrains accurate assessment of progress, with only a minority of endemic countries reporting on all their relevant endemic NTDs or reporting data disaggregated by gender in the 2024 GNARF-based assessment. Access to WASH in endemic areas remains below universal coverage, with lower levels of access in rural than in urban areas.

Progress across WHO regions

Countries belonging to the same WHO region often share enablers, including regional strategic frameworks, long-standing medicine donation partnerships and a growing shift towards integrated delivery of interventions. Nevertheless, they also face recurring challenges, notably declining external financing, incomplete surveillance and difficulty reaching the last mile in remote and marginalized communities. Across regions, national health authorities and their partners are focusing on high-burden and last-mile delivery, consolidating near-elimination gains, launching multi-disease elimination frameworks, adapting delivery to fragile and conflict-affected settings, establishing post-elimination surveillance, clearing remaining island and subnational hotspots, and strengthening preparedness for imported and localized risk. Across all six regions, remaining transmission is increasingly focal and heterogeneous, so aggregate figures can mask substantial variation in progress between and within countries.

Progress across disease-specific assessments

Overall progress remains uneven, with only a few diseases on track across all indicators. Three disease-specific indicators achieved their 2025 milestones: chikungunya vaccine development, reduced dengue case fatality rates and the availability of WHO-recommended polyspecific antivenoms for snakebite envenoming. Several indicators are approaching their milestones, including certification of freedom from Guinea-worm disease, intensified control of foodborne trematodiases and post-mass drug administration surveillance for lymphatic filariasis. However, some indicators have barely changed from their baseline values.

Risks to achievement of 2030 targets

Five interdependent risks may affect reaching the 2030 targets. The most immediate risk is financial, as the contraction in NTD financing in recent years intensifies other risks. Conflict and displacement have emerged as significant constraints, particularly for last-mile efforts, concentrating burden in fragile settings. Climate change is contributing to the geographical expansion of vector-borne diseases, while extreme weather events can damage WASH infrastructure and disrupt service delivery. NTD interventions remain insufficiently mainstreamed into national health systems, with NTD services not yet included in universal health coverage packages in most endemic countries, along with weak surveillance, persistent supply chain constraints and the loss of specialist expertise. The available range of biomedical tools required for the final stage of elimination is incomplete, with gaps in diagnostics and medicines for several diseases, and documented drug resistance. Unmet need is increasingly concentrated among the populations least served by current delivery models.

Several mitigating measures have been introduced, including strengthened advocacy and political commitment, community-based surveillance in humanitarian settings, an expanding portfolio of target product profiles and associated tools, the development of digital tools to strengthen access and improve monitoring, and the implementation of rights-based approaches to improve equity.

Strategic priorities for 2026–2030

The evaluation identified key priorities for the second half of the road map implementation, which are mutually reinforcing:

- In **financing, country ownership and sustainability**, the principal objective is to increase and institutionalize domestic financing while diversifying and maintaining external financing, supported by national budget lines, co-financing arrangements, costed strategic plans, investment cases and evidence of efficiency and effectiveness.
- In **fragile settings and in the context of environmental change**, intervention delivery approaches must account for conflict and displacement as structural realities, strengthen cross-border collaboration, address climate-sensitive and vector-borne NTDs, and organize delivery for the zoonotic diseases on a One Health basis.
- In **health systems, surveillance and delivery**, integration should be the default model where it improves access, quality, equity and sustainability, with disease-specific capacity retained as programmes approach elimination. Priorities also include institutionalization of post-elimination surveillance, extension of geographical service coverage to underserved populations, anticipation of changes in the donation landscape and strengthening competencies at national level.
- In **health workforce and capacity**, specialist competencies should be embedded within national institutions through pre-service and in-service training, workforce retention and laboratory networks.
- For **innovation and research**, a funded research agenda is required to advance products towards prequalification before 2030.
- **Equity** should be embedded in NTD programme design, while equitable access should be expanded to include rehabilitation, disability support and long-term care.

Looking ahead

At its midpoint, implementation of the NTD road map has produced important gains in access to interventions. However, these gains are uneven and fragile, and current rates of progress are insufficient to meet several of the 2030 targets. Areas where progress has been slow or absent often reflect crises that could not have been anticipated when the road map was adopted, including COVID-19, heightened geopolitical instability and unprecedented financing reductions in recent years. The principal constraints are no longer only technical; rather, they relate to financing, country ownership, the mainstreaming of NTDs into national health systems and the capacity to sustain public health gains once achieved.

The second half of the decade will be critical to closing persistent implementation gaps and accelerating progress towards the 2030 targets. This will require advancing on two fronts simultaneously: consolidating and sustaining gains in places where the disease burden has been brought under control or elimination is within reach, and addressing the specific drivers of slow progress elsewhere. The remainder of the road map period should also provide a strong evidence base to shape the global NTD agenda beyond 2030. Early development of a successor framework should consider the drivers of progress against current targets, the composition of the disease portfolio, the transition from medicine donations when relevant, and an indicator set that extends beyond policy adoption to implementation, health outcomes and country ownership, with equity incorporated into its design.

1. Introduction

1.1 Background and context

Neglected tropical diseases (NTDs) affect more than 1 billion people globally, disproportionately impacting populations living in conditions of poverty, marginalization and limited access to health services. These diseases thrive in settings characterized by inadequate water, sanitation and hygiene (WASH), weak health systems, environmental vulnerability and socioeconomic inequities. Beyond their direct health consequences, NTDs contribute to chronic disability, stigma, reduced educational attainment, diminished productivity and persistent cycles of poverty, thereby undermining sustainable development and social inclusion.

Recognizing the urgent need for coordinated and transformative action, the World Health Organization (WHO) launched *Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030* ("the road map") *(1)*, endorsed by the Seventy-third World Health Assembly in 2020 through decision WHA73(33), with associated institutional reporting requirements. The road map established a comprehensive global framework to guide prevention, control, elimination and eradication of 20 NTDs and disease groups during the current decade (noma was added in December 2023, bringing the number of NTDs to 21 *[2]*). It marked a strategic shift from disease-specific approaches towards integrated, country-led, cross-sectoral and sustainability-oriented programming aligned with universal health coverage (UHC) and the Sustainable Development Goals (SDGs).

The road map builds on the preceding comprehensive World Health Assembly resolution adopted in 2013 (WHA66.12), which established NTDs as a defined group and recognized integrated approaches to implementing NTD interventions as highly effective and collectively contributing to stronger health systems. How well different programme components and stakeholders work together in a coordinated and integrated manner towards achieving the road map's shared goals is a reflection of the degree of cohesion in the public health response to NTDs. This requires long-term, multisectoral action with alignment to community systems and funding mechanisms to create the basic conditions necessary for successful disease prevention, control, elimination and eradication.

The road map introduced ambitious global targets and emphasized three interrelated strategic pillars: accelerating programmatic action, intensifying cross-cutting approaches, and changing operating models and culture to facilitate country ownership. The road map further called for strengthened accountability, integrated data systems, multisectoral collaboration, domestic financing, innovation and community engagement as critical enablers of sustainable impact.

The disease-specific targets set by the road map fall into four categories. Eradication is the permanent reduction to zero of worldwide incidence of infection, documented through certification. Elimination (interruption of transmission) is the reduction to zero of incidence in a defined geographical area, documented through verification. Elimination as a public health problem is the achievement of measurable targets set by WHO in relation to a specific disease, documented through validation; reaching this threshold does not mean that morbidity or the needs of all affected populations have been addressed, and continued action is required to maintain the targets or advance interruption of transmission. Control is the reduction of disease incidence, prevalence, morbidity or mortality to a locally acceptable level.

The first half of the implementation period (2021–2025) has unfolded within a complex and evolving global health landscape. The COVID-19 pandemic significantly disrupted supply chains, surveillance systems, delivery of interventions against NTDs, and community-based interventions during the early years of implementation. In addition, recent reduction in official development aid, multiple humanitarian crises, climate-related shocks, population displacement, fragile security environments and economic pressures have continued to challenge

programme delivery and threaten gains achieved over previous decades. Among these pressures, the reduction in external financing has proved the most consequential. Global financing for NTDs has decreased as major donors have progressively scaled back their commitments, most recently through significant reductions to development assistance in 2025.

Despite these constraints, countries, communities, donors, pharmaceutical partners, research institutions and implementing agencies have endeavoured to support momentum towards the road map 2030 targets. Important progress has been achieved in maintaining and expanding preventive chemotherapy treatment coverage, scaling up integrated approaches, strengthening surveillance and data management systems, introducing innovative diagnostic and treatment tools, and advancing national ownership of NTD programmes. Consequently, as of June 2026, 63 countries[1] have successfully eliminated at least one NTD, demonstrating that sustained commitment and coordinated action can yield measurable results, even in challenging contexts.

However, annual progress across disease programmes, regions and strategic priorities has remained uneven. Persistent financing gaps at several levels, weaknesses in health systems, inequitable access to services, limitations in data quality and surveillance capacity, and insufficient integration within primary health care (PHC) continue to constrain acceleration towards the 2030 targets. Emerging challenges, including climate change, antimicrobial resistance, urbanization and increasing humanitarian emergencies, further underscore the need for adaptive and resilient implementation strategies.

The year 2025 marked the midpoint of implementation of the road map (2021–2030). This point is a critical opportunity to assess progress and recalibrate priorities for the second half of the decade. The mid-term evaluation of the road map implementation has therefore been undertaken to take stock of achievements and challenges during the period 2021–2025, so as to define strategic priorities and adjustments required to accelerate progress during the period 2026–2030.

The outcomes of the mid-term evaluation are presented in this report, which also contributes to broader global discussions on equity and sustainable development. NTDs remain a tracer indicator for equity under SDG indicator 3.3.5 ("Number of people requiring interventions against neglected tropical diseases"), reflecting the extent to which health systems reach populations most affected by poverty and are able to achieve UHC. Accelerating progress against NTDs is therefore not only a technical and public health imperative, but also a critical measure of global commitment to leaving no one behind.

1.2 Methodology

The general objective of the mid-term evaluation is to assess the implementation and impact of the road map during its first half (2021–2025) and to provide actionable recommendations for its second phase (2026–2030). Further specific objectives are to assess whether actions along the three strategic pillars (Fig. 1.1) of the road map have contributed to measurable progress towards the road map 2030 targets. The evaluation reflects the addition of noma to the list of NTDs in December 2023 and therefore considers all 21 current NTDs and disease groups from global and regional perspectives, with select illustrative country examples.

The mid-term evaluation utilized quantitative analysis of progress against the road map 2030 targets, complemented with qualitative assessments of implementation experiences. This mixed methods approach is aligned with the framework for monitoring and evaluating progress against the road map targets ("the monitoring and evaluation framework") *(3)*, which aims to examine the extent to which strategic shifts envisioned in the road map are being operationalized across different epidemiological and programmatic contexts. This approach also enables investigation of the Global NTD Programme interactions with cross-cutting themes related to UHC, PHC, WASH, One Health *(4)*, climate change, equity, gender and human rights, community empowerment and partnerships.

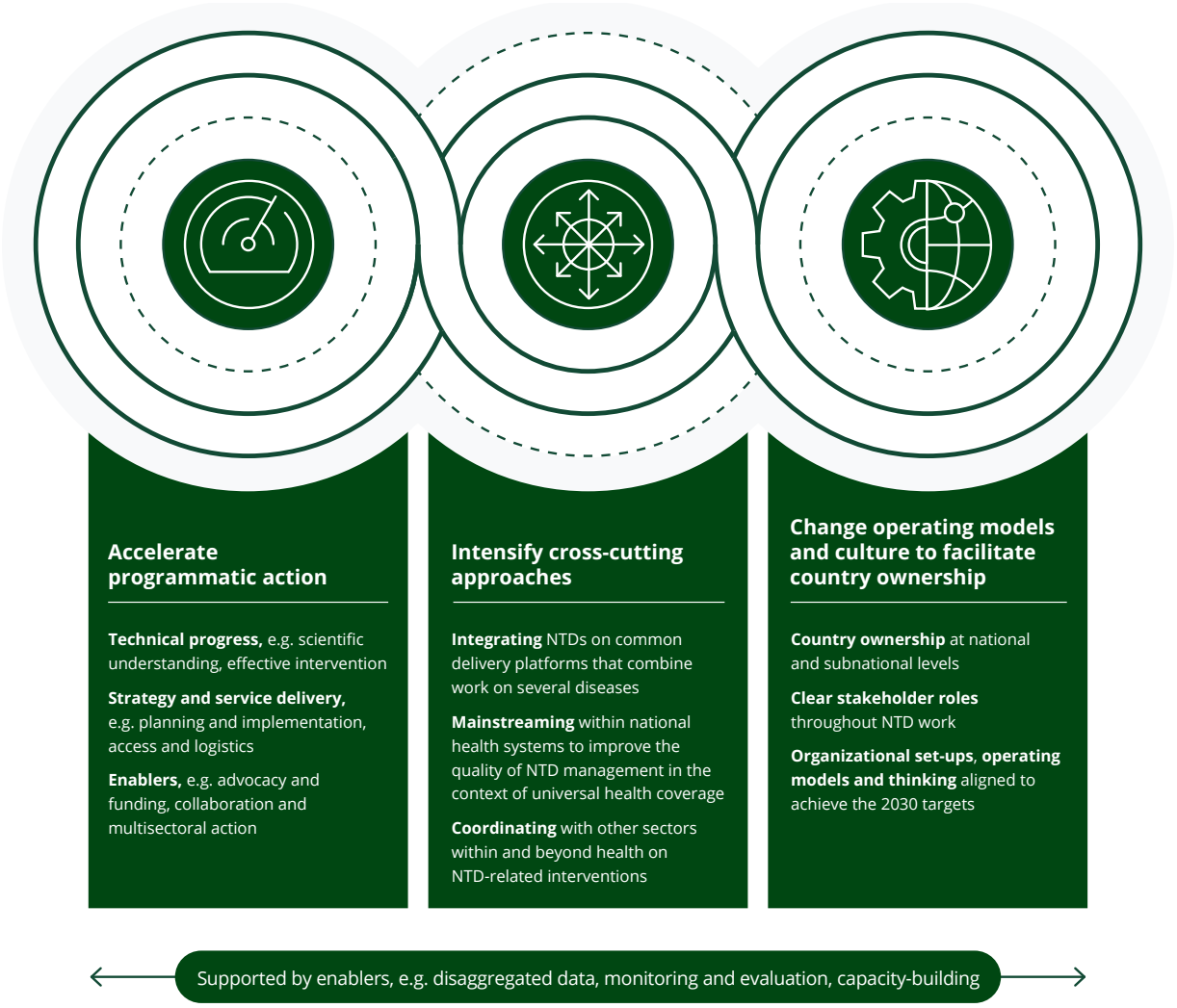
A matrix of key evaluation questions was formulated through a consultative process coordinated by the Working Group on Monitoring, Evaluation and Research (WG-MER), which reports to the Strategic and Technical Advisory Group for Neglected Tropical Diseases (STAG-NTD). The key questions that were prioritized have guided the focus of the evaluation onto four standard, interrelated domains commonly used in assessment of public health programmes, namely effectiveness, efficiency, equity and sustainability.[2] Information across these four domains enables considerations for

[1] In certain cases, reference to "countries" in this report should be understood to signify countries, territories and areas.

[2] The WG-MER consultative discussions determined that the relevance domain should not be evaluated at this time, as the current road map is valid through to 2030.

evaluation beyond epidemiological values to further examine who is benefitting from interventions, who remains excluded, the context in which this is happening and whether NTD programmes are being implemented in a manner that is sustainable and contributing to stronger health systems.

Fig. 1.1. Areas that require further action



NTD: neglected tropical disease.

Source: Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030

1.3 Data collection and analysis

The road map's monitoring and evaluation framework provides operational indicators for tracking progress against set goals and related targets *(3, 5)*. Data collection for the mid-term evaluation is informed by the parameters defined in this framework. No new or separate data collection was commissioned for this evaluation.

Quantitative data were obtained from existing data collection processes and pathways focused on 71 indicators. Member States formally report these data to WHO. Global data collection tools and platforms used to report data to WHO include the Global NTD Annual Reporting Form (GNARF) *(6)*, the Preventive Chemotherapy Joint Application Package, the Trachoma Elimination Monitoring Form, the WHO Integrated Data Platform for NTDs and the Global Dengue Surveillance Dashboard *(7)*.

Information was also extracted or consulted from databases and dashboards managed by relevant WHO regional offices, including:

- in the WHO African Region, the Expanded Special Project for Elimination of Neglected Tropical

Diseases (ESPEN) portal for diseases amenable to preventive chemotherapy *(8)*;

- in the WHO Region of the Americas, the SisLeish platform for aggregated data on leishmaniasis, PLISA (Plataforma de Información en Salud para las Américas) for arboviral diseases *(9)*, SIRVERA (Sistema de Información Regional para la Vigilancia Epidemiológica de la Rabia) for rabies *(10)*, and the Pan American Center for Foot-and-Mouth Disease and Veterinary Public Health (PANAFTOSA) for data on echinococcosis *(11)*;
- in the WHO South-East Asia Region, the dengue platform *(12)*;
- in the WHO European Region, the Surveillance Atlas of Infectious Diseases from the European Centre for Disease Prevention and Control *(13)*; and
- in the WHO Western Pacific Region, the dashboard for several NTDs *(14)*.

Data are hosted in publicly available databases that are accessible through the WHO Global Health Observatory, the WHO Preventive Chemotherapy Data Portal and the WHO Regional Office for Africa ESPEN database for preventive chemotherapy interventions, as well as NTD medicines and supply chain databases.

Data analysis was based on all data submitted to WHO for the 2024 reporting period. Where available, partial 2025 data were also considered for selected diseases, particularly those targeted for eradication. For a few indicators measured cumulatively, such as published guidance, capacity-building materials and the number of countries achieving elimination, data are reported to June 2026 because the most recent status is the most informative. The assessment of the 2021–2025 period is unaffected. Baseline values were derived from 2020 data where available. However, the overarching and cross-cutting indicators may use different baseline and reference years because they draw on different data sources and monitoring cycles or reflect the phased rollout of the GNARF. Mortality from vector-borne NTDs (indicator 1) is assessed against a 2016 baseline aligned with the *Global vector control response 2017–2030 (15)*. The road map monitoring indicators drawn from the GNARF (indicators 5, 7, 8, 9 and 10) take 2022 as the start of monitoring. Access to WASH (indicator 4) is compared between 2020 and 2024 using Joint Monitoring Programme data *(16)*. Financial protection (indicator 6) uses the initial definition of SDG 3.8.2 ("Catastrophic out-of-pocket health spending") and country observations rather than those from a single synchronized year. Where an indicator departs from these, the relevant year is stated in its assessment method. Regional progress towards SDG 3.3.5, which is used as a proxy for the population at risk of NTDs, is assessed against a baseline year of 2010.

Qualitative data were collected through implementation of the Gap Assessment Tool (GAT) for NTDs *(17)*. This tool harnesses experiential knowledge along 11 dimensions from stakeholders at all levels to uncover why progress towards established public health goals is accelerating or stalling. The GAT implementation process convened focus groups for technical interactions among more than 350 subject matter experts, programme managers, policy-makers, researchers and donor representatives. The focus group discussions used outcomes of online public consultations and standardized criteria for colour-coded scores to reach consensus on disease-specific challenges and cross-cutting issues. The GAT thematic analysis outcomes are visualized in a heat map to display the status of the 11 programmatic dimensions and to highlight areas requiring urgent attention. This information is summarily presented in section 3.3 of this mid-term evaluation report as a comparative update to the 2020 versions included at baseline of the road map.

A comprehensive evaluation of NTD programmes requires more information than is available through the formal reports Member States submit to WHO. Health information systems for NTDs are often not integrated into PHC, resulting in inconsistent data quality, duplicate records and incomplete reporting. Programmes frequently lack detailed demographic information and key performance metrics. In fragile settings, population displacement and limited access hinder regular surveys and treatment tracking. To address these limitations in data on programme operations, financing, efficiency and sustainability, WG-MER triangulated routinely reported NTD data with complementary sources and incorporated relevant findings into the mid-term evaluation.

The following factors should be considered when interpreting apparent programme performance.

- Comparability: indicators draw on different data sources and monitoring cycles and therefore use different baseline and reference years. The monitoring and evaluation framework does not define 2025 milestones for the overarching and cross-cutting indicators, so progress against these is assessed as direction of change from the reference value and as distance from the 2030 target. Estimates for the same indicator may also differ between data sources, depending on the timing of collection and the geographical area covered.

- Completeness: assessment of some indicators relies on information reported to WHO rather than on independent verification. Where reporting is incomplete, the absence of data cannot be distinguished from the absence of disease or progress. For diseases for which there is limited diagnostic capacity or incomplete mapping, a small number of reported cases may reflect weak detection capacity rather than low burden, and an increase in reported cases may reflect improvements in surveillance rather than a change in transmission. Formal verification and validation processes often operate over long timelines, so achievements at country level may precede their official acknowledgement by several months.
- Interpretation of results: several indicators measure an output rather than an outcome, so achievement of a target does not in itself demonstrate a change in service delivery. Publication of guidance, for example, does not establish that it has been applied, and development of training materials does not imply that competencies have been acquired. Where indicators are of this type, the assessment is one of adoption rather than of implementation, and the effect on outcomes will require a dedicated evaluation.

1.4 Governance and management

WHO implemented and coordinated this mid-term evaluation. Although such evaluations are often conducted by independent entities, this process represents a pragmatic adaptation to contextual constraints, using available resources while remaining aligned with established evaluation principles. An oversight committee acting as proxy for an external independent evaluation body provided strategic and technical oversight to strengthen the integrity, quality, impartiality and usefulness of the evaluation process.

The oversight committee included representatives with extensive expertise in global health from all WHO regions. Provisional results from the evaluation were shared with this committee before formal review by STAG-NTD and its related working groups. An ad hoc STAG-NTD meeting was convened in August 2026 to review and finalize the mid-term evaluation outcomes. Key actionable recommendations presented in this report are the result of consensus-building efforts between these bodies.

1.5 Ethics and confidentiality

All contributors to the mid-term evaluation were required to uphold the highest standards of ethics and confidentiality throughout the process by maintaining strict confidentiality of all documents and deliberations, adhering to WHO and United Nations (UN) ethical standards, and declaring any actual, potential or perceived conflicts of interest. Members of the oversight committee, of STAG-NTD and of its related working groups completed WHO standard forms for declaration of interests and confidentiality undertakings. No conflict or breach of confidentiality was identified.

The findings from the pivotal assessment of progress on implementation of the road map, presented in the following chapters of this report, reflect the collective accountability of the global health community. They provide a basis for action and learning that illuminates the path towards a world free of NTDs.

2. Strategic shifts and engagements

2.1 Pillar 1 – Accelerate programmatic action

Pillar 1 of the road map aims to accelerate programmatic action towards meeting the 2030 targets by filling knowledge gaps in research; improving the effectiveness of interventions; and securing availability of, and access to, existing and new tools. It encompasses strategic and technical guidance; normative output; the assured supply of effective, quality-assured, standardized and affordable medicines and diagnostics; innovation, research and development; and global advocacy and capacity-building.

Normative output has been sustained throughout the 2021–2025 period, including with the development of several first-edition guidelines. The medicines and vaccines pipeline advanced on multiple fronts, with new treatments reaching regulatory milestones for several diseases, widening the options available to programmes. Online learning, delivered by the WHO Academy, considerably scaled up capacity-building, and advocacy secured sustained political visibility at the highest levels. New coordination mechanisms and standard operating procedures have strengthened supply chain governance at global level, but structural weaknesses for last-mile logistics in some countries contribute to product expiry and unaccounted stock; additionally, operational costs previously met by partners increasingly fall to limited national resources. Tool gaps persist across both diagnostics and medicines. As NTD prevalence declines, the risk of current diagnostics lacking the sensitivity needed to confirm interruption of transmission increases. For some diseases, the medicines required for the final stage of elimination are not yet available to programmes. Across this pillar, progress on tools, guidance and political commitment has outpaced progress on the systems needed to translate them into delivery.

2.1.1 Strategic and technical guidance

Five STAG-NTD meetings took place between 2021 and 2025, during which its active working groups reported their outputs. The 14th meeting (June 2021) *(18)*, 15th meeting (February 2022) *(19)* and 16th meeting (September 2022) *(20)* addressed pandemic recovery, NTD programme integration and One Health priorities. Following the adoption of resolution WHA74.5 on oral health that requested WHO to consider noma for inclusion in the NTD list *(21)*, and Nigeria's submission of a dossier on behalf of a group of 32 countries, the 17th meeting (October 2023) recommended adding noma to the NTD portfolio; the recommendation was endorsed by the WHO Director-General, bringing the total to 21 disease conditions *(22)*. The 18th meeting (December 2024) *(23)* reviewed progress against the road map.

Although the publication of guidance does not demonstrate its adoption and use by national NTD programmes, normative outputs strengthen the global policy and guidance environment on which country action depends. Between 2021 and mid-2026, WHO published 260 unique NTD-related documents, averaging about 50 per year, with a documented peak in 2021–2022 following the launch of the road map. More than 60 publications were strategic or cross cutting in nature, reflecting the road map's centrality in shaping global NTD policy and practice. Disease-specific outputs focused on

dracunculiasis, leishmaniasis, onchocerciasis and leprosy, each generating between 19 and 23 documents; these were anchored by outputs such as:

- the global leprosy strategy *(24)*, technical guidance introducing the three-phase Leprosy Elimination Framework (including post-elimination surveillance) *(25)*;
- the visceral leishmaniasis guidelines for HIV coinfected patients *(26)*;
- the east Africa visceral leishmaniasis elimination framework *(27, 28)*;
- leishmaniasis vector control and sandfly insecticide-resistance monitoring tools *(29–33)*; and
- a suite of onchocerciasis elimination tools, including the elimination mapping handbook *(34)*, the national onchocerciasis elimination committees handbook *(35)* and the integrated transmission assessment survey manual *(36)*.

The period also saw notable firsts for normative outputs: the first WHO guideline on preventive chemotherapy for strongyloidiasis *(37)*; an updated schistosomiasis and soil-transmitted helminthiases monitoring and evaluation framework *(38)*; the first WHO guide on scabies for programme managers *(39)*; and the first global clinical management guidelines for dengue, chikungunya, Zika virus and yellow fever *(40)*. Key guidance was also generated for *Taenia solium* neurocysticercosis *(41)*, preventive chemotherapy for taeniasis *(42)* and schistosomiasis elimination *(43)*. Fascioliasis and tungiasis received regional rather than global guidance through Pan American Health Organization (PAHO) guidelines for elimination in the Region of the Americas *(44, 45)*. However, echinococcosis and WASH-related NTDs remained comparatively underrepresented in the normative output.

2.1.2 Core interventions

Core interventions vary across the portfolio. For NTDs amenable to preventive chemotherapy, delivery relies mainly on population-based mass drug administration (MDA), whereas for case-management and morbidity-focused NTDs, it depends on functioning pathways for early detection, diagnosis, referral, treatment and rehabilitation within routine health services, where there is opportunity to strengthen measurement of progress.

Several additional regulatory and programmatic milestones advanced the medicines pipeline during 2021–2025. Triple-therapy IDA (the combination of ivermectin, diethylcarbamazine and albendazole), recommended by WHO since 2017 *(46)* for its greater microfilaricidal efficacy outside areas co-endemic with loiasis, continued to scale up for lymphatic filariasis *(47)*. For onchocerciasis, a United States of America (United States) Food and Drug Administration supplemental approval in February 2025 extended moxidectin use to children aged 4 years or older *(48, 49)*, and WHO included moxidectin in the 24th Model List of Essential Medicines in September 2025 as a therapeutic alternative to ivermectin for onchocerciasis and lymphatic filariasis *(50)*. In November 2024, Ghana became the first onchocerciasis-endemic country to approve the use of moxidectin for preventive chemotherapy; this enabled the first community-based use of the drug anywhere, with a district-level pilot launched in January 2025 *(51)*. In 2023, the European Medicines Agency (EMA) issued a positive scientific opinion for arpraziquantel, a new, child-friendly formulation of dispersible 150 mg praziquantel tablets for treating schistosomiasis in preschool-aged children (aged 3 months to 6 years); this expanded treatment options for a vulnerable population (about 50 million children) that previously lacked them *(52)*. In January 2025, EMA issued a positive scientific opinion for a fixed-dose combination of ivermectin and albendazole for soil-transmitted helminthiases and for microfilaraemia in lymphatic filariasis *(53)*, and in December 2025, Ghana became the first country to grant it regulatory approval *(54)*. Delivered as a single mango-flavoured, fast-dissolving tablet, it is easier to administer to children. For human African trypanosomiasis, fexinidazole received a positive EMA opinion for the rhodesiense form in 2023, and in 2026, acoziborole received a positive EMA scientific opinion as a single oral treatment for both stages of the gambiense form. For visceral and cutaneous leishmaniasis, WHO prequalified two generic miltefosine products in 2024 and 2025, expanding quality-assured supply of oral treatment *(55)*. Treating the fungal form of mycetoma (eumycetoma) remains challenging, but fosravuconazole has emerged as an alternative to itraconazole for this condition, with efficacy and safety demonstrated in clinical trials while regulatory approvals are being pursued.

For arboviral diseases and vaccines, the TAK-003 (Qdenga) dengue vaccine, which does not require pre-vaccination screening, was prequalified by WHO on 9 May 2024 and received conditional investment approval from the Gavi, the Vaccine Alliance (Gavi) Board in 2024. This live-attenuated vaccine targets the four dengue serotypes and is recommended for children aged 6 to 16 years living in settings with a high dengue burden *(47)*. The live-attenuated chikungunya vaccine VLA1553 received regulatory approvals *(56)* in 2024 or 2025 from Brazil, Canada, the European Union, and the United Kingdom of Great Britain and Northern Ireland (United Kingdom).

2.1.3 Supply chain and medicine donation

Preventive chemotherapy programmes recovered from COVID-19-related disruptions during 2021–2025, with renewed scale-up of MDA in endemic countries. End-to-end supply chain systems were progressively strengthened through a Global Coordination and Stewardship Committee (GCSC) launched by WHO in 2024 *(57)*, which has improved coordination between WHO, nongovernmental organizations, endemic countries, and pharmaceutical and other donors, notably via updated Joint Application Package mechanisms; enhanced quantification, forecasting and supply planning processes; and increased country-level support for in-country distribution and last-mile delivery. Across the portfolio, efforts are underway for supply chains to be progressively integrated into national health logistics systems, reducing reliance on parallel structures and tracking platforms.

Supply chains faced serious structural challenges in some countries, including delayed customs clearances, limited warehousing capacity, insufficient distribution resources, poor logistics management information systems and poor stock management, contributing to expiry and unaccounted donated products, particularly praziquantel and chewable mebendazole *(58)*. Management information systems for NTD logistics rarely extend to the subnational level, so products remaining after MDA are often untraced. These issues were compounded by geopolitical crises, evolving national and international importation regulations resulting in delayed deliveries, stock-outs, overstocks and increasing programme costs. Operational costs previously met by implementing partners, including for transport of medicines within countries ahead of MDA activities, are increasingly falling to national resources as programmes integrate with other campaigns. These costs are not always budgeted in national planning, and coordination with central medical stores, which serve many health programmes, is required.

By the end of 2025, 12 manufacturers donated 19 different types of medicines to support NTD interventions, including 18 formulations provided to WHO and two (ivermectin for lymphatic filariasis and onchocerciasis, and azithromycin for trachoma) donated directly to countries through partner institutions. Between 2019 and 2025, more than 21.1 billion tablets and vials were delivered. The donation landscape is changing as the road map period advances. Several current donation agreements, including those for albendazole for soil-transmitted helminthiases, are due to expire at the end of 2030, and other donation programmes are under review by the manufacturers concerned (see Annex 1). Medicine donations still do not cover all NTDs, and countries manage several parallel supply systems, as some medicines are donated for certain diseases but not for others.

To address these weaknesses at scale, the GCSC and the Supply Chain Technical Support Mechanism were launched in 2024 to provide technical support for the coordination, timely delivery and management of donated NTD medicines globally *(47)*. WHO and the NTD Supply Chain Forum published the first edition of *Standard operating procedures for supply chain management of health products for neglected tropical diseases amenable to preventive chemotherapy* in 2022 *(59)*, setting out tasks and responsibilities before, during and after MDA – from quantification of needs through to accounting for leftover stock – for adoption and adaptation by health ministries and national programmes.

Member States have also prioritized strengthening local and regional production of quality-assured NTD medicines to reduce reliance on imported products and drug donations. Several countries in the WHO South-East Asia, Eastern Mediterranean and Western Pacific regions already produce or procure such medicines locally under supportive government policies, and regional plans reflect the same priority *(47)*. However, importation restrictions being introduced before local production and government budgets are able to meet programme requirements would affect continuity of supply, leading to programme disruptions.

2.1.4 Diagnostics and drug efficacy

As of June 2026, a total of 29 target product profiles (TPPs) have been produced that cover 15 diseases (see Annex 2). These include diagnostic tools for disease mapping, MDA start and stop decisions, surveillance, case confirmation and treatment guidance. The WHO Diagnostic Technical Advisory Group One Health subgroup has also led the development of a new set of TPPs for diagnostics of *T. solium* taeniasis in humans and cysticercosis in humans and pigs – a One Health first covering both human and animal hosts – which is currently being finalized following public consultation that closed in January 2026.

Diagnostic advances during 2021–2025 included new rapid diagnostic tests (RDTs) for lymphatic filariasis, an antigen test for *Wuchereria bancrofti* and an antibody test for *Brugia malayi*, and progress towards a test to detect prepatent *Dracunculus medinensis* infection in animals, supporting surveillance for Guinea-worm disease eradication. In response to the global dengue emergency, WHO's Expert Review Panel (ERP) for Diagnostics reviewed and listed a set of dengue diagnostic products in 2025 to support procurement. The WHO Skin NTDs App, powered by artificial intelligence (AI), had its first real-world

field assessment across five Kenyan counties in 2024, which yielded encouraging results *(47)*. Methodological advances included the adoption of model-based geostatistical approaches for epidemiological surveys of soil-transmitted helminthiases and the use of genomic tools to characterize Guinea-worm transmission dynamics. However, for several NTDs, incomplete mapping means endemicity status and burden remain unknown in some areas, undermining intervention planning and targeting.

Products that are neither WHO-prequalified nor approved by a stringent regulatory authority are assessed by an independent technical advisory body convened by WHO, the ERP, and added to a list enabling their time-limited procurement based on risk assessment. The ERP list for NTDs includes one formulation of sodium stibogluconate, one diagnostic test for lymphatic filariasis and six tests for dengue *(47)*. For diagnostics specifically, WHO launched a pilot ERP for Diagnostics for NTDs in 2023, which issued two calls for expressions of interest that year: one on rK39 RDTs for visceral leishmaniasis and another on RDTs for lymphatic filariasis *(60, 61)*.

As NTD prevalence declines, the risk of current diagnostics lacking the sensitivity needed to confirm interruption of transmission increases, highlighting the need for new diagnostics. However, rapid and multiplex test development has faced multiple technical and funding challenges *(47, 62)*. For onchocerciasis, available RDTs meet mapping requirements but not WHO thresholds for stopping MDA *(63–65)*. For scabies, no diagnostic product yet meets the WHO TPP requirements at field scale *(66)*. For taeniasis and cysticercosis, validated point-of-care diagnostics remain unavailable at programme scale. For chikungunya, the absence of affordable RDTs limits the impact of newly available vaccines, with both Gavi and WHO acknowledging that vaccine impact will be severely constrained without low-cost diagnostics. Access to existing diagnostics is also constrained. Procurement and distribution arrangements for diagnostics remain limited in many countries, and confirmatory testing is frequently unavailable at peripheral level, including for skin NTDs.

Therapeutic TPPs have been published for the treatment of both non-severe and severe dengue, as well as for snakebite envenoming, notably to guide the development of animal plasma-derived antivenoms for sub-Saharan Africa and south Asia, and novel therapeutics. Disease-specific tool gaps remain important across multiple programmes. For onchocerciasis, the absence of a short-course macrofilaricide is a critical missing tool, particularly in *Loa loa* co-endemic areas where ivermectin cannot be safely deployed at scale *(67)*; several candidates are in clinical or preclinical development, but none are yet available to country programmes *(68–70)*. For scabies, oral ivermectin for MDA is not registered in most endemic countries, and no drug donation mechanism exists *(71)*. For soil-transmitted helminthiases, current MDA regimens show limited efficacy against *Trichuris trichiura* and strongyloidiasis.

Drug efficacy monitoring is also a priority: treatment failure is a known phenomenon in kinetoplastid NTDs; resistance to human African trypanosomiasis medicine (melarsoprol) and leprosy medicines has been reported; and anthelminthic resistance documented in animals poses a non-negligible risk for human programmes *(58, 62)*. WHO has established AMR surveillance guidance for leprosy, assessed efficacy of drugs against schistosomiasis and monitored soil-transmitted helminthiases programmes in more than 10 countries through standardized protocols *(62)*.

2.1.5 Capacity-building and advocacy

WHO substantially scaled up NTD capacity-building across the period through online learning. A dedicated NTD channel, established in early 2021 on the OpenWHO platform, grew to more than 100 products spanning 37 subjects across 15 languages before being transferred to the WHO Academy in Lyon, France, in late 2024 *(47)*, with enrolments growing more than fourfold over the period. In-person activities resumed progressively at global, regional and country levels following COVID-19-related disruptions, and three WHO mobile applications were made available, covering the road map, skin NTDs and supply chain management *(47, 58)*. As of June 2026, the WHO Global NTD Programme offers 37 online training courses through the WHO Academy platform, organized into five thematic categories *(72)*. Many of these courses are available in a range of WHO official languages, as well as national languages, for a total of 102 products. The largest category (skin NTDs and common skin conditions) comprises 21 courses covering a broad spectrum of dermatological NTDs and common skin diseases relevant to tropical settings, including Buruli ulcer, leprosy, mycetoma, scabies, yaws, onchocerciasis, noma, podoconiosis, and several fungal and other conditions of infectious and non-infectious origin. Five courses address other NTDs (dengue, visceral leishmaniasis, cystic echinococcosis and *T. solium* infection). Six technical cross-cutting courses cover programmatic topics,

including preventive chemotherapy microplanning, supply chain management, WASH, pesticide safety, and NTD programming during the COVID-19 pandemic. Three courses are dedicated to the road map and its monitoring, evaluation and sustainability frameworks. Finally, two courses take a collaborative One Health approach, focusing on zoonotic NTDs and rabies elimination. While more training materials have been made available, the competencies acquired by frontline workforces through their use have not been measured as part of this evaluation.

Advocacy has advanced across multiple fronts. In 2021, the World Health Assembly's recognition of World NTD Day on 30 January as an official WHO global health day through decision WHA74(18) *(73)* established a recurring annual platform for political visibility. Through the Kigali Declaration on Neglected Tropical Diseases, signed in 2022, a broad coalition of stakeholders, including national governments, donors, multilateral organizations, pharmaceutical and private-sector companies, nongovernmental and community-based organizations, and academic institutions *(74)*, affirmed their commitment to the road map *(75)*. The Kigali Declaration mirrored the role of the 2012 London Declaration on Neglected Tropical Diseases, which served as a commitment platform for the implementation of the first road map (2012–2020) *(76)*. Successfully mobilized new pledges are monitored through the online Kigali Declaration Commitment Tracker *(77)*. NTDs were explicitly referenced in two UN General Assembly political declarations in 2023 – on pandemic prevention, preparedness and response (A/78/L.2) *(78)* and on UHC (A/78/L.3) *(79)* – and in both G7 and G20 leaders' communiqués in 2024 *(80, 81)*, reflecting the progressive mainstreaming of NTDs into broader global health and political frameworks.

Thematic advocacy has broadened the scope of engagement. In 2023, the first global meeting on skin NTDs *(82)* and the Global NTD Programme partners' Meeting *(83)* strengthened coordination across disease clusters and partner networks. Also in 2023, a major pledging event for lymphatic filariasis and onchocerciasis held on the margins of the UN Climate Change Conference (COP28) generated significant new donor commitments *(58)*.

In 2024, new partnerships included a memorandum of understanding between the Global Health Innovative Technology Fund and WHO *(84)*, and a joint announcement by Gavi, WHO and the United Against Rabies Forum that Gavi would support human rabies vaccines for post-exposure prophylaxis (PEP), making these available to more than 50 eligible countries under Gavi's co-financing policy *(85)*. In the same year, commitments to Guinea-worm disease eradication were renewed at a dedicated high-level ministerial meeting involving Cameroon, the Central African Republic and Chad *(86, 87)*.

2.2 Pillar 2 – Integration, mainstreaming and cross-cutting approaches

The road map calls for a strategic shift from disease-specific programmes towards integrated approaches that address multiple NTDs. It emphasizes mainstreaming NTD interventions into national health systems and strengthening programme delivery through collaboration across health and non-health sectors. Pillar 2 promotes person-centred care and advancing UHC. It also encourages integrated surveillance, innovation and harnessing the potential of new technologies to improve the efficiency, effectiveness and sustainability of NTD programmes.

Integration has progressed but remains structurally incomplete. NTD interventions have been delivered alongside immunization campaigns, school health programmes, antenatal and noncommunicable disease care, and sexual health services. Collaboration beyond the health sector has produced measurable results, notably with agriculture for vector control, and cross-border frameworks have advanced for diseases approaching elimination. Attention to equity and rights has grown, with disaggregated reporting tools now available to Member States, and NTDs formally recognized as a human rights concern. NTD services are nevertheless not yet systematically incorporated into UHC benefit packages in most endemic countries. Data

systems remain fragmented, reporting mechanisms are not yet used by all eligible countries, and subnational data remain largely inaccessible for programme planning, monitoring and evaluation. Collaboration on WASH has progressed at strategic level, although translation into joint operational planning has been slower, reflecting separate administrative structures and funding streams. Within-country equity gaps are more pronounced for populations in remote, fragile and humanitarian settings, and for women and people with disabilities. Progress has depended more on local initiative than on systematic policy, which limits how far it can be sustained or scaled.

2.2.1 Integration and mainstreaming

Integration refers to the delivery of interventions for several NTDs through a common platform, and mainstreaming to the embedding of NTD services within national health systems. Adoption of an integrated strategy or its inclusion in a national plan does not in itself demonstrate that integrated services are functioning.

There have been new notable efforts during 2021–2025 along this strategic shift. Madagascar successfully integrated NTD interventions for lymphatic filariasis and soil-transmitted helminthiases with poliomyelitis immunization campaigns, demonstrating how integration can improve efficiency and reduce costs. The integrated approach generated savings of about US$ 1.43 million in 2023, with subsequent campaigns saving an additional US$ 172 000 in 2024, highlighting the economic and operational benefits of delivering NTD interventions alongside other public health programmes *(88, 89)*. Several African countries, including Cameroon, Madagascar, Namibia, South Africa, Uganda, the United Republic of Tanzania and Zambia, have expanded treatment for *T. solium* taeniasis by integrating surveillance and medicine delivery into existing schistosomiasis control programmes. This approach leveraged established NTD platforms to reach at-risk populations more efficiently, strengthen surveillance systems and optimize resource use *(90, 91)*. The skin NTD strategic framework *(92)*, released as a key companion document to the road map, was catalytic for the World Health Assembly's subsequent adoption of the landmark resolution WHA78.15 in 2025, which officially recognized skin diseases as a global public health priority *(93)*. Addressing more than 4.69 billion annual incident cases worldwide, the resolution marks the first time WHO has holistically addressed skin conditions on par with other major global health issues. By recognizing skin NTDs as an effective entry point for strengthening skin health services, the resolution promotes the integration of prevention, early diagnosis, treatment and referral for both NTD-related and common skin conditions within PHC. This approach supports the mainstreaming and scale-up of skin health services, strengthens health systems, improves equitable access to care, and provides a framework for countries to expand successful models, such as the Skin NTDs Laboratory Network (Skin NTD LABNET), towards comprehensive skin health within UHC.

Over the past 5 years, Chagas disease interventions have been partially integrated into maternal health and noncommunicable disease programmes, particularly through routine antenatal screening for pregnant women, prevention of congenital transmission, and incorporation of chronic Chagas disease management into PHC and cardiovascular services. Countries such as Argentina, Brazil, Colombia, Paraguay and the Plurinational State of Bolivia have incorporated routine screening for Chagas disease into antenatal care for pregnant women to prevent congenital transmission *(94)*. Women who test positive are linked to follow-up care, and newborns receive early diagnosis and treatment when infected. These efforts demonstrate how leveraging existing platforms beyond NTD programmes can improve early diagnosis, continuity of care and long-term management, while advancing the integration and mainstreaming of NTD services within health systems.

Countries have increasingly identified emerging opportunities for mainstreaming NTD interventions within their disease-specific contexts. School health programmes have expanded beyond deworming to include integrated treatment for yaws and scabies *(95)*, while Malawi has developed national algorithms for the syndromic diagnosis and treatment of female genital schistosomiasis within sexually transmitted infection services, improving recognition of this often-overlooked condition. Screening for HIV and visceral leishmaniasis coinfection has expanded considerably in high-burden countries, including Brazil, Ethiopia and India *(26, 96, 97)*. The introduction of an essential package of care addressing mental health, psychosocial support and stigma for people affected by NTDs further embedded patient-centred care within routine health services *(98)*. In addition, integrated programme reviews conducted in the WHO Regional Office for South-East Asia promoted coordinated planning, monitoring and service delivery across multiple NTD programmes in the region *(99)*. An integrated disease assessment explorer tool designed to assist country programmes to easily identify opportunities for integrating monitoring and evaluation activities with other public health programmes is under development.

Preventive chemotherapy continues to benefit more than 1 billion people worldwide, and WHO advocated for MDA to be adopted as a strategic intervention for scabies (with ivermectin) and yaws (with azithromycin), reflecting progressive broadening of this integrated delivery model *(47, 58, 62)*.

Significant access and integration gaps persist across several programmes, limiting the reach of cross-cutting service delivery. NTD services are not yet systematically incorporated into UHC essential health benefit packages in most endemic countries *(58)*, and integration remains structurally incomplete across the portfolio, with persistent challenges including increased workloads for frontline health workers, insufficient digital tools and logistics, and gaps in health information systems lacking specific MDA tracking indicators *(58)*. Integrated MDA delivery faces several barriers, including limited safety evidence for some medicine combinations and corresponding gaps in guidance on co-administration, supply chain constraints wherein products arrive on different schedules, and differing practice on the inclusion of pregnant and breastfeeding women, for whom safety evidence is limited for several medicines.

2.2.2 Health system strengthening and support

Since the inception of the current road map, NTD programmes have made some important contributions to strengthening national health systems across the WHO health system building blocks. In a powerful demonstration of country-driven leadership and cross-border solidarity in 2025, Ministry of Health representatives from various African countries pledged to intensify action to eliminate NTDs. Under the leadership of the African Union Commission, nine east African countries signed a landmark memorandum of understanding to eliminate visceral leishmaniasis, and endorsed a Call for Action to promote cross-border collaboration and accelerate progress towards elimination targets set for NTDs *(100)*. Historic milestones, such as Bangladesh becoming the first country validated by WHO for eliminating visceral leishmaniasis as a public health problem in 2023, led to a shift in focus from initial reduction efforts towards comprehensive, sustained post-elimination strategies, primarily driven by the *Regional strategic framework for accelerating and sustaining elimination of kala-azar in the South-East Asia Region: 2022–2026 (101)*. In health information systems, programme-wide improvements have included digitalization of the GNARF, inclusion of some NTD modules in WHO routine health information toolkits and national DHIS2 platforms, and strengthened disease-specific data quality. These efforts have contributed to improvements that are observed in surveillance, programme monitoring and evidence-based decision-making.

Important investments continued to be made in medicines and technologies, service delivery and the health workforce. The Buruli ulcer laboratory network, created in 2019, has expanded and been renamed Skin NTD LABNET, covering skin NTDs including leprosy, cutaneous leishmaniasis, mycetoma, yaws and lymphatic filariasis. Service delivery was advanced through stronger preventive chemotherapy and supply chains that recovered from COVID-19 disruptions and enabled renewed scale-up in endemic countries, alongside increasing decentralization and integration of case management, morbidity management and rehabilitation services. Investments in the health workforce included expanding PHC capacity for integrated case detection (particularly for skin conditions, with investment in community health workers to manage detection and referrals); scaling up online training through numerous courses and webinars between 2020 and 2025; and empowering women, through initiatives such as the Mwele Malecela Mentorship Programme for Women in NTDs *(102)*, to become leaders in the fight to eliminate NTDs. Together, these actions are making vital contributions towards health system resilience to combat NTDs.

Despite progress, important challenges remain. Data collection, reporting and analysis systems remained fragmented across the period. The GNARF, although an important step, is still not used in all WHO regions or by all eligible countries; monitoring and evaluation readiness is mixed; and subnational and real-time data remain inaccessible for programme planning for several diseases, with vertical reporting only partially integrated into national health information systems *(47)*. The immense potential of a range of monitoring and evaluation innovations that have emerged during this period is yet to be harnessed for the benefit of national programmes (Table 2.1).

Table 2.1. M&E innovations and emerging tools for NTDs

Innovation	Description
Laboratory and diagnostic innovations	
Serosurveillance	• Detects antibodies to characterize transmission, monitor immunity and identify at-risk groups • Multiplex assays screen dried blood spots for several pathogens from one sample • Low-cost, integrates well with other programmes • Requires laboratory capacity and training, and validated antigens and action thresholds are lacking for most NTDs
AI diagnostics	• AI models analyse medical imagery (skin lesions, microscopy slides), matching or exceeding human-reader speed, extending diagnosis to last-mile settings as decision support • AI integrates with electronic data collection • Accuracy depends on image quality, and microscopy still needs human sample preparation
Future priorities	
1. Develop biomarkers for multiplex serology; pilot integrated serosurveillance platforms; strengthen regional laboratories; adapt guidelines to integrated diagnostics; validate AI tools with end users; and enable rapid dissemination.	
Analytical tool innovations	
Geospatial tools	• Collect, store, analyse and visualize georeferenced disease data with covariates (environment, facilities, water) to track progress, detect hotspots and target action • Require georeferenced data and GIS skills (e.g. QGIS)
Geostatistical tools	• Apply spatial statistics to identify hotspots, predict prevalence at unsampled sites and quantify transmission drivers • Improve precision and can reduce sampling needs • Require georeferenced data, spatial correlation and modelling expertise; gains depend on survey scale
Decision-support tools	• Digital frameworks help ministries synthesize data for evidence-based decisions, maximizing efficiency • Still few and limited in public availability; utility depends on underlying data quality
AI-supported data integration, analysis and interpretation	• Machine learning predicts transmission and targets interventions; deep learning automates diagnostic tasks; and LLMs enable natural-language queries of guidance or data and help interpret qualitative data • Requires training to use safely; raises data sovereignty and workforce concerns
Future priorities	
2. Build regional expert or training networks; develop NTD-specific LLM tools; and integrate geospatial covariate datasets into AI decision-support tools.	

Table 2.1. M&E innovations and emerging tools for NTDs *(cont.)*

Innovation	Description
M&E integration innovations	
M&E integration: case studies and tools	• Integrating M&E with other platforms or surveys supports sustainable post-elimination surveillance, efficiency and cost savings • Requires political, logistical and technical coordination; vertical funding and silos can inhibit progress
Multi-disease elimination initiatives	• People-centred approach using shared platforms to reduce multiple diseases while retaining disease-specific accountability, focused on PHC and social determinants • Needs political commitment, governance and interoperable data; fragmented funding and diluted focus are barriers
Mainstreaming NTD data into the national health system	• Integrating NTD data into national HMISs (mainly DHIS2) shifts countries to sustainable, country-owned surveillance, reducing fragmentation • Enablers include existing DHIS2 infrastructure and digital health leadership • Barriers include non-standardized data elements, limited capacity, and programme silos
Future priorities	
3. Document cost–effective M&E integration case studies; develop integration frameworks; and adapt M&E frameworks to the multi-disease elimination context.	
Social science innovations	
Addressing populations who are never treated	• Requires tailored, context-customized approaches • Never-treated individuals signal both elimination risk and health system failure, concentrated among marginalized, mobile and conflict-affected groups • Adapted monitoring can expedite endpoints and flag where system strengthening is needed
Monitoring behavioural sciences and interventions	• Monitoring behavioural or social factors (e.g. participation, adherence, stigma, ownership) improves understanding of community uptake and supports people-centred delivery • Requires integrating qualitative and quantitative indicators • Context-specific trust and stigma issues and bias towards biomedical indicators are barriers
Future priorities	
4. Pilot community-led monitoring, drawing on TB, HIV and malaria experience; document reach to under- or never-treated populations; and monitor research in mobile and conflict-affected settings.	
Cross-sectoral innovations	
Integrating WASH and NTDs	• WASH is central to NTD transmission and morbidity reduction; integration highlights inequalities, targets investment and tracks progress • Political leadership and shared goals aid success • Institutional silos and fragmented data are barriers

AI: artificial intelligence; GIS: geographic information system; HIV: human immunodeficiency virus; HMIS: health management information system; LLM: large language model; M&E: monitoring and evaluation; NTD: neglected tropical disease; PHC: primary health care; TB: tuberculosis; WASH: water, sanitation and hygiene.

Source: adapted from Furuya-Kanamori L, Lawford H, Vernal S, Mbabazi PS, Taruc A, Horstick O et al. *(103)*. See Annex 3 for the methods used to derive this table, as well as a list of examples, tools and resources for each innovation category.

2.2.3 Multisectoral collaboration

Collaboration with sectors beyond health has been successfully demonstrated for some NTDs. Greater alignment with the agriculture sector strengthened vector control for human African trypanosomiasis, with the expanded deployment of tiny targets contributing to reductions in tsetse fly densities of 60% to over 90% in endemic settings *(104)*. Collaboration with the WASH and housing sectors has supported health promotion and disease prevention, with campaigns addressing scabies and bacterial skin infections, and housing improvement initiatives for Chagas disease control. Intersectoral partnerships have also been strengthened through the education sector, where school-based skin health screening has expanded early detection and referral of skin NTDs, and through engagement with agriculture and livestock sectors under a One Health approach to address zoonotic reservoirs of NTDs *(105)*. These examples illustrate programme-level strategic action on multisectoral activities to address the environmental and social health determinants of NTD transmission.

Cross-border collaboration for onchocerciasis advanced through the Global Onchocerciasis Network for Elimination (GONE) *(106)*, with global health leaders of Cameroon, the Niger and Nigeria launching a Call for Action (May 2025) to establish a framework for joint mapping, synchronized MDA and harmonized post-treatment surveillance *(107)*.

The significant mutual benefits of WASH–NTD collaboration remained largely untapped throughout the period, with the two sectors operating through distinct administrative structures and separate funding streams *(62)*. Although joint strategic objectives were articulated in the 2021 strategy on using WASH to combat NTDs *(108)*, and operationalized through the second edition of the toolkit, released in 2023 *(109)*, the transition to joint operational planning at subnational levels remains incomplete. A scoping review of the NTD policy literature covering the same period similarly found few publications describing integrated MDA and WASH interventions, with none examining WASH as a standalone NTD strategy. Operational multisectoral collaboration has remained thin across most disease programmes *(58)*.

2.2.4 Equity

NTDs persist largely because individuals in endemic areas experience a health care system that is, either directly or indirectly, inequitable. Historically focused strictly on pathogen control and elimination, national strategies are increasingly recognizing the importance of delivering interventions through programme designs that give adequate consideration to deep-seated social norms, cultural dynamics and economic barriers that influence NTD programme outcomes.

To support the operationalization of the principles of gender, equity and human rights, Member States have been provided with digitalized tools to routinely collect data that are disaggregated by sex and age group for all NTDs, through the GNARF. However, as of 2024, global reporting on sex-disaggregated data remains low. Advocacy for disability inclusion in NTD programmes goes beyond the provision of medicines to broader actions that promote equitable access to health and social services, meaningful participation in programme design and decision-making, and empowerment of individuals and communities to manage their health and well-being. Although equity is acknowledged at policy level as foundational to the success of NTD programmes, its implementation is structurally underdeveloped *(110, 111)*.

Concerns over unregulated pesticide use in Indigenous communities, raised by the UN Special Rapporteur on toxics and human rights *(112)*, led to amendment of the International Code of Conduct on Pesticide Management in 2022 *(58)*. These concerns were further advanced through WHO's contribution to the Food and Agriculture Organization (FAO)/WHO Joint Meeting on Pesticide Management, establishment of a dedicated joint working group, and a UN General Assembly resolution urging implementation of WHA76.16 on Indigenous Peoples' health and calling for a global action plan for 2026 *(47, 113)*.

Within-country equity gaps are most acute for populations least served by current delivery models, particularly populations living in remote, fragile and humanitarian settings, as well as women, people with disabilities and other marginalized groups. Fragmented, disease-specific delivery approaches; uneven integration within PHC; disparities in access to diagnosis, treatment, rehabilitation and long-term care; and continued reliance on out-of-pocket expenditure contribute to unequal health outcomes. These challenges are compounded by stigma, discrimination, limited participation of affected communities in programme design and implementation, and inadequate disaggregation of routine data to

identify populations being left behind. Addressing these inequities will require more integrated, people-centred and disability-inclusive service delivery models that strengthen health systems, promote meaningful community engagement and ensure equitable access to comprehensive NTD services, in line with the commitment to leave no one behind *(110, 114)*.

During 2021–2025, further work to document, investigate and address the human rights dimensions of NTDs was undertaken under the mandate of the Special Rapporteur on the elimination of discrimination against persons affected by leprosy (Hansen's disease) and their family members. This mandate was established by the UN Human Rights Council (HRC) through resolution 35/9 (2017), and subsequently renewed twice, resulting in a total duration of 9 years (2017–2026) *(115)*.

The two mandate holders, Alice Cruz (2017–2023) and Beatriz Miranda-Galarza (2023–2026), have advanced a series of thematic reports, recommendations and strategic priorities that have been presented and discussed annually by both the HRC and the UN General Assembly. Their work has emphasized:

- key aspects of leprosy, its impact and its public health control, including the need to integrate rights-based approaches into care systems;
- the significance of placing greater focus on women, children and people with disabilities to address persistent service gaps;
- the value of the meaningful participation of grassroots and patients' associations in health activities;
- the moral obligation to preserve archives, oral histories and cultural artefacts related to persons affected by leprosy;
- the urgency of ending the "continuing violations" of international human rights law associated with leprosy and addressing legacy legal barriers and persistent economic hardship; and
- the importance of assessing the impact of cross-cutting vulnerabilities, including climate change and conflict *(115)*.

These contributions have generated growing interest in the relationship between NTDs and human rights, culminating in the historic adoption of a dedicated resolution (HRC62/21) during the Sixty-second session of the HRC on 7 July 2026 *(116)*. The resolution emphasizes that NTDs "reflect and reinforce patterns of inequality, discrimination and social exclusion", making them "not only a public health challenge, but also a significant human rights concern". Among its key provisions, the resolution requests that the Office of the United Nations High Commissioner for Human Rights prepare a comprehensive report on the human rights dimensions of NTDs in consultation with relevant entities, including WHO, for submission to the HRC in 2027 *(117)*.

WHO also contributed to advancing gender equality, health equity and human rights for NTDs through a commissioned scoping study and an informal consultation convened on 5–6 May 2025, which identified key gaps, priority actions and opportunities for strengthening the integration of each of these three dimensions into NTD policies, programmes and practices *(118)*.

2.2.5 Progress on qualitative aspects of the road map

Qualitative assessments are an integral component of the evaluation of NTD programmes, complementing routine quantitative data analyses by providing insights into the factors influencing programme performance and implementation *(119)*. Qualitative evidence helps explain how and why results have been achieved, identifies implementation barriers, and provides insight into actions to overcome these barriers in order to attain programme goals. In the context of the mid-term evaluation of the road map, timely qualitative evidence is essential for interpreting quantitative analyses, documenting lessons learned and informing strategic actions to strengthen national programmes and accelerate progress towards the 2030 goals *(3)*.

Qualitative assessments have been conducted using the Gap Assessment Tool (GAT), a standardized methodology developed to assess progress in implementing the road map *(17)*. The assessment follows a structured, participatory approach involving the global NTD community, national NTD programme managers, disease experts, WHO personnel and key stakeholders. Online structured and semi-structured surveys provided the opportunity for input from individuals and groups around the world, while participants in focus groups reviewed a series of standardized assessment questions covering 11 dimensions for each NTD, and then, importantly, across all NTDs.

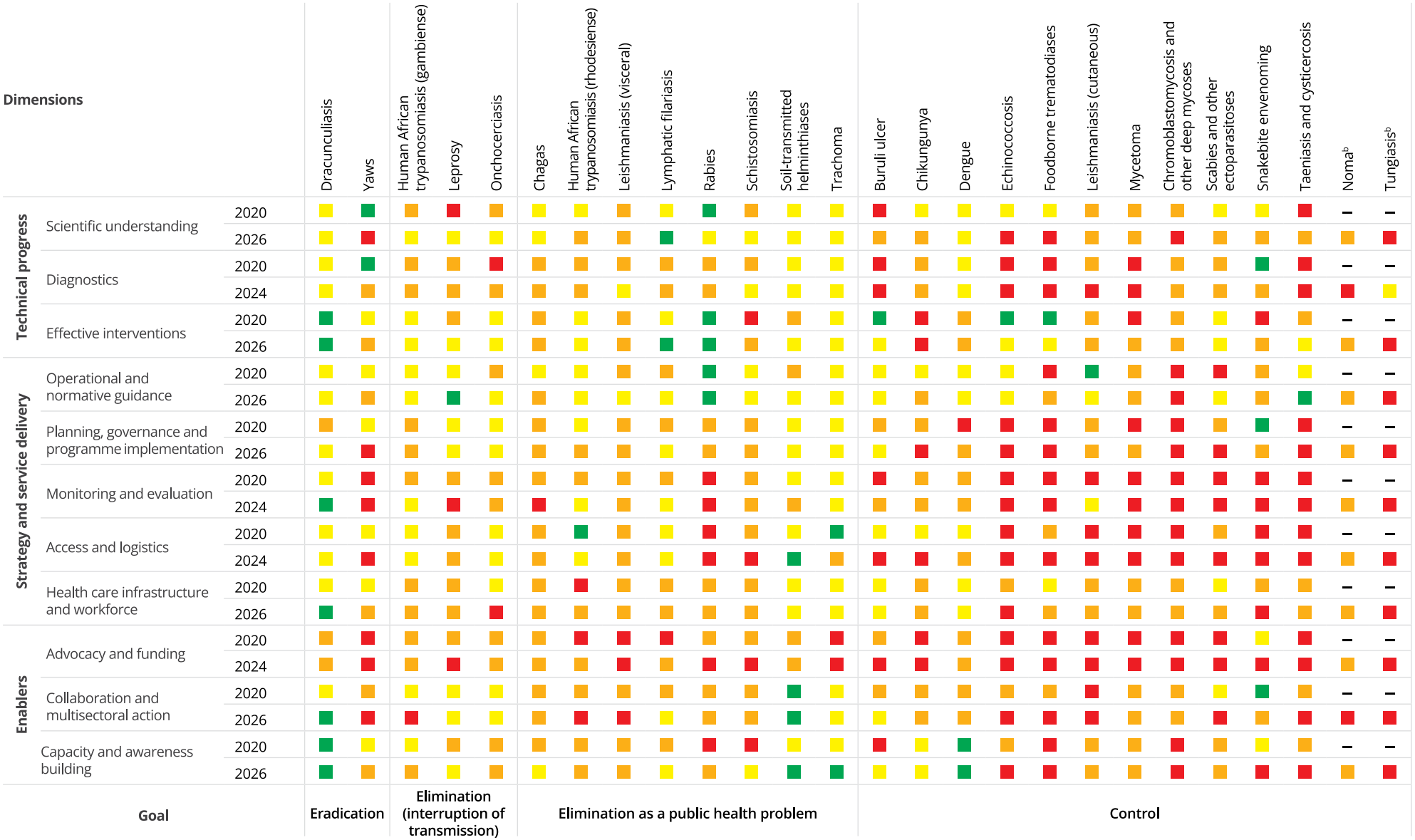
Following the initial approach for inclusion of qualitative information within a monitoring and evaluation framework at the inception of the road map in 2020, a rigorous review of assessment criteria in the GAT provided the basis for the subsequent implementation of the GAT in 2023–2024 (for four dimensions) and in 2026 (for the remaining seven dimensions).

The GAT implementation outcome has three components: disease-specific reports, cross-cutting dimension reports and a single consolidated image commonly referred to as the "NTD heat map". Outcomes of the GAT implementation during the mid-term evaluation have been used to update the disease-specific summaries included in this report (see section 3.3). These disease-specific summaries incorporate the outcomes for the four dimensions assessed in 2023–2024, which were presented in the *Global report on neglected tropical diseases 2025 (47)*. A full GAT report, including all 21 diseases and 11 dimensions, will be published separately as an accompanying document to this mid-term evaluation report.

Comparable GAT outcomes for each dimension can be observed in the updated NTD heat map (Fig. 2.1), for which detailed information is presented in the disease-specific summaries.

The qualitative GAT results demonstrate that progress in combating NTDs requires both the capacity to measure tangible health outcomes and the institutional capacities needed to maintain and sustain achieved gains. This evidence provides a strong foundation that triangulates multi-source quantitative and qualitative information for consideration in view of crafting a refined post-2030 action plan *(120)*.

Fig. 2.1. Heat map for the 11 dimensions of the road map, 2020 and 2024/2026[a]



Legend: No hindrances towards targets · Action required · Critical action required · Severe constraint

[a] Data from 2020 present baseline assessments. Follow-up assessments were conducted for four dimensions in 2024 and seven dimensions in 2026.
[b] Noma and tungiasis were not part of the 2020 assessment, so no baseline assessments are available for these NTDs.

2.3 Pillar 3 – Country ownership and sustainability

Country ownership of NTD programmes is essential to ensuring long-term sustainability and enduring impact, as it reflects the extent to which national governments lead, fund and implement policies and NTD interventions in alignment with local priorities. Country ownership is demonstrated through nationally led decision-making, inclusion of NTDs in national health plans and essential services, domestic budget allocation, workforce capacity, and routine surveillance and reporting. Endorsement of a declaration or adoption of a strategy represents a commitment towards country ownership, rather than evidence that it has been achieved. Strong progress and preservation of public health programme gains is more likely where sustained political commitment, integrated national planning, and community engagement are in place, as seen in country-led elimination efforts and multisectoral collaboration.

Global financing for NTDs has been under sustained pressure, with successive donor withdrawals from 2021 onwards and significant reductions in United States development assistance in 2025. Programme funding remains heavily concentrated among a small number of donors. Recent gains may consequently be reversed.

Country ownership has nonetheless strengthened over the period, albeit unevenly across countries. In several countries, delivery has shifted from donor-driven towards nationally led integration, and dedicated domestic budget commitments are emerging at national and subnational levels. Regional frameworks and political declarations have reinforced these commitments.

Evidence from the WHO African Region illustrates the constraints that persist: most programmes reporting reductions in donor support have been unable to replace it, responsibility for NTDs remains split across departments in many countries, and effort has concentrated on delivering interventions rather than on the policy processes that would underpin lasting country ownership. Reliable data on progression towards sustainability remain limited, and country examples throughout this pillar are drawn largely from the African Region and may not represent experiences in other regions.

2.3.1 Domestic funding and country ownership

In several countries, the push for domestic accountability is gaining traction. As of late 2024, 75 global partners and endemic countries had endorsed the Kigali Declaration, up from 57 in 2022, reflecting increasing political commitment *(121)*. A growing number of countries have integrated NTDs into their national health plans, moving away from vertical, siloed disease programming *(47)*. ESPEN introduced fourth- and fifth-generation country NTD master plans (2026–2030) in the African Region, promoting country-owned, people-centred approaches with measurable impact *(122)*.

Although reliable financing data for NTD programmes remain very limited, available information indicates that localized financial commitments are growing. The Nigerian Parliament and state-level Commissioners of Health have established a specific NTD budget line, committing substantial domestic funds to combat multiple NTDs (Box 2.1). Mauritania's Ministry of Health is likewise co-creating a domestic resource mobilization road map with the World Bank, in-country private sector partners and researchers (Box 2.1). Such commitments demonstrate country ownership and represent a crucial step towards sustainable NTD control and elimination, although current approaches in many endemic countries remain heavily influenced by externally driven agendas.

Despite these emerging commitments, domestic funding for NTD programmes remains structurally limited. NTD programmes often lack dedicated budgets and are nested within broader disease

portfolios *(125)*; and government contributions are frequently limited to covering staff salaries, with implementation costs remaining largely donor funded *(58, 126)*. Comprehensive, systematic analysis of national NTD financing trends and budget allocations is also lacking, making it difficult to assess which programmes are most at risk as global health financing declines.

Box 2.1. Examples of country-led financial commitments

Nigeria

The Nigerian Federal Ministry of Health and Social Welfare and state-level governments have significantly scaled up domestic funding, with several states allocating dedicated funds to secure treatment for priority diseases. These domestic commitments are part of a broader, government-led strategy to protect tens of millions of vulnerable Nigerians from NTDs by 2030, in line with the road map.

State-level allocations: Of 36 states, 19 established dedicated 2025 NTD budget lines within their Medium Term Expenditure Frameworks. The largest reported allocations were in Kano State (NGN 500 million), Katsina State (NGN 375 million), Benue State (NGN 290 million), Kaduna State (NGN 248 million) and Zamfara State (NGN 200 million). Across all the states for which figures were reported, allocations totalled about NGN 2.4 billion of domestic resources mobilized specifically to support local activities of national NTD programmes.

Federal-level goals: At the national level, an estimated US$ 19 million is required to effectively tackle the country's NTD burden. To meet this, the Nigerian Government is continuing to scale up domestic resource mobilization to offset sudden cuts in bilateral foreign aid.

Mauritania

Mauritania's Ministry of Health is shifting from reliance on external donors to country-led domestic resource mobilization strategies to sustain progress towards elimination milestones.

Cross-sectoral collaboration: Mauritania's Ministry of Health held a strategic workshop in 2025, bringing together government officials, World Bank representatives, private sector partners and researchers to co-create a domestic resource mobilization road map focused on national priorities.

Leveraging global financing: Mauritania is actively working to integrate NTD programming into broader health and development financing requests, such as the World Bank's IDA21 (International Development Association's 21st replenishment cycle).

Policy integration: To ensure cost–effectiveness, Mauritania is working to embed NTDs directly into PHC and broader UHC agendas, requiring less than 1% of domestic health expenditure to meet road map 2030 targets.

Tracking and accountability: The country has developed malaria and NTD scorecards, through initiatives such as the African Leaders Malaria Alliance, to track government commitments; Mauritania is considering establishing a dedicated multisectoral End Malaria and NTD Council to further strengthen domestic investment.

Private sector engagement: Public health authorities are advocating for long-term strategic partnerships that encourage local and international businesses operating in endemic regions to integrate NTD and malaria control into their corporate social responsibility policies.

NTD: neglected tropical disease; PHC: primary health care; UHC: universal health coverage.
Sources: Nigeria: Uniting to Combat Neglected Tropical Diseases *(123)*; Mauritania: Unlimit Health *(124)*.

2.3.2 NTD global funding landscape

Tracking NTD financing is inherently difficult because WHO recognizes 21 distinct NTDs, each with its own financing sources. Unlike tuberculosis, HIV/AIDS and malaria, which are funded through the Global Fund to Fight AIDS, Tuberculosis and Malaria, or immunization, which is supported by Gavi, NTDs have no centralized, pooled funding mechanism. As a result, funding data must be pieced together from multiple, often non-public, sources. International development assistance remains a critical indicator of financing trends for endemic countries.

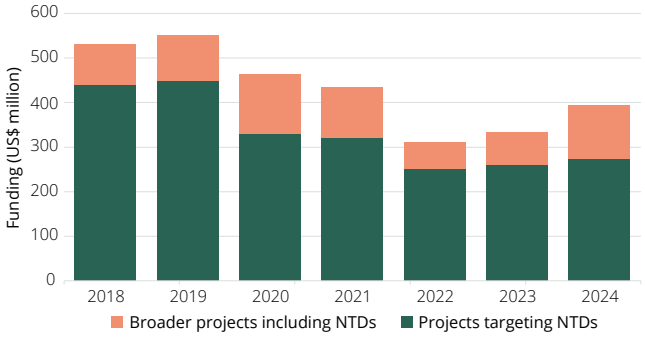
The analysis presented here draws on the Creditor Reporting System (CRS) of the Organisation for Economic Co-operation and Development (OECD), which records official development assistance and official aid commitments reported by OECD Development Assistance Committee members and multilateral institutions. It covers the period from 2018 to 2024 and includes funds committed, disbursed or received, though not pledges that are not yet linked to a specific project. Further details on data extraction and categorization methods are in Annex 4.

The 2024 update on global financing for NTDs shows cautious signs of recovery following the steep decline experienced during the COVID-19 pandemic. Funding for projects directly targeting NTDs increased by 6% in 2024 to US$ 274 million, while broader NTD-related funding rose by 19% to US$ 395 million (Fig. 2.2).

Despite the 2024 recovery, funding remains substantially below pre-pandemic levels, and the gains are overshadowed by the significant reductions in United States development assistance introduced in 2025, which are expected to reverse recent progress. A major concern is the continued fragility of the NTD financing landscape. Funding remains heavily concentrated among a small number of donors, with the United States, the United Kingdom and the Gates Foundation accounting for nearly four fifths of all funding between 2018 and 2024 (Fig. 2.3). This dependence makes the sector highly vulnerable to policy changes by individual donors, as demonstrated by the United Kingdom's sharp reduction in funding after 2021 and the anticipated impact of United States funding cuts in 2025. Although many smaller donors contribute, their support is generally intermittent and insufficient to compensate for reductions by major funders.

Between 2018 and 2024, 47 donor countries or institutions recorded funding for projects targeting NTDs in the OECD database, with 14 donating every year, 17 contributing in 2 or more years, and 16 donating only once; the three leading donors accounted for 79% of the total. The United Kingdom's 91% funding cut between 2021 and 2022, driven by the closure of the ASCEND (Accelerating the Sustainable Control and Elimination of Neglected Tropical Diseases) programme, remains the primary driver of the sharp overall decline recorded that year, with United Kingdom funding stabilizing at US$ 12 million in 2024 compared with US$ 89 million in 2021. United States funding increased by 18% in 2024 compared with 2023, returning to levels comparable to 2018 and 2019, although this trend was interrupted by the 2025 policy change, which is further discussed below. Gates Foundation funding stood at US$ 76 million in 2024, and Wellcome Trust funding reached US$ 46 million in 2024, its highest level since 2018, driven by investment in projects targeting dengue and leishmaniasis. Beyond these leading donors, 11 countries and institutions maintained a presence throughout the entire period, averaging US$ 30 million per year collectively, while a further 17 donors averaged US$ 17 million per year and 16 donors made a single contribution totalling US$ 25 million over the period.

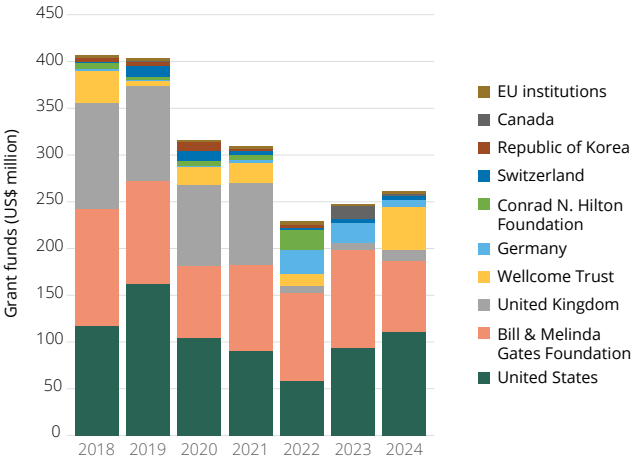
Fig. 2.2. OECD funding for NTD-related projects, 2018–2024



CRS: Creditor Reporting System; NTD: neglected tropical disease; OECD: Organisation for Economic Co-operation and Development.

Source: OECD CRS.

Fig. 2.3. Top 10 donors funding NTD projects, 2018–2024



CRS: Creditor Reporting System; EU: European Union; NTD: neglected tropical disease; OECD: Organisation for Economic Co-operation and Development; United Kingdom: United Kingdom of Great Britain and Northern Ireland; United States: United States of America.

Source: OECD CRS.

Funding is also unevenly distributed. More than half of all financing supports programmes targeting multiple NTDs, while individually, dengue, onchocerciasis, lymphatic filariasis and human African trypanosomiasis receive the largest shares (Fig. 2.4). In contrast, many other NTDs receive little or no dedicated funding. Diseases such as scabies, Buruli ulcer, echinococcosis and taeniasis attract only sporadic investments, whereas others, including chromoblastomycosis and foodborne trematodiases, are virtually absent from donor financing data. This imbalance demonstrates a significant mismatch between the priorities established in the road map and actual investment patterns.

In 2024, projects addressing multiple NTDs simultaneously absorbed 51.7% of total targeted funding. Among individually targeted diseases, dengue attracted the largest share, at 17.0%, followed by onchocerciasis (6.5%), lymphatic filariasis (6.4%) and human African trypanosomiasis (6.2%). Trachoma shows the most notable decline among historically better funded NTDs, falling from 7–9% of total NTD funding in 2018 and 2019 to less than 1% in 2024, reflecting both the withdrawal of several major trachoma funders and genuine epidemiological progress.

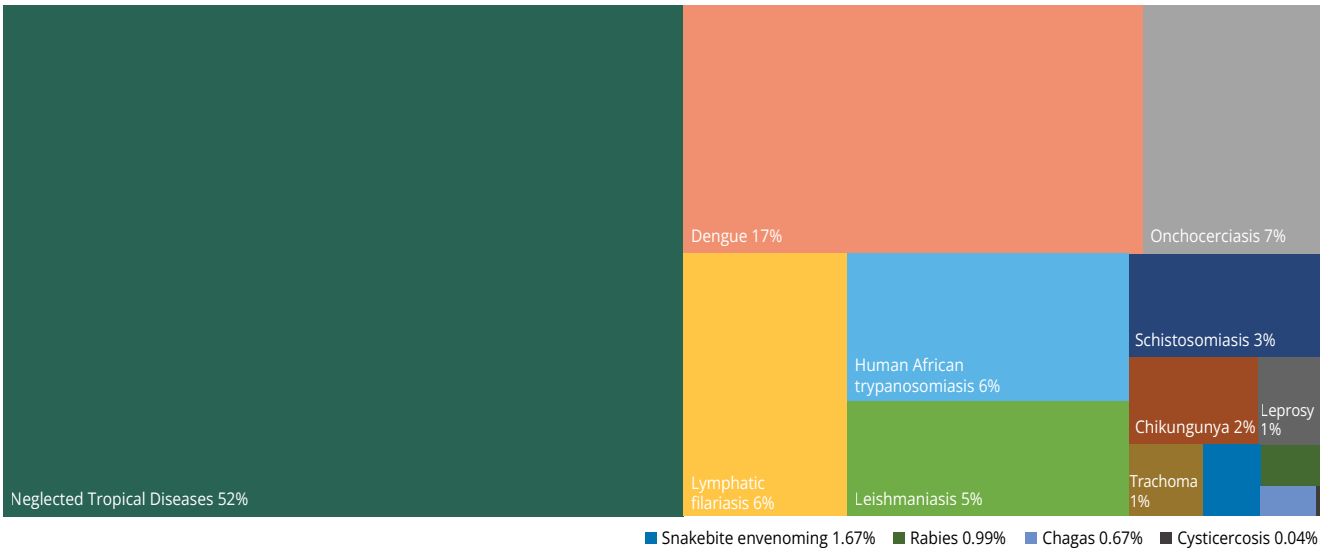
Eradication targets face particularly serious financing gaps. Guinea-worm disease eradication depends largely on funding outside traditional donor reporting systems and is increasingly vulnerable. Similarly, dedicated funding for yaws has almost disappeared since 2022 despite its status as a disease targeted for eradication. These examples illustrate the disconnect between global ambitions and the financial resources available to achieve them.

Funding also follows a distinctive pattern by strategic area. Among projects in which NTDs are included alongside broader disease objectives, health system strengthening is the leading investment area. This reflects an approach in which NTD needs are addressed as part of wider health system investments delivered across multiple disease programmes. Interventions beyond the health sector, particularly vector control and One Health approaches, account for 15% of this portfolio, while the global network category, covering external technical support and WHO regional activities, represents 32% (Fig. 2.5). Research and development accounts for only 10% of this broader portfolio, consistent with research investment tending to be disease specific rather than cross cutting. This complementary financing architecture matters for monitoring: analyses restricted to funding that targets NTDs alone will systematically understate the resources supporting activities essential to NTD control and elimination.

Another challenge is the volatility of funding. Large fluctuations reflect the timing of major grants rather than stable, strategic investment. This unpredictability complicates long-term programme planning, workforce retention, procurement and supply chain management. Research and development funding has also experienced considerable fluctuations, with the withdrawal of United Kingdom investment only partly offset by increased support from the Wellcome Trust.

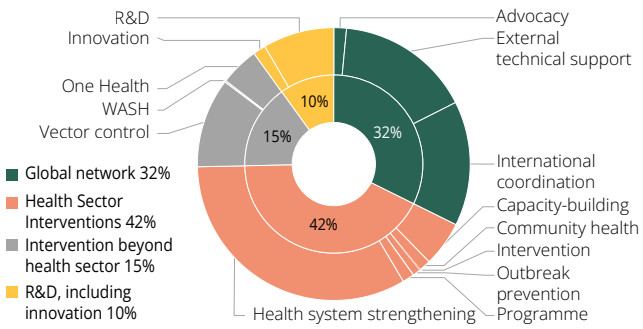
The 2024 CRS data should be read with caution, as they do not capture the substantial reduction in United States development assistance that occurred in 2025. The United States Agency for International Development

Fig. 2.4. Distribution of funding by NTD in 2024



CRS: Creditor Reporting System; NTD: neglected tropical disease; OECD: Organisation for Economic Co-operation and Development.
Source: OECD CRS.

Fig. 2.5. Distribution by strategic area of funding for projects including NTDs in 2024



CRS: Creditor Reporting System; NTD: neglected tropical disease; OECD: Organisation for Economic Co-operation and Development; R&D: research and development; WASH: water, sanitation and hygiene.

Source: OECD CRS.

(USAID) has historically been one of the leading contributors to NTD control and elimination, financing the delivery systems, MDA, surveillance and supply chain management needed to translate donated medicines into public health impact. Several major USAID-funded NTD programmes were terminated in 2025 *(127)*. Act to End NTDs East and West was one of the programmes terminated, disrupting MDA and surveillance, including in Côte d'Ivoire, which was approaching elimination of trachoma and lymphatic filariasis *(128, 129)*. In June 2025, WHO reported that the withdrawal of United States funding had delayed 47 mass treatment campaigns affecting 143 million people and that, without alternative delivery mechanisms, this could result in more than 55 million NTD tablets expiring in Africa by the end of 2025 *(130)*. The full financial impact will not appear in CRS data until future reporting cycles, but the modest 2023–2024 recovery may not be sustained in 2025.[1]

Looking ahead, the NTD community, including endemic countries, donors and implementing partners, need to address the challenges of predictability and distribution of financing. Longer grant cycles, greater multi-donor coordination and pooled financing arrangements would reduce volatility, and closer alignment between investment and the priorities of the road map would direct resources towards areas of greatest need. Broadening the donor base would reduce dependence on a small number of dedicated contributors. Building on successful integrated service delivery models, such as MDA and integrated skin NTD programmes, while developing new operational models that embed NTD interventions within PHC and health system strengthening, would help create clearer investment opportunities and support more coordinated financing.

2.3.3 Policy and practice

An illustrative scoping review conducted through WG-MER generated evidence on NTD policy development and implementation in sub-Saharan Africa following Joanna Briggs Institute and Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines (see Annex 5 for detailed methods). Six databases (PubMed, Embase, Scopus, Centre for Agriculture and Bioscience International, Web of Science and Global Index Medicus) and the ESPEN website were searched, identifying 135 publications from January 2000 to March 2025, of which 55 were published during the road map period. Most of these publications (27 of the 55 studies, 49%) focused on MDA; fewer addressed broad NTD policy (10 studies), preventive chemotherapy (7 studies), or integrated MDA and WASH approaches (5 studies); schistosomiasis was the most frequently examined individual disease (9 studies).

The review identified regional initiatives – such as the African Union Continental Framework on the Control and Elimination of NTDs in Africa by 2030 *(131)*, the Kigali Declaration *(74)*, and the ESPEN framework for country NTD master plans *(132)* – that strengthened institutional coordination and reinforced commitments to country ownership. Such research is also generating governance-relevant recommendations. Of the 55 publications reviewed, 19 described evidence-based programme designs, including subnational financing models that give national programmes greater flexibility over resource allocation *(133)*, and planning approaches that integrate beneficiary feedback to reach underserved populations *(134)*.

Examination of policy development and implementation practices related to MDA and WASH interventions between 2021 and March 2025 in sub-Saharan Africa demonstrates concentration of efforts on programme delivery of core interventions against NTDs, with comparatively limited attention given to the broader policy processes required to ensure long-term country ownership and resilience. Similarly, governance dimensions that influence all stages of the policy cycle, particularly domestic financing and political leadership, are insufficiently documented. Content analysis consistently identifies inadequate domestic financing and continued donor dependency as major barriers to programme sustainability, while

[1] Although these figures illustrate the scale of the affected programmes, they should not be interpreted as the value of funding withdrawn in 2025, which has not been publicly reported.

political commitment emerges as a key facilitator of successful implementation. Countries demonstrating sustained political support have achieved notable progress towards elimination targets, whereas weak political engagement is associated with inconsistent programme implementation. For example, sustained political commitment in Togo led to the elimination of four NTDs within a short period *(135)*, while the Gambia's elimination of trachoma as a public health problem reflected a policy implementation process grounded in national ownership, multisectoral collaboration and community engagement *(136)*.

Nevertheless, important structural weaknesses remain. Policy development continues to be driven predominantly through WHO-led and externally supported technical processes, with limited evidence of nationally driven or community-informed policy formulation *(137)*. Although communities play a central role in programme implementation as community drug distributors, social mobilizers and volunteers, they are rarely involved in policy design or decision-making *(138)*. This imbalance raises concerns regarding programme ownership, accountability and long-term sustainability.

Human resource constraints further challenge implementation. Community volunteers are frequently described as overburdened and inadequately incentivized, with declining participation following the withdrawal of government-supported incentives *(139, 140)*. Health workers similarly face staff shortages, irregular supervision, limited motivation and occupational risks *(141)*.

Policy evaluation, community consultation and political processes remain underrepresented within the literature, constraining understanding of how policies are developed, institutionalized and adapted over time. The related finding on limited integration of NTD programmes with WASH is presented under Pillar 2 (see section 2.2.3), to avoid duplication.

2.3.4 Sustainability

Sustainability is central to achieving the goals of the road map, ensuring that disease control and elimination efforts are maintained beyond external funding. The withdrawal or reduction of external funding for NTD programmes has highlighted the vulnerability of donor-dependent health interventions *(142)*. However, the data

Box 2.2. Lilongwe survey outcomes on sustainability of NTD programmes

A survey of 20 country programme managers was conducted at the WHO Regional Office for Africa NTD programme managers meeting in Lilongwe, Malawi, in April 2026, covering programme management structure, funding trends, integration, adaptation strategies and the introduction of new NTD medicines.

The survey highlighted considerable diversity in how countries manage and perceive sustainability of their respective NTD programmes. The number of NTDs handled by a single country ranged from five to 19, and only half the countries managed all their NTDs within a single NTD department. Where responsibility was shared across departments, leprosy (78% of countries) and rabies (67% of countries) were most commonly managed outside the NTD programme. Namibia reported no formal NTD department, with all NTD-related diseases integrated directly into the general health system. This diversity illustrates the challenge of health system coordination across NTDs and raises questions about how further integration with other health programmes may affect future programme management and disease reporting.

A recurring theme throughout the survey was the vulnerability of NTD programmes to declining external funding. Nearly two thirds of participating countries reported some level of reduction in donor support between 2021 and 2025, with many unable to fully replace the lost resources. Although some countries were able to partially offset funding gaps, almost half of those experiencing funding losses reported that they could no longer fully implement planned programme activities. These findings underscore the need for more predictable and sustainable financing if progress towards elimination is to be maintained.

The survey also revealed that domestic financing has not yet filled this gap for most new medicines. Introduction of paediatric praziquantel, moxidectin, fexinidazole and fixed-dose ivermectin–albendazole occurred entirely through donor-funded pilot projects or implementation studies, with most countries anticipating continued reliance on donor funding to support their introduction. The exception was ivermectin for soil-transmitted helminthiases and scabies, which was introduced in some programmes using government resources. Programme managers identified lack of funding, whether domestic or from donors, as the primary barrier to wider adoption of these new medicines.

Box 2.2. Lilongwe survey outcomes on sustainability of NTD programmes *(cont.)*

In response to funding challenges, countries are increasingly pursuing programme integration as their primary sustainability strategy. Most respondents reported integrating NTD activities with at least one other health programme, most commonly malaria, PHC, immunization and child health services. Looking ahead, many programme managers anticipate even greater integration by 2030, with some expecting NTD programmes to become fully embedded within broader health systems. Respondents expressed considerable optimism about the progress already achieved. Many countries reported completing or submitting elimination dossiers, while more than half had successfully eliminated at least one NTD.

NTD: neglected tropical disease; PHC: primary health care.

points and information on country progression towards sustainability of their national NTD programmes are limited and difficult to verify *(143)*.

An example of survey outcomes on sustainability is shown in Box 2.2.

Sustainability in NTD programmes relies on efficiency as a critical determinant, particularly in the context of declining donor funding and competing resource demands on national health systems. High operational efficiency lowers financial barriers, allowing national governments to successfully assume long-term ownership and maintain disease elimination *(144)*. Demonstrating efficiency enhances accountability to governments, donors and communities, thereby strengthening the case for continued domestic and external investment. However, economic evaluations of NTD programmes, including cost–effectiveness and efficiency analyses, to provide valuable evidence for informing the prioritization of resource allocation for NTD programmes is scarce. Deliberate effort should be made to assess the efficiency of NTD programmes using complementary economic and operational approaches that evaluate how effectively resources are converted into health gains (Box 2.3).

Box 2.3. Relative efficiency of NTD programmes: an illustrative analysis based on DALYs

Efficiency can be assessed using a range of outcome measures, from programme-specific outputs – such as the number of people treated or treatment coverage – to broader population health outcomes, including DALYs. Programme-specific indicators are generally more informative for operational decision-making, whereas broader measures such as DALYs facilitate comparisons of relative efficiency across countries and health systems.

A major constraint to efficiency analysis is the limited availability of standardized data. Programme-specific indicators on coverage, service delivery and implementation reach are often incomplete, inconsistently collected or not routinely digitized. Similarly, data on NTD-specific programme inputs, including financial, human and material resources, are frequently unavailable or not systematically captured, limiting the scope for comprehensive efficiency assessments.

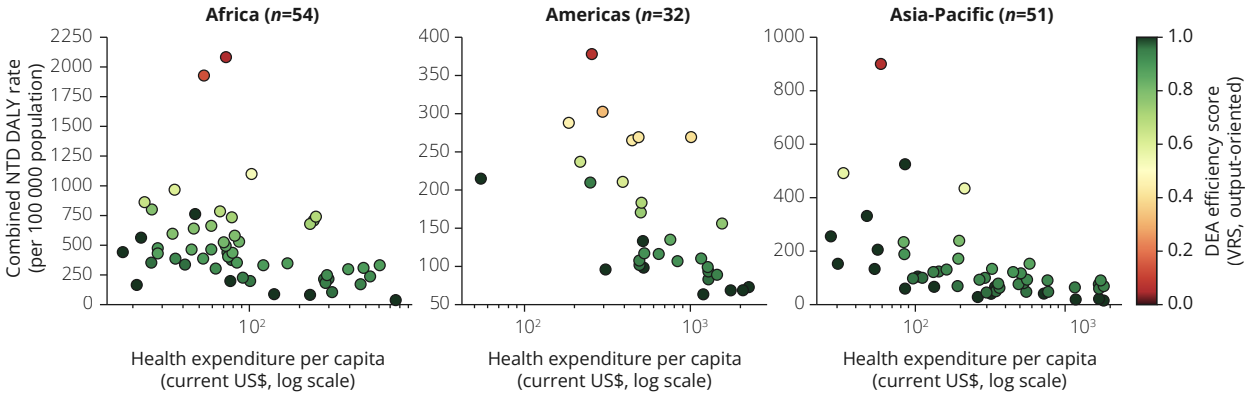
To illustrate the application of a relative-efficiency approach, an output-oriented efficiency index can be developed using a transformed combined DALY rate (per 100 000 population) across 14 NTDs derived from the Institute for Health Metrics and Evaluation Global Burden of Disease study *(145)*. The diseases included were Chagas disease, human African trypanosomiasis, echinococcosis, lymphatic filariasis, trachoma, soil-transmitted helminthiases, leishmaniasis, onchocerciasis, foodborne trematodiases, schistosomiasis, leprosy, rabies, dracunculiasis and cysticercosis. Malaria, dengue, Zika virus, Ebola disease and yellow fever were excluded because they are not classified as NTDs under the WHO NTD portfolio. The DALY measure was transformed into a desirable output, whereby lower disease burden represents higher programme performance.

Programme inputs are represented by per capita health expenditure and health workforce density (physicians and nursing or midwifery personnel per 1000 population), using data from the World Bank. Relative efficiency was estimated within regions to account for differences in epidemiological, climatic and environmental contexts that influence NTD transmission.

Box 2.3. Relative efficiency of NTD programmes: an illustrative analysis based on DALYs *(cont.)*

The resulting analysis demonstrated substantial variation in NTD burden among countries with comparable levels of health expenditure, as seen in the figure below.

Health spending versus NTD burden (DALYs), by continental grouping, 2023–2024



DALY: disability-adjusted life-year; DEA: data envelopment analysis; NTD: neglected tropical disease; VRS: variable returns to scale.

Sources: DALYs, GBD 2023 *(145)*; Health expenditure and health workforce, World Bank World Development Indicators *(146)*;

Note: Current health expenditure per capita (current US$) (SH.XPD.CHEX.PC.CD), derived from the WHO Global Health Expenditure Database; physicians (SH.MED.PHYS.ZS) and nurses and midwives (SH.MED.NUMW.P3) per 1000 population.

Although lower relative efficiency was more frequently observed in countries with lower per capita health expenditure, considerable heterogeneity remained among countries with similar resource levels.

These findings suggest that opportunities exist to improve programme performance within current resource envelopes. Expanding the availability and quality of standardized programme input and output data would strengthen efficiency analyses, support more effective resource allocation, and facilitate cross-country learning by identifying programmes that achieve better health outcomes with comparable levels of investment.

Increasing availability of data for this type of analysis could inform better allocation of resources, either by directly highlighting issues with existing allocation or by identifying countries or programmes with better outcomes at a similar level of resources, and thus generating opportunities for intercountry learning.

3. Status of progress since baseline

3.1 Global status

This section assesses progress against the four overarching and 10 cross-cutting global indicators of the road map, spanning disease burden, elimination and eradication; treatment coverage; access to services; and the integration of NTDs into national health systems. The indicators, along with their 2030 targets and baseline years, are defined in the road map and its accompanying monitoring and evaluation framework *(3)*.

Progress has been recorded for most indicators, but the pace is insufficient to reach the road map 2030 targets (Table 3.1). The number of people requiring interventions against NTDs has fallen substantially, and the number of countries acknowledged as having eliminated at least one disease continues to rise. However, neither of the pathogens targeted for eradication (Guinea worm and *Treponema pallidum* subsp. *pertenue*, the causative agent of yaws) has yet been eradicated. Among the cross-cutting indicators, only the adoption of integrated skin NTD strategies has met its target. All remaining indicators are below their 2030 targets, but to varying degrees.

The integrated preventive chemotherapy index and several measures of policy and health system integration have improved; financial protection has changed little and remains close to the target; reported mortality from vector-borne NTDs has increased (although the case fatality ratio for dengue has decreased); and the indicators for comprehensive NTD reporting and disaggregated reporting have declined. Incomplete reporting constrains interpretation, with several indicators measuring what countries have reported rather than what they have achieved.

Table 3.1. WHO road map overarching and cross-cutting indicators, and 2030 targets

Indicator	Achieved (2020)	Achieved (2024)	Target (2030)
Overarching indicators			
Percentage reduction in people requiring interventions against neglected tropical diseases	21%	36%	90%
Percentage reduction in DALYs related to neglected tropical diseases	16%	18% (in 2021)	75%
Number of countries having eliminated at least one neglected tropical disease	42	63 (June 2026)	100
Number of neglected tropical diseases eradicated	0	0	2

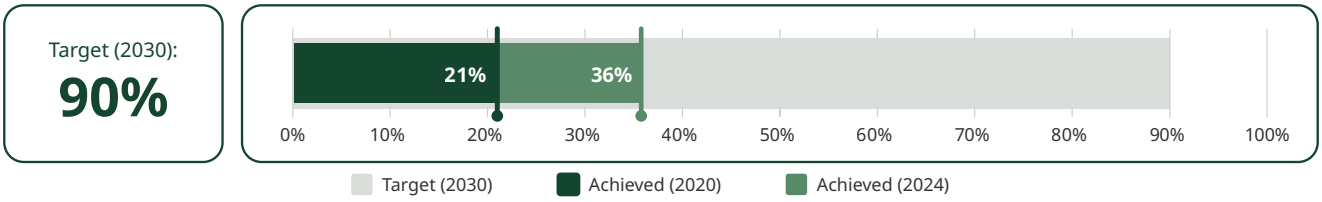
Table 3.1. WHO road map overarching and cross-cutting indicators, and 2030 targets *(cont.)*

Indicator	Achieved (2020)	Achieved (2024)	Target (2030)
Cross-cutting indicators			
Percentage reduction in number of deaths from vector-borne neglected tropical diseases (relative to 2016) – to achieve WHO's global vector control response goal	0%	No reduction	75%
Integrated treatment coverage index for preventive chemotherapy	38	59	75
Number of countries that adopt and implement integrated skin neglected tropical diseases strategies	12*	43	40
Access to at least basic water supply, sanitation and hygiene in areas endemic for neglected tropical diseases – to achieve targets 6.1 and 6.2 of SDG 6	66.6% (SDG-based) 83.8% (population-based)	67.0% (SDG-based) 84.8% (population-based)	100%
Share of countries with neglected tropical diseases integrated in national health strategies/plans	14.7%*	35.9%	90%
Share of the population at risk protected against catastrophic out-of-pocket health expenditure due to neglected tropical diseases – to achieve target 3.8 of SDG 3	87.4%*	87.6%	90%
Share of countries including neglected tropical disease interventions in their package of essential services and budgeting for them	3.8%*	31.0%	90%
Share of countries with guidelines for management of neglected tropical disease-related disabilities within national health systems	10.7%*	29.2%	90%
Share of countries reporting on all relevant endemic neglected tropical diseases	12%*	9.8%	90%
Share of countries collecting and reporting data on neglected tropical diseases disaggregated by gender	16.8%*	9.8%	90%

DALYs: disability-adjusted life years; NTD: neglected tropical disease; SDG: Sustainable Development Goal; WHO: World Health Organization.
*Denotes data reported in 2022 rather than 2020.

3.1.1 Overarching global indicators and targets for 2030

Overarching global indicator 1: Percentage reduction in people requiring interventions against neglected tropical diseases



Indicator definition, target and assessment method

Interventions against NTDs include mass or individual treatment and care, which can be curative or preventive.

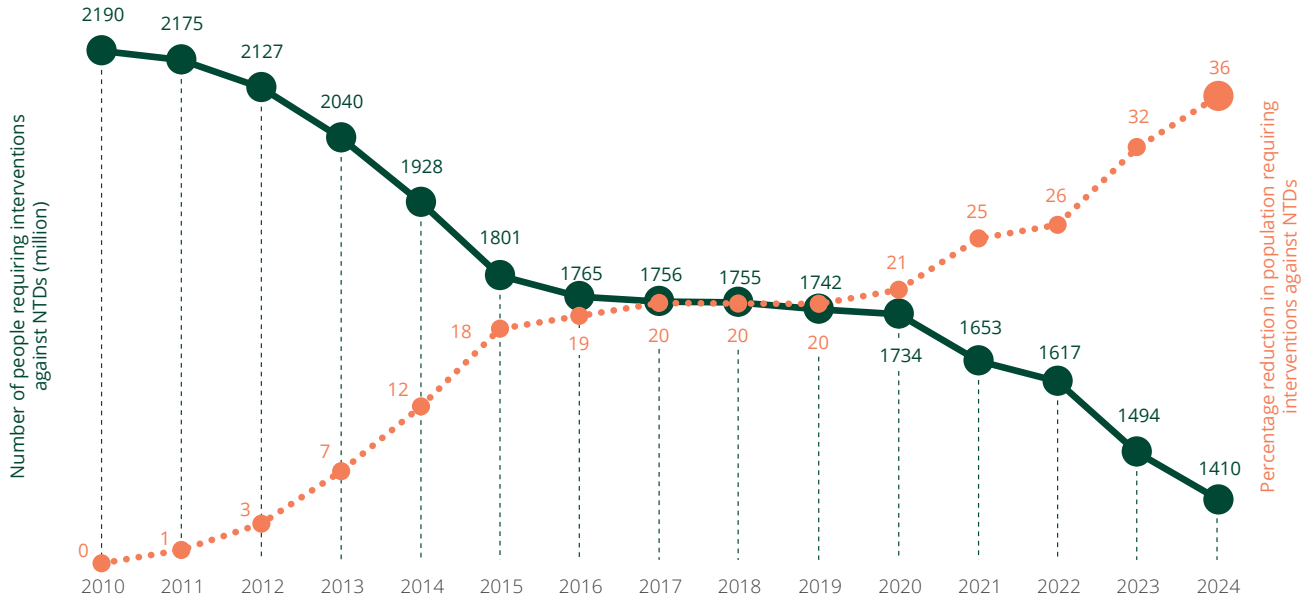
The 2030 target is a 90% reduction in people requiring interventions against NTDs, compared with the 2010 baseline *(1)*.

The 2010 baseline value was calculated based on available epidemiological data that Member States reported to WHO or that were collected from scientific publications and open data sources, and it has been revised annually as new epidemiological data have become available.

Latest results and evaluation findings

In 2010, the number of people requiring interventions against NTDs was estimated as 2.19 billion. In 2024, this number had declined to 1.41 billion people, corresponding to a 36% reduction from 2010 (Fig. 3.1) and a 19% reduction (324.5 million fewer people) from 2020, the year that implementation of the prior (2012–2020) NTD road map came to an end *(76)*. Most of these individuals (1.4 billion people) continued to require mass treatment for diseases amenable to preventive chemotherapy (lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases and trachoma). The numbers requiring other NTD

Fig. 3.1. Number of people requiring interventions against NTDs in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

interventions, such as individual disease management or care, were much smaller (about 15 million people); of these, one third (5 million) required both types of interventions and are not double counted, whereas two thirds (10 million) required individual disease management only.

Global progress in reducing the number of people requiring interventions against NTDs was driven mainly by three factors:

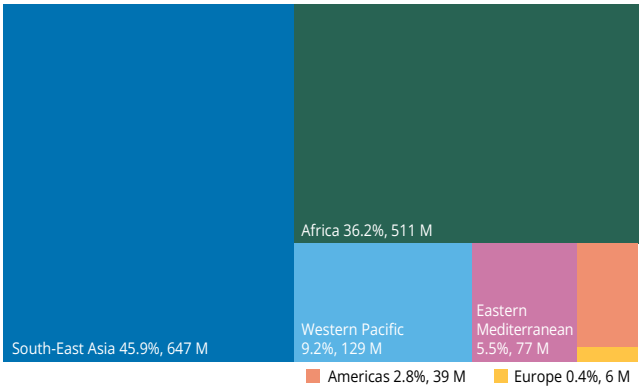
- a growing number of countries, areas and territories have eliminated at least one NTD;
- although not yet certified, verified or validated, many countries have met elimination criteria, stopped population-level interventions and initiated the post-intervention stage, with more intensified surveillance for at least one NTD; and
- remapping of several NTDs has led to reclassification from endemic to non-endemic status for several geographical areas within a few countries.

These factors reduce the number of people requiring interventions through different mechanisms, including the interruption of interventions after elimination criteria are met and the reclassification of areas following remapping. This indicator therefore measures the population requiring interventions and should not be read as a direct measure of disease burden or transmission.

Of the 1.41 billion people requiring treatment for NTDs in 2024, the largest proportion lived in the WHO South-East Asia Region (647 million, 45.9%), followed by the African (511 million, 36.2%), Western Pacific (129 million, 9.2%), Eastern Mediterranean (77 million, 5.5%), Americas (39 million, 2.8%) and European (6 million, 0.4%) regions (Fig. 3.2). From the 2010 baseline, the greatest reduction in the numbers of people requiring interventions against NTDs was achieved in the Western Pacific Region (55%), followed by the Eastern Mediterranean Region (52%) and the Region of the Americas (45%).

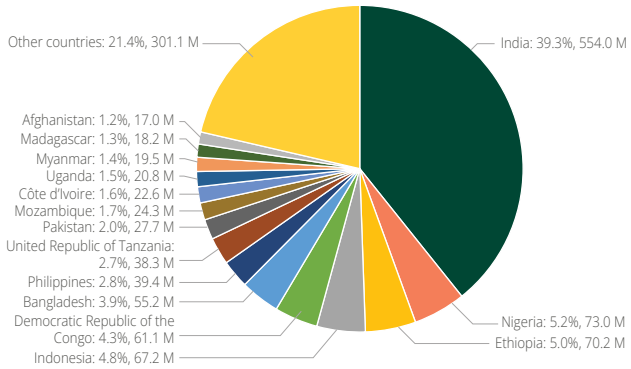
This indicator, although global, is largely determined by high-burden countries (that is, countries with many people requiring NTD interventions). As of 2024, the 15 highest-burden countries (Fig. 3.3) hosted almost 80% of the population requiring interventions.

Fig. 3.2. Proportion of people requiring interventions against NTDs, by WHO region, 2024



M: million; NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

Fig. 3.3. Proportion of people requiring interventions against NTDs, by country, 2024



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

Key gaps and challenges

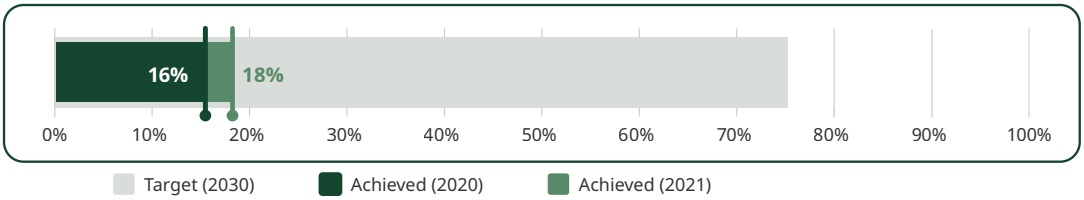
The pace of reduction in this indicator remains short of what is required to meet the 2030 target, highlighting the complexities of addressing NTDs on a global scale. Challenges such as uncertain and evolving health, political and financial landscapes persist and require innovative solutions to ensure positive progress and sustained success in the global fight against NTDs. There is a high degree of heterogeneity between countries, driven in large part by concentrated reductions in a few high-burden countries (such as India, Indonesia, Mexico and Nigeria), which means that the global aggregate figure can mask diverging trends at country level.

Priority actions

Sustaining progress against this indicator will require continuing the shift from vertical, donor-driven NTD funding towards integrated and country-led programme models, alongside closing persistent data and surveillance gaps and addressing the growing threat that climate change, conflict and population displacement pose to programme continuity, particularly in high-burden countries.

Overarching global indicator 2: Percentage reduction in disability-adjusted life years related to neglected tropical diseases

Target (2030):
75%



Indicator definition, target and assessment method

This indicator measures the percentage reduction in disability-adjusted life years (DALYs) related to NTDs, using 2015 as the baseline year. DALYs measure the overall burden of disease by combining years of life lost because of premature mortality and years lived with disability.

The 2030 target is a 75% reduction in NTD-related DALYs relative to 2015 *(5)*.

The mid-term evaluation used the latest available DALY series from WHO's Global Health Estimates (GHE) as the official basis for assessing progress against this indicator, covering 14 groups of NTDs, representing 16 diseases.[1] At the time of writing, GHE estimates for DALYs, years of life lost and deaths were available up to 2021 *(147)*. Therefore, the official assessment of progress against the road map target is based on the change in GHE DALYs from 2015 to 2021.

The evaluation also reviewed more recent Global Burden of Disease (GBD) study estimates from the Institute for Health Metrics and Evaluation for 2015 to 2023 as supplementary contextual information for 19 diseases *(145)*.[2] The information was used to provide a more recent indication of whether the NTD burden appears to be continuing to decline, stagnating or increasing after the latest year available in the GHE.

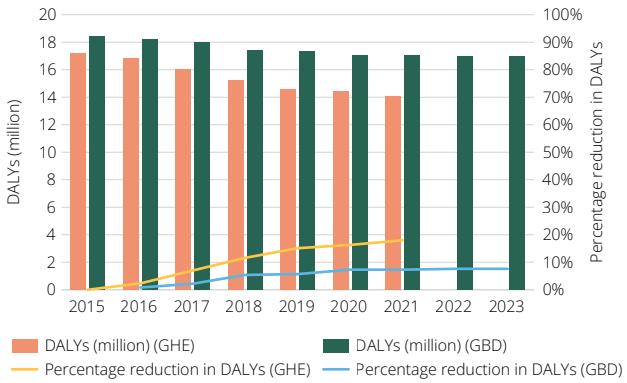
Latest results and evaluation findings

In the GHE, between 2015 and 2021, the global burden of NTDs declined from 17.18 million to 14.14 million DALYs (Fig. 3.4), a reduction of 3.04 million DALYs, or 18%.

[1] Ascariasis, Chagas disease, cysticercosis, dengue, echinococcosis, foodborne trematodiases, hookworm disease, human African trypanosomiasis, leishmaniasis, leprosy, lymphatic filariasis, onchocerciasis, rabies, schistosomiasis, trachoma and trichuriasis.

[2] African trypanosomiasis, ascariasis, Chagas disease, cutaneous and mucocutaneous leishmaniasis, cystic echinococcosis, cysticercosis, dengue, foodborne trematodiases, Guinea-worm disease, hookworm disease, leprosy, lymphatic filariasis, onchocerciasis, rabies, scabies, schistosomiasis, trachoma, trichuriasis and visceral leishmaniasis.

Fig. 3.4. Comparison of NTD DALYs (million) and percentage reduction, 2015–2023, by data source



DALY: disability-adjusted life-year; GBD: Global Burden of Disease; GHE: Global Health Estimates; NTD: neglected tropical disease; WHO: World Health Organization.

Sources: WHO GHE and IHME GBD study.

Over the same period, years of life lost decreased from 7.77 million to 6.21 million, and years lived with disability decreased from 9.41 million to 7.93 million.

In the supplementary GBD data used for this analysis, NTD-related DALYs declined from 18.42 million in 2015 to 17 million in 2023, a 7.7% reduction. The GBD estimates suggest that NTD-related DALYs have decreased overall since 2015, but progress has stagnated since 2020, with the burden remaining close to 17.0 million DALYs through to 2023.

Differences in DALY estimates between WHO's GHE and the GBD study may reflect differences in modelling methods, disease classification and the population estimates and age structures used. In GBD 2023, cutaneous and visceral leishmaniasis are reported separately, whereas GHE 2021 combines them; GBD 2023 also includes dracunculiasis and scabies, whereas GHE 2021 does not. However, both data sources indicate that the current pace of reduction is insufficient to meet the 2030 target. Reaching this target would require the GHE-reported burden to fall from 14.14 million DALYs in 2021 to 4.30 million by 2030, equivalent to about 1.09 million each year. Observed progress has been slower than this and has decelerated, with DALYs falling an average of 0.64 million per year between 2015 and 2019, and by 0.24 million per year between 2019 and 2021. This latter slowdown coincided with the COVID-19 pandemic, which disrupted health services, delayed interventions and temporarily altered health-seeking behaviours *(148)*.

In 2021, rabies, schistosomiasis and dengue were the largest contributors to the global NTD DALY burden, while lymphatic filariasis, onchocerciasis, cysticercosis and soil-transmitted helminthiases each still contributed more than 1 million DALYs.

In 2021, the African Region accounted for 45.2% of global NTD-related DALYs, followed by the South-East Asia Region at 22.0% and the Western Pacific Region at 18.1%.

Key gaps and challenges

The principal gap in this indicator is programmatic: overall progress remains well short of that required to meet the 2030 target, and the pace of decline in NTD-related DALYs has slowed since 2019, indicating that recent progress is insufficient to get the indicator on track.

The remaining gaps concern measurement. Official GHE data are available only to 2021, which limits assessment of the most recent trajectory. The estimates also cover only those NTDs for which figures are available, rather than the full set included in the road map. In addition, DALYs may not fully capture important non-fatal and social consequences, and the road map notes that NTD-related DALYs would be significantly higher if stigmatization, mental health and comorbidity were considered. Together, these limitations restrict the ability of the indicator to reflect the full burden experienced by people affected by NTDs and may understate programme needs for morbidity management, rehabilitation, mental health support and long-term care.

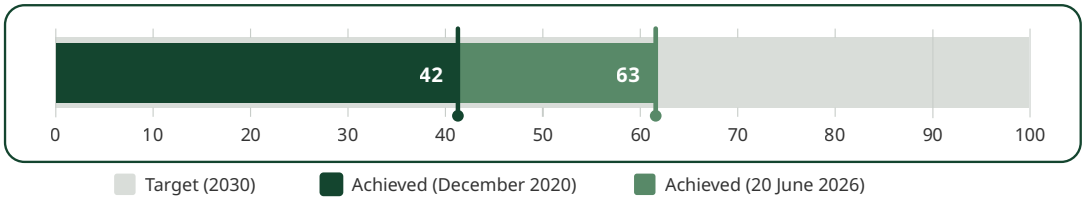
The reduction in the number of people requiring interventions against NTDs is larger than the reduction in NTD-related DALYs. The two indicators are not directly comparable because they use different baseline years and cover different disease profiles: the former is dominated by diseases amenable to preventive chemotherapy, whereas the DALY burden also reflects case-management NTDs weighted by the severity and duration of their health consequences, rather than by the number of people requiring treatment. The divergence is consistent with reductions in intervention requirements not translating proportionately into reductions in morbidity and disability.

Priority actions

Accelerated action is needed to reduce the overall NTD burden captured by DALYs, by focusing on diseases and settings contributing the highest absolute burden; strengthening delivery of core prevention, diagnosis, treatment and care interventions; and scaling up morbidity management, disability prevention, rehabilitation, mental health support and long-term care. Countries and partners should also improve burden measurement by expanding DALY estimation to include more NTDs; better capturing non-fatal outcomes, stigma, mental health conditions, comorbidity and long-term consequences; supporting more timely updates or complementary interim analyses to inform road map monitoring before 2030; and revising the disability weights applied to individual NTDs, to improve the accuracy of burden estimation.

Overarching global indicator 3: Number of countries having eliminated at least one neglected tropical disease, as of June 2026

Target (2030):
100
countries



Indicator definition, target and assessment method

Any endemic or formerly endemic country for which WHO has certified, verified or validated the eradication, elimination, or elimination as a public health problem of at least one NTD is included in this indicator. The 2030 target is 100 countries having eliminated at least one NTD *(1)*.

WHO has established global acknowledgement processes for 10 of the 13 diseases targeted for eradication, elimination (interruption of transmission) or elimination as a public health problem in the road map: dracunculiasis, gambiense and rhodesiense forms of human African trypanosomiasis, leprosy, onchocerciasis, visceral leishmaniasis, lymphatic filariasis, rabies, trachoma and, most recently, soil-transmitted helminthiases *(149)*.

A regional process to acknowledge interruption of domiciliary vectorial transmission of Chagas disease has been established by PAHO and WHO in the Region of the Americas. For yaws, a questionnaire-based process was initiated in 2024 for countries in Group B (previously endemic countries, with unknown current status) and Group C (countries with no history of yaws), although no additional country has yet been certified through this process. India was certified free of yaws in 2016 through an ad hoc process.

Latest results and evaluation findings

As of June 2026, 63 countries had eliminated at least one NTD, combining eradication, interruption of transmission and elimination as a public health problem, bringing to 90 the total number of acknowledgement processes that WHO has successfully completed and confirmed (Table 3.2).

The earliest acknowledgement process was completed in 1997, when Pakistan was certified free of dracunculiasis transmission. Of the 63 countries, 42 had eliminated at least one NTD by the end of 2020. During 2021–2025, 31 countries eliminated at least one NTD, of which 16 were acknowledged by WHO for the first time: the Democratic Republic of the Congo for Guinea-worm disease; Bangladesh, Brazil and Timor-Leste for lymphatic filariasis; Chad, Equatorial Guinea and Guinea for gambiense human African trypanosomiasis; Rwanda for rhodesiense human African trypanosomiasis; Burundi, Fiji, the Gambia, Iraq, Mali, Papua New Guinea and Saudi Arabia for trachoma; and Jordan for leprosy. Between 1 January and 30 June 2026, five more

Table 3.2. Number of previously endemic countries certified free of transmission or verified for elimination of disease, and countries validated for elimination of disease as a public health problem, by WHO region, as of June 2026

WHO region	Number of countries[a]	GWD	gHAT	rHAT	LF	Lep	Onc	Rab	Tra	VL	Yaws	Number of acknowledgements[b]
African	22	13	8	2	2		1		10			36
Americas	6				1	1	4	1	1			8
South-East Asia	8	1			5				3	1	1	11
European	0											0
Eastern Mediterranean	11	2			2	1			9			14
Western Pacific	16				13				8			21
Global	63	16	8	2	23	2	5	1	31	1	1	90

gHAT: gambiense human African trypanosomiasis; GWD: Guinea-worm disease; Lep: leprosy; LF: lymphatic filariasis; NTD: neglected tropical disease; Onc: onchocerciasis; Rab: rabies; rHAT: rhodesiense human African trypanosomiasis; Tra: trachoma; VL: visceral leishmaniasis; WHO: World Health Organization.

[a] Countries are certified, verified or validated by WHO. Any country for which WHO has certified, verified or validated the eradication, elimination, or elimination as a public health problem of at least one NTD is counted, regardless of the number of NTDs it has eliminated.

[b] A letter of acknowledgement is issued by the WHO Director-General when a country achieves the target of eradication, elimination, or elimination as a public health problem for each individual NTD; hence, the number of acknowledgements may be higher than the number of countries.

countries were acknowledged: Algeria, Australia, Libya and Tunisia for trachoma and Chile for leprosy. China and the Republic of Korea are included in the total count: WHO confirmed their elimination of lymphatic filariasis as a public health problem in 2007 and 2008, respectively, through rigorous ad hoc reviews that preceded the publication of the WHO standard operating procedures in January 2017, and both countries were formally added to the acknowledgement list in February 2026.

By June 2026, 42 countries had each eliminated one disease, 16 countries had eliminated two diseases, four countries had eliminated three diseases, and one country (Togo) had eliminated four diseases (Fig. 3.5).

Key gaps and challenges

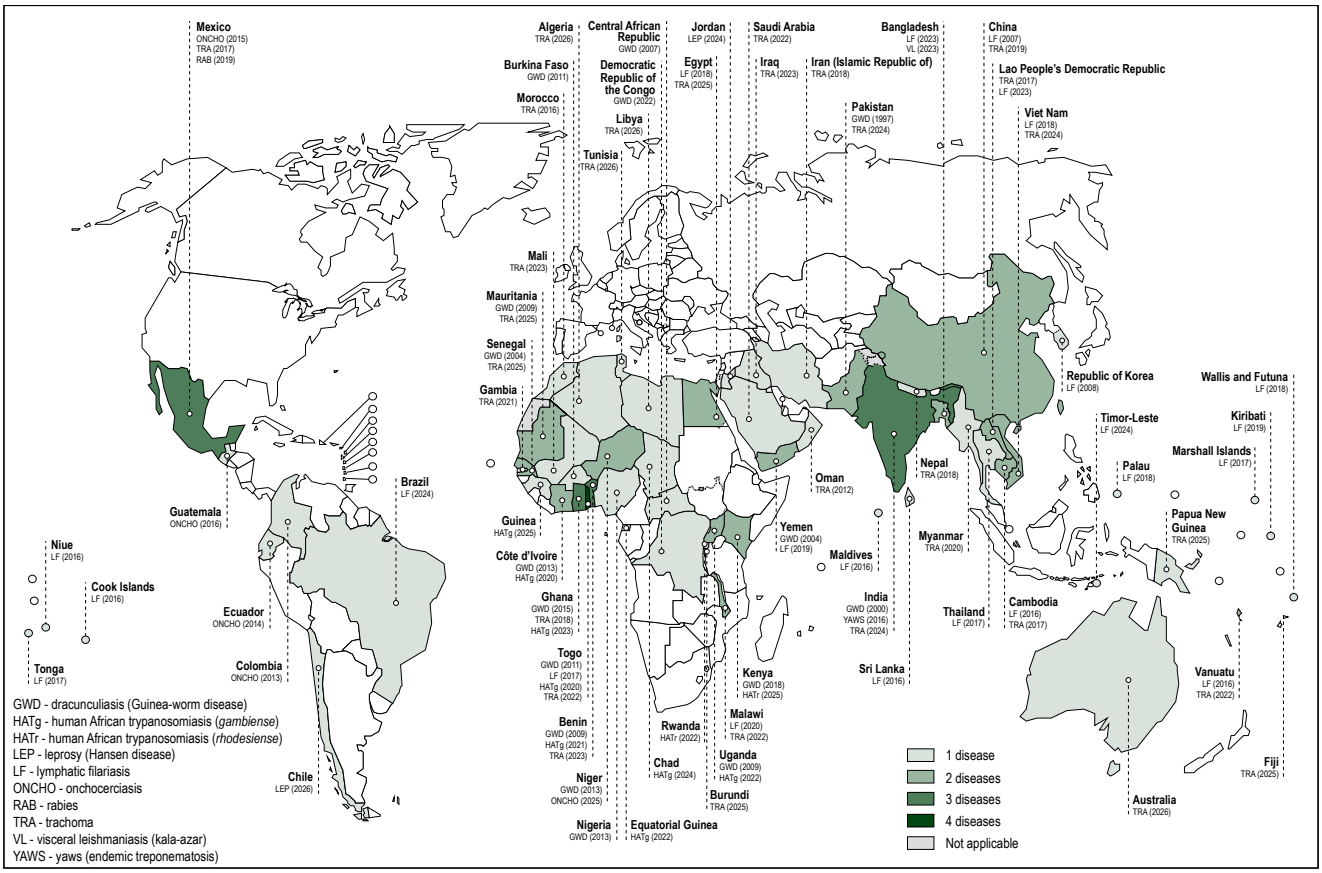
Formal global WHO acknowledgement processes remain incomplete for some diseases targeted by the road map. For schistosomiasis, WHO is drafting global acknowledgement processes, and an elimination review group has been established; the process for yaws (initiated in 2024) has not yet led to certification of any Member State; and the process for Chagas disease remains regional (established by PAHO and WHO) rather than global. This means that, for some diseases targeted for eradication, elimination, or elimination as a public health problem, countries currently have no clear global pathway to have their progress formally acknowledged, even where elimination may already have been achieved at country level.

Priority actions

Priority actions to strengthen this indicator include:

- completing the establishment of global WHO acknowledgement processes for all diseases targeted for eradication, elimination, or elimination as a public health problem;
- advancing the yaws questionnaire-based process towards its first country certifications; and
- sustaining the broader shift towards country-led, integrated NTD funding and programme ownership, together with closing persistent data and surveillance gaps, to protect elimination gains from the compounding pressures of climate change, conflict and instability.

Fig. 3.5. Countries that had eliminated at least one NTD, as of June 2026

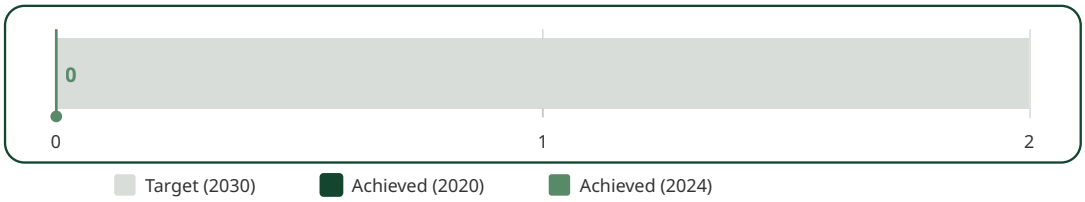


NTD: neglected tropical disease; WHO: World Health Organization.

Source: WHO.

Overarching global indicator 4: Number of neglected tropical diseases eradicated

Target (2030):
2
diseases



Indicator definition, target and assessment method

The road map targets the eradication (permanent reduction of incidence to zero, with no risk of reintroduction) of two NTDs by 2030: Guinea-worm disease and yaws *(1)*. This indicator should be interpreted as a high-level measure of global eradication status, with detailed progress assessed under the disease-specific indicators for dracunculiasis and yaws.

Latest results and evaluation findings

As of 31 December 2025, neither disease had been eradicated globally; progress against this overarching indicator therefore remained at zero of two NTDs eradicated.

The Guinea-worm disease eradication agenda gained renewed political and technical momentum in May 2025, when the Seventy-eighth World Health Assembly adopted resolution WHA78.14 on accelerating the eradication of dracunculiasis *(93)*. The resolution reaffirmed global commitment to eradication and endorsed core actions for endemic Member States, including community-based surveillance, proactive tethering of domestic animals, safe water interventions, laboratory confirmation and immediate reporting of human cases and animal infections. It also recognized that animal infections, gaps in safe water and health care access, humanitarian emergencies, cross-border movement, insufficient surveillance and limited community ownership continue to pose risks to eradication.

For Guinea-worm disease, the International Commission for the Certification of Dracunculiasis Eradication convened its 17th meeting in November 2025 to review progress towards global eradication and assess country certification status. As of 31 December 2025, 200 countries, areas and territories, representing 188 WHO Member States, had been certified free of *D. medinensis* transmission. However, in April 2026, Cameroon was reclassified as being *D. medinensis*-endemic, leaving 199 countries, areas and territories, representing 187 Member States, certified. Seven Member States remain to be certified: Angola, Cameroon, Chad, Ethiopia, Mali, South Sudan and the Sudan.

For yaws, the certification of eradication is being advanced through a dedicated disease-specific mechanism. As part of this process, in April 2026, WHO issued a call for experts to join the International Commission for the Certification of Yaws Eradication, an independent advisory body that will provide WHO with guidance on matters related to the certification of yaws eradication.

Key gaps and challenges

Both diseases have continued to move towards the 2030 target, but each faces a demanding end-stage pathway. For Guinea worm, remaining challenges include infections in animals, cross-border population movement, gaps in access to safe water, sustained community-based surveillance in endemic and at-risk areas, and certification readiness in countries that remain to be certified. For yaws, key challenges include reassessment of countries previously classified as endemic, confirmation of suspected cases, strengthened surveillance and advancement of country-level certification processes.

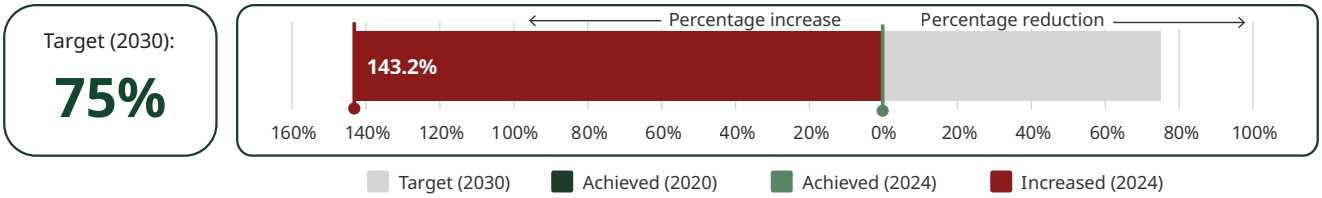
Priority actions

Progress should continue to be assessed through the relevant disease-specific indicators, certification criteria and reassessment processes, with sustained post-certification surveillance and ongoing vigilance in areas at risk of re-established transmission.

3.1.2 Cross-cutting global indicators and targets for 2030

Integrated approaches

Cross-cutting indicator 1: Percentage reduction in number of deaths from vector-borne neglected tropical diseases (relative to 2016) – to achieve WHO's global vector control response goal



Indicator definition, target and assessment method

This indicator tracks reported deaths from selected vector-borne NTDs (dengue, visceral leishmaniasis and chikungunya) to monitor mortality burden and progress in reducing preventable deaths.

The 2030 target is a 75% reduction in reported deaths from vector-borne NTDs relative to the 2016 baseline of 5163 deaths, corresponding to 1291 (or fewer) annual deaths.

Dengue and chikungunya mortality data were drawn from the GNARF *(6)* where available, otherwise from arbovirus surveillance systems; visceral leishmaniasis data were reported through the GNARF, WHO Integrated Data Platform and SisLeish. Deaths in 2024 were compared with the 2016 baseline and with 2023 values.

Latest results and evaluation findings

In 2024, 12 554 deaths were reported across the three diseases: 11 827 (94.2%) from dengue, 482 from visceral leishmaniasis and 245 from chikungunya. The total number of reported deaths in 2024 was 9.7 times the 2030 target of 1291, indicating deterioration relative to the 2016 baseline.

Compared with the 2016 baseline, the total number of reported deaths increased by 143.2% (from 5163 to 12 554), driven by dengue (up 159.4%, from 4559 to 11 827), whereas reported deaths from visceral leishmaniasis decreased by 20.2% (from 604 to 482). Compared with 2023, total reported deaths increased by 46.1% (from 8592 to 12 554): reported dengue deaths increased by 54.4% (from 7661 to 11 827), reported visceral leishmaniasis deaths increased by 16.7% (from 413 to 482), and reported chikungunya deaths increased from 87 in 2022 to 518 in 2023, before declining to 245 in 2024.

The evaluation found contrasting trends: declining visceral leishmaniasis mortality is region specific, with case reductions and elimination progress on track in South-East Asia but stagnating in eastern Africa and Latin America (mainly Brazil), where incomplete follow-up data limit interpretation. However, these gains have been outweighed by rising dengue deaths, which are now the dominant driver. Reported dengue deaths have more than doubled since 2016, rather than declining towards the 75% reduction target.

It is important to interpret this trend in the context of the exceptional dengue epidemic in 2024, when both cases and deaths reached record levels. Despite the unprecedented number of cases, the case fatality rate remained low, at 0.08%, well below the 2025 milestone of 0.5%. The rise in absolute number of reported deaths therefore principally reflects the enormous increase in infections, rather than a corresponding increase in the risk of death among reported patients.

This increase in transmission is partly attributable to the expanding geographical range of *Aedes* vectors, exposing new, susceptible populations to the virus. Nevertheless, the low case fatality rate observed during the 2024 Grade 3 emergency should not lead to complacency. As transmission becomes established in newly affected areas and secondary infections become more common, the risk of severe dengue – and consequently death – may increase, reinforcing the need for continued vigilance, strengthened capacity for early recognition of warning signs, and effective clinical management.

Key gaps and challenges

The principal challenge is persistently rising dengue mortality: current prevention, surveillance, vector control and clinical management have not yet reversed this trend globally. The extent to which this rise reflects a true increase in mortality, rather than improved case ascertainment and reporting, cannot be determined from the available data, so it should be interpreted with caution.

A further challenge is variable reporting of chikungunya mortality: reported deaths rose in 2023 then fell to 245 in 2024, possibly reflecting outbreak dynamics or reporting inconsistencies and warranting cautious interpretation.

A related challenge is that aggregate mortality trends can mask disease-specific progress: although visceral leishmaniasis mortality has declined markedly, global assessment remains difficult owing to region-specific gaps in post-treatment follow-up data from high-burden countries in east Africa and Latin America (mainly Brazil). Still, this improvement was overshadowed by the sharp rise in reported dengue deaths, underscoring the need for disease-specific analysis alongside the aggregate indicator when interpreting overall performance and identifying priority areas for action.

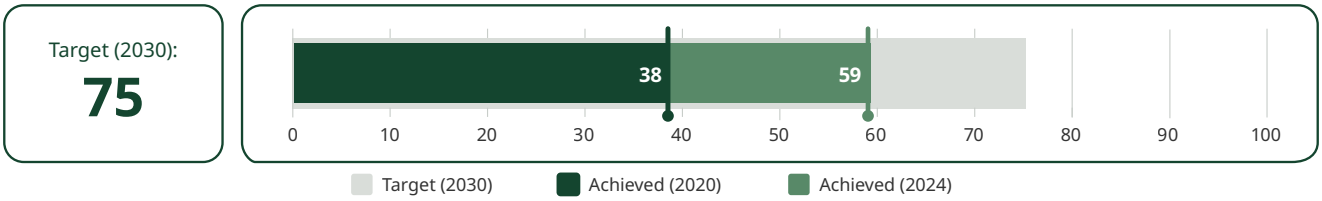
Priority actions

Countries should strengthen dengue prevention and control through integrated vector management, surveillance, early warning, outbreak preparedness and timely clinical management, particularly where outbreaks and mortality are rising.

For visceral leishmaniasis, high-burden countries in east Africa and Latin America (mainly Brazil) should make efforts to reduce delays in diagnosis and treatment, and improve surveillance to collect information on final cure (standard post-treatment follow-up to 6 months). Countries in the Indian subcontinent should try to sustain progress by maintaining access to diagnosis, treatment and case management in endemic and high-risk areas.

For chikungunya, efforts should be made to improve consistency of mortality reporting, including case definitions and death attribution. Future monitoring should track both total and disease-specific trends, given dengue's dominant influence, and progress towards the 2030 target.

Cross-cutting indicator 2: Integrated treatment coverage index for preventive chemotherapy



Indicator definition, target and assessment method

WHO's STAG-NTD endorsed use of the integrated treatment coverage index for preventive chemotherapy in 2017 for comparative monitoring of NTD programmes and reporting on UHC *(150)*. The index is the geometric mean of the reported coverage rates for the five main NTDs amenable to preventive chemotherapy: lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases and trachoma *(151)*.

The 2030 target is an integrated treatment coverage index for preventive chemotherapy of 75.

As coverage rates are expressed as percentages, the index ranges from 0 to 100. If a country does not require preventive chemotherapy for a specific disease, the index does not include coverage of interventions for that disease in that country. The individual disease-specific index for an endemic country that has achieved a disease-specific epidemiological target, stopped interventions and either moved to post-MDA surveillance or been validated as having eliminated the disease as a public health problem, is calculated as 100. For the purposes of the index, treatment coverage rates used in the calculations were limited to age groups covered by donation of the preventive chemotherapy medicines. Use of the geometric mean increases the sensitivity

of the integrated preventive chemotherapy index to very low coverage achieved by individual disease-specific indexes. This index therefore ensures equity and integrated delivery of services. In line with the commitment to leaving no one behind, high coverage for one disease or service does not compensate for low coverage for another disease or service, even if the population that requires interventions is small.

Latest results and evaluation findings

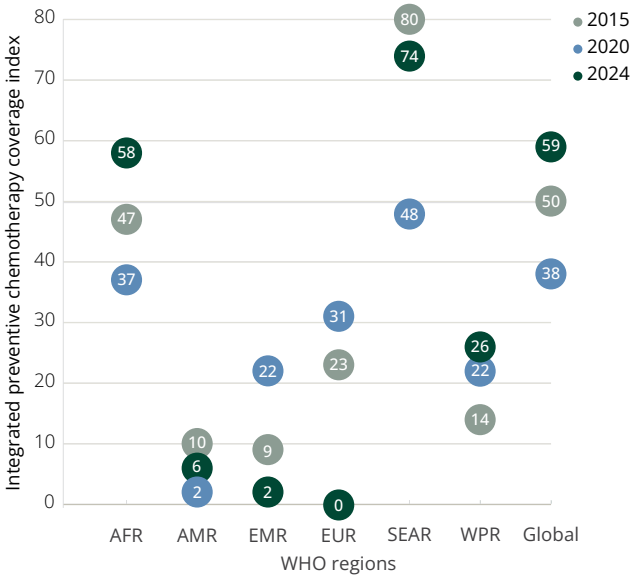
The integrated preventive chemotherapy index achieved globally in 2024 was 59, its highest value since 2020, when the reported index was 38. The highest regional index in 2024 was reported by the South-East Asia Region (74), followed by the African (58), Western Pacific (26), Americas (6) and Eastern Mediterranean (2) regions (Fig. 3.6). In the European Region, the index was 0 because none of the three countries requiring preventive chemotherapy for soil-transmitted helminthiases reported treatment data.

In 2024, 37 countries achieved an index ≥75 (on track for 2030 target), indicating good progress in treating all diseases that require preventive chemotherapy. Of these 37 countries, 24 have eliminated at least one NTD as a public health problem. Twenty-six countries achieved an index in the range of 25–74 (progress towards target), showing some progress in treating diseases that require preventive chemotherapy (six countries eliminated at least one NTD in this category). Twenty-five of these 26 countries implemented preventive chemotherapy in 2024 for all diseases that require such intervention, but with coverage below the threshold necessary to achieve effective disease-specific coverage. Countries that have not implemented preventive chemotherapy or not reported data for one or more endemic diseases usually have an index <25 (not on track to meet 2030 target). This also applies to countries that implement preventive chemotherapy for all endemic diseases but with very low coverage. In 2024, 54 countries reported an index <25, and 19 of them had an index of 0 (not implemented or not reported).

Key gaps and challenges

A substantial proportion of countries remains far below the 2030 target: in 2024, 54 of 117 countries (46.2%) had an integrated preventive chemotherapy index below 25,

Fig. 3.6. Progress in integrated preventive chemotherapy index, by WHO region, 2015–2024



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WHO: World Health Organization; WPR: WHO Western Pacific Region.

Source: WHO Global Health Observatory.

reflecting either lack of implementation of preventive chemotherapy or very low coverage across one or more endemic diseases.

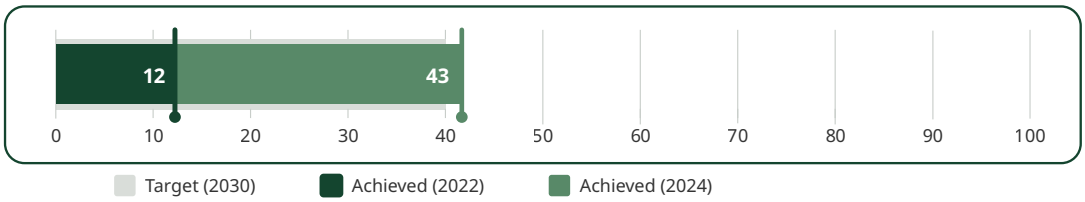
Nevertheless, the very nature of this indicator can magnify perceptions of poor performance and obscure otherwise strong progress against a country's other endemic diseases.

Priority actions

As the integrated preventive chemotherapy index is intended to draw attention to existing service gaps and mobilize high-level political commitment, countries with a low or uneven disease-specific coverage profile should be prioritized for targeted support to close the specific gaps driving their low index, rather than treating the aggregate value alone as the target for improvement.

Cross-cutting indicator 3: Number of countries that adopt and implement integrated skin neglected tropical diseases strategies

Target (2030):
40
countries



Indicator definition, target and assessment method

This indicator tracks the cumulative number of countries, areas and territories that have adopted and implemented integrated strategies for skin NTDs, defined as the implementation of two or more programme activities for skin NTDs (such as case detection, treatment, training, supervision or social mobilization) at community or health facility level.

The 2030 target is 40 countries adopting and implementing integrated strategies for skin NTDs.

The mid-term evaluation reviewed 2024 data, assessing both whether the numerical target had been reached and whether there was evidence of implementation. As reported in the *Global report on neglected tropical diseases 2025 (47)*, 29 countries had adopted the strategy by the end of 2023; as the indicator is cumulative, these countries were retained in 2024, with newly classified countries added.

Latest results and evaluation findings

Fourteen additional countries were classified as adopting and implementing integrated strategies for skin NTDs in 2024 (Armenia, Burkina Faso, Burundi, Cyprus, the Democratic Republic of the Congo, Gabon, Guinea-Bissau, Mozambique, Oman, Papua New Guinea, Qatar, South Africa, Yemen and Zimbabwe), bringing the cumulative total to 43.[1] By WHO region, these 43 countries, areas and territories comprised 22 in the African Region, seven in the South-East Asia Region, six each in the Eastern Mediterranean and Western Pacific regions, and two in the European Region, with none in the Region of the Americas.

The indicator has already exceeded its target: 43 countries had adopted and implemented integrated strategies by 2024, surpassing the 40-country target 6 years ahead of schedule, reflecting strong uptake of WHO's approach and progress in mainstreaming integrated delivery nationally.

Key gaps and challenges

Some countries achieved partial[2] rather than full implementation, so the indicator's achievement does not guarantee integrated activities are delivered at national scale or across all endemic areas within countries. Reporting also does not consistently show the implementation's geographical scope (national, subnational or pilot) or which components (detection, treatment, referral, training, supervision, mobilization, reporting) are in place. Adoption of an integrated strategy is therefore not equivalent to its institutionalization within national health systems, and the indicator does not currently distinguish between the two.

As the indicator is cumulative, countries counted in earlier years stay included even if implementation later lapses; the methodology does not verify whether integration counted previously, some of it donor dependent, has been sustained.

Priority actions

Although the target has been achieved numerically, the implementation scale, sustainability and documentation of this indicator still need strengthening. Continued efforts are needed to improve implementation quality, scale and sustainability; countries with partial implementation should be supported to expand integrated activities across all endemic areas, in line with WHO's strategic framework *(92)*.

[1] Armenia, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cameroon, Chad, China (including Macao Special Administrative Region), the Congo, Côte d'Ivoire, Cyprus, the Democratic Republic of the Congo, Ethiopia, Gabon, Guinea, Guinea-Bissau, Indonesia, Iraq, Kenya, Kuwait, the Lao People's Democratic Republic, Liberia, Malaysia, Maldives, Mali, Mozambique, Nepal, Oman, Papua New Guinea, the Philippines, Qatar, Senegal, Sierra Leone, South Africa, South Sudan, the Sudan, Thailand, Timor-Leste, Togo, Vanuatu, Yemen and Zimbabwe.

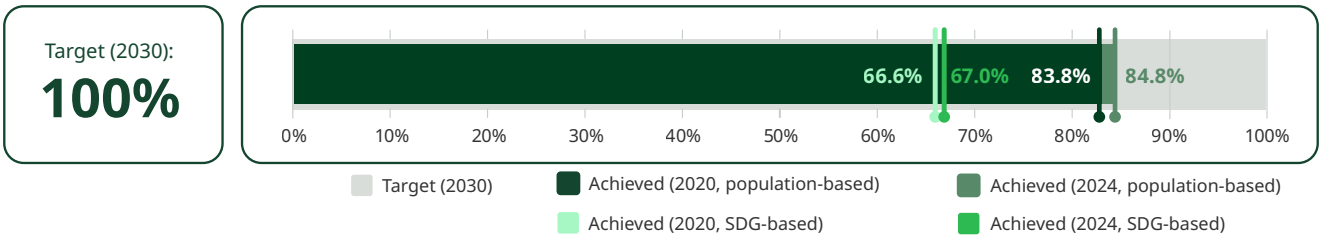
[2] In 2024, 16 countries reported having adopted an integrated skin NTD strategy but had only partially implemented it: Armenia, Benin, Burkina Faso, Burundi, Cyprus, Ethiopia, Guinea, Guinea-Bissau, Indonesia, Kuwait, Mozambique, Oman, Papua New Guinea, Senegal, the Sudan and Vanuatu.

Monitoring should better document implementation scope and integrated components, and skin NTD activities should be embedded within PHC, NTD programme plans, supervision and referral systems.

Annual monitoring should continue using the cumulative approach, complemented by periodic reverification that countries are sustaining implementation. Future monitoring should distinguish adoption of an integrated strategy from its institutionalization within national health systems, and emphasize quality, coverage and sustainability, ensuring the target translates into effective and equitable service delivery.

Multisectoral coordination

Cross-cutting indicator 4: Access to at least basic water supply, sanitation and hygiene in areas endemic for neglected tropical diseases – to achieve targets 6.1 and 6.2 of Sustainable Development Goal 6



Indicator definition, target and assessment method

This indicator measures access to at least basic WASH in areas endemic for NTDs. Access to WASH is an important enabling condition for NTD prevention, control and elimination, as well as for sustainability of gains following elimination. Inadequate access can contribute to continued transmission, reinfection, progression of disease through poor wound care and reduced sustainability of programme achievements.

The 2030 target is universal access (100%) to at least basic WASH.

The mid-term evaluation used WHO/United Nations Children's Fund (UNICEF) Joint Monitoring Programme (JMP) data covering the 184 countries classified as endemic for at least one NTD, and included WASH estimates for total, rural and urban populations from 2020 to 2024 where available *(16)*. The method is as follows.

- To derive country-level rates, national WASH coverage rates were taken from WHO/UNICEF JMP estimates. For water and sanitation, the "at least basic" service level was used where reported; where it was not reported, the basic and "safely managed" levels were combined, counting each population only once. For hygiene, the basic level was used. National estimates were used where reported, and were otherwise derived by combining rural and urban values. Only country-years classified as endemic for at least one NTD were included.
- To derive global estimates, two measures were calculated from the national rates, differing only in how countries were weighted. The population-based estimate weighted each endemic country by its total population, reflecting average access across the entire resident population. The SDG-based estimate weighted each country by its population requiring interventions against NTDs, as reported under SDG indicator 3.3.5; although imperfect, this is therefore the estimate that best reflects the intent of cross-cutting indicator 4. WASH components are pooled in both measures, with each component weighted by its own reported denominator, so the pooled value is not a simple average of the three.

Latest results and evaluation findings

The evaluation indicates that progress in WASH access in NTD-endemic countries has been limited. The SDG-based estimate increased marginally from 66.6% in 2020 to 67.0% in 2024, and the population-based estimate increased from 83.8% in 2020 to 84.8% in 2024, with both estimates remaining below the

100% target. The difference in estimates reflects the higher concentration of populations requiring NTD interventions in countries with lower national WASH coverage, not lower access to WASH among those populations within a given country.

Trends in access differed across the three WASH components. Estimates of sanitation and hygiene access improved between 2020 and 2024. Among populations requiring NTD interventions, the SDG-based sanitation estimate increased from 51.4% in 2020 to 55.3% in 2024, while the hygiene estimate increased from 57.8% to 64.6%. The SDG-based estimate for water decreased from 78.7% in 2020 to 72.7% in 2024. This decline should be interpreted cautiously, as it may reflect changes in the size and distribution of the population requiring interventions rather than actual changes in access. Published estimates for least-developed countries show access to at least basic drinking water rising from 67% to 70% over the same period *(152)*, although these estimates cover a different set of countries than those included in the SDG-based estimates.

Access to WASH in rural areas improved for all components between 2020 and 2024 but remained consistently below levels of access in urban areas, consistent with the concentration of NTD-affected populations in rural, remote and underserved settings, where service coverage is typically lower *(153)*.

Key gaps and challenges

The main gap is the continued shortfall from universal WASH access: the SDG-based pooled WASH estimate of 67.0% leaves a gap of 33 percentage points from the 2030 target, with sanitation having the largest component gap (44.7 points), followed by hygiene (35.4 points) and water (27.3 points).

A second gap is methodological: first, the "population requiring NTD interventions" serves as a proxy for "areas endemic for NTDs" (as phrased in the indicator); and second, access to WASH services among this population is not measured directly but is estimated by weighting national WASH coverage of a given country against the size of the population requiring NTD interventions. Consequently, the difference between broader population-based access (84.8%) and the SDG-based estimate (67.0%) largely reflects the fact that populations requiring NTD interventions are disproportionately located in countries with lower national WASH coverage. This occurs because the SDG-based approach applies each country's national WASH access rate to its population requiring NTD interventions, rather than directly measuring access among that population. The method therefore cannot determine whether people requiring NTD interventions have levels of access that differ from national averages, and it may mask subnational inequities within endemic communities. As these communities are often rural, remote and underserved, actual access to WASH may be lower than estimated. Results should therefore be interpreted as standardized global estimates for monitoring rather than as direct confirmation of access in every endemic community.

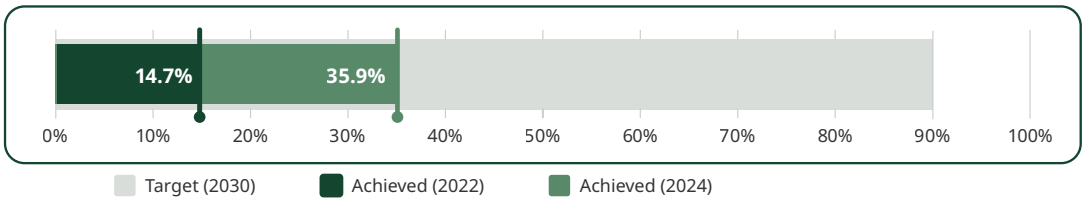
Priority actions

Countries should prioritize WASH investment in NTD-endemic communities and in areas with low levels of WASH access, particularly where these risk factors coincide; that is, where poor WASH access overlaps with persistent NTD transmission, reinfection, morbidity or surveillance gaps. Sanitation should be the top priority, given it has the largest remaining gap, followed by hygiene. The decline in the estimate of water access should be reviewed through country-level data validation to determine whether it reflects real changes or reporting and denominator effects.

WASH and NTD programmes should strengthen joint planning, using NTD burden, surveillance, treatment and morbidity data to identify priority communities. Future monitoring should strengthen subnational analysis so that progress can be tracked where NTD risk is highest. Achieving this will require closer collaboration between WASH and NTD programmes, linking service delivery, PHC, surveillance, community engagement and equity-focused planning.

Cross-cutting indicator 5: Share of countries with neglected tropical diseases integrated in national health strategies/plans

Target (2030):
90%



Indicator definition, target and assessment method

This indicator measures the proportion of countries, areas and territories that have integrated NTDs into national health strategies, health plans or NTD action plans. A country meets the benchmark when at least 75% of its relevant reported endemic NTDs are included in national strategic documents.

The 2030 target is 90% of endemic countries integrating NTDs into national strategic documents.

The mid-term evaluation used data reported through the GNARF, comparing the number of relevant NTDs that a country reported as being included in its national NTD action plan or health strategy against the number for which it gave a valid response. As this indicator reflects integration of NTDs into national policy, assessment was cumulative: countries meeting the benchmark by the end of 2023 were retained, with newly qualifying countries added in 2024.

Latest results and evaluation findings

At the start of road map monitoring in 2022, 27 countries met the benchmark (14.7% of the 184 historically endemic countries); by 2023, this rose to 44 countries (23.9%) *(47)*. In 2024, 57 countries had valid GNARF responses, of which 42 (73.7%) met the benchmark on current-year reporting; of these, 22 were newly qualified,[1] bringing the cumulative total to 66 countries (35.9%).

Progress for this indicator remains well below the 90% target of about 166 of 184 countries; with 66 countries meeting the benchmark, about 100 more would need to qualify by 2030. Integration has advanced since monitoring began, but too slowly to reach the target, while reporting coverage remains incomplete.

Key gaps and challenges

Annual reporting coverage remains limited: of the 184 historically endemic countries, only 42 (22.8%) met the annual benchmark in 2024, which is lower than the cumulative total of 66 countries (35.9%).

A further limitation is that inclusion in national plans does not itself demonstrate implementation, financing, supervision or monitoring; further evidence is needed to confirm these commitments have translated into operational plans, financing and measurable programme action.

Priority actions

Countries below the 75% benchmark should receive targeted technical support to review and update their national plans, improve disease-specific reporting and ensure all relevant endemic NTDs are reflected in policy documents.

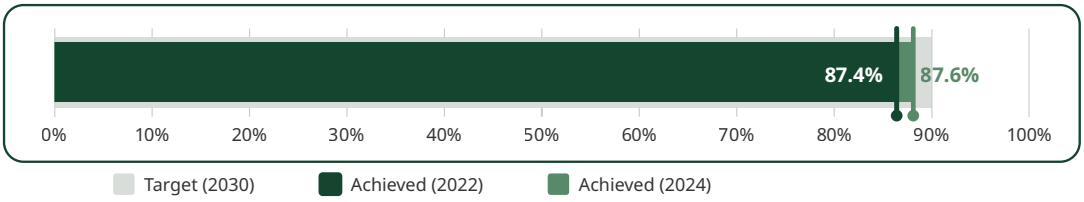
Countries should also link policy integration to implementation, connecting national strategies with domestic financing, PHC, UHC, supervision and supply systems.

Annual monitoring should continue using the cumulative approach, adding countries as they meet the benchmark, with future assessments emphasizing implementation, financing and service delivery.

[1] Afghanistan, Bahrain, Botswana, Cameroon, Cyprus, Egypt, the Gambia, Guinea, Iraq, Japan, Kuwait, the Lao People's Democratic Republic, Namibia, Nigeria, occupied Palestinian territory, including east Jerusalem, Papua New Guinea, Qatar, Sao Tome and Principe, Sierra Leone, Togo, the United Republic of Tanzania and Zimbabwe.

Cross-cutting indicator 6: Share of the population at risk protected against catastrophic out-of-pocket health expenditure due to neglected tropical diseases – to achieve target 3.8 of Sustainable Development Goal 3

Target (2030):
90%



Indicator definition, target and assessment method

This indicator is determined by two key components.

- Catastrophic health spending (SDG 3.8.2) is the proportion of the population spending more than 10% of household income or expenditure on out-of-pocket health care.[1] This proportion is used as a proxy for the risk of catastrophic out-of-pocket health expenditure. An increase in this indicator means lower financial protection. However, a reduction in this indicator should be interpreted with caution because it may reflect reduced use of services or greater financial barriers to care, rather than genuine improvement.
- The number of people requiring interventions against NTDs (SDG 3.3.5) is used in this report as a proxy for the population at risk of NTDs. Country values for catastrophic health spending are weighted by this population, so that countries with larger populations requiring NTD interventions have greater influence on the global estimate.

The 2030 target is 90% of the population being protected against catastrophic out-of-pocket health expenditure related to NTDs.

Following the same method as used in the *Global report on neglected tropical diseases 2025 (47)*, country-level values for SDG 3.8.2 are treated as the average risk that a country's population incurs catastrophic health expenditure for any condition, NTDs included. This value is then weighted against the size of the population requiring NTD interventions. Calculations are based on 142 countries with a positive SDG 3.3.5 denominator and available SDG 3.8.2 data at the 10% threshold. At the global level, this cross-cutting indicator is therefore a population-weighted estimate of the proportion of the population requiring NTD interventions (used as a proxy for "population at risk") that is protected against catastrophic out-of-pocket health expenditure (Equation 1).

$$\textit{Protected proportion} = \frac{\sum_i^N [(100 - \text{SDG3.8.2}_i) \times \text{SDG3.3.5}_i]}{\sum_i^N (\text{SDG3.3.5}_i)}$$

(Equation 1)

i = a country; N = total number of countries.

WHO also measures impoverishment due to out-of-pocket health spending using two indicators, each expressed as a proportion of the total population: the proportion of the population pushed below the US$ 2.15 per day poverty line and the proportion already below that line pushed further into poverty by health spending. For this analysis, the latest values for these two measures, from the same year, are summed at country level and weighted by the 2024 SDG 3.3.5 population requiring NTD interventions.

Latest results and evaluation findings

Using the 2024 SDG 3.3.5 denominator and the latest available SDG 3.8.2 data for the previous definition, an estimated 87.6% of the population requiring NTD interventions was protected against catastrophic health spending. This represents a modest increase from 87.4% in 2022 and 87.3% in 2023, but remains 2.4 percentage points below the 90% target. Applied to the 2024 SDG 3.3.5 denominator of 1.41 billion people, this gap corresponds to about 33.8 million people who still require protection, to reach the target. Impoverishment presents a different picture: an estimated 24.3% of the population requiring NTD interventions experienced impoverishment due to out-of-pocket health spending, meaning 75.7% did not. This proportion is lower than the 87.6% protected against catastrophic spending, indicating that catastrophic

[1] SDG 3.8.2 was revised in 2025 and is now based on a 40% threshold applied to the household discretionary budget. The estimates here retain the previous definition, using the 10% threshold applied to total household expenditure or income, for comparability with earlier estimates.

spending alone underestimates the financial vulnerability of this population. This is because even small out-of-pocket payments below the 10% catastrophic spending threshold can still push households into, or further into, poverty.

Catastrophic health spending risk overlaps country-income groups: despite significant differences in income levels, the financial risk in high-income countries is comparable to that in low-income countries. This is because SDG 3.8.2 captures large out-of-pocket health expenditures that exceed 10% of a household budget. In households in higher-income countries, this eventuality is infrequent, whereas in lower-income countries, most households are unlikely to spend enough to cross this threshold because of their more limited capacity to pay for health care.

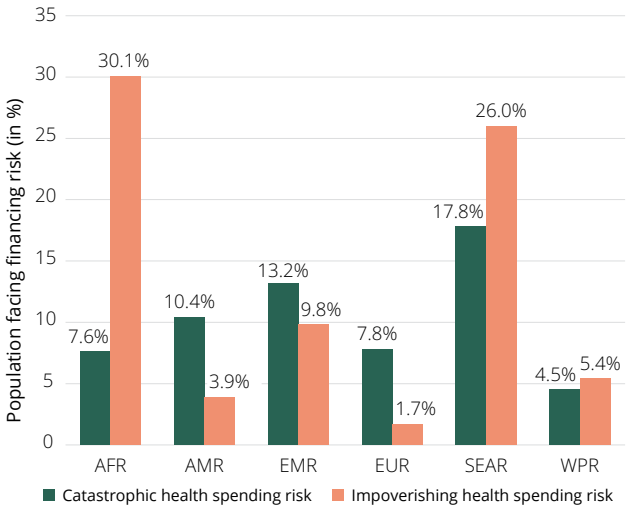
Catastrophic health spending patterns vary across WHO regions (Fig. 3.7). In the African and South-East Asia regions, the rate of impoverishment due to health spending exceeds the rate of catastrophic spending, because the US$ 2.15 poverty line is better able to capture impoverishment in regions that host many low- and lower-income countries. In the Region of the Americas and the Eastern Mediterranean and European regions, the rate of catastrophic health spending is higher, as the US$ 2.15 poverty line is too low to properly capture impoverishment in these regions. These disparities underscore the importance of considering both catastrophic health spending and impoverishment when assessing the financial risks faced by populations requiring NTD interventions.

Key gaps and challenges

Catastrophic spending captures out-of-pocket expenditure that is above 10% of a household budget, but for people living in poverty, any health expenditure, even below that threshold, can drive further impoverishment. As those living in poverty face the highest risk of acquiring NTDs, this report also examines impoverishment due to health spending. SDG 3.8.2 remains the basis for cross-cutting indicator 6, but reading it alongside data on impoverishment distinguishes spending that is large relative to a household budget from smaller payments that still push households into or deeper into poverty.

These estimates carry no uncertainty intervals. The shift from 87.3% to 87.6% between 2023 and 2024 is small. A change in this indicator should also be interpreted with caution. A small movement may partly reflect data or estimation variability. In addition, an apparent improvement can be driven by increasing financial barriers that prevent people from accessing health care, rather than by genuine gains in financial protection.

Fig. 3.7. Population at risk of NTDs (%) facing catastrophic health spending or impoverishment due to health spending,[a] by WHO region



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; NTD: neglected tropical disease; SDG: Sustainable Development Goal; SEAR: WHO South-East Asia Region; WHO: World Health Organization; WPR: WHO Western Pacific Region.

[a] Catastrophic health spending risk based on SDG 3.8.2, catastrophic out-of-pocket health spending at the 10% threshold; impoverishing health spending risk based on WHO impoverishment indicators; and population at risk of NTDs based on SDG 3.3.5, population requiring interventions against NTDs.

Source: WHO Global Health Observatory.

Priority actions

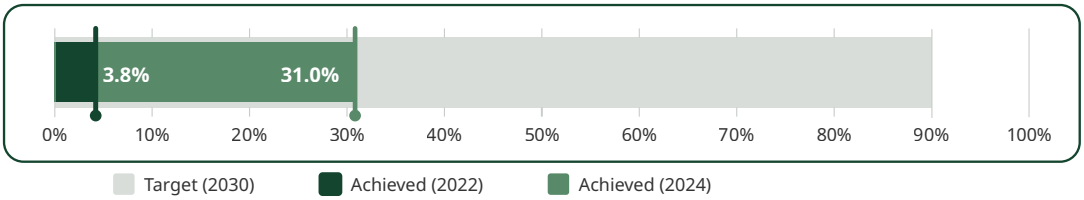
Catastrophic and impoverishing health spending capture different dimensions of financial vulnerability. Both should continue to be tracked for populations requiring NTD interventions, rather than relying on catastrophic health spending (SDG 3.8.2 initial definition) alone. Accurately measuring both indicators requires strengthening the underlying data, by widening country coverage, refining the impoverishment indicators so they better represent the population at risk of NTDs and using the SDG 3.8.2 adopted in 2025.

Protecting populations at risk of NTDs from financial hardship ultimately depends on embedding NTD diagnosis and treatment within UHC, so that affected households, who are among the poorest, are not exposed to out-of-pocket costs that push them deeper into poverty.

Universal health coverage

Cross-cutting indicator 7: Share of countries including neglected tropical disease interventions in their package of essential services and budgeting for them

Target (2030):
90%



Indicator definition, target and assessment method

This indicator measures the proportion of countries that include NTD interventions in national essential health service packages and budget for them in government budgets or social health insurance. A country meets the benchmark when at least 75% of its relevant reported endemic NTDs are fully or partially included and financed.

The 2030 target is 90% of endemic countries meeting the benchmark.

Assessment of this indicator used GNARF data, comparing NTDs that a country reported as fully or partially included and financed against those for which it gave a valid response, with the benchmark set at 75% inclusion. As this reflects institutional inclusion in service packages and financing, assessment was cumulative: countries meeting the benchmark by the end of 2023 were retained, with newly qualifying countries added in 2024.

Latest results and evaluation findings

Institutional inclusion has risen steadily, from 3.8% of endemic countries at the start of road map monitoring in 2022 to a cumulative 57 of 184 countries (31.0%) by 2024. In 2024, 55 countries had valid GNARF responses, of which 41 (74.5%) met the benchmark on current-year reporting, and 32 were newly qualified.[1]

Progress for this indicator remains well below the 90% target of about 166 of 184 countries; with 57 countries meeting the benchmark, about 109 more would need to qualify by 2030. Institutional inclusion has grown since monitoring began, but progress remains constrained by limited reporting coverage and the large number of countries yet to meet the benchmark.

Key gaps and challenges

Annual reporting coverage remains limited: of the 184 historically endemic countries, only 41 (22.3%) met the annual benchmark in 2024, which is lower than the cumulative total of 57 countries (31.0%).

A further limitation is that inclusion in an essential service package does not itself demonstrate that services are fully implemented, adequately funded, accessible through PHC or routinely monitored; further evidence is needed to confirm that NTD interventions are costed, budgeted, delivered and tracked through national health systems.

Priority actions

Countries below the 75% benchmark should be prioritized for technical support and policy dialogue, and should review service packages and budgets to ensure interventions for all relevant endemic NTDs are included, costed and funded.

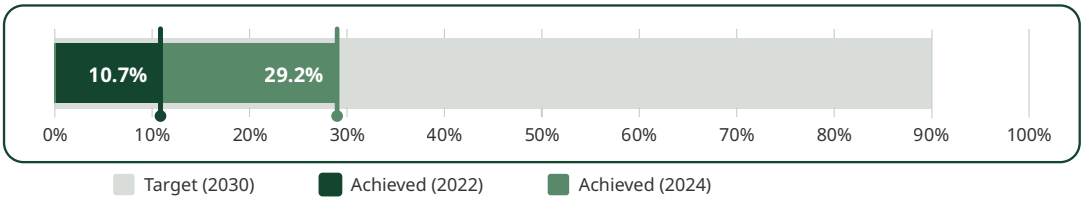
Inclusion in service packages and budgets should be linked to domestic financing, PHC, UHC, supply systems and national health information systems.

Annual monitoring should continue using the cumulative approach, complemented by periodic reverification that countries are sustaining inclusion and funding, rather than assuming these continue indefinitely, with future assessments emphasizing implementation, financing and service coverage.

[1] Armenia, Bahrain, Botswana, Burundi, Cabo Verde, Cameroon, the Congo, Cyprus, Czechia, Egypt, Eritrea, Ethiopia, Iraq, Japan, Jordan, Kiribati, Kuwait, the Lao People's Democratic Republic, Lesotho, Malta, Mauritania, Morocco, Mozambique, Namibia, the Niger, Oman, occupied Palestinian territory, including east Jerusalem, Papua New Guinea, Qatar, Togo, the United Republic of Tanzania and Zimbabwe.

Cross-cutting indicator 8: Share of countries with guidelines for management of neglected tropical disease-related disabilities within national health systems

Target (2030):
90%



Indicator definition, target and assessment method

This indicator measures the proportion of countries with national guidelines for managing NTD-related disabilities within national health systems. A country meets the benchmark when guidelines cover at least 75% of relevant disability-related NTDs.

The 2030 target is 90% of countries historically affected by disability-related NTDs meeting the benchmark.

Assessment of this indicator used GNARF data covering only disability-related NTDs, including noma. The denominator was NTDs with a valid response (included, not included or unknown); the numerator was NTDs coded as included in guidelines. Assessment was cumulative: countries meeting the benchmark by the end of 2023 were retained, with newly qualifying countries added in 2024.

Latest results and evaluation findings

In 2022, 19 countries met the benchmark (10.7% of 178 countries historically affected by NTD-related disabilities), and by 2023, this had risen to 33 countries (18.5%) *(47)*. In 2024, 55 countries had valid GNARF responses, of which 32 (58.2%) met the benchmark on current-year reporting; of these, 19 were newly qualified,[1] bringing the cumulative total to 52 (29.2%).

Progress for this indicator remains well below the 90% target of about 160 of 178 countries; with 52 countries meeting the benchmark, about 108 more would need to qualify by 2030. Guideline reporting has grown since monitoring began, but too slowly to reach the target. The updated analysis used for the mid-term evaluation, which included additional disability-related NTDs, such as noma, among others, produced only a small increase in the cumulative count compared with prior assessments that covered fewer disability-related NTDs.

Key gaps and challenges

Annual reporting coverage remains limited: of the 178 countries historically affected by disability-related NTDs, only 32 (18.0%) met the annual benchmark in 2024, which is lower than the cumulative total of 52 countries (29.2%).

A further limitation is that the existence of guidelines does not mean that services are implemented, resourced, supervised or accessible; further evidence is needed to confirm that guidelines translate into service delivery, rehabilitation, referral and routine monitoring.

Priority actions

Countries below the 75% benchmark should be prioritized for technical support to develop, update and implement NTD-related disability management guidelines, covering early detection, morbidity management, rehabilitation, referral, self-care, mental health and stigma reduction.

Guidelines should be linked to PHC, rehabilitation services, UHC, social protection services and national health information systems.

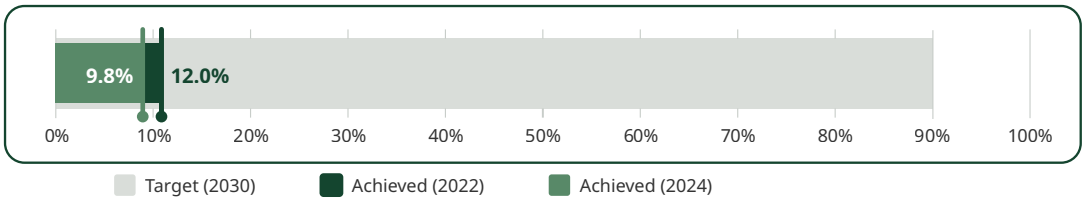
Annual monitoring should continue using the cumulative approach, complemented by periodic reverification that countries are sustaining guideline implementation, with future assessments emphasizing implementation and service availability.

[1] Cabo Verde, Cameroon, the Congo, Cyprus, the Democratic Republic of the Congo, Egypt, Eritrea, Eswatini, the Gambia, Guinea-Bissau, Iraq, Kuwait, Malta, Namibia, Nigeria, occupied Palestinian territory, including east Jerusalem, Qatar, Singapore and Zimbabwe.

Country ownership

Cross-cutting indicator 9: Share of countries reporting on all relevant endemic neglected tropical diseases

Target (2030):
90%



Indicator definition, target and assessment method

This indicator measures the proportion of countries reporting epidemiological or treatment data, or both, for all relevant endemic NTDs. A country meets the benchmark when it reports case and/or treatment data for at least 75% of its relevant endemic NTDs.

The 2030 target is 90% of endemic countries meeting the benchmark.

The mid-term evaluation assessed 2024 reporting completeness using GNARF country-by-disease reporting status. The denominator comprised diseases coded as endemic and requiring reporting or those known to be endemic but with no surveillance system or data available (with the latter inclusion reflecting a change in methods from previous assessments). The numerator was the number of relevant endemic NTDs for which a country reported case or treatment data (including zero values, which count as valid reporting). Although the benchmark was set at 75% completeness, a supplementary sensitivity threshold of 50% was also applied – not to reflect official achievement of the target but to identify countries approaching the benchmark.

Using GNARF allows reporting completeness to be assessed at both country and disease levels in a standardized way, but the 2024 data collection did not capture data from regional mechanisms in the Region of the Americas or the South-East Asia Region, which are reported through other channels. Results should therefore be read as GNARF-based completeness rather than complete global reporting.

Latest results and evaluation findings

In 2024, 78 countries submitted information on reporting status using the GNARF (42.4% of the 184 historically endemic countries; or 53.8% of the 145 countries in GNARF-reporting regions, after excluding the Region of the Americas and South-East Asia Region, which use other channels). Of these, 73 countries had at least one relevant endemic NTD and were included in the completeness assessment, covering 598 country–disease entries (average of 8.2 relevant NTDs per country; median: 7; range: 1–24). Countries reported case and/or treatment data for an average of 3.1 NTDs (range: 0–13).

Of the 73 countries assessed, 18 (24.7%) met the benchmark of reporting on at least 75% of their relevant endemic NTDs, equivalent to 9.8% of the full 184-country denominator.

Reporting completeness remains well below the 2030 target. Using revised, more comprehensive methods for this assessment, wherein endemic diseases with no surveillance system or available data were included in the denominator for the first time, achievement of the benchmark fell from 12.0% (22 countries) in 2022 and 11.4% (21 countries) in 2023 to 9.8% (18 countries) in 2024. This decline reflects the broadened denominator rather than necessarily a genuine drop in reporting. The gap between the 78 countries that submitted GNARF status information and the 18 that met the benchmark shows the key constraint is disease-specific reporting completeness, not participation in GNARF reporting alone. Using the supplementary 50% threshold, 33 countries (17.9% of the denominator) would qualify as meeting the benchmark, including the 18 that met the official 75% benchmark and another 15 that reported on 50–75% of relevant NTDs; these 15 countries have not achieved the indicator but may be closest to doing so.

The target corresponds to about 166 of the 184 countries; with 18 meeting the benchmark in 2024, a further 148 would need to do so by 2030 (or 133 even if using the lower 50% threshold).

Key gaps and challenges

Reporting completeness is the central gap: only one quarter of countries with at least one relevant endemic NTD met the 75% benchmark in 2024, and only 18 of 33 countries reporting on at least half their diseases reached the full threshold.

A further gap is surveillance system capacity: 43 countries had at least one disease coded as known to be endemic but with no surveillance system or available data (142 country–disease entries), indicating that incomplete reporting partly reflects gaps in underlying surveillance rather than compliance alone.

GNARF submission coverage was limited (42.4% of the full denominator, or 53.8% among GNARF-reporting regions). Reporting from the Region of the Americas and the South-East Asia Region is done through other mechanisms and is therefore not captured in this assessment, likely leading to an underestimate of completeness. Fragmentation across GNARF, disease-specific platforms and regional reporting mechanisms also limits a comprehensive, standardized assessment of reporting.

Priority actions

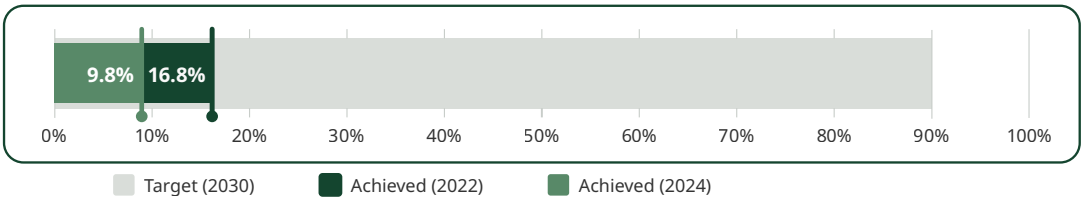
Countries should be supported to report case and treatment data for all relevant endemic NTDs annually through the GNARF or aligned mechanisms, prioritizing those countries with incomplete disease-specific reporting. Countries with no or limited surveillance systems for specific endemic diseases should receive targeted support to establish or strengthen these.

Countries reporting on 50–75% of relevant NTDs should receive focused follow-up, as they may be closest to reaching the benchmark. Reporting systems should be harmonized to reduce fragmentation across the GNARF, disease-specific platforms and regional mechanisms, with countries given feedback on missing data through validation checks and dashboards.

Annual monitoring should continue using the 75% benchmark, complemented by efforts to integrate regional data from the Region of the Americas and the South-East Asia Region, and encourage full alignment with the GNARF or equivalent mechanisms, for a more complete and standardized picture of global reporting.

Cross-cutting indicator 10: Share of countries collecting and reporting data on neglected tropical diseases disaggregated by gender

Target (2030):
90%



Indicator definition, target and assessment method

This indicator measures the proportion of countries collecting and reporting NTD data disaggregated by gender. A country meets the benchmark when it reports gender-disaggregated data for at least 75% of its relevant endemic NTDs.

The 2030 target is 90% of endemic countries meeting the benchmark.

Assessment of this indicator used GNARF country-by-disease endemicity status and disease-specific reporting by gender. The denominator included only diseases coded as endemic; the numerator comprised those diseases for which the country reported female and/or male data, excluding data reported only as unknown sex or sex unspecified. In line with the road map, the indicator is framed in terms of gender; however, the underlying data are disaggregated by sex (female and male), and that is the categorization used in the reporting.

The evaluation also assessed whether countries reported collecting gender-disaggregated data nationally, with responses classified as yes, no or unknown; the collection benchmark was met when at least 75% of valid disease responses were coded as yes.

Use of the GNARF allowed data collection and reporting to be assessed consistently at both country and disease levels but did not capture regional data from the Region of the Americas or the South-East Asia Region, which are reported through other channels. Findings should therefore be read as GNARF-based completeness rather than complete global reporting.

Latest results and evaluation findings

In 2024, 57 countries had at least one disease coded as endemic in the GNARF dataset and were included in the assessment. Of these, 18 (31.6%) met the reporting benchmark, equivalent to 9.8% of the full 184-country denominator.

For national data collection, 55 countries gave valid responses across 437 country–disease entries. At the country–disease level, 341 entries (78.0%) were coded as collecting gender-disaggregated data nationally; 41 of 55 countries (74.5%) reported collecting gender-disaggregated data for at least 75% of their relevant diseases.

Reporting remains well below the target, declining from 16.8% (31 countries) in 2022 and 13.0% (24 countries) in 2023 to 9.8% (18 countries) in 2024 *(47)*. However, these values should be interpreted with caution, as 2023 included regional-mechanism data that were excluded from the 2024 GNARF-only assessment. With a denominator of 184 countries, the target is about 166 countries, so a further 148 countries would need to qualify by 2030 to meet the target.

The evaluation found a clear collection-to-reporting gap: many countries report collecting gender-disaggregated data, but far fewer submit usable data through the GNARF, indicating the bottleneck lies in data transmission, standardization and validation as much as in collection itself.

Key gaps and challenges

Fewer than one third of countries with at least one endemic NTD met the 75% reporting benchmark in 2024, leaving gender-disaggregated reporting insufficient to support equity-focused monitoring across NTD programmes.

The collection-to-reporting gap is substantial: although 41 of 55 countries reported collecting gender-disaggregated data for at least 75% of relevant diseases, only 18 met the benchmark for reporting these data to WHO.

Exclusion of data from the Region of the Americas and the South-East Asia Region may also underestimate overall completeness of data reporting. Fragmentation across GNARF, disease-specific and regional data platforms remains a constraint to achieving a standardized picture.

Priority actions

Countries should be supported to report gender-disaggregated data annually through the GNARF or aligned mechanisms, prioritizing incomplete reporters; those countries collecting data nationally but not submitting them should get targeted support for transmission, validation and reporting workflows.

Reporting tools should be harmonized so gender-disaggregated fields are consistently available across platforms, with countries given feedback on missing data through validation checks and dashboards, prioritizing NTDs with the largest gaps.

Annual monitoring should continue to assess both data collection and reporting using the 75% benchmark, complemented by efforts to integrate regional data from the Region of the Americas and the South-East Asia Region for a more complete, standardized picture.

3.2 Status by region

This section examines NTD progress, challenges and priorities throughout 2021–2025 in each of the six WHO regions, covering disease burden and treatment coverage, elimination milestones achieved, constraints on delivery, and the strategic orientation for 2026 to 2030.

Progress has differed in scale and pace. Most regions have substantially reduced the number of people requiring interventions since 2020, and elimination momentum has been sustained, with several countries reaching validation of elimination of an NTD as a public health problem or verification of elimination (interruption of transmission) for the first time. Progress has nevertheless slowed or reversed in some settings, reflecting conflict, displacement and access constraints in some regions, and imported infection and climate-sensitive vector expansion in others. Regional aggregates summarize progress at the regional level. As remaining transmission becomes increasingly focal, they may not fully reflect variation between countries within a region or between areas within a country, and may not adequately identify populations that remain underserved, including

remote, migrant, border, displaced and marginalized communities. Progress recorded at one time point does not guarantee that it will be sustained. Countries that have reduced transmission, stopped interventions or achieved elimination can subsequently record renewed transmission or a rising burden. Sustaining achievement therefore depends on post-elimination surveillance and response capacity being maintained as routine functions of the health system, rather than as time-limited programme activities.

Shared enablers underpin this progress, including regional strategic frameworks and technical advisory groups, long-standing medicine donation partnerships, high-level political commitment expressed through cross-border agreements, and integrated multi-disease approaches. Recurring challenges include declining external financing, limited domestic allocation, incomplete surveillance and the difficulty of reaching the last mile in remote, migrant and marginalized communities.

Priorities for 2026–2030 combine common adjustments with region-specific approaches. All regions are pursuing integrated delivery, institutionalization of post-elimination surveillance, diversified financing and the embedding of NTD interventions within PHC. They have also adopted distinct strategic orientations, ranging from multi-disease elimination frameworks through to approaches tailored to high-burden, last-mile and post-elimination settings, and to a shift from vertical intervention towards preparedness and health system readiness where disease burden is low or largely imported. Across all six regions, remaining transmission is increasingly focal and heterogeneous, so aggregate figures can mask substantial variation in progress between and within countries.

The diversity of regional epidemiological and health system contexts offers scope for learning across regions. Systematic documentation of the approaches that have driven progress, and of the conditions under which they worked, would allow regions to adapt experience from one another.

3.2.1 African Region

Epidemiological changes

In the African Region, the highest number of people requiring interventions against NTDs was recorded as 666 million in 2013. By 2024, this had declined to 511 million: a reduction of 17% from the 2010 baseline (614 million) and 12% from 2020 (578 million) (Fig. 3.8).

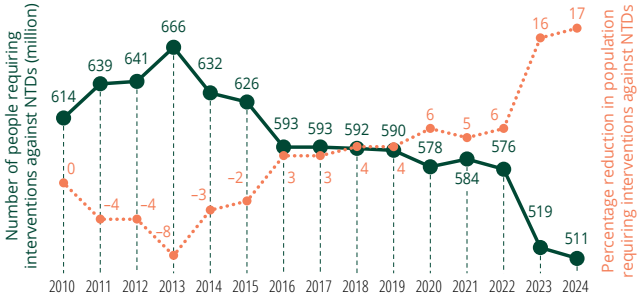
The integrated preventive chemotherapy index reflects treatment coverage across five NTDs, with a 2030 coverage target of 75%. In 2024, the Region reported an integrated preventive chemotherapy index of 58. This represents a steady increase from 2020, when the reported index was 37.

Key successes and implementation challenges, 2021–2025

Key successes

The African Region achieved several high-impact elimination milestones. By the end of December 2025, 22 of the 47 countries in the Region had achieved elimination of at least one NTD, of which 10 countries eliminated more than one NTD (Côte d'Ivoire, Kenya, Malawi, Mauritania, the Niger, Senegal and Uganda each eliminated two diseases; Benin and Ghana eliminated three; and Togo eliminated four). Although this represents meaningful progress, it remains below the trajectory required to meet 2030 targets. Progress is also heterogeneous, both between countries and between diseases. Between 2021 and 2025, WHO designated eight countries (Benin, Chad, Equatorial Guinea, Ghana, Guinea, Kenya, Rwanda and Uganda) as having eliminated human African trypanosomiasis as a public health problem. On 13 January 2025, WHO verified the Niger as the first country in the African Region, and the fifth worldwide, to eliminate transmission of onchocerciasis, following more than 4 decades of vector control and ivermectin-based MDA.

Fig. 3.8. Number of people requiring interventions against NTDs in the WHO African Region in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

Leprosy programmes demonstrated strong performance, with all 47 countries in the Region submitting leprosy reports in 2024. A 32% reduction in leprosy prevalence rate and a 33% decline in case detection rate since 2013 indicate sustained progress and alignment with global leprosy elimination goals. Sustained elimination of leprosy as a public health problem has been maintained across nearly all countries, and eight countries reported zero new child cases for 5 consecutive years, indicating progress towards transmission interruption. Expanded contact screening and PEP were reported in 16 countries,[1] strengthening prevention and early detection.

Substantial progress was made towards trachoma elimination in the Region between 2021 and 2025. Eight countries were validated for elimination of trachoma as a public health problem.[2] The population living in districts requiring antibiotic treatment, facial cleanliness and environmental improvement interventions for trachoma elimination purposes decreased from 124.7 million in 2021 to 96.2 million by April 2025. However, 19 countries in the Region still required such interventions as of December 2025.

The Region has also sustained progress toward Guinea-worm disease eradication since 2021, with human cases remaining at historically low levels and transmission increasingly confined to a few countries. After 15 cases in 2021, 13 in 2022 and 14 in 2023, the Region reported 15 cases in 2024, all in Chad (9) and South Sudan (6). In 2025, programme-reported figures indicate a further decline to 10 cases, distributed across Chad (4), Ethiopia (4) and South Sudan (2). WHO continues to emphasize that the last mile is increasingly shaped by infections in non-human mammalian definitive hosts (especially dogs and cats), and there is a need to sustain strong community-based surveillance and rapid response in remaining affected areas.

Cross-border and regional collaboration intensified for visceral leishmaniasis, with nine countries in the WHO African Region and Eastern Mediterranean Region[3] signing a memorandum of understanding to accelerate elimination of this NTD as a public health problem. This reflects high-level political commitment and recognition of shared epidemiological risk between these countries.

Significant progress was made between 2021 and 2025 in the control and elimination of schistosomiasis and soil-transmitted helminthiases, and integration of taeniasis control in schistosomiasis programmes in the African Region. Several countries reported reductions in the number of children requiring preventive chemotherapy, supported by sustained MDA and strengthened monitoring systems. The Region also advanced preparations for validating elimination of schistosomiasis and soil-transmitted helminthiases as public health problems, and for verifying interruption of schistosomiasis transmission. Increased recognition of urogenital schistosomiasis, including female genital schistosomiasis, led to the establishment of a Regional Technical Advisory Group and development of regional tools, risk maps and integration packages to support incorporation of female genital schistosomiasis into sexual and reproductive health, HIV, cervical cancer and PHC services. Countries also strengthened One Health approaches for taeniasis and cysticercosis through enhanced surveillance and integrated human–animal interventions *(4)*.

Following WHO's recognition of noma as an NTD in December 2023, the African Region has accelerated noma's integration into NTD prevention and control, while road map targets and milestones are being defined. Progress includes intersectoral and multisectoral policy dialogues; integrating noma into NTD surveillance, including active case-finding for this condition alongside MDA interventions against other diseases; joint training on skin NTDs and noma; and inclusion in national NTD master plans. Systematic reviews *(154, 155)* and regional reporting indicate that 19 countries[4] reported noma cases during 2010–2023, with the highest burden in Guinea-Bissau, Nigeria and the Niger; however, underreporting remains a major challenge, and the true burden is uncertain. In 2023, nine countries[5] included noma in national policies, and 10 countries[6] reported regular integrated surveillance in the Region.

Key challenges

The African Region has continued to face significant last-mile challenges, particularly in conflict areas and in mobile and underserved populations. The number of autochthonous visceral leishmaniasis cases reported to WHO increased by 44%, from 3464 cases in 2020 to 4987 cases in 2024. These cases occurred in eight countries: Algeria (35 cases), Cameroon (66), Chad (265), Eritrea (311), Ethiopia (1434), Kenya (1575), South Sudan (978) and Uganda (323). This highlights gaps in surveillance, access to diagnosis and treatment, and the impact of fragility in high-burden settings.

[1] Angola, Benin, Chad, the Comoros, Côte d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Ghana, Madagascar, Mozambique, Rwanda, Senegal, South Sudan, the United Republic of Tanzania, Togo and Uganda.

[2] The Gambia (April 2021), Togo (May 2022), Malawi (September 2022), Benin and Mali (May 2023), Mauritania (May 2025) and Burundi and Senegal (July 2025).

[3] Chad, Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, the Sudan and Uganda.

[4] Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Ghana, Guinea-Bissau, Kenya, Madagascar, Mali, Mozambique, the Niger, Nigeria, Senegal, South Africa, Togo and Uganda.

[5] Benin, Guinea-Bissau, Liberia, Mali, Mozambique, the Niger, Nigeria, Senegal and Togo.

[6] Benin, Burkina Faso, Côte d'Ivoire, the Democratic Republic of the Congo, Guinea-Bissau, Mali, the Niger, Nigeria, Senegal and Togo.

Although there has been progress towards rabies elimination in certain countries (for example, Botswana, Eswatini, Guinea-Bissau, Lesotho, Mauritania and Seychelles reported zero cases of human rabies in 2024), it remains a major cause of preventable mortality. Improved reporting (with 34 countries reporting rabies cases in 2024, compared with six in 2020) has revealed the scale of the challenge but has also increased pressure on already stretched systems, as observed for other NTDs.

The Region's Guinea-worm disease eradication effort remains vulnerable to insecurity, population movement, limited funding and zoonotic transmission, requiring sustained vigilance and resources.

Schistosomiasis and soil-transmitted helminthiases programmes in the African Region are among the most affected by significant sustainability challenges caused by declining external financing, competing health priorities and limited domestic resource allocation. Medicine donations remain a critical enabler for school-aged children, but adults, and especially vulnerable women of reproductive age, are critically left out. Achieving the 2030 targets will require increased country ownership and integration of interventions within PHC and other health programmes. In the same vein, strengthened domestic financing mechanisms are required to achieve and sustain elimination as a public health problem and eventually interruption of *Schistosoma* spp. transmission.

Across multiple NTDs, financing gaps, health workforce shortages and suboptimal integration into routine health systems threaten the sustainability of gains. Programmes rely on medicine donations, which have enabled sustained treatment access but leave delivery dependent on donation agreements and their timelines, while domestic procurement and supply chain capacity remain limited in most countries.

Regional priorities for 2026–2030

During the 2026–2030 period, the African Region will prioritize validating elimination of lymphatic filariasis as a public health problem in Benin, the Comoros, Eritrea, Mali, the Niger, Senegal, Sao Tome and Principe, and Uganda, and verifying elimination of onchocerciasis transmission in Senegal. Support will be provided to Malawi and Togo to institutionalize post-validation surveillance for lymphatic filariasis using WHO-recommended platforms. The Region will also pursue verification of elimination of transmission of the gambiense form of human African trypanosomiasis in at least six countries (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Senegal and Togo). Additionally, the Region will continue targeted technical support to remaining trachoma-endemic countries to achieve elimination thresholds for active trachoma and trachomatous trichiasis and to finalize elimination dossiers.

Further emphasis will be placed on strengthening surveillance and community awareness of Guinea-worm disease, alongside reinforced advocacy and resource mobilization for all NTDs. Accelerated efforts will focus on visceral leishmaniasis elimination, including provision of support to Member States (Chad, Eritrea, Ethiopia, Kenya, South Sudan and Uganda) to adapt and implement updated WHO guidelines, strengthen surveillance and case management, and operationalize regional commitments.

Priority actions for leprosy include strengthening integrated surveillance, by combining community-based case detection, contact screening and PEP. Integrated skin NTD approaches linking leprosy with Buruli ulcer, yaws and mycetoma will be expanded to improve efficiency and access to treatment, especially for children and marginalized groups. These efforts will be underpinned by strengthened health system capacity and data quality, through targeted workforce training and use of DHIS2-based leprosy elimination monitoring tools.

Across all NTDs, the Region will intensify targeted and sustainable action by implementing spatial targeting of NTD interventions in the most affected areas, reinforcing regional coordination, strengthening integrated vector control approaches, mobilizing diversified financing and providing tailored support to countries. The Region will also strengthen domestic procurement and supply chain capacity, including regional manufacturing of quality-assured NTD medicines. The sequence of activities is important, as import restrictions introduced before local production is able to meet programme requirements would affect the availability of medicines that are currently used.

Main programme enablers, challenges and strategic approaches for 2026–2030

Programme enablers

The African Region benefits from several strong enablers as it enters the next phase. Long-standing medicine donation partnerships have ensured uninterrupted access to treatment, and global pharmaceutical partnerships continue to underpin elimination efforts for multiple diseases. High-level advocacy at both global and regional levels has sustained political commitment and mobilized attention from governments, international bodies and civil society.

Regional strategic frameworks provide structured platforms for coordinated action across endemic

countries, aligning national plans with shared elimination targets. Continental commitments, notably the African Union's *Common African position on neglected tropical diseases in Africa (156)* and the *Continental framework on the control and elimination of neglected tropical diseases in Africa by 2030 (131)*, both adopted in 2022, have reinforced this alignment. These sit alongside the July 2024 partnership agreement between the African Union Development Agency (AUDA-NEPAD) and Uniting to Combat NTDs to jointly mobilize resources and strengthen political will for NTD elimination across the continent *(157)*.

Illustrative examples of these enablers include:

- the roles of the WHO Goodwill Ambassador for Leprosy Elimination and the UN Special Rapporteur on discrimination against persons with leprosy in driving policy commitment;
- the provision of multidrug therapy and PEP for leprosy through pharmaceutical partnerships; and
- the *Strategic framework for the elimination of visceral leishmaniasis as a public health problem in eastern Africa 2023–2030 (27)* as a model for regionally coordinated programmatic planning.

Persisting challenges

Key challenges include financing gaps, insecurity and humanitarian crises, health worker shortages and weak integration of NTD services into PHC and national surveillance systems. The burden of NTDs remains concentrated in fragile settings, where access constraints and population movement undermine coverage and continuity.

Strategic approaches and actionable recommendations

Achieving 2030 targets will require integrated multi-disease approaches, strengthened surveillance platforms and sustained investment in national ownership. Priority actions include scaling up community-based and geotargeted interventions, institutionalizing post-validation surveillance, diversifying financing and embedding NTD elimination strategies within national health sector strategic plans and budgets.

By reinforcing regional coordination, leveraging partnerships and prioritizing equity-focused delivery, the African Region aims to accelerate progress while ensuring that NTD elimination gains are sustained.

3.2.2 Region of the Americas

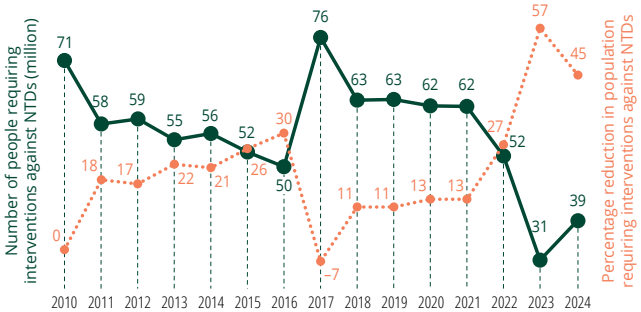
Epidemiological changes

The Region of the Americas has made substantial progress in reducing the transmission and burden of multiple NTDs, with several diseases approaching elimination or already eliminated in some countries. Remaining transmission is increasingly focal, population specific and geographically concentrated, particularly in border, remote and vulnerable settings.

The highest reported number of people requiring interventions for NTDs in the Region of the Americas was 76 million in 2017. In 2024, this declined to 39 million, representing a 45% reduction from the 2010 baseline and a 37% reduction since 2020 (Fig. 3.9). This decline reflects the collective impact of MDA, validation or verification of elimination of diseases, and reassessment of the need for treatment. MDA for soil-transmitted helminthiases, combined with sanitation improvements, was associated with substantial declines in prevalence of these diseases in Nicaragua, from 17% in 2014 to 6% in 2023, and Honduras, from 43.5% in 2011 to 18% in 2024.

The integrated preventive chemotherapy index reported by the Region remained low but increased from 2 in 2020 to 6 in 2024. The main driver of this low index is low coverage rates for trachoma (7% in 2024), lymphatic filariasis (5.5% in 2024) and schistosomiasis (zero in 2024). Two endemic countries in the Region (the Bolivarian Republic of Venezuela and Brazil) requiring preventive chemotherapy for schistosomiasis have not implemented MDA.

Fig. 3.9. Number of people requiring interventions against NTDs in the WHO Region of the Americas in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

Key successes and implementation challenges, 2021–2025

Key successes

The Region of the Americas recorded several high-impact elimination milestones between 2020 and 2025. By the end of December 2025, five of the 35 countries in the Region had achieved elimination of at least one NTD. Brazil eliminated lymphatic filariasis as a public health problem in 2024. Several countries and territories in Central America, South America and the Caribbean[1] reported zero or fewer than 10 leprosy cases annually, on average. In addition, Chile submitted its dossier for validation of elimination of dog-mediated human rabies in 2025, which is under expert review. Paraguay submitted a request for certification of yaws-free status in 2025.

Substantial progress was achieved across nine schistosomiasis-endemic Caribbean countries or territories, following a regional expert consultation that clarified evidence requirements for verification of transmission interruption. Based on tailored technical guidance, three countries are now positioned to work on and submit elimination dossiers, while four others should bolster their evidence for absence of human cases.

In 2024, the Region reported the lowest recorded numbers of both visceral leishmaniasis (1348 cases, a 16% reduction from the 2021 baseline, driven largely by declines in Brazil, which accounts for more than 90% of the burden) and cutaneous leishmaniasis (30 036 cases, a 21% reduction from the 2021 baseline), although increases were observed in six countries (Argentina, Colombia, Costa Rica, Ecuador, Guyana and Suriname).

The Region has harnessed innovative developments in surveillance and treatment since 2020. Quality of care and efficiency were improved through broad training of health professionals; expanded use of thermotherapy for uncomplicated cutaneous leishmaniasis in most endemic countries; and integrated impact surveys for soil-transmitted helminthiases, taeniasis, fascioliasis and trachoma, with model-based geostatistical sampling applied to soil-transmitted helminthiases surveys. Surveillance for trachoma expanded through the implementation of Plus surveys, which incorporate polymerase chain reaction or serology components, or both. Seven countries (the Bolivarian Republic of Venezuela, the Plurinational State of Bolivia, Brazil, Colombia, Ecuador, Guatemala and Mexico) used Plus surveys to generate evidence on the epidemiological situation. These surveys also enabled provision of integrated health services in remote areas, such as malaria and Chagas disease testing, skin disease screening and eye care, improving access to care in these areas.

Effective regional coordination mechanisms supported progress, particularly for rabies and snakebite envenoming, among other diseases. Dog-mediated human rabies declined by nearly 97% in the Region, from about 300 annual cases in 1983 to two cases in two countries in 2020, and nine cases in three countries in 2025. Mandatory notification systems were strengthened, and the *Regional plan for the elimination of canine rabies (2024–2030) (158)* was adopted. From 2021 to 2024, snakebite remained the most severe envenoming in the Region, increasing from 51 000 to 58 000 cases annually, and from 192 to 266 reported deaths. During this period, regional coordination was strengthened through expanded notification, country exchanges via the Regional Meeting of National Programs for Venomous Animals Accidents in Latin America and the Caribbean, support for public antivenom production, deployment of technical tools and improved access to antivenoms.

Key challenges

Despite progress in the Region, several critical challenges remain. The Yanomami territory (on the border between the Bolivarian Republic of Venezuela and Brazil) represents the last remaining focus of onchocerciasis in the Americas, and its elimination remains difficult because of population mobility, access constraints and suboptimal treatment coverage in recent rounds. Although several subregions demonstrated suppression of transmission of onchocerciasis, the persistence of transmission in this remaining area jeopardizes achievement of the 2030 elimination target.

Arboviral diseases, particularly dengue, represent a growing public health challenge in the Region of the Americas. Confirmed dengue cases increased from 1.02 million in 2020 to 1.7 million in 2025. Similarly, suspected dengue cases rose substantially, from 2.3 million in 2020 to 4.5 million in 2025. These trends indicate a significant escalation in transmission and place increasing pressure on surveillance, prevention and response systems.

Chagas disease is endemic across the Region, with about 50 million people at risk. By December 2024, interruption of domiciliary vectorial transmission had been verified in the entire national territory of three countries (Chile, Paraguay and Uruguay) and in parts of five others. As vectorial transmission has fallen, congenital transmission has become the most relevant route worldwide *(47)*.

[1] Antigua and Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, El Salvador, Grenada, Guatemala, Honduras, Jamaica, Montserrat, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Uruguay.

Progress toward yaws eradication has been constrained by the limited applicability of current guidance for evaluating interruption of transmission in previously endemic countries in the Region, considering there is no evidence of transmission of the disease in at least 30 years and the available serological tests lack specificity. PAHO is developing a protocol to evaluate the absence of yaws in the Americas that is aligned to WHO guidance but tailored to the Region's epidemiological scenario.

Substantial data gaps remain a critical challenge, particularly for NTDs and other underreported conditions. Reliable, timely and disaggregated data are often lacking for diseases such as Chagas disease, cysticercosis and echinococcosis, as well as for scabies and other ectoparasitoses.

Across multiple NTDs, financial constraints, high operational costs in remote settings, workforce turnover, political instability, migration and humanitarian crises complicate service delivery, surveillance and sustainability. Persistent gaps in diagnostics remain, including limited availability and access to testing, particularly for diseases such as leishmaniasis and Chagas disease. Along with a lack of integrated care and post-elimination surveillance, these gaps increase the risk of delayed detection and recrudescence.

Regional priorities for 2026–2030

During 2026–2030, the Region of the Americas will focus on finalizing elimination agendas while consolidating gains in post-elimination settings. Key priorities for elimination include:

- verification of elimination of schistosomiasis transmission in Caribbean countries and territories;
- validation of elimination of lymphatic filariasis as a public health problem in the Dominican Republic;
- implementation of impact assessments to determine eligibility for validation of elimination of soil-transmitted helminthiases as a public health problem;
- a fascioliasis impact survey in the Plurinational State of Bolivia;
- verification of leprosy elimination in remaining eligible countries, and accelerated action to eliminate the disease in low-burden countries;
- accelerated action to eliminate onchocerciasis in the last remaining focus area;
- certification of countries for the interruption of yaws transmission;
- completion of trachoma surveillance and post-validation monitoring in Mexico; and
- elimination of visceral leishmaniasis as a public health problem in most endemic countries.

Additional priorities include providing technical support for canine rabies control in priority countries (the Bolivarian Republic of Venezuela, the Dominican Republic, Haiti and the Plurinational State of Bolivia), while strengthening snakebite envenoming surveillance systems, country capacity for diagnosis and treatment, antivenom management and regional cooperation to ensure timely access for high-risk, underserved populations.

Other priorities include integrated approaches across diseases. The expanded implementation of integrated multi-disease approaches that leverage existing health system platforms will be central to achieving the 2030 goals *(159, 160)*. These approaches can reduce operational costs, improve efficiency and extend service coverage to underserved and hard-to-reach populations. By optimizing the use of personnel and resources and enhancing service delivery, this model accelerates progress towards elimination targets and advances equity and UHC. Examples include combined surveys for diseases such as soil-transmitted helminthiases, taeniasis and cysticercosis, and trachoma, among other initiatives.

Main programme enablers, challenges and strategic approaches for 2026–2030

Programme enablers

Integrated multi-disease approaches have emerged as a key enabler, bringing together coordinated interventions and surveillance systems for overlapping diseases in remote populations.

The Region of the Americas benefits from a strong policy and institutional environment supporting NTD elimination, underpinned by robust regional information systems, longstanding political commitment to rabies elimination, established One Health collaboration (with PAHO/PANAFTOSA regional coordination through REDIPRA – the Meeting of Directors of National Rabies Program of the Americas – and SIRVERA) and regional platforms for antivenom production and procurement. Over the past 5 years, this enabling environment has been further strengthened through successive policy frameworks, including the *Plan of action for the elimination of neglected infectious diseases and post-elimination actions (2016–2022) (161)* and the PAHO Diseases Elimination Initiative, endorsed in 2019 *(162)*. Together, these provide an integrated framework to sustain, accelerate and innovate elimination efforts. Experience with tailored, country-specific elimination road maps provides a strong foundation for accelerated verification.

The trachoma elimination initiative in the Region incorporates gender, ethnicity and intercultural approaches through community health worker knowledge dialogues ("*diálogos de saberes*"), use of tools and development of guidelines. These participatory processes build trust, strengthen community engagement and promote equitable access to culturally appropriate prevention and care among underserved populations.

Persisting challenges

Progress towards NTD elimination in the Region remains constrained by persistent financing gaps and the high operational costs associated with reaching remote, dispersed and marginalized populations. Weak integration between surveillance, case management and follow-up limits the effectiveness of interventions and delays timely response. Frequent changes in political leadership, administrative authorities and local health personnel, combined with broader political instability, undermine programme continuity and institutional memory.

Migration, humanitarian crises and conflict further disrupt implementation and increase NTD risk among vulnerable populations, including miners, migrants, incarcerated people and Indigenous communities. Access to diagnostics, medicines and integrated services remains uneven because of supply shortages, regulatory barriers and geographical inaccessibility, while uptake of innovations such as thermotherapy for cutaneous leishmaniasis remains slow.

Disease-specific challenges persist, including uneven vaccination, underreporting and cross-border transmission of canine rabies; fragmented data systems and regulatory gaps for envenoming; resource constraints limiting integration of vector control interventions for dengue, chikungunya and other arboviral infections; and the remoteness of the last onchocerciasis focus in the Yanomami region, where population mobility and access constraints continue to impede elimination.

Strategic approaches and actionable recommendations

Progress towards 2030 targets will require integrated multi-disease approaches that leverage existing health system platforms to improve efficiency and reduce operational costs, particularly in underserved and hard-to-reach populations. Building on recent experience in the Amazon basin, expanding integrated, community-centred service delivery models that bring together multiple health interventions through a single platform should become a priority for reaching remote, Indigenous and other underserved populations. These approaches, combined with strengthened cross-border collaboration in shared endemic areas, can improve access to diagnosis, treatment and prevention, while increasing the efficiency and sustainability of disease elimination efforts. Strengthening One Health implementation will be essential for zoonotic and vector-borne NTDs, while expanded use of integrated surveillance, including multiplex platforms and combined surveys, will enhance data quality and strategic decision-making. Equity and sustainability should be reinforced through community-centred and intercultural approaches, ensuring meaningful engagement of vulnerable populations.

Sustaining gains in rabies elimination will require protected national budgets, mandatory notification, full investigation of suspected cases, workforce expansion and intensified cross-border prevention in persistent hotspots. For snakebite envenoming, priorities include stronger governance, regulatory harmonization, laboratory capacity development, South–South cooperation, and sustainable financing and procurement mechanisms. Building on the surveillance, care and control capacity for arboviral infections already established across countries and territories in the Region, priorities include strengthening the integration of vector control interventions for dengue, chikungunya and other arboviral infections into broader NTD programme delivery.

Broader progress will depend on diversified resource mobilization, expanded strategic partnerships, strengthened cross-sectoral collaboration, and increased national ownership through policy alignment and institutionalization within health plans and budgets.

3.2.3 South-East Asia Region

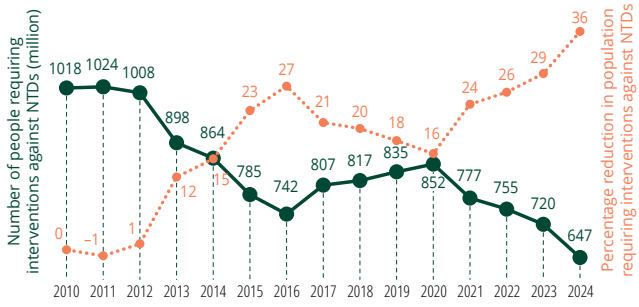
Epidemiological changes

Of the 21 NTDs that WHO prioritizes globally, 16 are present in the South-East Asia Region, with all 10 Member States affected by at least one disease.

The number of people requiring NTD interventions in the South-East Asia Region reached a high of 1.024 billion in 2011 and has since declined to 647 million in 2024, representing a 36% reduction from the 2010 baseline and a 24% reduction from 2020 (Fig. 3.10). This decline reflects the cumulative impact of expanded MDA (including school-based deworming) and individual disease management, leading to multiple eliminations, including of lymphatic filariasis, visceral leishmaniasis

(also known as kala-azar in the South-East Asia Region), trachoma and yaws. To reach the 2030 target of a 90% reduction from 2010, the Region must reduce the burden of people requiring NTD interventions to about 102 million. Although progress to date is substantial, achieving the remaining reduction will require completing lymphatic filariasis elimination in the three countries where transmission persists and maintaining strong soil-transmitted helminthiases control in several large, high-burden countries.

Fig. 3.10. Number of people requiring interventions against NTDs in the WHO South-East Asia Region in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

After reaching 80 in 2015, COVID-19 interruptions caused the integrated preventive chemotherapy index in the Region to drop to 48 in 2020. It subsequently recovered to 74 in 2024, just below the 2030 target and well above the global average of 59.

Key successes and implementation challenges, 2021–2025

Key successes

The South-East Asia Region's most significant achievements during 2021–2025 centred on an unprecedented series of elimination validations. As of December 2025, eight countries had eliminated at least one NTD (India eliminated three diseases, Bangladesh eliminated two diseases, and six other countries each eliminated one disease). Bangladesh and Timor-Leste achieved validation for eliminating lymphatic filariasis in 2023 and 2024, respectively. Maldives, Sri Lanka and Thailand successfully sustained earlier lymphatic filariasis elimination gains through strong surveillance and morbidity management systems. Bangladesh became the first country globally to be validated for elimination of visceral leishmaniasis as a public health problem in 2023. India also achieved this elimination target in all endemic blocks by 2023, and Nepal followed in 2024.

India's validation of elimination of trachoma as a public health problem in 2024 added another major milestone, and Maldives achieved interruption of transmission of leprosy, being the first country in the Region to do so.

A second area of progress relates to governance, strategy and regional coordination. The *Regional strategic framework for sustaining, accelerating and innovating to end neglected tropical diseases in the South-East Asia Region, 2024–2030* was endorsed in 2023 *(163)*. This framework established a unified platform aligned to the global road map while adapting to the Region's specific epidemiological context. The Regional Partners' Forum convened by WHO in New Delhi in April 2024 served as a high-level advocacy and accountability platform, emphasizing collaborative efforts and resource mobilization *(164)*. Technical advisory support was expanded through the establishment or renewal of Regional Technical Advisory Groups covering dengue and other arboviruses, lymphatic filariasis, rabies and the combined malaria–visceral leishmaniasis agenda. Regional action plans for snakebite envenoming and visceral leishmaniasis elimination, along with the Regional Technical Advisory Group on Dog-Mediated Human Rabies (established in 2022), reinforced strategic guidance for Member States.

Innovation and integrated approaches have been central to programme advances. Integrated programme reviews in Bhutan, Indonesia,[1] Nepal and Sri Lanka identified shared operational challenges and integration opportunities across vector-borne diseases, skin NTDs and rabies, informing more coordinated country-level action for disease-specific programmes. A meeting jointly organized by WHO and the Coalition for Operational Research on NTDs (COR-NTD) Research Secretariat, the Regional COR-NTD Meeting for South-East Asia (also held in New Delhi in April 2024), brought together programme managers and local researchers to discuss integrated surveillance: active case detection, serosurveillance and xenomonitoring *(165)*. The adoption of multiplex serosurveillance and enhanced geospatial analytics improved the efficiency and accuracy of monitoring, particularly in settings facing diagnostic limitations. Digital transformation accelerated the creation of regional dashboards for dengue, leishmaniasis, leprosy and rabies, strengthening data visibility and enabling timelier operational decision-making. In particular, a monthly standardized dengue data-reporting mechanism was established, which feeds into regional and global dengue dashboards. Clinical capacity improved through use of WHO Academy e-learning courses on dengue management *(72)* and regional hands-on training programmes.

[1] The integrated programme review in Indonesia was conducted in August 2024. As of 27 May 2025, Indonesia has been reassigned to the WHO Western Pacific Region (resolution WHA78.25, https://apps.who.int/gb/ebwha/pdf_files/WHA78/A78_R25-en.pdf).

Cross-border and multisectoral collaboration advanced considerably. A jointly convened regional meeting on cross-border elimination of malaria, visceral leishmaniasis and lymphatic filariasis between India and Nepal enabled progress towards harmonized surveillance, timely case referral and commitment to synchronizing lymphatic filariasis MDA across border districts. A joint malaria–lymphatic filariasis capacity-building workshop between Indonesia and Timor-Leste in 2025 further demonstrated the value of cross-border collaboration and coordinated approaches in supporting programmatic responses. Regional training in rabies laboratory diagnosis and case management, jointly organized with the World Organisation for Animal Health (WOAH), strengthened One Health coordination and laboratory capacity.

Key challenges

Despite significant achievements since the launch of the road map, several critical challenges persist in the Region. For lymphatic filariasis, the number of people requiring preventive chemotherapy declined from 480.4 million in 2020 to 319.8 million in 2024, while coverage among the targeted population increased from 43% to 82% over the same period. Nevertheless, the last mile remains challenging, with uneven treatment coverage persisting in remote, migrant and marginalized communities. Diagnostic limitations in areas endemic for *Brugia* spp. and emerging zoonotic brugian filariasis represent challenges that extend beyond the scope of standard MDA approaches. Sustaining post-validation surveillance is also essential for early detection and prevention of recrudescence.

Leprosy continues to pose a substantial challenge (74 514 cases in 2020 versus 109 597 cases in 2024), with high rates of cases in children and grade 2 disability indicating ongoing transmission and delayed diagnosis. Slow uptake of single-dose rifampicin for PEP (SDR-PEP) represents a missed opportunity for accelerating transmission reduction. Dengue remains a major and growing public health concern (150 412 cases in 2020 versus 541 419 cases in 2024), driven by climatic variability, expanding urban environments and insufficiently institutionalized vector control measures. Despite improvements in reporting and clinical management, the Region requires stronger interepidemic preparedness and multisectoral and community engagement.

Rabies remains a problem, despite the number of reported deaths in the Region nearly halving (374 deaths in 2020 versus 178 in 2024), reflecting inadequate dog vaccination coverage, weak surveillance and limited One Health coordination. Several zoonotic NTDs, including snakebite envenoming, foodborne trematodiases, taeniasis and cysticercosis, and echinococcosis, remain underreported, undermapped and underresourced. For snakebite envenoming, in particular, there is limited access to quality antivenom, insufficient programme resources and substantial underreporting of morbidity and mortality.

Sustaining post-validation gains represents a cross-cutting challenge. Countries achieving elimination often face declining political attention and external financing, increasing the risk of programme downscaling. This risk is compounded by chronic underfunding across multiple NTDs and by global financing reductions that have already resulted in delays or scaling down of regional technical activities. Domestic budgets remain insufficient to compensate for these external financing shortfalls.

Regional priorities for 2026–2030

The South-East Asia Region enters the 2026–2030 period with a clear strategic orientation aimed at finalizing elimination targets, while consolidating gains. First, the multi-disease elimination approach will guide integrated action, where epidemiology and operational synergies allow, while maintaining disease-specific accountability. Priorities include making progressive advances towards lymphatic filariasis elimination in India, Myanmar and Nepal; finalizing visceral leishmaniasis validation in India and Nepal; supporting elimination of trachoma as a public health problem and yaws eradication in Timor-Leste; advancing rabies elimination in Bhutan and Sri Lanka; and making progress towards interruption of leprosy transmission in Bhutan and Thailand. Second, accelerated action will also be required for dengue, leprosy, rabies and snakebite envenoming, including strengthened surveillance, case detection, SDR-PEP rollout, One Health coordination and improved outbreak response. Third, post-validation gains need to be sustained, particularly in Bangladesh and the five lymphatic filariasis-validated countries, through continued surveillance and ongoing leadership commitment.

Cross-cutting actions will institutionalize cross-border and cross-sectoral collaboration and community engagement, advance integration of NTDs into PHC and interoperable surveillance systems, and strengthen resource mobilization.

Progress will be monitored through regular reporting to the Regional Committee, supported by regional dashboards and country profiles aligned with global road map indicators, with the aim of sustainably embedding elimination within health systems beyond 2030.

Main programme enablers, challenges and strategic approaches for 2026–2030

Programme enablers

Programme enablers facilitating a smooth entry into the next period include a robust regional strategic framework (2024–2030) *(163)*, which provides the normative backbone for coordinated action across all 10 Member States; strengthened regional technical advisory group mechanisms covering major NTDs, including lymphatic filariasis, malaria, visceral leishmaniasis, rabies, dengue and other arboviral diseases; expanded digital surveillance tools; and intensified cross-sectoral and cross-border collaboration. Recent elimination achievements and the new multi-disease elimination approach provide further technical momentum and political leverage for accelerated progress.

Persisting challenges

Despite these enablers, progress towards the 2030 targets remains at risk. Severe financing constraints have reduced regional and country-level support, and domestic funding remains insufficient for high-burden diseases, such as dengue, rabies, snakebite envenoming and skin NTDs. Persistent last-mile gaps affect remote, migrant and border populations, compounded by biological challenges, such as zoonotic brugian filariasis and weak cross-border programme synchronization. Risks of post-validation complacency, alongside late leprosy detection, slow SDR-PEP uptake, inadequate dog vaccination for rabies, weak One Health coordination, fragile surveillance systems and capacity constraints continue to undermine sustainable progress.

Strategic approaches and actionable recommendations

Strategic recommendations include securing diversified financing; closing last-mile resource gaps for priority disease eliminations; addressing zoonotic brugian filariasis; strengthening intersectoral One Health collaboration, particularly for snakebite envenoming and rabies; institutionalizing cross-border coordination for diseases targeted for elimination; and strengthening the strategic use of country-level programme data, including systematic tracking of progress aligned with road map monitoring and evaluation indicators. By advancing integration where feasible and maintaining disease-specific precision where required, the Region aims to achieve the 2030 targets while embedding sustainable elimination within national health systems.

3.2.4 European Region

Epidemiological changes

The European Region accounts for a low proportion (0.4%) of the global NTD burden, which is generally stable or declining but persistent in marginalized communities. NTDs remain relevant in the Region due to localized endemic foci (especially in southern and eastern Europe), imported infections (through migration and travel) and climate-sensitive vector expansion.

In 2024, the number of people requiring interventions against NTDs remained stable at 6.0 million, unchanged from 2023 but representing a 40% increase since 2010 and a 9% decrease since 2020 (Fig. 3.11). Treatment data were last reported in 2023, when 2.1 million people received treatment with preventive chemotherapy, corresponding to 34.9% treatment coverage. As of the end of 2025, no country in the Region had achieved formal elimination of any NTD.

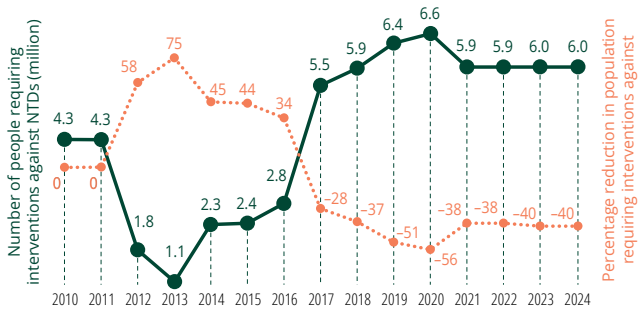
The Region's integrated preventive chemotherapy index declined to zero in 2024, reflecting the absence of preventive chemotherapy implementation among the three countries classified as requiring treatment for soil-transmitted helminthiases, compared with a reported index of 31 in 2020.

Key successes and implementation challenges, 2021–2025

Key successes

The European Region has maintained very low levels of endemic transmission of NTDs and benefits from strong health systems. Leprosy surveillance has

Fig. 3.11. Number of people requiring interventions against NTDs in the WHO European Region in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

remained robust, with countries reporting either zero new cases or very low incidence. Regional engagement in interruption of leprosy transmission continued, including a regional consultation meeting held in Armenia in 2023.

Technical capacity has been strengthened through One Health and zoonoses training since 2023; vector control needs assessments; and expanded collaboration between WHO, the European Centre for Disease Prevention and Control, European Food Safety Authority and WOAH to improve surveillance and control of leishmaniasis. National strategy development, including a leishmaniasis strategy in Kyrgyzstan, represents incremental progress.

Targeted technical support was provided for rabies, including the translation of guidance and online training materials and national-level coordination activities in Ukraine under conflict conditions.

Key challenges

Key challenges include emerging vector dynamics linked to climate change and imported cases causing localized outbreaks.

A persistent challenge in the Region is weak and incomplete reporting, particularly for leishmaniasis, which continues to limit assessment of burden, trends and programme impact. Despite endemicity in southern Europe, only a small proportion of countries report autochthonous cases annually. Available data nevertheless indicate a 15% increase over time in reported cases of visceral leishmaniasis, from 251 autochthonous and 29 imported cases across 14 countries in 2020 to 314 autochthonous and eight imported cases in 10 countries in 2024. Reported cases of cutaneous leishmaniasis declined from 1127 autochthonous and 230 imported cases across 18 countries in 2020 to 232 autochthonous and 10 imported cases reported by six countries in 2024. Although this trend suggests a reduction in reported cases, persistent underreporting and uneven surveillance coverage constrain interpretation of true epidemiological trends and programme performance.

Preventive chemotherapy coverage for soil-transmitted helminthiases remains very low in the Region. Although three countries (Kyrgyzstan, Tajikistan and Uzbekistan) are currently classified as requiring preventive chemotherapy, reporting has been inconsistent, with zero regional coverage reported in both 2022 and 2024, and implementation limited to one country (Tajikistan) in 2023. The status of Kyrgyzstan and Uzbekistan warrants reassessment, as both countries were classified in 2012 based on partial epidemiological data and WASH indicators. Kyrgyzstan last implemented MDA in 2019 and Uzbekistan in 2021, and neither currently requests donated medicines for MDA.

Echinococcosis causes a significant underreported disease burden in Europe, averaging 0.19 cases per 100 000 population *(166)*. The disease, featuring both cystic (often linked to dogs) and alveolar (often linked to foxes) forms, is most prevalent in central and eastern Europe, with major hotspots in Austria, Bulgaria, France, Germany, Lithuania and Switzerland. Higher numbers of human cases are reported in males. Based on incidence rates and trends for 2021–2023, the epicentres of alveolar echinococcosis in Europe are mainly in the Alpine and Baltic countries, with the highest incidence in Lithuania and Switzerland *(167)*.

Chagas disease has now been detected in the Region, including in people who have migrated from endemic areas *(58)*. Screening blood donors and organ donors and recipients for this disease is recommended across the European Union and has been implemented in several countries. Spain has expanded surveillance and, in the region of Murcia, has reported sustained interruption of congenital transmission, with no affected child born since 2017 *(47)*.

The Region is increasingly affected by imported NTD cases linked to migration and travel, while access to specific NTD medicines is constrained by regulatory and market limitations in non-endemic settings.

Arboviral diseases have expanded in the Region since the start of the road map *(13)*. Autochthonous dengue transmission increased from zero cases in 2020 to 308 cases in three countries and 1295 cases in two territories in 2024. Reported chikungunya cases increased from 65 in 2020, none of which were autochthonous, to 220 in 2024, of which only one was autochthonous, therefore largely reflecting imported cases. This increase is consistent with climate-sensitive vector expansion and importation of cases through travel and migration.

Regional priorities for 2026–2030

For 2026–2030, priorities in the European Region will focus on strengthening surveillance, preparedness and health system readiness to combat NTDs, rather than large-scale vertical interventions. The strategic emphasis will be on sustaining gains and low-prevalence status while preventing re-emergence in a changing epidemiological landscape. For arboviral diseases, where transmission is expanding, the emphasis will extend beyond preparedness to response and control, including integrated vector management,

outbreak response capacity, maintenance of laboratory and technical expertise, and cross-border information sharing.

A central priority will be strengthening early detection of imported and autochthonous cases, screening of at-risk populations, and integrated vector surveillance systems. This includes preparedness for imported and climate-sensitive NTDs (notably dengue and leishmaniasis) through enhanced surveillance, workforce readiness and intersectoral collaboration. Increasing awareness of NTDs among health workers in European emergency departments will further strengthen frontline detection capacity. Cross-border coordination and improvement of annual country reporting will be essential components of this effort. Targeted prevalence surveys for soil-transmitted helminthiases in central Asian countries will be conducted to assess progress towards 2030 targets and to clarify intervention needs.

Equity considerations will be embedded across the regional agenda, with particular attention given to underserved populations who remain disproportionately affected by NTDs. NTD priorities will be integrated into national UHC frameworks, and One Health collaborations will be pursued for echinococcosis control and rabies elimination. Encouraging and facilitating country efforts towards validation, verification and certification for NTD elimination will remain a key function of the WHO Regional Office for Europe, alongside ensuring adequate capacity within the Regional Office itself to coordinate NTD policies, respond to country requests and improve access to diagnostics and treatment.

Main programme enablers, challenges and strategic approaches for 2026–2030

Programme enablers

Strong national health systems, established surveillance platforms and longstanding collaboration with European and international partners provide a solid foundation for NTD control. Capacity-building initiatives, One Health collaboration and regional technical studies support evidence-based action.

Persisting challenges

Low disease burden reduces programmatic visibility, contributing to underreporting, low preventive chemotherapy uptake and weak access to specialized treatments. Regulatory barriers and fragmented data further limit responsiveness, while climate and migration dynamics introduce new risks.

Strategic approaches and actionable recommendations

Strategic focus will be placed on strengthening surveillance, improving timeliness and completeness of data reporting, enhancing preparedness for emerging risks, and ensuring access to diagnostics and treatment for imported and focal NTDs. Alongside these activities, systems for verification of interruption of transmission and validation of elimination as a public health problem in low-endemicity contexts will be maintained. The Region can contribute to the global learning agenda by documenting approaches to sustaining very low transmission and post-elimination surveillance within strong health systems.

3.2.5 Eastern Mediterranean Region

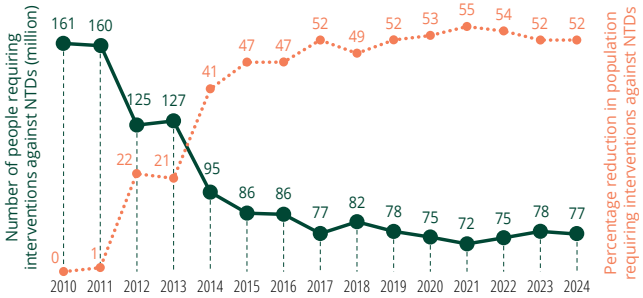
Epidemiological changes

The Eastern Mediterranean Region has achieved substantial reductions in NTD burden, although progress remains uneven, and the burden is increasingly concentrated in a few fragile, conflict-affected settings.

The number of people requiring NTD interventions in the Region reached 77 million in 2024, representing a 52% reduction from the 2010 baseline but a 3% increase since 2020, suggesting recent stagnation (Fig. 3.12). The burden remains highly concentrated, with about 85% of the affected population being in four countries (Afghanistan, Pakistan, the Sudan and Yemen).

Since 2021, the highest integrated preventive chemotherapy index in the Region (36) was achieved in 2022. In 2024, the integrated preventive chemotherapy

Fig. 3.12. Number of people requiring interventions against NTDs in the WHO Eastern Mediterranean Region in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

index was low (2), mainly due to zero coverage reported for onchocerciasis and schistosomiasis: Somalia and Yemen have not submitted their reports, and the Sudan had not implemented preventive chemotherapy for these two diseases in 2024.

Key successes and implementation challenges, 2021–2025

Key successes

The Eastern Mediterranean Region's most notable achievements during 2021–2025 relate to continued elimination progress across multiple diseases. By December 2025, nine countries[1] had eliminated at least one NTD, demonstrating feasibility and enabling regional peer learning. Progress was particularly significant for trachoma, with four countries (Egypt, Iraq, Pakistan and Saudi Arabia) being validated for elimination of trachoma as a public health problem since 2021. Jordan's verification in 2024 as the first country to have achieved leprosy elimination represents a global milestone.

Advances in clinical management capacity have strengthened programme performance, particularly for visceral leishmaniasis, with expanded regional capacity to administer liposomal amphotericin B beyond the Sudan – in Djibouti, Somalia and Yemen – thus improving treatment safety and effectiveness. The Region has also made progress in integrated vector surveillance capacity-building, supported by strengthened collaboration with partners, including the Regional Office for Africa and ESPEN.

A third area of progress relates to governance and strategic alignment. The development of a regional plan for 2021–2025 to implement the global road map provided a coordinated implementation framework tailored to regional epidemiological and operational contexts *(168)*.

Key challenges

Despite these gains, several systemic challenges continue to constrain progress in the Region. Insecurity and emergencies remain the most significant constraints, disrupting service delivery, limiting access and weakening surveillance and reporting systems. These unstable conditions also contribute to incomplete mapping and data gaps, affecting programme planning and performance monitoring.

Progress remains uneven across diseases and countries, reflecting the concentration of burden in a few settings and the need for tailored approaches. Preventive chemotherapy coverage continues to be suboptimal, with failure to reach all target populations.

Limited political commitment and insufficient domestic financing, combined with high reliance on external financing, pose significant risks to sustainability, with insufficient funding for programme reviews and impact assessments. These constraints are compounded by unavailability of appropriate diagnostics, lack of access to medicines (particularly for certain diseases, such as cutaneous leishmaniasis) and persistent supply chain weaknesses affecting forecasting, storage and distribution.

Additional challenges include limited technical capacity for vector-borne NTDs, weak integration across sectors (including WASH and One Health), and stigma and discrimination, which delay care seeking and reduce case detection for some diseases.

Regional priorities for 2026–2030

The Eastern Mediterranean Region enters the 2026–2030 period with a strategic focus on consolidating gains while addressing persistent fragility-related and last-mile challenges. Priorities include updating the regional NTD implementation plan for 2026–2030 and expanding the Regional Programme Review Group to reflect increasingly integrated approaches across NTDs and other vector-borne diseases.

Targeted support will be directed towards high-burden countries, fragile contexts and underserved populations, recognizing the concentration of disease burden and operational constraints. The Region will prioritize detecting cases and strengthening access to diagnostic and treatment services, as well as increasing effective coverage and equity in preventive chemotherapy, through improved mapping, strengthened microplanning and targeted efforts to reach underserved populations. Cross-cutting priorities include institutionalizing multisectoral approaches, particularly with WASH and One Health, strengthening community engagement to address stigma, and enhancing integrated vector surveillance and control in line with global strategies.

Sustaining elimination gains will require post-elimination surveillance, validation readiness and structured peer learning across countries.

[1] Egypt, Iraq, the Islamic Republic of Iran, Jordan, Morocco, Oman, Pakistan, Saudi Arabia and Yemen.

Strengthening surveillance systems and data quality will be central, including improving reporting completeness, integrating NTD data into national health information systems and strengthening data verification. Efforts will also focus on improving access to diagnostics and medicines, alongside strengthening supply chain systems, particularly for diseases affected by global shortages. Building on regional experience, countries will be encouraged to strengthen domestic resource mobilization by leveraging existing health financing mechanisms and tailoring investment strategies to their economic contexts.

Main programme enablers, challenges and strategic approaches for 2026–2030

Programme enablers

Programme enablers entering the next period include a clear global strategic framework in the road map, which provides defined indicators and milestones for accountability and course correction. The Region also benefits from demonstrated elimination successes, offering opportunities for peer learning and sustained political engagement.

Existing reporting mechanisms, including the GNARF and disease-specific platforms, provide a foundation for strengthening integrated surveillance systems. The availability of effective interventions for several NTDs, combined with increasing momentum in preventive chemotherapy implementation, further supports continued progress.

Persisting challenges

However, substantial challenges persist. Insecurity and humanitarian crises continue to weaken health systems, disrupt service delivery and compromise surveillance.

Funding gaps and reliance on external financing remain major constraints to sustainability.

Persistent gaps in mapping, MDA planning and programme evaluation, along with weak integration across sectors, continue to undermine programme effectiveness. Limited human resource capacity at regional level also affects the Region's ability to provide consistent technical support at country level.

Strategic approaches and actionable recommendations

Strategic actions for 2026–2030 focus on strengthening surveillance and integrating NTD data into national health information systems, including routine data quality improvement and enhanced reporting. Supply chain systems will be reinforced through improved forecasting, storage and last-mile delivery. Efforts will also prioritize improving MDA quality and effective coverage, closing mapping gaps and strengthening microplanning, while promoting integrated delivery where appropriate. Strengthening linkages with WASH, vector control and One Health programmes will support more comprehensive approaches.

Embedding NTD priorities within PHC and UHC frameworks, alongside regular programme reviews and impact assessments, will be essential to sustain progress and achieve 2030 targets. Engagement with regional donors will be strengthened to encourage investment in sustainable financing approaches for priority countries in the Region. Countries will also be encouraged to integrate NTD priorities into national budgets, explore co-financing models, and draw on lessons from countries with stronger resource bases to support more sustainable, locally driven programmes. Cross-cutting actions include addressing stigma and strengthening community engagement, enhancing clinical management and community-based case detection, and advocating for increased domestic resource mobilization.

3.2.6 Western Pacific Region

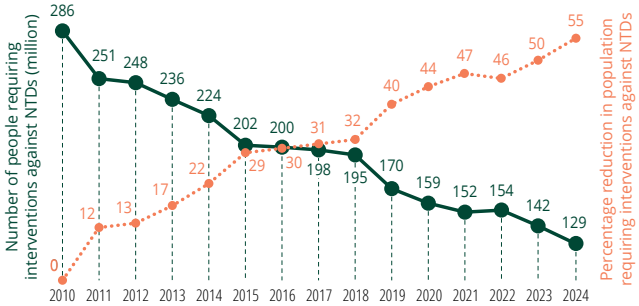
Epidemiological changes

The Western Pacific Region has achieved substantial reductions in NTD burden, reflecting long-standing investments in elimination programmes, preventive chemotherapy and integrated delivery approaches. Nevertheless, a significant residual burden persists, increasingly concentrated in small island states, remote settings and subnational hotspots.

The number of people requiring interventions against NTDs declined to 129 million in 2024, representing a 55% reduction from 286 million in 2010 and a 19% reduction since 2020 (Fig. 3.13).

The highest integrated preventive chemotherapy index in the Region (31) was achieved in 2019, before the COVID-19 pandemic. Between 2020 and 2024, the reported index increased slightly from 22 to 26.

Fig. 3.13. Number of people requiring interventions against NTDs in the WHO Western Pacific Region in 2010–2024 and percentage reduction since 2010



NTD: neglected tropical disease; WHO: World Health Organization.
Source: WHO Global Health Observatory.

Key successes and implementation challenges, 2021–2025

Key successes

Elimination momentum in the Western Pacific Region remained strong across multiple diseases. By December 2025, WHO had acknowledged 15 countries and territories in the Region for elimination of at least one NTD, with five acknowledgements recorded during 2021–2025. Progress was particularly pronounced for lymphatic filariasis and trachoma, supported by sustained political commitment and partner engagement in high-burden countries.

The Western Pacific Region continues to demonstrate strong global leadership in lymphatic filariasis elimination; of the 23 countries worldwide validated for elimination of this disease as a public health problem, 13 are in the Region.[1] Between 2021 and 2025, trachoma was acknowledged as eliminated as a public health problem in four countries (Vanuatu in July 2022, Viet Nam in October 2024, Papua New Guinea in May 2025 and Fiji in October 2025), further strengthening the Region's elimination profile.

Cambodia, Indonesia and the Lao People's Democratic Republic are working towards validation of elimination of schistosomiasis as a public health problem, while China is preparing to seek verification of interruption of transmission. Because *Schistosoma mekongi* is endemic only in Cambodia and the Lao People's Democratic Republic, the reduction of prevalence below 1% in both countries brings elimination of this species within reach globally.

Programme integration has advanced significantly, with countries increasingly institutionalizing integrated delivery models across MDA, school health, emergency response and PHC platforms. Examples include integrated MDAs for multiple co-endemic NTDs, such as lymphatic filariasis, scabies and soil-transmitted helminthiases, in Fiji, the Federated States of Micronesia and Papua New Guinea; school-based deworming embedded within broader school health programmes in Vanuatu; and the integration of soil-transmitted helminthiases treatment into health emergency responses in high-burden island settings. Under the regional flagship strategy of reaching the unreached, these PHC-based and joint delivery approaches have improved efficiency and expanded access to vulnerable, remote and hard-to-reach populations. There have also been examples of integrated NTD disease surveillance during cross-sectional surveys of both chronic and communicable diseases.

Key challenges

Despite notable progress, several challenges persist in the Region. Financing gaps remain the most significant constraint, amplified by declining political attention to

[1] Cambodia (2016), China (2007), Cook Islands (2016), Kiribati (2019), Lao People's Democratic Republic (2023), Marshall Islands (2017), Niue (2016), Palau (2018), Republic of Korea (2008), Tonga (2017), Vanuatu (2016), Viet Nam (2018), and Wallis and Futuna (2018).

NTDs within and beyond the health sector. Donation mechanisms do not cover all NTDs in the Region, so some medicines must be procured nationally. These pressures threaten sustainability, particularly in post-elimination settings and small island states.

High caseloads of yaws (101 142 suspected cases in 2020 versus 122 293 in 2024) and leprosy (13 917 cases in 2020 versus 17 822 cases in 2024) persist in Pacific Island settings, driven by geographical dispersion, logistical complexity and workforce constraints. Preventive chemotherapy coverage remains uneven, with treatment levels in small and dispersed populations consistently falling below effective thresholds.

Post-elimination surveillance remains fragile and inconsistently funded, increasing the risk of resurgence as more countries achieve elimination. For example, when the target is elimination as a public health problem, surveillance must be prioritized to detect and respond to residual, focal infections to prevent re-emergence. The Cook Islands, Tonga, and Wallis and Futuna, where *Aedes* mosquitoes are the primary vector, have had to respond to a recent re-emergence of transmission of lymphatic filariasis, more than 10 years after stopping MDA. These challenges are compounded by climate vulnerability, humanitarian pressures and declining external financing.

Pacific Island countries and territories face persistent challenges from a high burden of multiple NTDs; weak health systems; limited human, technical and financial resources; geographical isolation; and disproportionate exposure to climate-related risks. Together, these challenges cause difficulties in mobilizing and sustaining the resources needed for effective programme delivery.

Regional priorities for 2026–2030

For the 2026–2030 period, the Western Pacific Region will focus on consolidating elimination gains while addressing persistent last-mile and post-elimination challenges. Country-driven technical support will be prioritized to sustain acceleration towards elimination and eradication targets, with differentiated approaches tailored to high-burden, last-mile and post-elimination settings, including hard-to-reach and fragile areas, such as small Pacific Island countries.

Progress will require strengthened domestic and external resource mobilization to sustain critical interventions, particularly surveillance, preventive chemotherapy and case management, and to mitigate risks of resurgence. The Region will continue to scale up integrated and multi-disease delivery models, including skin NTD platforms and co-endemic approaches, to improve efficiency, equity and sustainability in remote and geographically dispersed populations.

Accelerated regional collaboration for schistosomiasis elimination will be pursued through intensified technical coordination across all three levels of WHO, alongside strengthened cross-country learning. Sustained progress will also depend on embedding NTD interventions, data and surveillance within PHC and UHC reforms, reducing reliance on vertical programmes.

Priority actions further include harmonizing service delivery and data systems, strengthening country-level surveillance and monitoring and evaluation capacities, operationalizing One Health approaches for rabies and other zoonotic and vector-borne NTDs, and building resilient national and subnational capacity for integrated service delivery and sustainable programme management.

Main programme enablers, challenges and strategic approaches for 2026–2030

Programme enablers

Several factors serve as key enablers for effective programme implementation and sustained progress. Strengthened coordination across WHO, collaborating centres and partners has enhanced alignment, resource use and responsiveness to funding and implementation constraints. Access to donated medicines and diagnostics for preventive chemotherapy NTDs, together with reinforced national supply chain systems, underpins continuity and quality of service delivery. Growing experience with integrated delivery models has increased efficiency in co-endemic and resource-constrained settings, while expanded surveillance and reporting platforms are strengthening routine monitoring, post-elimination vigilance and evidence-based decision-making. Finally, ongoing efforts to harmonize NTD reporting systems reduce reporting burden on countries and reinforce national data quality, surveillance capacity and monitoring and evaluation functions.

Persisting challenges

Key constraints include fragmented data systems at all levels of the health system (national, regional and global); uneven post-elimination surveillance as more countries achieve elimination; persistent last-mile access barriers that hinder equitable service delivery and coverage, particularly in Pacific Island and other remote settings; workforce and institutional capacity gaps; and financial sustainability risks linked to reliance on external financing. In addition, supply chain weaknesses continue to affect forecasting and timely delivery of essential supplies.

Strategic approaches and actionable recommendations

Priority actions for the next phase focus on strengthening systems, integration and delivery at scale, building on existing regional policy foundations, notably WHO Regional Committee for the Western Pacific resolution WPR/RC69.R4 (2018). This resolution endorsed the *Regional action framework for control and elimination of neglected tropical diseases in the Western Pacific (169)* and promoted a multisectoral approach across 15 endemic NTDs, beyond preventive chemotherapy alone.

In this context, priorities include enhanced coordination across WHO to improve programme effectiveness; integration and rationalization of NTD data systems within national health information platforms, to reduce fragmentation and reporting burden; and institutionalization of post-elimination surveillance for lymphatic filariasis, trachoma, schistosomiasis and other NTDs within PHC, supported by sustained financing, laboratory integration and clear accountability.

Emphasis will also be placed on addressing last-mile delivery through context-specific models, integrated MDA and community-based surveillance; scaling up integrated multi-disease platforms, particularly skin NTD approaches in co-endemic settings; and operationalizing One Health approaches for rabies and other zoonotic NTDs through joint planning and shared surveillance.

Complementary actions include strengthening supply chain management for donated medicines, targeting technical support to high-burden and high-risk countries, and building national and subnational workforce capacity.

Although resolution WPR/RC69.R4 continues to provide an important foundation, the regional NTD policy environment will require updating and strengthening to respond effectively to epidemiological, operational and financing challenges through 2030.

Strategic approaches will adopt significant differentiation to reflect evolving regional dynamics, including the integration of Indonesia into the Western Pacific Region, which necessitates scaled, context-specific interventions for large, diverse and high-burden settings. In parallel, tailored and equity-focused delivery models will be prioritized for small, developing Pacific Island countries, addressing persistent structural constraints through integrated, climate-resilient and geographically adapted approaches to ensure sustained and equitable programme impact.

3.3 Status by disease

The road map sets disease-specific targets and milestones alongside its overarching and cross-cutting indicators. These vary by disease, reflecting whether the goal is control, elimination as a public health problem, interruption of transmission or eradication, and reflecting the tools available in each instance.

This section presents a summary for each disease, covering its epidemiology, the risks that require mitigation, the core strategic interventions, the road map indicators and the geographical distribution of key indicators.[1] Each summary presents a gap assessment across three categories – technical progress, strategy and service delivery, and enablers – giving the current status and the actions required for every dimension in each category.

Progress at disease level is uneven, and few diseases are on track across all their indicators. Only three disease-specific indicators have met their 2025 milestone: vaccine development for chikungunya, the case fatality rate for dengue and the availability of WHO-recommended polyspecific antivenom products for snakebite envenoming. Several other indicators are close, including certification of freedom from dracunculiasis transmission, intensified control of foodborne trematodiases and post-MDA surveillance for lymphatic filariasis, while a few have moved away from their baseline reference value rather than towards the target. Nine indicators could not be assessed because no data were reported (see Annex 6). These results should be interpreted with caution, as only nine indicators are assessed against 2025 data. The remainder use 2024 values and are therefore compared against a milestone that had not yet been reached at the time of reporting.

[1] All data sourced from WHO unless otherwise indicated. The references cited in each disease summary are numbered separately, starting at 1, and are listed at the end of that summary; they are not included in the reference list at the end of the report.

Buruli ulcer

Buruli ulcer is a bacterial infection of the skin that can also reach the bone. It produces ulcers, usually on the limbs, and causes permanent disfigurement and long-term disability.

Disease and epidemiology

- Buruli ulcer is caused by infection with *Mycobacterium ulcerans*, a bacterium belonging to the family that causes multiple diseases, including tuberculosis and leprosy.
- The disease manifests as ulcers (mostly on the limbs) that affect the skin, and sometimes bone, and cause permanent disfigurement, long-term disability and socioeconomic consequences.
- The mode of transmission is not known and there is no known way to prevent the disease; bacille Calmette-Guérin vaccination may provide limited protection.
- The bacterium produces a unique toxin (mycolactone) that causes tissue damage and inhibits the local immune response, suppressing pain.

Risks that require mitigation

- Delayed case detection (many patients still present with category III lesions), leading to disability, deformity, prolonged treatment and socioeconomic consequences
- Weak surveillance and underreporting in some endemic countries, limiting accurate assessment of disease burden and transmission patterns
- Limited access to laboratory confirmation, inadequate specimen transport systems and lack of rapid point-of-care diagnostics
- Incomplete understanding of transmission pathways and environmental reservoirs, hindering effective prevention strategies
- Insufficient and often externally dependent funding for control, surveillance and research activities
- Long treatment duration and follow-up challenges, creating risk of poor adherence and underscoring the need for pharmacovigilance and antimicrobial resistance surveillance
- Persistent stigma, geographical barriers and low community awareness, delaying care seeking and access to treatment

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• N/A
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Universal access to quality diagnosis, WHO-recommended treatment, wound care, disability prevention and rehabilitation • Capacity-building of health workers and community health workers for detection, diagnosis, management and referral
Other	• Strengthened integrated community- and PHC-based case detection for Buruli ulcer and other skin NTDs • Expanded laboratory confirmation through the Skin NTDs Laboratory Network (Skin NTD LABNET) and improved specimen referral systems • Accelerated innovation through research to develop RDTs or portable tools that can be used in the field, alongside operational research and improved treatment approaches • Strengthened monitoring, pharmacovigilance and surveillance for antimicrobial resistance • Sustainable country-led financing and partnerships

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Proportion of cases in category III (late stage) at diagnosis	30%	<22%	21%	<18%	**<10%**
Proportion of laboratory-confirmed[a] cases	65%	>85%	43%	>95%	**>95%**
Proportion of confirmed cases who have completed a full course of antibiotic treatment	90%	>95%	53%	>98%	**>98%**

[a] Currently PCR confirmation, but other laboratory tests may be recommended for confirmation by WHO before 2030.

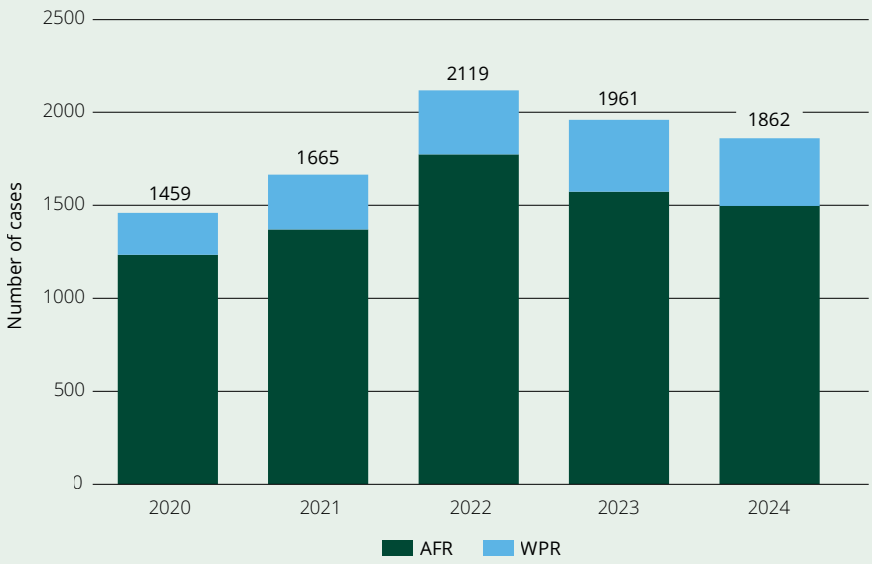
Burden of disease

1862
new cases reported in 2024

801
new cases confirmed by PCR in 2024

21%
of patients with category III lesions at diagnosis in 2024

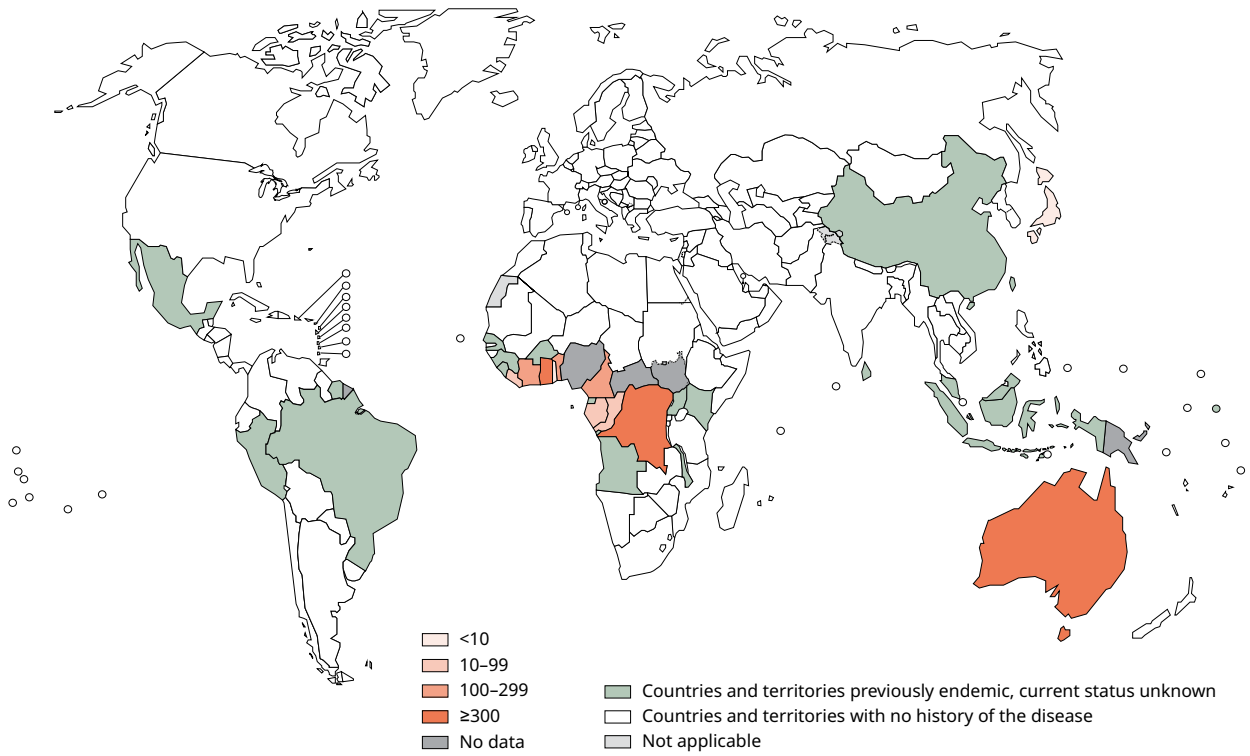
Number of reported Buruli ulcer cases, by WHO region, 2020–2024



AFR: WHO African Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Number of suspected cases of Buruli ulcer reported by countries and territories, 2024



Progress at mid-term

At the midpoint of implementation of the road map, significant progress has been made in the control of Buruli ulcer. The disease remains concentrated in tropical and subtropical regions, particularly in west and central Africa, which continues to account for more than 80% of reported cases. Although Buruli ulcer has been reported in 33 countries globally, only a few currently report annual cases to WHO. Since the early 2000s, the number of reported cases in Africa has declined by more than 70%, reflecting improvements in surveillance, earlier diagnosis, expanded access to effective treatment and strengthened laboratory capacity.

A major achievement during the reporting period has been the increasing integration of Buruli ulcer activities within broader skin NTD programmes. This approach has improved efficiencies in community-based surveillance, active case-finding, health worker training, laboratory services and patient management. Several endemic countries have strengthened decentralized service delivery through PHC platforms, bringing diagnosis and treatment closer to affected communities and improving access to care.

Progress against key road map indicators demonstrates both achievements and remaining challenges. The proportion of category III cases at diagnosis decreased from 30% in 2020 to 21% in 2024, achieving the 2023 milestone and reflecting earlier case detection and improved access to care. However, laboratory confirmation of cases remains substantially below the 2030 target, with only 43% of reported cases confirmed by polymerase chain reaction (PCR) testing in 2024. Similarly, treatment completion rates remain below expected levels, underscoring the need for stronger patient follow-up, pharmacovigilance and programme monitoring. Continued expansion of Skin NTD LABNET, workforce development programmes and integrated community-based services will be essential to accelerate progress during the second half of the road map period.

Research efforts have further supported progress through the development of improved diagnostic approaches, investigations into shorter treatment regimens and advances in understanding transmission dynamics. Several promising diagnostic platforms, including rapid point-of-care and decentralized molecular tests, are under evaluation, alongside studies assessing optimized and potentially shortened treatment regimens that could simplify case management and improve adherence in endemic settings.

Despite these achievements, important challenges remain. Transmission continues to be highly focal, with persistent hotspots around wetlands, river basins and other aquatic ecosystems. Many countries face ongoing gaps in surveillance sensitivity, laboratory confirmation and access to care. Diagnostic confirmation rates remain below WHO targets, and a substantial proportion of patients still present with advanced disease, indicating ongoing delays in case detection and referral. Treatment completion and long-term follow-up also remain challenging in some settings.

Overall, mid-term progress demonstrates that the strategic direction established under the NTD road map is yielding positive results. However, accelerated efforts will be required to achieve the 2030 targets. Priorities include strengthening integrated surveillance and active case-finding, expanding laboratory confirmation through Skin NTD LABNET, improving access to quality diagnosis and treatment, increasing community awareness, and supporting operational research to address remaining knowledge gaps. Sustained national commitment, domestic financing and partner support will be essential to consolidate gains and accelerate progress towards interruption of transmission and reduced disease burden.

Summary of critical actions to achieve targets

Build the capacity of health workers to use clinical scoring to diagnose and treat Buruli ulcer, and capacity of community health workers to detect suspected cases and refer patients for early diagnosis and treatment, thereby strengthening integrated approaches to skin NTDs.

Develop RDTs for use in public health and community centres to ensure early diagnosis, reduce morbidity and confirm cases.

Develop shorter treatment regimens to improve adherence and treatment completion.

Create comprehensive surveillance systems in all endemic countries, including micromapping, to improve targeting and integrating of interventions with those for other NTDs in co-endemic areas, to improve case detection.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Transmission pathways of Buruli ulcer remain partially unknown. • Evidence on potential vectors and reservoirs, including mosquito transmission in Australia, is increasing; however, further context-based research is required. • Knowledge of global distribution has improved, but surveillance and diagnostic capacity remain uneven, resulting in fragmentary mapping and variable data quality. • Effective Buruli ulcer management may strengthen wound care, surveillance and morbidity management for other skin NTDs, but specific benefits are yet to be assessed. • Assessments of the effectiveness of vector control, surveillance and mosquito exposure reduction are ongoing in Australia, with recent studies on protective clothing in Africa.	• Improve epidemiological understanding of modes and drivers of transmission, including seasonality and variability in transmission routes within and between endemic countries. • Understand environmental reservoirs to help inform design of preventive public health interventions. • Strengthen surveillance and diagnostic capacity for Buruli ulcer to improve data quality, completeness of mapping and identification of previously unmapped endemic areas. • Evaluate and document cross-cutting benefits of Buruli ulcer programmes on wound care, surveillance and morbidity management associated with integrated skin NTD strategies. • Support operational research to reduce the duration of treatment and to evaluate vector control and exposure reduction strategies, including mosquito control and personal protection. • Link environmental and human disease patterns through genomic epidemiology, including whole-genome sequencing of *M. ulcerans*.
Diagnostics 2024 2020	• Diagnosis is done clinically or using laboratory techniques (direct microscopy, histopathology, culture and PCR). • Early detection is essential to reduce morbidity. • An *M. ulcerans* RDT, loop-mediated isothermal amplification test, multiplex PCR test and recombinase polymerase amplification test are being pilot tested in selected countries. • Work in diagnostics is ongoing, and new methods are being developed and evaluated.	• Develop RDTs for use at public health and community centres to enable early diagnosis, reduce morbidity and confirm cases. • Improve detection of viable *M. ulcerans* in wound samples to distinguish treatment failures and paradoxical reactions through methods such as mycolactone detection and 16S rRNA.
Effective interventions 2026 2020	• Exposure reduction measures (e.g. mosquito avoidance) may prevent transmission but remain unvalidated because transmission pathways are not yet fully understood. • Rifampicin–clarithromycin is the WHO-recommended 8-week treatment for Buruli ulcer; rifampicin–moxifloxacin is an alternative regimen, particularly in Australia. • Surgery, including skin grafting, can complement antibiotic therapy for extensive Buruli ulcer lesions, to facilitate wound closure and recovery. • Early detection remains a challenge due to insufficient primary-level diagnostic capacity, skilled workforce gaps, lack of point-of-care diagnostics (RDTs) and low community awareness. • Management of advanced lesions is resource-intensive, often requiring wound care, surgery and rehabilitation, which impose substantial health care and patient costs.	• Support operational research to evaluate exposure-reduction measures, including mosquito avoidance, to inform evidence-based prevention strategies. • Strengthen active case finding and diagnostic capacity at primary level, including workforce training, to enable timely detection and management. • Support awareness-raising and education activities to enhance health-seeking behaviour for early detection. • Evaluate new medicines and regimens to expand treatment options and reduce duration of treatment. • Evaluate new approaches to wound care (e.g. dressings that can be changed less frequently). • Develop and evaluate innovative adherence strategies, including community-based follow-up and digital reminders, to improve treatment completion and outcomes.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• Buruli ulcer global strategy and national plans are in place. • WHO guidelines on diagnosis (2014) and treatment (2012) are available but out of date, complemented by a technical update on management of HIV coinfection (2020).	• Update treatment guidelines based on evidence from clinical trials and operational research evaluating new oral treatment regimens and shortened treatment durations. • Update diagnostic guidelines as evidence emerges on new tools, including rapid point-of-care tests and decentralized molecular platforms. • Support adaptation of WHO diagnostic guidelines into national standard operating procedures (SOPs) and user-friendly tools to standardize and strengthen quality of sample collection, laboratory processes and use of clinical scoring forms.
Planning, governance and programme implementation 2026 2020	• Most endemic countries have a national Buruli ulcer control programme in place, but implementation, coverage and operational capacity remain uneven. • Buruli ulcer is often included in national NTD master plans and coordination bodies, but effective programmatic coordination and implementation remain limited. • Integration of Buruli ulcer interventions with other skin NTD programmes has expanded, although implementation and scale vary across settings. • Effective pharmacovigilance remains limited in most endemic settings, although treatments are generally well tolerated, and serious adverse events appear uncommon. • Technical advice for Buruli ulcer has been increasingly embedded within WHO's integrated skin NTD strategy and technical coordination mechanisms.	• Strengthen coordination and planning mechanisms within national NTD coordination bodies and plans, to improve effective implementation of Buruli ulcer control activities. • Strengthen coverage and operational capacity of Buruli ulcer programmes, ensuring integration within skin NTD service packages at PHC level. • Strengthen pharmacovigilance systems to ensure systematic monitoring of treatment safety and adverse events within Buruli ulcer programmes. • Strengthen integration of Buruli ulcer within skin NTD platforms, ensuring equitable allocation of resources to sustain programme capacity and operational performance. • Maintain dedicated Buruli ulcer working groups to strengthen disease-specific technical advice and stakeholder networks supporting interventions.
Monitoring and evaluation 2024 2020	• Most endemic countries currently report data, according to the disease indicators. • Standard reporting forms, including BU 01 and BU 02, are commonly used. • SOP request forms have been added to the standard reporting forms, and countries are moving towards an integrated skin NTD register.	• Encourage all endemic countries to report data. • Enhance surveillance in countries that are not reporting cases through an integrated skin NTD reporting system. • Initiate micromapping to identify overlaps with other NTDs and integrate approaches. • Monitor resistance to antibiotics phenotypically and using genetic markers. • Encourage focus on the development of suitable diagnostics to support monitoring and evaluation activities.
Access and logistics 2024 2020	• WHO procures medicines and provides them to countries at no cost. • Governments and partners provide dressings and other supplies. • Support from some international partners has declined (e.g. due to COVID-19), and the chronic lack of support from governments is leading to inadequate supply. • Access to interventions remains a challenge at local levels.	• Ensure countries have access to quality-assured medicines, which are currently provided by WHO with the support of donors. • Ensure adequate access to affordable improved dressings where required.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026 2020	• Decentralization of care to PHC is progressing, but access to timely diagnosis and treatment at peripheral levels remains uneven across endemic settings. • The Buruli ulcer PCR laboratories network (BU-LABNET), established in 2019, transitioned into Skin NTD LABNET in 2023. • Most endemic countries have national laboratory capacity to confirm cases, but specimen collection, transport and referral systems are often weak or inconsistent. • Health care staff operating at primary care levels often lack capacity for early detection. • Access to rehabilitation services for Buruli ulcer remains limited across endemic settings.	• Strengthen Buruli ulcer care at all levels, ensuring timely access to diagnosis, treatment and follow-up across endemic settings, including peripheral areas. • Ensure the functionality of existing laboratory capacity by optimizing specimen collection, transport and referral systems across the health system. • Strengthen Skin NTD LABNET's work related to the development and standardization of SOPs, quality assurance mechanisms and capacity-building programmes. • Scale up training and supervision of PHC workers to improve early detection capacity. • Expand access to rehabilitation services to improve management of disability and long-term conditions by promoting integrated rehabilitation services.

Category: Enablers

Advocacy and funding 2024 2020	• Political commitment was achieved through the Yamoussoukro Declaration on Buruli Ulcer (1998), Cotonou Declaration on Buruli Ulcer (2009), and two skin NTD meetings in 2023. • Donors and partners support implementation at country level. • The research community provides visibility and advocacy through mobilizing research resources. • Data to support updated and more efficient advocacy messages are lacking.	• Enhance political commitment among countries and partners to mobilize funds and human resources. • Build community engagement and mobilization to support programme implementation. • Sustain research funding for knowledge generation. • Support the creation of a global fund for NTDs.
Collaboration and multisectoral action 2026 2020	• Collaboration with skin NTD programmes supports service delivery to affected populations, although the level of implementation varies across settings. • Linkages with education and social sectors support awareness and case detection, but their systematic integration into programmatic activities is uneven across countries. • Community engagement is established during programmatic implementation, such as case detection and health promotion, but community involvement in strategic planning remains limited. • The Global Buruli ulcer Initiative brings together key stakeholders in fighting the disease.	• Scale up integrated skin NTD approaches to expand coverage of case detection and treatment, and strengthen monitoring and reporting systems. • Strengthen collaboration with other skin NTDs programmes in supply chain, case detection, treatment, follow-up and laboratory networks. • Encourage collaboration with tuberculosis programmes to enhance diagnostic, treatment and follow-up capacity and to improve efficiency of service delivery. • Develop and implement community engagement frameworks that ensure meaningful inclusion in strategic planning, programme design and decision-making. • Strengthen collaboration with academic and health institutions in endemic countries to enhance knowledge, research capacity and evidence generation for skin NTDs.
Capacity and awareness building 2026 2020	• Integrated skin NTD training is increasingly used for Buruli ulcer case detection and management, particularly at the primary care level. • A WHO training programme on Buruli ulcer for health workers at national and district levels is available online (WHO Academy). • Training in wound care and laboratory diagnosis is often available in endemic countries, whereas surgical skin-grafting training remains concentrated in specialized centres. • Health promotion activities are often implemented in endemic settings, but their impact on preventive or care-seeking behaviour remains unclear. • Community education to reduce stigma associated with Buruli ulcer remains insufficient across endemic settings.	• Strengthen capacity-building for health workers at community, health centre and district levels to detect, treat and provide surgery for integrated skin NTDs. • Support adaptation of training materials to local health system contexts and epidemiological conditions and their dissemination across endemic countries. • Develop and implement evidence-based behaviour change strategies to improve early care seeking and adoption of preventive practices for Buruli ulcer. • Scale up community education and engagement to reduce stigma, including coordination with affected populations to share their lived experience of the disease.

Chagas disease

Chagas disease is a potentially life-threatening illness caused by parasitic infection. Most patients have no symptoms, but without treatment some develop cardiac, digestive or neurological alterations that can lead to sudden death.

Disease and epidemiology

- Chagas disease is a potentially life-threatening illness caused by infection with the protozoan parasite *Trypanosoma cruzi*.
- Transmission of infection is vector-borne (through the faeces and urine of triatomine bugs) in the Region of the Americas; and oral or foodborne, congenital, transfusional (through blood products), via organ transplantation and via laboratory accidents worldwide.
- During the acute and chronic phases, most patients have no (or non-specific) symptoms; without treatment, up to 30% develop cardiac alterations and up to 10% develop digestive, neurological or mixed alterations. The subsequent destruction of the muscle and nervous system can lead to cardiac arrhythmias or heart failure and sudden death.
- The disease is mainly a chronic condition, and coinfections and comorbidities are common.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Good hygiene practices in food preparation, transportation, storage and consumption
Vector control	• Spraying with residual insecticides to remove triatomine bugs from dwellings • Home cleanliness and housing improvements (e.g. crack-free walls, bed nets)
Veterinary public health	• N/A
Case management	• Two antiparasitic medicines (benznidazole and nifurtimox) can cure infection during the acute or early chronic phase or prevent or curb progression of the disease • Life-long medication or surgery may be necessary for specific heart or digestive alterations
Other	• Screening of blood and organ donors to prevent transmission through transfusion and transplantation • Treatment of girls and women of reproductive age to prevent congenital transmission

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries achieving interruption of transmission through the four transmission routes (vectoral, transfusion, transplantation and congenital), with 75% antiparasitic treatment coverage of the eligible population	0/41 (0%)	4/41 (10%)	0/41 (0%)	10/41 (24%)	**15/41 (37%)**
Number of countries achieving verification of interruption of domiciliary vectoral transmission	7/21 (33%)	9/21 (43%)	8/21 (38%)	14/21 (66%)	**18/21 (86%)**
Number of countries achieving verification of interruption of transfusional transmission	0/41 (0%)	5/41 (12%)	0/41 (0%)	20/41 (49%)	**41/41 (100%)**
Number of countries achieving verification of interruption of transplantation transmission	0/41 (0%)	5/41 (12%)	0/41 (0%)	20/41 (49%)	**41/41 (100%)**
Number of countries achieving verification of interruption of congenital transmission	0/41 (0%)	4/41 (10%)	0/41 (0%)	10/41 (24%)	**15/41 (37%)**

Burden of disease

About 203 000

DALYs in 2021[a]

About 7000

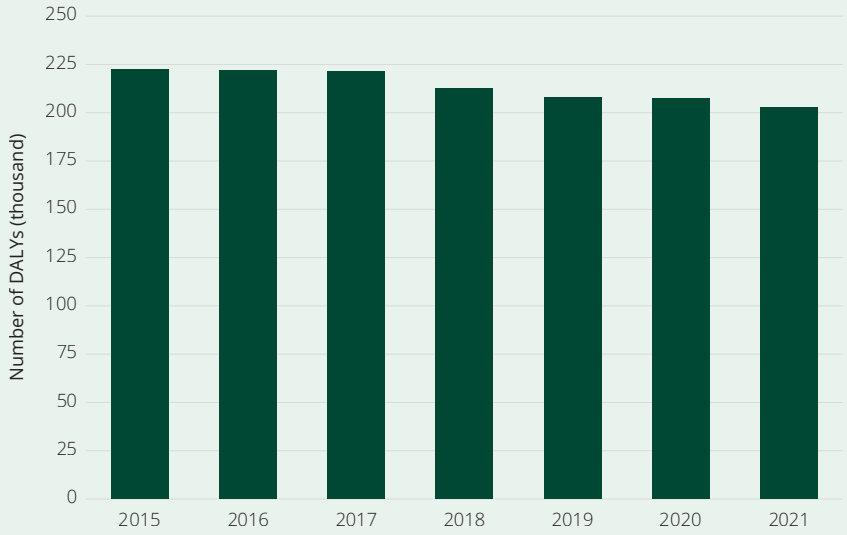
estimated deaths every year[a]

More than 100 million

people at risk of infection

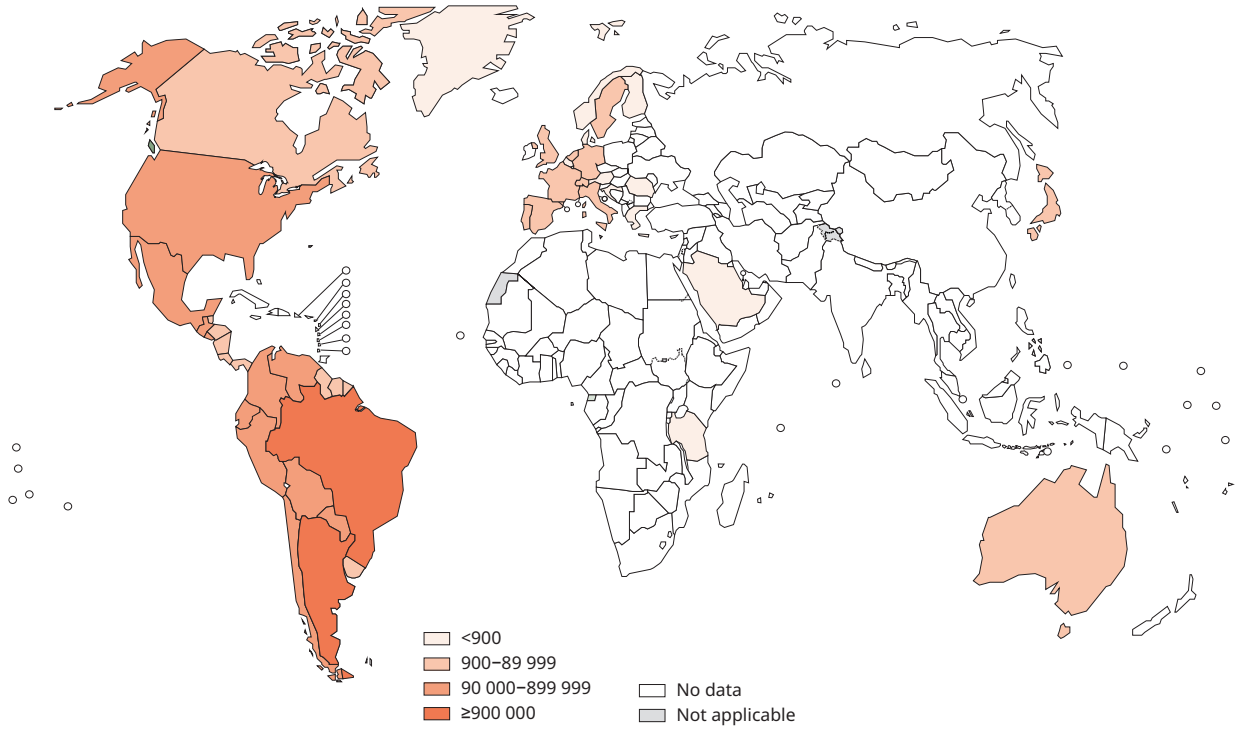
[a] *Source:* GHE 2021.

Global DALYs due to Chagas disease, 2015–2021 (GHE 2021 estimates)



Geographical distribution and status

Estimated number of cases of Chagas disease, 2006–2019



Summary of critical actions to achieve targets

Advocate with national or federal health ministries to recognize Chagas disease as a public health problem and establish effective prevention, control, care and surveillance in all affected territories.

Improve medical care for Chagas disease, from in-service training of health care workers to integrating training at all levels of health services.

Ensure that countries in which domiciliary vector transmission is still registered in certain territories comply with prevention, control and surveillance actions.

Coordinate vector control management among countries, stakeholders and other sectors (such as tourism) through multisectoral national bodies, to maximize synergies.

Gap assessment, by category and dimension

No hindrance towards target | Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Chagas disease is a complex, multidimensional disease shaped by interacting biomedical, environmental, economic, psychosocial and cultural determinants. • The diversity of *T. cruzi* has been progressively characterized across different geographical regions, life-cycle stages and six transmission routes. • Global databases and collaborative networks on triatomine species and their geographical distribution have been developed, but gaps in epidemiological mapping persist due to underdiagnosis and variable surveillance system capacity. • Host–parasite interactions, particularly immunological mechanisms, are critical to infection progression. • Studies on genetic determinants and markers have been initiated. • There is a lack of validated markers of progression from indeterminate to symptomatic forms of the disease in the chronic phase. • A lack of validated markers of therapeutic response after antiparasitic treatment is hindering the development and evaluation of new medicines. • Chagas disease is predominantly chronic, with increasing coinfections and comorbidities among ageing populations. • Knowledge gaps remain regarding the effects of climate change on the epidemiology of Chagas disease, including its transmission dynamics, vector ecology and geographical distribution.	• Strengthen research on the biomedical, environmental, economic, psychosocial and cultural determinants of Chagas disease to inform prevention, surveillance and control strategies, particularly among Indigenous and impoverished rural communities. • Advance characterization of triatomine species, insecticide resistance and geographical distribution. • Strengthen understanding of host–parasite interactions, including immune responses, parasite persistence and mechanisms influencing treatment outcomes. • Validate markers of disease progression and therapeutic response, including immunological markers that predict progression to different clinical forms during the chronic phase. • Strengthen research on the determinants of congenital transmission, early diagnosis, disease progression and therapeutic response. • Advance research on multiclonal *T. cruzi* infections (cruziomes) and associated markers to improve understanding of the pathology of Chagas disease and congenital transmission. • Evaluate and optimize benznidazole and nifurtimox regimens, combination therapies and new medications. • Investigate the potential role of immunotherapy as an adjunct to antiparasitic treatment. • Strengthen research on cardiac risk factors, progression and outcomes through pooled long-term cohorts and other studies. • Improve understanding of coinfections, comorbidities and survival patterns. • Conduct epidemiological surveys and modelling studies to improve estimates of prevalence, incidence, transmission, disease burden and future trends in endemic and non-endemic settings. • Investigate the effects of climate change on disease transmission, vector ecology and geographical distribution. • Investigate the effects of maternal *T. cruzi* infection on fetal epigenetic programming and immune modulation, including potential impacts on growth and health outcomes in exposed but uninfected children.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• Diagnostic tests vary by disease phase (acute vs chronic) and public health objectives. • Digital microscopy for haemoparasites is in development but still under validation. • Serological RDTs have been evaluated, but field validation is still pending for many tests. • Diagnostic algorithms are being updated because of issues with specificity and sensitivity. • Ensuring patient adherence to completion of all tests required to confirm a diagnosis is difficult. • There is unequal access to diagnostics between countries.	• Validate AI-based digital microscopy for detecting haemoparasites, including trypanosomes. • Finalize development of high-sensitivity, high-specificity RDT platforms. • Validate commercial RDTs through multicentre field studies for broader use. • Develop tests to detect active infection and monitor treatment response. • Complete and validate new tests (e.g. loop-mediated isothermal amplification and multiplex polymerase chain reaction tests) to enable automated Chagas disease diagnostics. • Strengthen quality control for diagnostic tests.
Effective interventions 2026 2020	• Vector control has been effective in managing allochthonous triatomine populations but remains less effective against autochthonous populations. • In recent years, vector surveillance and control activities have declined in many affected territories. • Screening of blood and organ donors and recipients is effective in preventing transmission through transfusion and organ transplantation routes. • Screening, diagnosis and treatment of girls and women of reproductive age are effective strategies for preventing congenital transmission. • Two antiparasitic drugs are available; however, diagnostic coverage among at-risk populations and treatment coverage among eligible individuals remain low. • The likelihood of parasitological cure and of limiting disease progression decreases with increasing duration of chronic infection. • Access to cardiac rehabilitation services for people with Chagas cardiomyopathy remains limited, particularly in resource-constrained settings. • Early diagnosis remains challenging in many endemic areas, particularly in remote settings, resulting in prolonged undetected infections and missed opportunities to prevent further transmission.	• Strengthen vector surveillance and control, including innovative approaches for monitoring and managing autochthonous triatomine populations. • Strengthen prevention, early detection and rapid response to outbreaks of orally transmitted Chagas disease. • Implement internal and external quality assurance systems for screening programmes, including blood and organ donors, women of reproductive age and pregnant women. • Increase coverage of congenital Chagas disease prevention, early diagnosis and treatment of newborns and their siblings. • Develop and implement innovative approaches to improve case detection, access to care and follow-up, including community health interventions and PHC services. • Validate and, where non-inferiority is demonstrated, adopt shorter or lower-dose benznidazole and nifurtimox regimens to improve adherence and strengthen treatment and follow-up among infected women and infants, while reducing side-effects in adults. • Strengthen integration and availability of cardiac rehabilitation services within Chagas disease care pathways, particularly in resource-constrained settings.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• National Chagas disease control plans are in place in some endemic countries. • The WHO road map defines clear objectives, including the prevention and control of congenital Chagas disease, but it does not include specific objectives for oral foodborne transmission, laboratory-acquired infections or health care coverage for patients with chronic *T. cruzi* infection and Chagas disease. • Technical guidelines are needed to support surveillance and to verify the interruption of transmission, as well as to assess progress towards achieving the WHO road map targets. • Clinical practice guidelines for the diagnosis and treatment of Chagas disease were released by WHO/PAHO in 2019. • Regional initiatives in the Region of the Americas have advanced technical guidance for interruption of vector-borne Chagas disease transmission. • Evidence to inform optimal screening strategies and the thresholds required to achieve elimination of congenital and transfusional transmission remains limited. • Adaptation of existing guidelines by endemic countries, and their dissemination across all levels of the health system, remains variable. • Tailored clinical guidance is needed for older adults with Chagas disease, given increasing multimorbidity, cardiac complications, treatment intolerance and functional decline.	• Develop operational guidance to support elimination of *T. cruzi* infection transmission and ensure equitable access to diagnosis, treatment and care for affected populations, including in non-endemic countries and areas. • Publish and disseminate global and regional guidance for surveillance, verification of transmission interruption, and monitoring of progress towards road map targets. • Support adaptation of existing guidelines to national contexts and strengthen their dissemination and implementation across all levels of the health system. • Strengthen research to inform optional screening strategies and the thresholds required to achieve elimination of congenital and transfusional Chagas disease transmission. • Ensure programme objectives address the needs of all affected age groups, with differentiated interventions for paediatric, adult and older adult populations. • Develop tailored clinical guidance and evidence-based management strategies for older adults with Chagas disease. • Update TPPs for diagnostics, including tools to support assessment of treatment response. • Update TPPs for medicines.
Planning, governance and programme implementation 2026 2020	• Control programmes operate in several endemic countries, but implementation is often constrained by limited resources and competing health priorities. • Chagas disease remains insufficiently prioritized on government agendas in both endemic and non-endemic territories. • Since the 1990s, the intergovernmental initiatives for Chagas disease have served as key mechanisms for regional cooperation, sustaining surveillance and control activities. • Equity challenges remain, as out-of-pocket costs for managing chronic cardiac, digestive and mixed forms of Chagas disease are often unaffordable for disadvantaged populations. • Monitoring and response to adverse events are the responsibility of individual countries, but pharmacovigilance systems are often insufficient or inconsistently implemented. • Integration of Chagas disease interventions across health systems remains uneven, with variable coordination across programme areas and inconsistent adoption of integrated approaches. • Implementation of integrated interventions alongside co-endemic NTD programmes remains uneven because of resource constraints and insufficient domestic funding.	• Adapt Chagas disease strategies and implementation plans to national health system contexts, capacities and available resources. • Study approaches for integrating Chagas disease into national health plans in endemic and non-endemic settings, ensuring documentation and dissemination of examples of good practice across regions. • Strengthen pharmacovigilance systems for Chagas disease medicines, including systematic reporting and monitoring of adverse events associated with WHO-donated products. • Promote integration of Chagas disease interventions with co-endemic NTD programmes, alongside domestic resource mobilization efforts, to improve efficiency, coverage and sustainability.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• WHO is updating frameworks for monitoring indicators and assessing elimination and interruption of transmission. • There is limited standardization of methodology for monitoring and evaluation indicators, and accuracy of reported data varies across countries. • Producing comprehensive monitoring and evaluation data remains challenging due to multiple transmission mechanisms and public health objectives. • Few countries have adequate surveillance systems to collect and process data for all interventions: only four of the 43 countries reporting cases have surveillance systems covering acute and chronic cases and active transmission routes.	• Complete updates on methodological guides for Chagas epidemiological monitoring, interruption of transmission, and elimination, according to public health objective. • Ensure national programmes implement monitoring and evaluation protocols for control and elimination, once available. • Invest in information systems and provide technical support for national programmes. • Target active screening for high-risk populations and strengthen mandatory case notification. • Reinforce mandatory reporting of acute and chronic cases, and increase the number of Chagas disease-endemic countries with functional national surveillance systems in place.
Access and logistics 2024 2020	• Progress has been made in medicine production, with nifurtimox and benznidazole donations guaranteed until 2030. • UHC for antiparasitic treatment is expanding, but access remains challenging among rural and migrant populations. • There are planning system challenges due to insufficient data on treatment needs, stock and personnel.	• Expand access to Chagas disease diagnostic and treatment resources at primary care level in public health systems. • Develop planning and digital management systems to ensure access to Chagas disease diagnostics and treatments.
Health care infrastructure and workforce 2026 2020	• Chagas disease remains a silent and neglected disease that has become increasingly urbanized and has expanded beyond Latin America to other continents. • Health infrastructure is widely available, but diagnosis and treatment are often concentrated in specialized centres. • PHC services in remote endemic settings often have insufficient resources to provide comprehensive disease care. • In non-endemic countries and territories, Chagas disease remains underrecognized, and health systems often lack sufficient preparedness. • Retention of skilled personnel is often difficult, and staff turnover and reassignment limit capacity for case detection, diagnosis, treatment and follow-up. • Long-term follow-up is insufficient in many endemic countries, limiting completion of evaluation and treatment of exposed infants and postpartum care of infected mothers.	• Increase awareness and capacity among policy-makers and health care providers to improve prioritization, preparedness, diagnosis and management of Chagas disease. • Strengthen strategic planning to optimize service delivery models and improve access to diagnosis, treatment and follow-up in resource-limited settings. • Strengthen research on reference standards and validation methods. • Implement workforce retention and continuous capacity-building activities to sustain expertise in Chagas disease across the health system. • Integrate long-term follow-up of congenital Chagas disease into routine maternal, newborn and child health services to improve continuity of care and prevent future transmission.
Advocacy and funding 2024 2020	• Establishing World Chagas Disease Day in 2020 boosted advocacy at national and regional levels. • Regional coordination has improved for communication and resource mobilization (e.g. Chagas Coalition). • National advocacy success varies based on institutional context and priorities. • Long-term funding remains challenging; short-term project support is more accessible. • An increase in oral transmission has generated new demands for support.	• Increase financing for the implementation of programme activities. • Strengthen the advocacy work conducted by national programmes to enhance their effectiveness, with technical support from multilateral organizations.

Category: Enablers

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Technical groups and global networks have been crucial to raising awareness and sustaining surveillance, prevention and control activities; these have included laboratory networks, the WHO Integrated Data Platform, *T. cruzi*–HIV coinfection initiative, triatomine control networks, community health initiatives and associations of affected people. • Dialogue and coordination among partners and stakeholders have been successful in achieving several objectives. • Biomedical knowledge must be complemented by psychosocial, cultural and environmental perspectives to address the complexity of Chagas disease. • Interdisciplinary and intersectoral approaches are needed for surveillance, prevention and control of Chagas disease, including the active engagement of research and academic organisations, industry, foundations, civil society and other relevant sectors. • Although Chagas disease elimination benefits from multiple collaboration networks providing technical, research, advocacy and operational support, some national programmes face challenges in coordinating institutional roles, responsibilities and commitments across these partnerships.	• Strengthen national ownership and leadership within regional and global initiatives, to optimize access to financial and technical resources and support programme sustainability. • Strengthen government accountability mechanisms for monitoring, reporting and acting on progress towards road map targets for Chagas disease. • Strengthen research on psychosocial, environmental and clinical determinants of Chagas disease, including the impact of communicable and non-communicable comorbidities on disease outcomes and patient care. • Strengthen coordination and specify institutional roles, responsibilities and commitments across international networks to support national programmes' sustained engagement in global elimination initiatives.
Capacity and awareness building 2026 2020	• World Chagas Disease Day has been very important in raising awareness of one of the world's most neglected diseases. • Chagas disease remains insufficiently addressed in the education and training of health professionals. • Intersectoral information, education and communication (IEC) initiatives with the education sector, including primary education, remain limited in areas where Chagas disease occurs. • The involvement of IEC professionals in the design, development, implementation and evaluation of projects remains limited. • Support from mass media for awareness activities remains limited, while social media messages are often fragmented, creating risks of inconsistent messaging.	• Assess the impact of World Chagas Disease Day to refine advocacy strategies, identify strategic partnerships and strengthen resource mobilization. • Strengthen integration of Chagas disease content into educational curricula and professional training programmes, from primary education to health-related university and continuing professional education in affected areas. • Promote access to evidence-based IEC platforms and materials (e.g. BeatChagas.info) that are adaptable to diverse epidemiological, cultural and health system contexts. • Strengthen engagement of IEC and communication specialists in the design, implementation and evaluation of Chagas disease awareness, education and behaviour-change initiatives. • Develop and evaluate innovative learning approaches, including AI-enabled self-learning tools and digital education platforms. • Develop and implement a coordinated communication strategy using mass and social media, with audience-specific, evidence-based messaging to strengthen awareness, engagement and prevention.

Dengue and chikungunya (dengue)

Dengue is an acute viral disease causing fever, muscle and joint pain, severe headache, pain behind the eyes, nausea, rash and vomiting; severe cases can cause intense abdominal pain, persistent vomiting, respiratory distress, organ impairment and death.

Disease and epidemiology

- Dengue is an acute viral disease caused by infection with any of four dengue virus serotypes.
- Symptoms of dengue include fever, muscle and joint pain, severe headache, pain behind the eyes, nausea, rash and vomiting; severe dengue causes severe abdominal pain, persistent vomiting, respiratory distress, organ impairment and death.
- Dengue is transmitted to people through the bites of infected female *Aedes aegypti* and *A. albopictus* mosquitoes.
- Dengue constitutes a rapidly emerging threat in an increasingly urbanized world. Transmission is closely associated with urban and periurban environments in which *Aedes* mosquitoes have adapted to human-made water-holding containers.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Promotion of safe water storage practices and management of water-holding containers (e.g. covering all water storage containers and overhead tanks) and safe disposal of household water
Vector control	• Evidence-informed integrated vector management approaches tailored to local transmission settings, and consideration of vector control in urban planning, housing and infrastructure development • WHO-recommended or nationally approved interventions, including insecticide-based tools as needed during outbreaks, supported by personal protection measures, such as repellents • Stronger entomological surveillance to guide effective vector control activities • Monitoring and management of insecticide resistance and adapting strategies as needed • Larval source reduction, through environmental sanitation and management of solid waste (especially plastic products), and environmental modification to reduce breeding sites • Spraying of safe insecticides, including indoor fogging for emergency control • Restricting access of mosquitoes to homes through use of screening and other covers
Veterinary public health	• N/A
Case management	• Improved clinical management of acute and chronic disease • Medical care provided by physicians and nurses for severe dengue (for prevention of plasma leakage and organ failure) • Maintenance of body fluid volume and platelet counts
Other	• Stronger integrated surveillance and early warning systems, outbreak preparedness and response • Introduction and evaluation of approved vaccines, where appropriate • Advocacy and social mobilization, political will, integration, legislation, regulation and capacity-building • Use of vaccines, ensuring confirmation of previous dengue infection is performed as appropriate before vaccination

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Case fatality rate due to dengue	0.80%	0.50%	0.08%	0.50%	**0%**
Number of countries able to detect and respond to dengue outbreaks	10/128 (8%)	26/128 (20%)	43/128 (34%)	64/128 (50%)	**96/128 (75%)**
To reduce the burden of the disease and its incidence by 25% (2010–2020 as baseline)	3.1 million cases	3 million cases	15.1 million cases	2.75 million cases	**2.35 million cases**

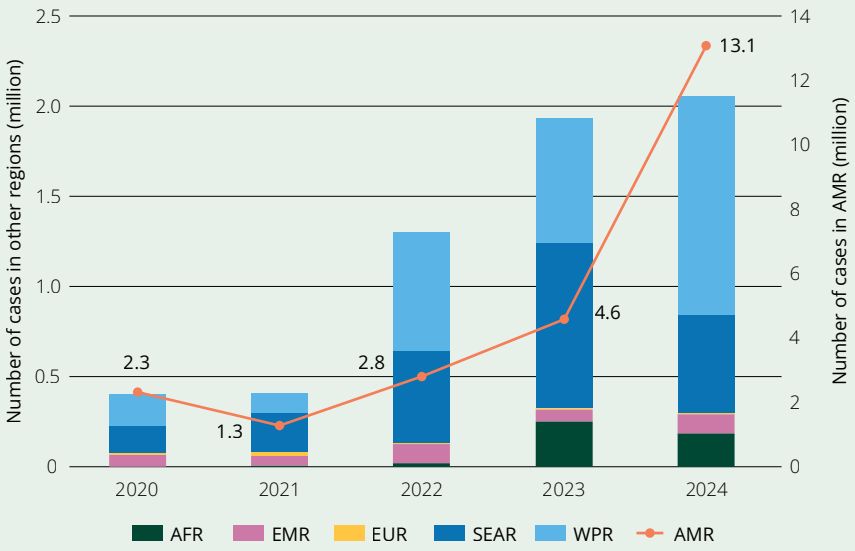
Burden of disease

About
1.8 million
DALYs in 2021

About
24 000
estimated deaths in 2021

About
15.1 million
reported cases in 2024

Number of reported dengue cases, by WHO region, 2020–2024

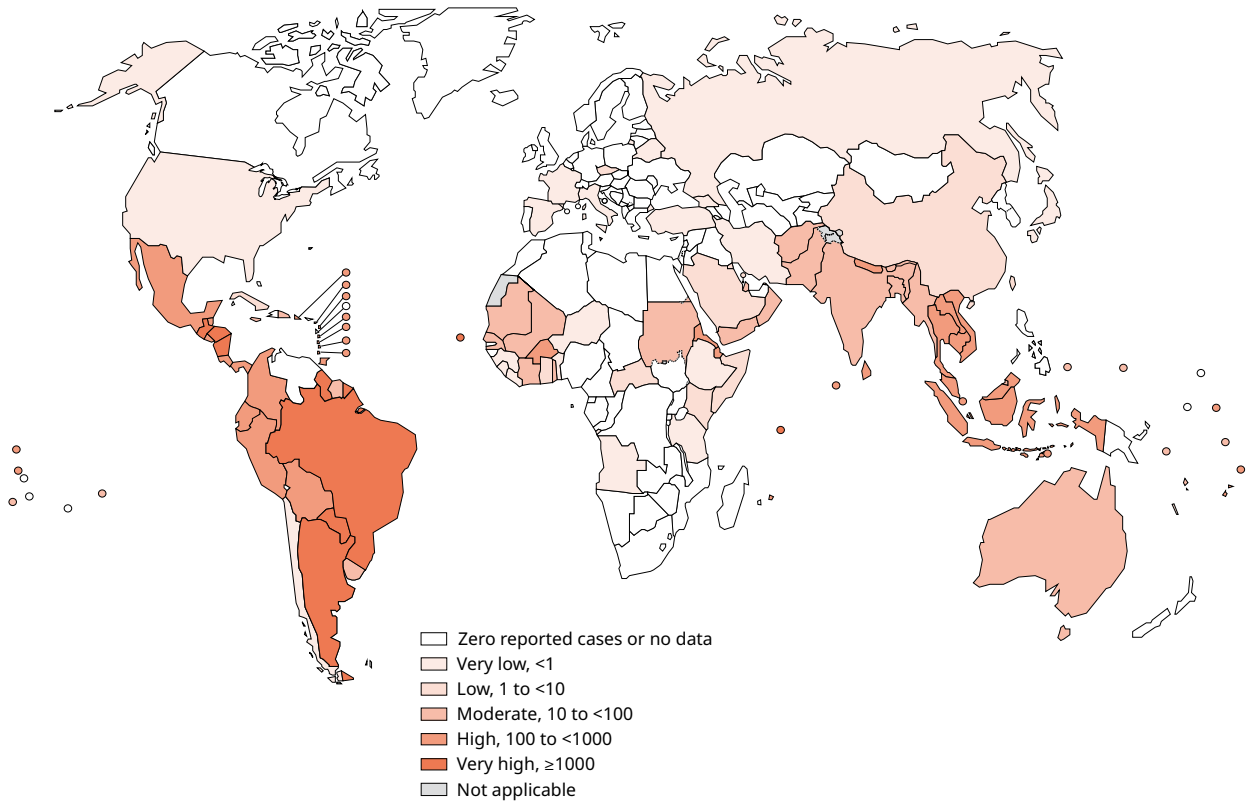


AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

AMR is shown on the secondary axis due to its substantially higher case burden; all other regions are shown as stacked columns on the primary axis. Trends may reflect changes in surveillance, outbreak detection and reporting completeness.

Geographical distribution and status

Reported dengue incidence per 100 000 population, 2024



Source: Ministries of Health.

Progress at mid-term

Between 2020 and 2024, the global dengue situation worsened substantially. Reported cases increased from 2.74 million in 2020 to 15.1 million in 2024, the highest annual number recorded to date. Locally acquired cases were reported in all six WHO regions. WHO classified dengue as a Grade 3 emergency, its highest emergency level, in 2024. A contributing factor to this proliferation is that the estimated population at risk of dengue has also increased over the past decade, reflecting the continued geographical expansion of *Aedes* vectors and increasingly favourable climatic and environmental conditions for transmission across these ranges.

The Region of the Americas accounted for most dengue cases reported globally in 2024, with Brazil contributing the highest proportion of the regional burden. The African, South-East Asia, Eastern Mediterranean and Western Pacific regions also reported substantial increases or outbreaks. In the African Region, the apparent rise should be interpreted cautiously because changes in surveillance, outbreak detection and reporting completeness may have influenced the observed trend. The European Region remains the only WHO region without sustained year-round dengue transmission, although locally acquired cases are being reported with increasing frequency.

These trends reflect the combined influence of climate and environmental change, rapid and often unplanned urbanization, population movement, vector expansion and variation in surveillance and reporting. They also highlight the growing pressure on health systems, particularly in settings experiencing recurrent or newly emerging outbreaks. With geographical expansion of dengue into new susceptible populations, the risk of severe disease from secondary infections increases, meaning that experience managing severe dengue cases, and health system strengthening, will become even more critical.

Accelerated action is needed to strengthen integrated surveillance, laboratory and clinical capacity, emergency preparedness, community engagement and vector control. Vaccination should be considered where recommended and appropriate, as part of a broader integrated response. In the Region of the Americas, priorities include strengthening integration of vector control for dengue, chikungunya and other arboviral infections within wider NTD and health system platforms.

Risks that require mitigation

- Expansion of *Aedes* mosquito populations driven by increasing urbanization, inadequate sanitation and waste water management, population growth and climatic conditions favourable to transmission
- Weak surveillance systems in many endemic countries, particularly at subnational levels, and lack of integration across epidemiology, entomology and the environment
- Delayed outbreak detection as a result of weak surveillance, underreporting and limited diagnostic capacity
- Insufficient investment in surveillance, preparedness and outbreak response to support evidence-based decision making
- Inconsistent vector control implementation and growing insecticide resistance
- Limited affordability and variable effectiveness of available dengue vaccines across serotypes
- Limited country-level advocacy on the increasing threat of arboviruses and the need for an integrated approach, multisectoral collaboration and capacity-building

Summary of critical actions to achieve targets

Strengthen integrated surveillance and early warning systems to detect transmission increases rapidly and trigger timely outbreak response.

Scale up sustainable, evidence-based vector control, including environmental management and community-led source reduction.

Further develop the evidence base on effectiveness of vector control strategies.

Improve clinical management capacity, including training for early recognition and treatment of severe dengue and strengthening of referral systems.

Increase financing and multisectoral collaboration, especially with WASH, urban planning and infrastructure sectors, to reduce breeding sites and build long-term resilience.

Accelerate development and equitable introduction of effective, affordable dengue vaccines for broad population protection.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• A large proportion of cases (up to 80%) may go undetected due to asymptomatic or clinically mild disease, posing challenges for case detection, reporting and surveillance. • Secondary infections can lead to severe disease, but underlying determinants, including interactions with age, comorbidities and immunity, remain incompletely understood. • Emerging evidence suggests increasing transmission among adults and in rural areas, but the drivers, extent and implications of these trends remain only partially understood. • Dengue vaccines are available, but achieving consistent protection across all serotypes and different epidemiological settings remains challenging. • Global dengue distribution is now better characterized because of improved surveillance, including data from a WHO surveillance dashboard, but gaps in coverage and data quality affect completeness, particularly at subnational level. • The epidemiological impact of vector control interventions, including *Wolbachia*- and insecticide-based strategies, is being assessed in an effort to reduce transmission of dengue virus (as well as other arboviruses). • Dengue virus can be maintained in a sylvatic transmission cycle between nonhuman primates and *Aedes* mosquitoes in parts of south-east Asia and Africa.	• Strengthen diagnostic and surveillance strategies to improve detection and estimation of asymptomatic and mild dengue infections. • Support research to identify determinants that put individuals at greater risk of severe dengue, including interactions with age, comorbidities and immunity. • Investigate drivers of increasing dengue incidence among adults and expanding transmission in rural and periurban areas. • Support research on dengue vaccination optimization strategies to maximize effectiveness across serotypes and epidemiological settings. • Strengthen surveillance coverage and data quality, particularly at subnational level, to improve mapping completeness and burden estimation. • Improve understanding of the health and economic burden of dengue.
Diagnostics 2024 2020	• Dengue diagnostics are now included in the WHO Essential Diagnostics List. • RDTs exist for point-of-care diagnosis, but their quality is not assured. • There is ongoing work to develop multiplex tests for patient management and surveillance; some are available, but they are not affordable for programmes.	• Improve quality assurance for point-of-care RDTs. • Develop affordable molecular tests, including multiplex tests because of overlapping epidemiology of arboviruses, for confirmation of diagnosis, patient management and surveillance. • Improve affordability of existing and new diagnostic tools.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Effective interventions 2026 2020	• Strengthened clinical management has helped reduce case fatality rates across endemic regions, although progress remains uneven globally. • Despite an exceptionally high number of cases during the Grade 3 emergency in 2024, a low case fatality rate was maintained; however, many regions are experiencing dengue for the first time, meaning these are primary infections only, and vigilance will be needed in coming years as secondary cases become more common and the risk of severe disease increases. • Community-based source reduction, combined with targeted vector control (e.g. indoor residual spraying in homes and schools), can be effective in reducing mosquito populations. • Vector control targets mosquito eggs, larvae and adults but is resource-intensive, and reductions in vector populations do not always translate into sustained reductions in dengue transmission. • Dengue vaccines are available, but protection varies across serotypes and epidemiological settings, and affordability remains a barrier for large-scale implementation and procurement. • Evidence remains limited on dengue vaccine coadministration and scheduling with other flavivirus vaccines, including yellow fever and Japanese encephalitis vaccines. • Recommended case management is clinically effective but operationally constrained due to reliance on labour-intensive supportive care, particularly personalized fluid management, and the lack of a specific antiviral treatment.	• Accelerate development and evaluation of safe, effective and affordable antiviral treatments for dengue. • Strengthen clinical research to improve management of severe dengue, including organ dysfunction. • Strengthen clinical experience in managing severe dengue in areas where dengue has recently become established (and will see a greater number of secondary infections in coming years), to keep the case fatality rate low. • Strengthen the evidence base on the effectiveness of vector control strategies in reducing disease transmission. • Strengthen collaboration with environmental and engineering sectors to design and implement sustainable solutions to reduce mosquito breeding sites. • Monitor insecticide use and development of resistance, so it can be managed accordingly. • Promote evidence-based, targeted insecticide application to minimize environmental contamination and limit the development of resistance. • Continue development of dengue vaccines to expand protection across at-risk populations, while ensuring their affordability. • Generate evidence to optimize coadministration and scheduling of dengue vaccines with other flavivirus vaccines. • Support the development and validation of prognostic markers to identify risk of progression to severe disease and enable timely clinical management. • Strengthen context-specific integrated vector management strategies to address documented outdoor-biting behaviour and emerging evidence on sylvatic transmission dynamics of dengue in Africa.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• Global clinical management guidelines have been updated in WHO's integrated arbovirus clinical guidelines (2025), with regional updates on clinical diagnosis and treatment in the Region of the Americas (2022) and, at primary care level, in the South-East Asia Region (2025). • WHO global dengue prevention and control guidelines (2009) are out of date; regional plans and guidance exist, but some of these are also long-standing (Region of the Americas, 2018; South-East Asia Region, 2011; Western Pacific Region, 2016). • The WHO *Global strategic preparedness, readiness and response plan for dengue and other* Aedes*-borne arboviruses* was released in 2024. • Guidance on dengue surveillance and outbreak response is available through a WHO handbook (2016), complemented by updated guidance on laboratory testing (2025). • The Global Arbovirus Initiative provides a framework for objectives and priority activities to tackle emerging and re-emerging arboviruses with epidemic and pandemic potential. • Current WHO strategic and operational frameworks address dengue through a multi-disease integrated vector management strategy.	• Develop global operational guidance for dengue outbreak preparedness, detection and response, adaptable for implementation at country level. • Develop and update the vector control guidelines for dengue and other arboviruses. • Update operational guidance to strengthen surveillance, reporting and early warning systems, to enable timely detection and monitoring of dengue transmission trends. • Develop global operational guidance for integrated vector management, addressing dengue-specific considerations for adaptation at country level.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• National control programmes are established in many endemic countries, but coverage, capacity and implementation remain uneven. • Inclusion of dengue in national NTD plans and coordination bodies remains inconsistent, with governance often led by vector-borne disease or arboviral programmes. • Vector control activities are often implemented reactively during outbreak responses, rather than through sustained preventive programmes. • Mechanisms for integration with other NTDs and public health programmes are mostly centred on vector control initiatives, alongside other arboviruses. • The WHO Technical Advisory Group on Arbovirus (established in 2021) provides scientific and strategic advice for arboviruses, including dengue, chikungunya, Zika virus and yellow fever.	• Establish or strengthen national dengue control programmes, ensuring sustained and coordinated implementation when embedded in arboviral or vector-borne disease frameworks. • Promote inclusion of dengue in national NTD master plans and coordination bodies, where relevant, to enhance visibility, prioritization and alignment with broader health strategies. • Where relevant, recognize dengue as endemic and develop national strategies to ensure resource allocation for sustained surveillance, preparedness and vector control. • Strengthen harmonization, use and adequate reporting of epidemiological indicators to monitor dengue incidence and transmission trends and to trigger timely outbreak response. • Establish and strengthen integrated vector surveillance and management programmes, incorporating new tools alongside routine larval control and breeding site reduction. • Strengthen community-based involvement in management of larval breeding sites, especially in domestic settings. • Develop urban resilience plans to reduce mosquito breeding through improved water management, sanitation and environmental design. • Strengthen mechanisms to ensure compliance of private health care providers with national clinical diagnosis and treatment protocols.
Monitoring and evaluation 2024 2020	• Underreporting of monitoring and evaluation data is common. • Reporting of monitoring and evaluation data often comes from sentinel sites only, rather than from across the entire health system. • Insecticide resistance is present in many vector populations. • Climate change and urbanization (poor design, management and core infrastructure) impact vector biology and transmission dynamics. • There is ongoing work to develop global guidance on the integration of disease-specific indicators into countries' health management information systems.	• Develop surveillance systems for preventive and rapid response interventions. • Ensure monitoring and reporting systems are established in all endemic countries. • Regularly monitor the presence and density of mosquitoes at sentinel sites, using traps. • Monitor and manage insecticide resistance as an integral part of any vector control programme where insecticides are used. • Monitor the impacts of climate change and urbanization.
Access and logistics 2024 2020	• The Western Pacific Region has stockpiles of spray equipment, RDTs (not quality assured) and insecticides. • Access to materials for insecticide resistance monitoring has improved. • New diagnostic doses for mosquitoes for WHO susceptibility bioassays have been determined, and two new centres producing test papers have opened in Brazil and India (in addition to a centre in Malaysia).	• Initiate a programme for independent quality assurance of diagnostics. • Ensure availability of RDTs at all levels. • Encourage use of diagnostics in primary care settings for patient care and surveillance, with use also recommended in prenatal and maternal care settings to distinguish dengue from other arboviruses.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026 2020	• Endemic countries often have primary care services for dengue, including trained staff, to manage cases, with referral systems for severe cases; however, capacity and accessibility vary across and within countries, particularly in rural areas. • Laboratory capacity to support dengue surveillance and diagnosis exists in many endemic countries, but functionality, coverage and timeliness remain uneven. • The PAHO Arbovirus Diagnosis Laboratory Network supports the standardization of diagnostic protocols, laboratory quality, training provision and outbreak response in the Region of the Americas.	• Strengthen primary care capacity and referral systems for dengue case management, to improve access to and quality of care in underserved and remote areas. • Streamline referral systems for severe dengue to ensure timely escalation of care and appropriate clinical management. • Strengthen laboratory systems to improve functionality, geographical coverage and timeliness of testing and reporting. • Establish regional and interregional clinical networks to support training and knowledge sharing on case management and preparedness, particularly to mitigate severe disease in newly affected areas. • Establish regional entomological networks to support standardization, data sharing and capacity-building for integrated vector surveillance of *Aedes*-borne diseases.

Category: Enablers

Advocacy and funding 2024 2020	• Levels of research and development funding have decreased. • There is a need to finance new interventions, including vaccines.	• Increase the commitment of resources from international donors, countries and nongovernmental organizations. • Ensure greater intersectoral collaboration within countries and regionally.
Collaboration and multisectoral action 2026 2020	• Inclusion in integrated arbovirus or vector control frameworks fosters intersectoral coordination, but implementation often remains outbreak-driven, with resource allocation constrained by competing routine programme activities across *Aedes*-borne diseases. • Several international coalitions and networks, such as the Global Dengue & *Aedes*-Transmitted Diseases Consortium, Collective Action on Dengue, and UNited In Tackling Epidemic Dengue (UNITEDengue), support multi-stakeholder coordination and collaboration. • Existing surveillance coordination initiatives, including WHO's Global Arbovirus Initiative and PAHO's ARBO Portal, support information exchange across countries. • Community engagement is often centred on awareness-raising and vector control activities, chiefly during outbreaks, with more limited involvement in routine programmatic activities.	• Recognize dengue as an environmental threat, to foster coordination with urban and infrastructure planning sectors and to support integrated environmental management. • Strengthen collaboration with infrastructure planning and WASH sectors to reduce *Aedes* breeding through improved environmental management, infrastructure, and water and sanitation systems. • Leverage international networks and coalitions to support intersectoral coordination at the national level, including planning, resource allocation and implementation. • Strengthen and expand surveillance coordination initiatives to improve data quality, reporting frequency and use of data for planning, preparedness and outbreak response. • Promote closer coordination between arbovirus programmes and emergency preparedness and response systems to support timely outbreak detection and response. • Collaborate with the education sector to integrate dengue prevention and vector control messages into school curricula. • Strengthen community engagement, including strategies that promote participation in the design and implementation of dengue prevention and control activities.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Capacity and awareness building 2026 2020	• International training programmes on dengue are held by the Region of the Americas and the Western Pacific Region in Cuba and Singapore, respectively. • Training for primary-level health workers is often embedded within routine health system activities, but coverage and continuity are limited in some settings. • Arbovirus programmes often face limited availability and retention of entomologists, limiting entomological capacity to support vector surveillance and control. • Several training toolkits and manuals for health care staff have been developed in affected regions, including the Region of the Americas and South-East Asia and Western Pacific regions. • Online training platforms, including the WHO Academy and PAHO's Virtual Campus, provide courses on dengue diagnosis and case management. • Toolkits for risk communication and community engagement in response to dengue outbreaks are available through WHO and PAHO. • Communication and community engagement activities are conducted in most endemic countries, often as part of outbreak responses. Routine activities exist, usually linked to vector control, but sustained engagement outside outbreaks remains limited.	• Ensure training programmes for primary-level health workers have sustained coverage, continuity and regular updating across endemic countries. • Strengthen recruitment, training and retention of entomologists. • Support sustained communication and community engagement strategies beyond outbreak-driven activities, with messages tailored to target specific groups (e.g. children). • Support citizen science approaches by training local communities to participate in disease and vector surveillance activities.

Dengue and chikungunya (chikungunya)

Chikungunya is a viral disease that can cause symptoms such as sudden onset of fever, joint pain (that may persist for months or years), muscle pain, headache and rash. Outbreaks place a heavy burden on health services.

Disease and epidemiology

- Chikungunya is a viral disease caused by infection with an alphavirus of the family *Togaviridae*.
- Symptoms include sudden onset of fever and joint pain, muscle pain, headache, rash and lymphopenia; joint pain may persist for months or years.
- Human infection is transmitted through bites of female *Aedes* mosquitoes, including *A. aegypti* and *A. albopictus*, among other species.
- Explosive outbreaks place a heavy burden on health services.
- Chikungunya has increased and spread drastically since 2004.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Promotion of safe water storage practices and management of water-holding containers (e.g. covering all water storage containers and overhead tanks) and safe disposal of household water • Effective environmental sanitation and solid waste management to reduce mosquito breeding sites
Vector control	• Evidence-informed integrated vector management approaches tailored to local transmission settings, and consideration of vector control in urban planning, housing and infrastructure development • WHO-recommended or nationally approved interventions, including insecticide-based tools as needed during outbreaks • Stronger entomological surveillance to guide effective vector control activities • Monitoring and management of insecticide resistance and adapting strategies as needed • Larval source reduction, through environmental sanitation and management of solid waste (especially plastic products), and environmental modification to reduce breeding sites • Spraying of safe insecticides, including indoor fogging for emergency control • Restricting access of mosquitoes to homes through use of screening and other covers
Veterinary public health	• N/A
Case management	• Improved clinical management of acute and chronic disease • Relief of symptoms, particularly acute and chronic joint pain
Other	• Stronger integrated surveillance and early warning systems, outbreak preparedness and response • Support for the introduction and evaluation of approved vaccines, where appropriate • Advocacy, social mobilization, political commitment, integration, regulation and capacity-building

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Vaccine development for one or more vaccine candidates	Phase I	–	Two vaccines available	Phase III	**Licensed vaccine**
Number of endemic countries identified and mapped for chikungunya	10%	50%	73% (80/110)	100%	–
Develop optimized and prioritized integrated strategies for case management and estimate the potential public health benefits by 2025	5	20	25	40	–

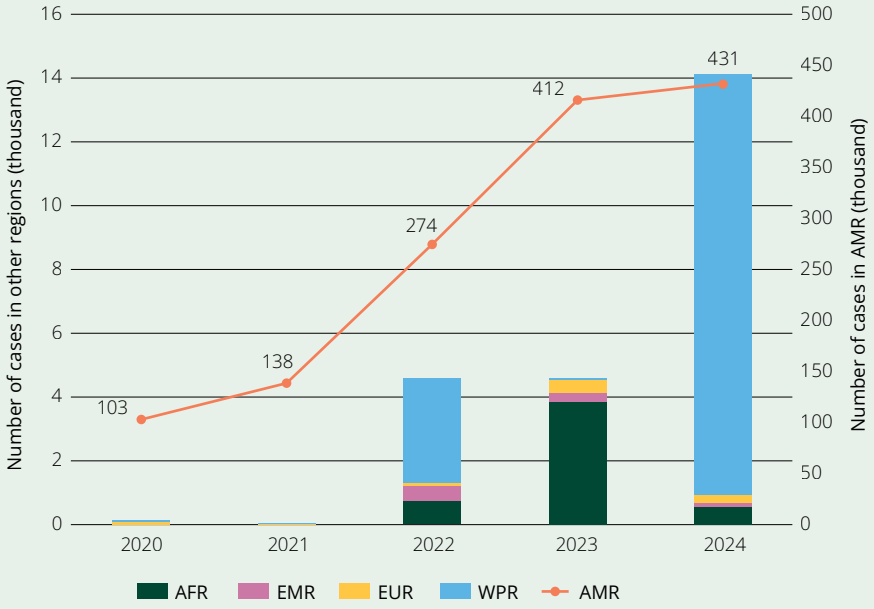
Burden of disease

445 305
cases reported in 2024

30
countries reported cases in 2024

96.9%
of reported cases were in the Region of the Americas in 2024

Number of reported chikungunya cases, by WHO region, 2020–2024

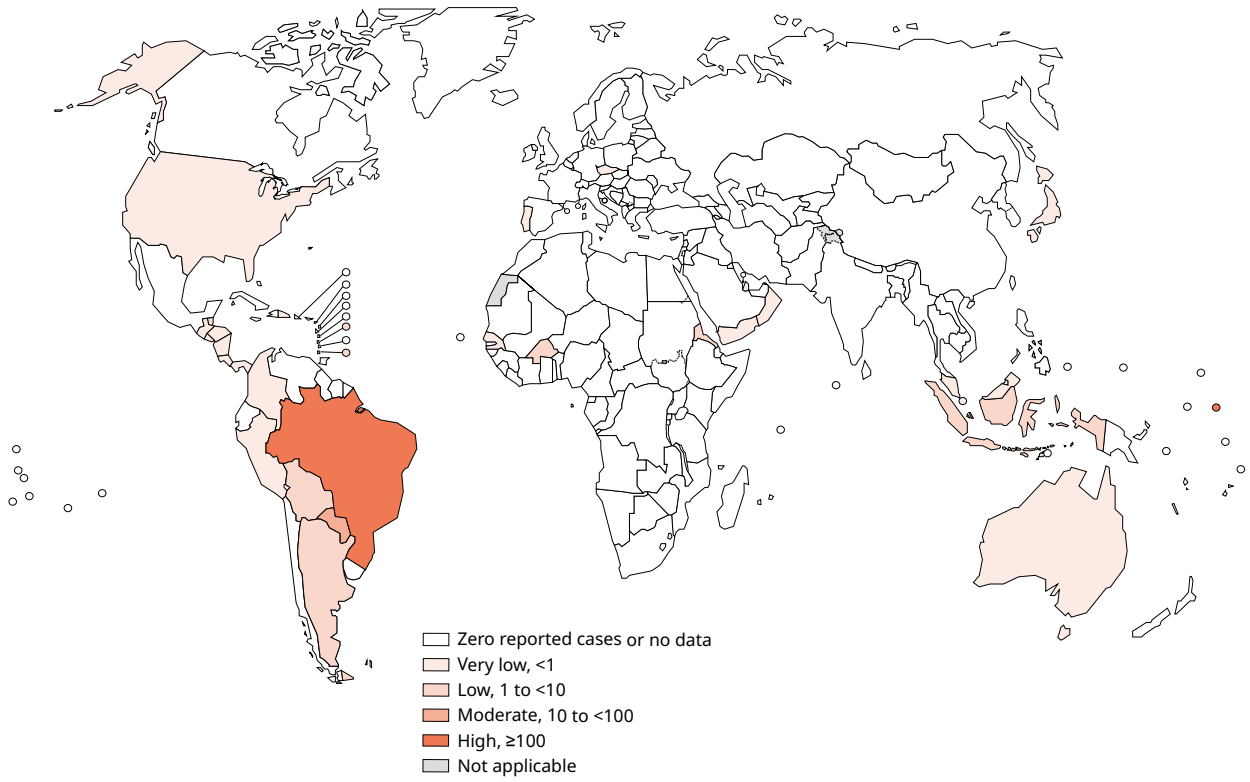


AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; WPR: WHO Western Pacific Region.

AMR is shown on the secondary axis due to its substantially higher case burden; all other regions are shown as stacked columns on the primary axis.

Geographical distribution and status

Reported chikungunya incidence per 100 000 population, 2024



Source: Ministries of Health.

Progress at mid-term

Chikungunya remains an important and expanding mosquito-borne viral disease, with outbreaks reported in more than 80 countries across multiple WHO regions. Reported cases increased from 103 091 in 2020 to 445 305 in 2024, representing a 332% increase over the 5-year period, while the number of reporting countries increased from 18 to 30. Similar to dengue, the number of people at risk is increasing with population growth and urbanization, increased travel and trade, and the expansion of *Aedes* permissive climates into new geographical areas.

The Region of the Americas continued to bear the overwhelming brunt of the reported global burden, accounting for 96.9% of cases in 2024 (431 417 cases), compared with 99.96% in 2020 (103 046 cases). Brazil remained the dominant contributor, reporting 425 773 cases in 2024, or 95.6% of the global total. Paraguay reported 3134 cases, up from 316 in 2020, and Argentina reported 1388 cases. The Western Pacific Region emerged as having the second-highest burden, with 13 189 cases in 2024, compared with 45 cases in 2020; Indonesia reported 12 492 cases.

The period also saw reports from regions that had previously contributed little to the global total. The African Region reported 535 cases in 2024, the Eastern Mediterranean Region reported 156 cases and the European Region reported 220 cases. These reports indicate ongoing geographical expansion and the risk of emergence in new settings. The South-East Asia Region reported zero cases throughout 2020–2024, despite known endemic transmission, suggesting potential surveillance gaps rather than absence of disease.

Progress has been made in strengthening the global chikungunya agenda. Clinical management guidance has been updated through WHO integrated arbovirus guidelines, global strategic frameworks for *Aedes*-borne diseases have been developed, and vaccine development has advanced substantially since 2020. Improved awareness, surveillance and reporting have contributed to a better understanding of the global distribution of the disease. Nevertheless, chikungunya remains underrecognized and underreported in many endemic areas. Achieving the 2030 targets will require stronger surveillance and outbreak preparedness, improved access to diagnostics, continued investment in vaccine development and stronger evidence on effective vector control strategies.

Risks that require mitigation

- Expansion of *Aedes* mosquito populations, driven by urbanization, inadequate water management, population growth and climatic factors that increase suitability for transmission
- Delayed outbreak detection as a result of weak surveillance, underreporting and limited diagnostic capacity
- Misdiagnosis and underrecognition of chikungunya due to a similar clinical presentation as dengue and other arboviruses
- More frequent introductions and established local virus transmission in areas previously unaffected by chikungunya, as a result of geographical expansion of the competent vectors, coupled with increased international trade and travel.
- Lack of specific antiviral treatments and continuing burden of chronic chikungunya-associated disease, prolonged disability and economic impacts
- Insufficient investment in surveillance, preparedness and outbreak response to support evidence-based decision-making
- Limited country-level advocacy on the increasing threat of arboviruses and the need for an integrated approach, multisectoral collaboration and capacity-building

Summary of critical actions to achieve targets

Incentivize public–private partnerships for vaccine development.

Advocate for funding to facilitate comprehensive mapping of the disease burden and development of national strategic approaches.

Further develop the evidence base on effectiveness of vector control strategies.

Develop quality-assured RDTs.

Scale up sustainable, evidence-based vector control, including environmental management and community-led source reduction.

Develop and implement standardized guidance on surveillance, outbreak preparedness, vector control and management of chronic chikungunya disease.

Foster multisectoral collaboration across health, WASH, environment, urban planning and emergency preparedness sectors.

Improve understanding of the health, social and economic burden of chikungunya, including chronic disease outcomes.

Accelerate development, evaluation and equitable access to vaccines, diagnostics and therapeutics through public–private partnerships.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Global risk areas are increasingly recognized, but mapping remains incomplete due to surveillance and diagnostic limitations, affecting burden and endemicity estimates. • Understanding and forecasting outbreaks remain incomplete due to complex interactions among vectors, climate, human mobility and population immunity. • A significant proportion of chikungunya infections (up to 40%) is asymptomatic, posing challenges for accurate reporting and surveillance. • Mechanisms underlying the development and persistence of chronic chikungunya-associated musculoskeletal disease remain incompletely understood. • No disease-specific therapies exist to prevent or treat post-chikungunya inflammatory arthritis; management primarily relies on standard rheumatological approaches. • Research on *Aedes*-borne diseases is focused on dengue, with comparatively less attention given to chikungunya.	• Strengthen surveillance and reporting systems to improve completeness of geographical mapping. • Improve understanding of the health and economic burden of chikungunya. • Strengthen modelling and data integration to improve forecasting of chikungunya outbreaks. • Study viral mutations and their interactions with mosquito vectors to better understand how chikungunya transmission differs from that of other *Aedes*-borne viruses. • Investigate the role of zoonotic transmission cycles in chikungunya emergence, persistence and transmission dynamics. • Support research on the mechanisms and determinants underlying the development and persistence of chikungunya-related chronic musculoskeletal disease. • Develop and evaluate disease-specific therapies for the prevention and management of post-chikungunya inflammatory arthritis.
Diagnostics 2024 2020	• Differentiating chikungunya from dengue is clinically challenging. • Serological tests, including enzyme-linked immunosorbent assay (ELISA), can confirm presence of antibodies. • Reverse transcription polymerase chain reaction methods are available to determine virus in blood, but commercially available tests vary in sensitivity. • There is ongoing development of multiplex tests to support diagnosis, which can then inform patient management and surveillance.	• Develop sensitive, specific, affordable and accessible diagnostic tests. • Systematically evaluate all tests to ensure their quality, especially point-of-care tests. • Encourage development of multiplex tests for confirmation of diagnosis and surveillance. • Develop RDTs to distinguish chikungunya from other arboviruses among pregnant women. • Ensure the quality of testing in the field.
Effective interventions 2026 2020	• There are no specific antiviral treatments, and experience with and guidance on the large-scale use of chikungunya vaccines remain limited. • Chronic cases may require rheumatological treatment and physiotherapy, but evidence for optimal rehabilitation and long-term disease modification remains limited. • Innovation and evaluation of chikungunya-specific interventions remain limited, with many programme approaches relying on evidence derived from dengue and other *Aedes*-borne diseases.	• Accelerate development and evaluation of safe, effective and affordable antiviral treatments for chikungunya. • Strengthen the evidence base on the effectiveness of vector control strategies in reducing virus transmission and mosquito populations. • Strengthen context-specific integrated vector management strategies to address documented outdoor-biting behaviour and other local transmission dynamics in *Aedes* populations. • Monitor insecticide use and development of resistance, so it can be managed accordingly. • Promote evidence-based, targeted insecticide application to minimize environmental contamination and limit the development of resistance. • Strengthen collaboration with environmental and engineering sectors to design and implement sustainable solutions to reduce mosquito breeding sites. • Support the development of prognostic markers to identify individuals at risk of chronic chikungunya-associated musculoskeletal disease and enable early intervention and follow-up care. • Strengthen clinical research to improve management of severe and chronic chikungunya, including rehabilitation and long-term care, and to guide evidence-based care.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• Global clinical management guidelines have been updated in WHO's integrated arbovirus clinical guidelines (2025), with regional guidance also available for the South-East Asia Region (2019) and the Region of the Americas (2022). • Disease-specific global operational guidance on chikungunya prevention and control is limited; some regional guidance is available, including South-East Asia Region guidelines published in 2009. • The WHO *Global strategic preparedness, readiness and response plan for dengue and other* Aedes*-borne arboviruses* was released in 2024. • There is no dedicated global WHO guideline on chikungunya surveillance and outbreak response; existing regional guidance includes the 2011 joint PAHO and United States Centers for Disease Control and Prevention guidance for the Region of the Americas and the 2009 guidance issued by the WHO Regional Office for South-East Asia. • Chikungunya is often included in strategic and operational integrated vector management frameworks with other arboviruses, but there are no chikungunya-specific guidelines on vector control.	• Develop guidance on chikungunya surveillance systems to increase standardization of reported data and support their adoption and implementation across countries. • Review and update existing regional chikungunya outbreak response guidance and consider its adaptation to support development of guidance in other regions. • Develop global operational guidance for integrated vector management, addressing chikungunya-specific considerations for adaptation at country level. • Develop case management guidelines for chronic chikungunya, including rehabilitation.
Planning, governance and programme implementation 2026 2020	• Dedicated chikungunya control programmes are uncommon; most countries rely on integrated arbovirus or vector control frameworks, but with variable implementation. • Inclusion of chikungunya in national NTD master plans or coordination bodies remains limited; governance is often through broader vector-borne disease or arboviral programmes, where competing priorities can constrain resources for chikungunya-specific activities. • Chikungunya control is characterized by modest routine surveillance, supplemented by episodic surges in interventions during outbreaks, typically centred on vector control. • Chikungunya preparedness often benefits from existing dengue planning, as the two diseases share the same vectors and thus can benefit from the same response strategies. • Integration with other public health programmes is largely achieved through shared vector control and arbovirus prevention initiatives, rather than through disease-specific platforms. • The WHO Technical Advisory Group on Arbovirus (established in 2021) provides scientific and strategic advice for arboviruses, including dengue, chikungunya, Zika virus and yellow fever.	• Establish or strengthen national chikungunya control programmes, ensuring sustained and coordinated implementation when embedded in arboviral or vector-borne disease frameworks. • Promote inclusion of chikungunya in national NTD master plans and coordination bodies to enhance visibility, prioritization and alignment with broader health strategies. • Where relevant, recognize chikungunya as endemic and develop national strategies to ensure resource allocation for sustained surveillance, preparedness and vector control. • Define and standardize epidemiological indicators to monitor chikungunya incidence, transmission trends and outbreak thresholds. • Establish and strengthen integrated vector surveillance and management programmes, incorporating new tools alongside routine larval control and breeding site reduction. • Strengthen community-based management of water-holding containers and promote the targeted and safe use of insecticides in non-potable water containers. • Develop urban resilience plans to reduce mosquito breeding through improved water management, sanitation and environmental design. • Strengthen mechanisms to ensure compliance of private health care providers with national clinical diagnosis and treatment protocols.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• Outbreaks have been reported in more than 80 countries across all regions. • The state of surveillance and monitoring and evaluation systems varies by country. • Underreporting of monitoring and evaluation data is common. • Climate change and urbanization (poor design, management and core infrastructure) impact vector biology and transmission dynamics.	• Develop surveillance and monitoring and evaluation systems in high-risk countries. • Develop digitized and early warning systems in all endemic countries. • Monitor and manage insecticide resistance as an integral part of any vector control programme where insecticides are used. • Monitor presence and density of mosquitoes in areas of potential risk.
Access and logistics 2024 2020	• The Western Pacific Region has stockpiles of spray equipment and insecticides.	• Consider developing regional stockpiles of spray equipment and insecticides in other endemic regions. • Ensure availability of high-quality molecular or multiplex diagnostic and screening tests.
Health care infrastructure and workforce 2026 2020	• Endemic countries often have primary care services to manage cases, with referral systems for severe cases; however, capacity and accessibility vary across and within countries, particularly in rural settings. • Staff at the primary care level often have limited capacity to diagnose and manage chikungunya; cases are frequently managed syndromically, with emphasis first on ruling out dengue. • Laboratory capacity to support chikungunya surveillance is often centralized, with limited geographical coverage and variable capacity for timely testing and reporting. • The PAHO Arbovirus Diagnosis Laboratory Network supports the standardization of diagnostic protocols, laboratory quality, training provision and outbreak response in the Region of the Americas.	• Strengthen primary care capacity for chikungunya diagnosis and management, including training in differential diagnosis and management of persistent arthritis and other chronic complications. • Strengthen and streamline referral systems to ensure appropriate management of severe and atypical cases and continuity of care for related chronic conditions. • Strengthen laboratory systems to improve functionality, geographical coverage and timeliness of chikungunya diagnosis and reporting. • Establish regional and interregional networks of medical staff to support training and knowledge sharing on case management and preparedness, particularly to build capacity in newly affected areas. • Establish regional entomological networks to support standardization, data sharing and capacity-building for integrated vector surveillance of *Aedes*-borne diseases.

Category: Enablers

Advocacy and funding 2024 2020	• Lack of data on the disease burden and economic costs of infection results in underrecognition of disease impact. • There is a need to finance new interventions, including vaccines.	• Increase commitment from donors, countries and nongovernmental organizations for sustained interventions and patient care. • Develop and share resources among all stakeholders. • Create agreements with stakeholders developing preventive tools and strategies to ensure adherence to original timelines. • Increase funding for preventive interventions and early warning systems. • Increase support for patient care, especially for those with long-term disabilities. • Ensure greater intersectoral collaboration within countries and regionally.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Inclusion in integrated arbovirus or vector control frameworks fosters intersectoral coordination, but implementation often remains outbreak-driven, with resource allocation constrained by competing routine programme activities across *Aedes*-borne diseases. • Collaborations between academic institutions and biotechnology companies have supported the development of chikungunya vaccines, but large-scale implementation remains limited. • The Global Dengue & *Aedes*-Transmitted Diseases Consortium supports multi-stakeholder coordination and collaboration; broader emerging initiatives on arboviruses may further support these actions. • Existing surveillance coordination initiatives, including WHO's Global Arbovirus Initiative and PAHO's ARBO Portal, support information exchange across countries, but data completeness, coverage and timeliness remain variable for chikungunya. • Community engagement is often centred on awareness-raising and vector control activities, chiefly during outbreaks, with more limited involvement in routine programmatic activities.	• Recognize chikungunya as an environmental threat, to foster coordination with urban and infrastructure planning sectors and to support integrated environmental management. • Strengthen collaboration with infrastructure planning and WASH sectors to reduce *Aedes* breeding through improved environmental management, infrastructure, and water and sanitation systems. • Promote sharing of epidemiological data and access to clinical trial infrastructure to support clinical evaluation and accelerate the development and assessment of chikungunya vaccines. • Strengthen the implementation of integrated arbovirus and vector control approaches for *Aedes* infections, ensuring sustained intersectoral coordination, equitable resource allocation and implementation beyond outbreak response. • Strengthen surveillance coordination to improve data completeness, coverage and timeliness for chikungunya, enabling effective information exchange and use for planning and response. • Promote closer coordination between arbovirus programmes and emergency preparedness and response systems to support timely outbreak detection and response. • Strengthen community engagement, including strategies that promote participation in the design and implementation of prevention and control activities.
Capacity and awareness building 2026 2020	• Training for chikungunya is typically integrated within dengue and broader arbovirus programmes; however, the depth of chikungunya-specific content is variable. • Training for primary-level health workers is often embedded within routine health system activities, but coverage and continuity are limited in some settings. • Arbovirus programmes often face limited availability and retention of entomologists, limiting entomological capacity to support vector surveillance and control. • Up-to-date, standardized global training materials for chikungunya diagnosis and management, including operational manuals and toolkits, remain limited; national programmes often adapt regional guidelines for their capacity-building activities. • Communication and community engagement activities are conducted in most endemic countries, often as part of outbreak responses. Routine activities exist, usually linked to vector control, but sustained engagement outside outbreaks remains limited.	• Ensure arbovirus training programmes contain dedicated content on chikungunya clinical management, including differentiating its diagnosis from dengue. • Strengthen training programmes for primary-level health workers to ensure sustained good coverage, continuity and regular updating across all endemic countries. • Strengthen recruitment, training and retention of entomologists. • Develop standardized operational training materials for chikungunya diagnosis and management, adapted to regional contexts. • Support sustained communication and community engagement strategies beyond outbreak-driven activities, with messages tailored to target specific groups (e.g. children). • Support citizen science approaches by training local communities to participate in disease and vector surveillance activities.

Dracunculiasis

Dracunculiasis, also known as Guinea-worm disease, is a parasitic disease in humans caused by infection with Guinea worm. The worm develops in the body for about a year before the adult female worm emerges from the body through a painful, burning cutaneous blister, significantly reducing quality of life for weeks.

Disease and epidemiology

- Dracunculiasis is a parasitic disease in humans caused by infection with *Dracunculus medinensis* (Guinea worm).
- Human infection is usually acquired through drinking stagnant water containing parasite-infected copepods (also called water fleas).
- Infected individuals often immerse the affected limb in water to relieve the burning pain when the worm is emerging; once part of the worm is in contact with water, larvae are released, enabling continuation of the life cycle.
- Guinea-worm infection also occurs in some animals, particularly dogs.

Risks that require mitigation

- Domestic and wild animal infections with *D. medinensis*
- Population displacement, insecurity and political instability in some endemic countries
- Re-emergence of *D. medinensis* transmission in countries previously certified as free of dracunculiasis

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Ensuring access to safe sources of drinking water • Filtering water from open-water bodies before drinking • Preventing contamination of drinking water by advising infected individuals to avoid wading into bodies of water used as sources of drinking water
Vector control	• Temephos to control copepods, the intermediate host
Veterinary public health	• Proactive tethering of dogs (including infected dogs) to prevent acquisition of infection, management of established infection and contamination of water sources
Case management	• Containment of human cases • Wound care, including wound cleaning, infection prevention, pain and inflammation reduction
Other	• Surveillance to ensure early detection and containment of transmission • Increasing awareness of cash reward scheme for voluntary reporting, promoting behavioural change and improving case detection • Conduct communication for behavioural impact to increase community participation in eradication efforts

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2025)	Milestone (2025)	Target (2030)
Number of countries certified free of transmission	187/194 (96%)	189/194 (97%)	188/194	191/194 (98%)	**194/194 (100%)**

Burden of disease

10

human cases reported in 2025

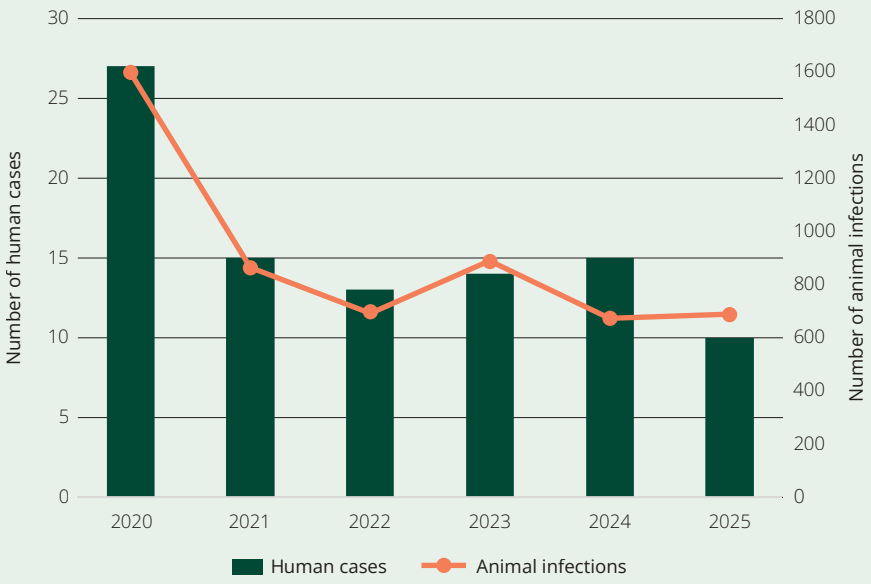
684

animal infections reported in 2025

>100 million

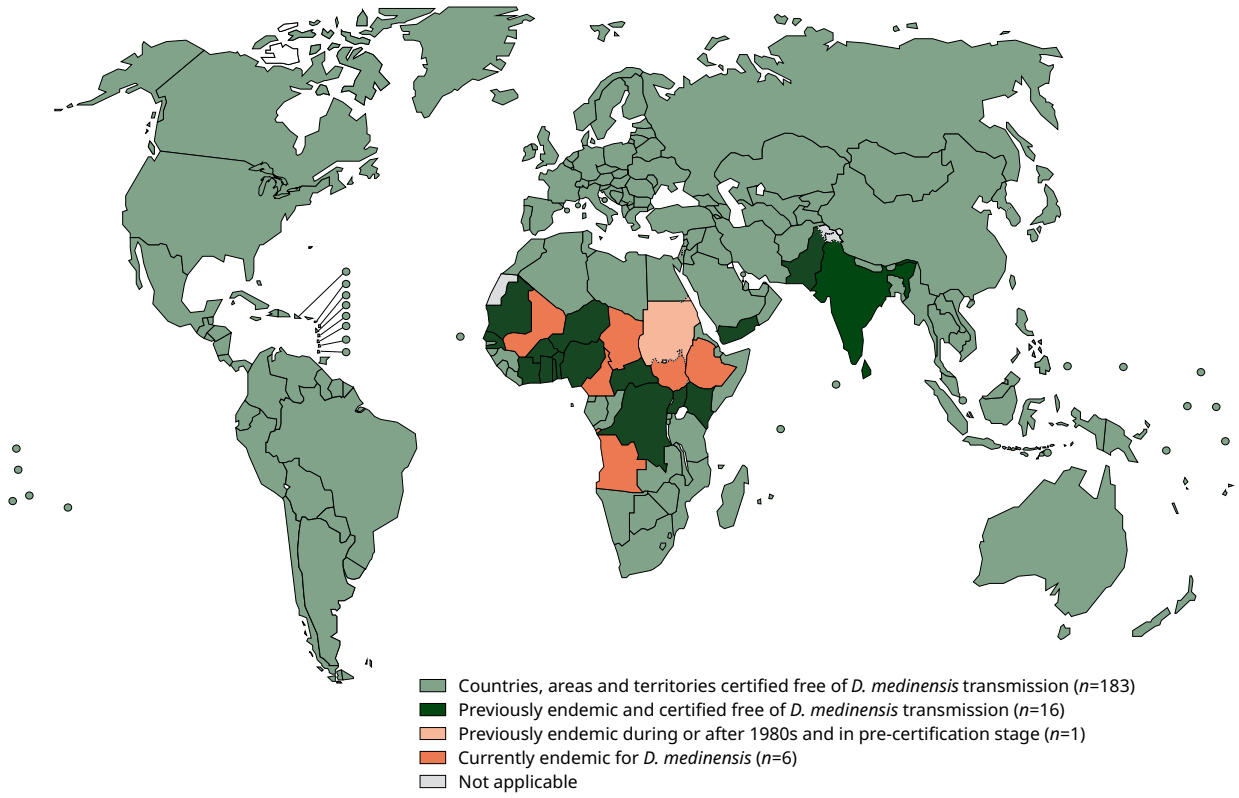
cases and ~9.6 million years of suffering have been prevented since the inception of the Guinea-worm disease eradication programme in 1980 (*1*)

Number of *D. medinensis* infections reported worldwide, 2020–2025



Geographical distribution and status

Certification status of countries free from *D. medinensis* transmission, 2026



Progress at mid-term

D. medinensis is on the verge of eradication. In 2025, three countries reported 10 human cases of dracunculiasis: Chad (four cases in four villages), Ethiopia (four cases in four villages) and South Sudan (two cases in two villages). This was the lowest number of annual cases ever recorded globally and represented a 33% decrease from the 15 cases reported in 2024. Compared with 2020, when 27 cases were reported from 19 villages in six countries, human cases are down by 63% and the number of affected villages by 47%.

In 2025, Angola, Cameroon, Chad, Ethiopia, Mali and South Sudan reported 684 animal infections, a 2% increase from 670 in 2024 but a 57% decrease from the 1601 infections reported in 2020. Although the longer-term decline indicates progress, the recent increase and continuing animal infections across six countries confirm that nonhuman definitive hosts remain a major obstacle to eradication. The geographical distribution has also widened since 2020, when animal infections were reported in four countries. Sustained One Health surveillance and interventions targeting infections in dogs, cats and wildlife are therefore essential.

Seven countries remain to be certified as being free of transmission: Angola, Cameroon, Chad, Ethiopia, Mali and South Sudan, which have ongoing indigenous transmission; and the Sudan, which is in the precertification phase.

Summary of critical actions to achieve targets

Continue to develop scientific and operational protocols for interruption of transmission of *D. medinensis*.

Stop transmission in humans and animals in Angola, Cameroon, Chad, Ethiopia, Mali and South Sudan.

Strengthen political, technical and financial commitment from countries, donors and partners.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• There is good understanding of human and animal transmission pathways and parasite biology. • Challenges in understanding how humans and animals encounter infections in the environment remain. • The mechanism for emergence of *D. medinensis* transmission in Angola remains unclear. • Key gaps relate to animal and wildlife epidemiology. • Mapping uncertainty is driven largely by animal infections and surveillance limitations, rather than suspicion of widespread unseen human transmission.	• Investigate why *D. medinensis* infection emerged in Angola to better understand the current situation and take appropriate measures to stop transmission. • Develop and standardize surveillance protocols for animal infections, with differentiation between domestic and wild animals (especially baboons and genets). • Advance targeted research to clarify the epidemiological role of wildlife (reservoir vs spillover) in environmental transmission dynamics. • Refine research objectives on copepod biology, including the effectiveness and durability of temephos application and variation across copepod species, water types and ecological contexts.
Diagnostics 2024 2020	• Laboratory microscopy and polymerase chain reaction (PCR) testing are currently used. • Development of improved diagnostic tools for monitoring and evaluation, including PCR, serology and microRNA, is ongoing; these tools are needed for surveillance before and after interruption of transmission. • TPPs for environmental sampling and detection of pre-patent infection in animal diagnostics have been published.	• Consider developing field-based serological diagnostic tests for humans and animals, with particular focus on wildlife hosts. • Complete development of field pond-side test for detecting *D. medinensis* DNA in copepods. • Complete development of cell-free DNA test to detect *D. medinensis* genetic material before visible worm emergence.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Effective interventions 2026 2020	• There is currently no medicine to treat or vaccine to prevent dracunculiasis; research is ongoing into treatment of pre-patent canine infections. • Human prevention and case containment interventions are well established, effective, affordable and operational at scale. • Established containment strategies continue to rapidly interrupt transmission in humans once a case is detected. • Research focus has shifted largely towards animal infections, particularly in dogs.	• Improve the quality, targeting and monitoring of temephos application. • Continue to explore innovations such as remote sensing and satellite-based tools to support identification of high-risk water bodies in forested and difficult-to-access areas, particularly those associated with potential wildlife transmission. • Consider animal welfare in dog control strategies (e.g. tethering), including monitoring welfare impacts and refining protocols to reduce harm while maintaining effectiveness. • Investigate alternative products for copepod control if programmatically significant resistance emerges in copepod species that are confirmed to serve as intermediate hosts of *D. medinensis*. • Explore providing cash rewards for identifying new stagnant water sources in hard-to-reach areas.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• WHO guidance on programmatic control and containment is strong and regularly updated. • Certification guidance was updated in 2023 by the International Commission for the Certification of Dracunculiasis Eradication (ICCDE) and supported by WHO, but it is not yet comprehensive for diagnostics or animal and wildlife surveillance.	• Continue to review and revise certification criteria as new diagnostic tools become available and animal surveillance capacity expands. • Develop operational guidance for use of diagnostics (when validated) for detecting pre-patent infections in humans and animals. • Develop specific standard operating procedures for managing detected infections in live wildlife (e.g. baboons), particularly when animals are trapped or handled. • Avoid premature requirements for wildlife containment until warranted by surveillance evidence.
Planning, governance and programme implementation 2026 2020	• Strong national coordination bodies, certification committees and national plans exist in most endemic countries. • Cameroon is now correctly classified as endemic, reflecting a more dynamic epidemiological picture. • There is increasing cross-border coordination, although this is uneven in conflict settings. • There have been seven World Health Assembly resolutions supporting eradication. • An annual ministerial meeting of affected countries is held in the margins of the World Health Assembly, along with annual meetings of the ICCDE and programme managers. • Challenges remain in ensuring effective implementation of interventions in the few remaining transmission foci.	• Strengthen programme implementation in conflict-affected and insecure settings, including the Sudan. • Support cross-border collaboration and data sharing, especially in Chad, Cameroon and regions with mobile or displaced populations. • Maintain capacity to respond to new or shifting foci, rather than focusing only on residual transmission. • Provide tailored guidance for implementation in fragile and conflict-affected contexts. • Intensify and extend the scope and quality of interventions in the few remaining foci, including improved transmission containment and effective use of temephos. • Refine geographical targeting and strengthen surveillance in border areas with ongoing transmission, formerly endemic areas and other areas at high risk where transmission may go undetected.
Monitoring and evaluation 2024 2020	• There is a need for improvements in programme coverage among at-risk areas that are not known to be endemic. • National programmes monitor operational indicators, but better ways of measuring effectiveness of vector control interventions are needed. • Improved indicators for monitoring temephos application are needed. • Indicators of animal infection need to be incorporated in monitoring and evaluation reporting systems; existing guidelines are currently being adapted.	• Ensure that monitoring systems are functional in non-endemic and formerly endemic areas that have not reported cases for a long time. • Improve indicators for monitoring application of temephos. • Regularly monitor the quality of temephos application and resistance of copepods to temephos. • Incorporate veterinary systems into indicators for reporting, fostering local capacity to identify and report animal infections.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Access and logistics 2024 2020	• Adequate supply of temephos must be sustained in endemic areas. • A sufficient supply of identification cards (photos) and cash reward material must be maintained.	• Ensure that stock of temephos can be mobilized immediately to non-endemic and formerly endemic countries that report cases or infections. • Ensure that country programmes have the necessary human and material capacity to support the delivery of relevant health products at all levels.
Health care infrastructure and workforce 2026 2020	• Primary care systems in endemic areas are well equipped for early detection and case management. • Effective community-based detection and reporting systems are in place. • Emergence of a worm supports provisional diagnosis and immediate containment; laboratory examination is required to confirm *D. medinensis* infection. • There are insufficient numbers of trained people for copepod control.	• Establish and sustain regional laboratory capacity for timely confirmation of *D. medinensis* infection. • Strengthen One Health workforce capacity within health systems, including wild animal and environmental sectors. • Integrate training on dracunculiasis in the curricula of health staff. • Train and equip sufficient numbers of teams (e.g. copepod control).

Category: Enablers

Advocacy and funding 2024 2020	• There is a severe funding shortfall that jeopardizes programme implementation. • There are delays in releasing funding at all levels. • Country programmes regularly conduct advocacy activities, but their success in securing resources varies.	• Ensure and sustain commitment for adequate, timely funding from donors until eradication. • Increase advocacy in countries to sustain momentum, commitment and national funding until eradication. • Develop a return on investments for WASH in endemic areas. • Adopt a One Health approach to facilitate cross-sectoral collaboration and additional funding.
Collaboration and multisectoral action 2026 2020	• Collaboration has strengthened globally across human health, animal health, environment and WASH sectors. • One Health platforms are increasingly institutionalized, although operationalization varies by country. • Active community engagement remains a core programmatic strength. • WHO and The Carter Center facilitate collaboration across the *D. medinensis* eradication ecosystem. • Integration of eradication activities with other programmes and sectors, such as WASH and education, is not formalized in all countries.	• Continue to embed *D. medinensis* eradication activities within relevant programmes and sectors, including those for One Health, polio, malaria, integrated surveillance, veterinary services and other NTDs, where appropriate, to strengthen implementation and promote consistent approaches across countries. • Strengthen cross-border collaboration mechanisms. • Collaborate with national WASH sectors to ensure access to safe water for affected and at-risk communities, to enable hygiene and wound management. • Urge health ministries to collaborate with other relevant ministries to achieve interruption of transmission.
Capacity and awareness building 2026 2020	• Regular training and capacity-building activities exist and are embedded in national health systems. • Awareness beyond the health sector has improved in several countries.	• Continue to expand capacity-building beyond health workers to include animal health staff, hunters, skinners and communities interacting with wild animals. • Train health staff, ensure availability of standard operating procedures, and include surveillance and response in the curriculum for health workers in affected countries. • Increase awareness of prevention and the cash reward scheme for voluntary reporting and promoting behavioural change.

Reference

1. Summary of the Fortieth Meeting of the International Task Force for Disease Eradication (ITFDE), 28–29 October 2025. Wkly Epidemiol Rec 2026;101(7):25–31 (https://iris.who.int/handle/10665/384868).

Echinococcosis (alveolar and cystic)

Cystic and alveolar echinococcosis are parasitic infections that cause lesions, mainly in the liver; the alveolar form can be fatal if left untreated. Both echinococcal diseases are complex and require well-equipped health care systems, well-trained health care staff and sufficient resources.

Disease and epidemiology

- Cystic echinococcosis (CE) and alveolar echinococcosis (AE) result from infection with tapeworms of the genus *Echinococcus*.
- During an asymptomatic period that may last several years:
  - CE causes cysts in various parts of the body (mostly the liver or lungs) and results in abdominal pain, nausea, vomiting, chronic cough, chest pain and other symptoms depending on the organs affected; and
  - AE causes infiltrative vesicles and results in growing, metastasizing, malignant tumour-like lesions, initially involving the liver, and later resulting in weight loss, general malaise, abdominal pain and liver failure; it can be fatal if left untreated.
- Infection is transmitted through the faecal–oral route from the faeces of canid animals (mainly dogs for CE, and foxes and other canids for AE) to intermediate hosts (livestock, mainly sheep, for CE, and small rodents for AE); humans are accidental intermediate hosts and do not transmit the infection further.
- Both forms of echinococcosis are complex diseases requiring well-equipped health care systems, well-trained health care staff and sufficient resources; consequently, UHC is essential for both echinococcal diseases.
- WHO work focuses on CE because most infections in humans are caused by parasite transmission through domestic dogs and livestock animals, and there are excellent tools available for controlling this transmission; in contrast, AE is transmitted through wild rodents and, in many cases wild carnivores, and hence is much less amenable to public health control activities.
- The burden of disease for CE is substantially greater than that for AE.

Core strategic interventions

	Cystic echinococcosis	Alveolar echinococcosis
Preventive chemotherapy	• N/A	• N/A
WASH	• Handwashing to reduce hand-to-mouth transmission • Avoidance of dog faeces and contaminated food	• Handwashing to reduce hand-to-mouth transmission
Vector control	• N/A	• N/A
Veterinary public health	• Periodic deworming of dogs with praziquantel • Safe disposal of offal during slaughtering • Vaccination of sheep • Culling of aged sheep	• Periodic deworming of dogs with praziquantel and, where feasible, anthelminthic baiting of foxes
Case management	• Triaging of appropriate case management through cyst staging, including: – "watch and wait" strategy – anthelminthic treatment with albendazole or mebendazole – percutaneous methods (e.g. puncture, aspiration, injection, re-aspiration [PAIR] treatment) plus albendazole prophylaxis – surgery (cyst removal) plus albendazole prophylaxis	• Anthelminthic treatment with albendazole or mebendazole
Other	• Early diagnosis (ultrasonography imaging) to achieve better patient outcomes • Education campaigns for hygiene measures and dog deworming to avoid infections	• Curative surgery (i.e. complete lesion removal; in extreme cases, liver transplantation)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries with intensified control[a] of cystic echinococcosis in hyperendemic areas[b]	1	4	5	9	**17**

[a] Periodic deworming of dogs, >80% vaccination coverage of sheep and access to ultrasound diagnosis available in the area.

[b] Provisionally defined as an estimated 5 cases/100 000 people.

Burden of disease

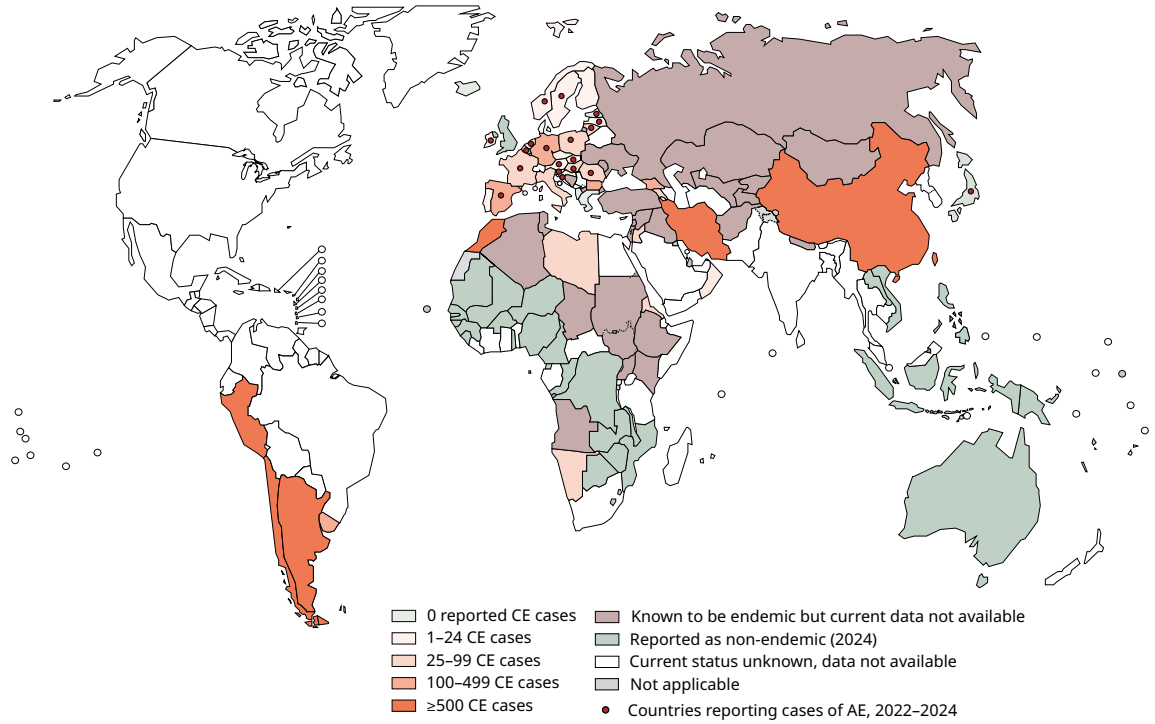
About 569 000
DALYs in 2021

About 12 200
estimated deaths in 2021

4180
cumulative reported cases during 2022–2024

Geographical distribution and status

Number of echinococcosis cases reported by countries and territories, 2022–2024



Note: Shaded areas represent cystic echinococcosis (CE) cases reported to WHO through the Global Neglected Tropical Disease Annual Reporting Form (GNARF), the Pan American Center for Foot-and-Mouth Disease and Veterinary Public Health (PANAFTOSA) and to the European Centre for Disease Prevention and Control (ECDC) during 2022–2024. Data are presented cumulatively over the 3-year period to account for variability in annual reporting, as several countries did not report consistently in each year. For European Union and European Economic Area countries, figures represent confirmed CE cases reported to the ECDC. For selected European countries (Albania, Armenia, Czechia, Georgia, the Republic of Moldova, Portugal and Spain), data were reported directly to WHO through the GNARF during 2022–2024. Countries shown as non-endemic reflect country-reported endemicity status submitted to WHO through the GNARF in 2024 and have not been independently verified by WHO. Reported CE case counts may include both autochthonous and imported infections, as this distinction is not available across data sources. Consequently, higher numbers of reported cases should not be interpreted as evidence of greater endemicity or disease burden compared with countries that did not report data. Reported case counts reflect available surveillance and reporting and may not fully represent the underlying epidemiological situation. Red dots indicate countries reporting alveolar echinococcosis (AE) cases to WHO and ECDC during 2022–2024. Countries classified as historically endemic are identified based on previously published WHO references and are as shown even when current data were unavailable.

Source: Ministries of Health and WHO GNARF.

Progress at mid-term

Echinococcosis is endemic in at least 111 countries; CE is spread across all continents except Antarctica, whereas AE is endemic in Asia, continental Europe and North America.

An important achievement has been the release of the WHO *Guidelines for the treatment of patients with cystic echinococcosis.*

The control of CE transmission is focused on animal interventions. Although several pilot projects have been implemented, the challenge is to increase geographical coverage and sustainability of interventions.

Despite donation of albendazole, the demand for it is slow because the CE programmes are not formally funded.

Risks that require mitigation

- Long-term sustainability of interventions, which is susceptible to lack of financing, political will and collaboration with other sectors at national level
- Transmission within sylvatic cycle may pose challenges to control the disease (AE)
- Lack of necessary data for programme planning and forecasting due to challenges in diagnosis of echinococcosis

Summary of critical actions to achieve targets

Operationalize One Health collaborations for the control of CE at national and subnational levels.

Develop standardized guidance on mapping and surveillance, and implementation of control methods in different settings.

Adapt and disseminate the WHO guidelines for treatment of CE at national and subnational levels as appropriate.

Increase prioritization of echinococcosis and its inclusion in national NTD master plans.

Expand and integrate CE control programmes.

Develop guidance on CE diagnosis.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Parasite life cycles and genetics are broadly understood, although important gaps remain in understanding transmission dynamics, reinfection patterns and factors influencing disease spread. • Understanding of host–parasite interactions and immunological responses in intermediate hosts has improved, but important knowledge gaps remain. • Basic understanding of echinococcosis epidemiology exists, but important gaps remain in knowledge of transmission dynamics, reinfection patterns, and the biological and social determinants of transmission. • Key scientific gaps remain in defining standardized mapping methodologies, appropriate spatial resolution for mapping, sampling strategies and epidemiological thresholds needed to guide echinococcosis control efforts. • Transmission is highly focal, occurring in localized areas where ecological and host conditions support maintenance of the transmission cycle.	• Develop globally standardized mapping methodologies and protocols and support their application at subnational levels to generate high-resolution prevalence estimates that can guide targeted echinococcosis control interventions. • Improve estimates of infection prevalence in sheep and other relevant livestock to better understand transmission patterns and guide control strategies for CE. • Generate and synthesize evidence on the epidemiological impact of short-, medium- and long-term echinococcosis control strategies, and quantify the financial, human and system resources required to implement and sustain them across different epidemiological and programmatic settings. • Strengthen understanding of the biological, environmental and behavioural processes driving parasite acquisition and transmission across all host species.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• Ancillary or downstream effects of recommended interventions have not been adequately assessed and remain poorly understood.	• Develop and standardize measurable control targets across definitive, intermediate and human hosts to guide and evaluate echinococcosis control strategies. • Improve understanding of transmission dynamics, including social and environmental drivers. • Expand research on nontarget effects, ancillary benefits and environmental impacts of recommended interventions.
Diagnostics 2024 2020	• Imaging is the primary diagnostic tool for humans, with serology for confirmation. • Serological tests lack standardization for confirmation in humans. • Coproantigen tests for canids are not adequately validated for CE and AE. • No practical screening tests are available for livestock (CE). • Necropsy and the sedimentation and counting technique in dogs, livestock and red foxes support surveillance and control.	• Standardize coproantigen and copro polymerase chain reaction diagnostics for dogs (CE) and red foxes (AE). • Develop RDTs for human and animal diagnosis of echinococcal diseases. • Define TPPs and quality standards for echinococcal diagnostics. • Establish a Diagnostics Technical Advisory Group zoonotic diseases subgroup, focusing on CE and AE. • Promote management of human patients with CE based on the WHO Informal Working Group on Echinococcosis (IWGE) Ultrasound Classification of CE.
Effective interventions 2026 2020	• Regular dog deworming with praziquantel remains the cornerstone intervention for controlling transmission of CE, but implementation remains variable across settings. • Effective anthelminthic treatment (praziquantel) is available for definitive hosts, although sustained delivery at scale remains challenging. • There is an effective vaccine for sheep (EG95) that has demonstrated high efficacy, but its implementation is still limited and not widely institutionalized. • Recent WHO clinical management guidance represents a major advance in standardizing and optimizing care for patients with CE. • WHO clinical management guidelines have been published, and TPP documents have been finalized and are progressing towards publication. • Effective preventive and treatment interventions for definitive and intermediate hosts are known, but their implementation remains uneven across settings, with challenges in coverage, efficiency, affordability and adaptation. • Promising innovations exist (e.g. livestock vaccination, improved diagnostics and integrated control approaches), but these are not yet consistently scaled or fully institutionalized within routine health and veterinary systems.	• Evaluate the effectiveness of livestock vaccination for CE across different epidemiological settings, livestock species, parasite genotypes and field operational conditions. • Investigate innovative praziquantel delivery strategies for dogs, including long-acting and pulse-release formulations, to improve the effectiveness of canine control interventions. • Generate evidence from clinical studies to optimize treatment courses for albendazole and evaluate its use in combination with procedural interventions and other therapeutic approaches for echinococcosis. • Evaluate barriers and enabling factors affecting implementation of echinococcosis treatment guidelines across different health systems and epidemiological settings. • Ensure widespread adoption and correct application of the WHO-IWGE cyst classification system in clinical practice to standardize diagnosis and guide appropriate, stage-specific treatment. • Ensure reliable access to albendazole and address regulatory, health system and operational barriers to its effective and sustained use in treatment.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• WHO case management guidance has been recently updated, representing a significant advance in standardizing stage-specific clinical care of patients with CE. • Operational guidance for diagnosis remains a major gap, including guidance on screening strategies, target populations, diagnostic pathways, imaging approaches and implementation in different epidemiological settings. • WHO guidance on prevention remains limited or not directly applicable, particularly as many key control interventions fall outside WHO's mandate and within the animal health and broader One Health sectors.	• Provide clear operational guidance on how countries should adapt and implement control methods in different epidemiological, health system and resource contexts, including integration with animal health systems and broader One Health approaches (e.g. periodic deworming of dogs). • Develop comprehensive normative and operational guidance for diagnosis, including clear, practical recommendations on diagnostic approaches (e.g. imaging-based screening and confirmatory methods) and how these should be implemented across different settings. • Develop practical, standardized mapping tools and guidance tailored to the focal nature of transmission, including protocols for sampling, thresholds for defining control and guidance on appropriate geographical resolution (e.g. subnational or district-level mapping). • Finalize, publish and operationalize relevant TPPs and associated technical documents, ensuring they are translated into usable tools for country-level programme planning and implementation. • Improve dissemination, promotion and translation of newly published WHO guidance (e.g. on case management), including developing accompanying training materials and strategies to support uptake in national policy and routine practice.
Planning, governance and programme implementation 2026 2020	• Echinococcosis is not consistently included as a notifiable disease, with only a subset of endemic countries having reporting systems in place, limiting the availability of reliable surveillance data for programme planning. • There is substantial heterogeneity in the maturity of national CE programmes, with only a few countries having established coordination structures or integrated governance mechanisms for planning and implementation. • Sustained, coordinated control efforts have demonstrated effectiveness in select settings (e.g. China and parts of South America), and elimination has been achieved in specific contexts, such as New Zealand and other island settings; however, these remain exceptions rather than the norm. • Echinococcosis is often not well integrated into national NTD programmes or One Health coordination platforms, contributing to fragmented planning for the joint implementation of control initiatives.	• Scale up implementation of integrated control interventions in endemic areas, ensuring sustained coordination across sectors (human, animal and environmental health). • Strengthen global and national coordination mechanisms to prioritize technical and financial support for countries lacking established programmes. • Implement context-appropriate, systematic, image-based screening strategies to support early detection, with clear guidance on target populations, delivery platforms and integration into routine health services for early diagnosis. • Strengthen surveillance and reporting systems by mandating the disaggregation of CE and AE in national data systems, and integrating echinococcosis into routine reporting frameworks where absent, to improve data quality for planning and decision-making. • Establish or strengthen national coordination bodies that explicitly include echinococcosis within NTD and One Health frameworks, to support coherent planning, implementation and accountability. • Improve integration of echinococcosis into existing NTD programmes and cross-sectoral (One Health) platforms to reduce fragmentation across ministries and sectors. • Increase policy prioritization of echinococcosis within national health agendas, recognizing that governance and coordination are key bottlenecks to scaling interventions.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• Surveillance in humans and animals is weak in most countries. • There is active surveillance in humans using population-based ultrasound screening in limited-resource settings. • There are ongoing efforts to define echinococcosis indicators (for both echinococcal diseases) and to include them in the WHO Toolkit for Routine Health Information Systems Data.	• Assess baseline data to evaluate control programmes in resource-limited settings. • Set up active or passive surveillance for animals, including meat inspections for CE. • Establish national disease registry systems for human cases and integrate these into surveillance. • Prioritize monitoring and evaluation framework development and mandate annual disease surveillance reports from Member States.
Access and logistics 2024 2020	• Livestock vaccination for *E. granulosus* is included in WOAH guidelines, but there is low demand for it. • There is currently no donation of praziquantel or vaccines for animal treatment and prevention. • Donation of albendazole for human treatment is secured, but endemic countries have not submitted requests for this medicine.	• Register EG95 vaccine for livestock in endemic countries and raise awareness. • Establish reliable supply chains for medicines and vaccines to ensure consistent access. • Encourage investment in dog treatment and vaccination for echinococcosis control. • Integrate control measures for zoonotic diseases in a One Health approach, for efficiency.
Health care infrastructure and workforce 2026 2020	• General health care infrastructure exists in many endemic countries, but disease-specific systems for early diagnosis, referral and case management of people with echinococcosis remain limited and inconsistently integrated into routine care. • There is limited capacity for diagnosis, treatment and case management pathways for echinococcosis, and it is underutilized in rural settings. • Imaging and laboratory capacity may be available in some settings but is inconsistently applied to or not prioritized for echinococcosis due to limited guidance, training and disease-specific expertise. • Access to specialized care, including surgery, percutaneous treatment and appropriate medical therapy, remains limited or uneven across endemic settings.	• Strengthen access to and use of appropriate imaging-based diagnostic tools (e.g. ultrasound and other modalities, including AI tools, where relevant), alongside training and guidance to support correct interpretation and integration into clinical care pathways. • Improve access to appropriate treatment options (including percutaneous methods and surgery for CE, and albendazole), particularly in underserved and rural areas, and strengthen referral pathways to ensure timely access to specialized care. • Strengthen veterinary services and integrate animal health interventions into coordinated One Health approaches, including improved abattoir practices, safe offal disposal and coordinated animal health interventions, to reduce transmission between animal and human populations. • Strengthen training and capacity of the health workforce in diagnosis, case management and follow-up of echinococcosis cases, particularly at primary and district levels, where capacity is currently lacking. • Develop and implement integrated clinical care pathways linking diagnosis, referral and treatment across different levels of the health system.

Category: Enablers

Advocacy and funding 2024 2020	• There is a lack of political will and commitment to control efforts from governments in endemic countries. • Attention to endemic zoonotic diseases, including echinococcosis, is severely lacking in health systems. • There is a lack of commitment from international entities, such as WHO, WOAH and FAO, to include both echinococcal diseases in advocacy and funding schemes.	• Increase funding and support for One Health approaches in animal and human health. • Advocate for active surveillance and control measures in animals and humans. • Encourage advocacy from WHO, FAO, WOAH and the UN Environment Programme for One Health disease management and control. • Enhance support for early detection, patient care and surveillance, to understand disease burden. • Consider One Health as part of efforts to strengthen health systems.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Multisectoral collaboration for echinococcosis is weak or absent in most endemic countries, with limited coordination between human health, veterinary, agriculture and environmental sectors. • Some collaboration exists at the global level through engagement with WHO, FAO, WOAH, academic institutions and technical partners; however, One Health coordination between human health, veterinary, livestock, agriculture and environmental sectors remains fragmented and is rarely institutionalized or operationalized through formal national programmes in endemic countries. • Community involvement and engagement in the design and delivery of control interventions are limited in many endemic settings.	• Strengthen collaboration with clinical networks, including surgical specialists, veterinary services, public health sectors and government institutions, to improve integration of CE and AE case management within health systems and referral pathways. • Leverage existing zoonotic disease platforms (e.g. rabies programmes) to integrate dog deworming and community education activities, where operationally feasible. • Identify and utilize appropriate existing health and veterinary service delivery platforms (e.g. vaccination campaigns, outreach services) to integrate echinococcosis-related interventions where relevant. • Strengthen and institutionalize One Health coordination mechanisms, ensuring sustained collaboration between human health, veterinary, agriculture and environmental sectors. • Establish or reinforce cross-sectoral coordination platforms at national level to support joint programme planning, implementation and accountability. • Promote context-specific, locally adapted multisectoral collaboration models that reflect local epidemiology, health system capacity and transmission dynamics, rather than one-size-fits-all approaches.
Capacity and awareness building 2026 2020	• Awareness of echinococcosis remains limited in many endemic communities, particularly in rural settings, where practices such as informal slaughter and feeding dogs with infected offal persist, reflecting gaps in behaviour change communication and community engagement. • Clinical management practices vary across settings, with instances of inappropriate or suboptimal surgical management, reflecting gaps in training, guidance uptake and access to specialized expertise. • Training opportunities and standardized educational materials for health workers are limited, particularly for diagnosis, case management and follow-up of patients with echinococcosis. • Available health education and communication materials are often not sufficiently adapted to local contexts, limiting their effectiveness in promoting behaviour change. • Social mobilization and community engagement efforts are limited in most endemic settings, with few sustained or large-scale initiatives to support prevention, early diagnosis and treatment.	• Develop and scale up standardized training programmes for health care workers on diagnosis, clinical management and follow-up of CE and AE, with a focus on primary and district levels in endemic settings. • Strengthen community engagement and behaviour change initiatives through context-adapted education programmes (in local languages and culturally appropriate formats), targeting high-risk practices, such as informal slaughter and unsafe offal handling (for CE). • Strengthen capacity for early detection and diagnosis, including training in clinical triage and the use and interpretation of imaging tools (e.g. ultrasound) within integrated care pathways. • Strengthen surveillance systems and workforce capacity for echinococcosis, including improved diagnostic and reporting capacity in both human and animal health sectors. • Leverage existing zoonotic disease and animal health platforms (e.g. rabies control programmes) to integrate echinococcosis prevention, community education and dog deworming activities, where feasible.

Foodborne trematodiases

Foodborne trematodiases are parasitic infections caused by "flukes". They can result in various symptoms, including severe abdominal pain, general malaise, inflammation and fibrosis of the liver, fatal bile duct cancer, chronic blood-stained cough and chest pain.

Disease and epidemiology

- Foodborne trematodiases are caused by trematode worms ("flukes"): *Clonorchis sinensis*, *Opisthorchis viverrini*, *O. felineus* (referred to collectively as small liver flukes), *Fasciola hepatica, F. gigantica* and *Paragonimus* species.
- The diseases cause:
  - severe pain in the abdominal region, general malaise, and inflammation and fibrosis of the liver (clonorchiasis, opisthorchiasis and fascioliasis);
  - fatal bile duct cancer (clonorchiasis and opisthorchiasis);
  - bile duct blockage, colic pain and jaundice (fascioliasis); and
  - chronic blood-stained cough, chest pain and dyspnoea (paragonimiasis).
- Infection is transmitted through raw or undercooked food (freshwater fish, aquatic vegetables, crabs and crayfish) infected with larvae.
- Transmission is maintained through the zoonotic life cycle, especially in herbivorous animals (fascioliasis) and cats and dogs.

Risks that require mitigation

- Animal infections
- Resistance to triclabendazole, driven by heavy reliance on this single first-line drug
- Unavailability of praziquantel for preventive chemotherapy
- Diagnostic challenges in identification of individual cases
- Tenuous sustainability of interventions
- Lack of data for programmatic purposes

Core strategic interventions

Preventive chemotherapy	• MDA with triclabendazole (*Fasciola* spp. and *Paragonimus* spp.) and praziquantel (small liver flukes and *Paragonimus* spp.)
WASH	• Safe disposal of faecal waste • Access to safe water
Vector control	• N/A
Veterinary public health	• Treatment of livestock and other domestic animals
Case management	• Anthelminthic medicines (praziquantel, triclabendazole) • Surgery (mainly to deal with complications)
Other	• Safe food practices (preparation and storage, dietary change) • Multisectoral community health education on WASH (e.g. sanitation) and One Health interventions (e.g. treatment of pets, cooking of fish offal before feeding it to animals) • Good management practices in fish farming (e.g. safe sourcing, keeping animals away from fish ponds)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries with intensified control[a] in hyperendemic areas[b]	N/A	3/92 (3%)	5/92 (5%)	6/92 (7%)	**11/92 (12%)**

[a] MDA administered according to recommended schedule to both humans and animals, safe faecal waste management, regular community education.

[b] To be defined in global guidance on control of foodborne trematodiases.

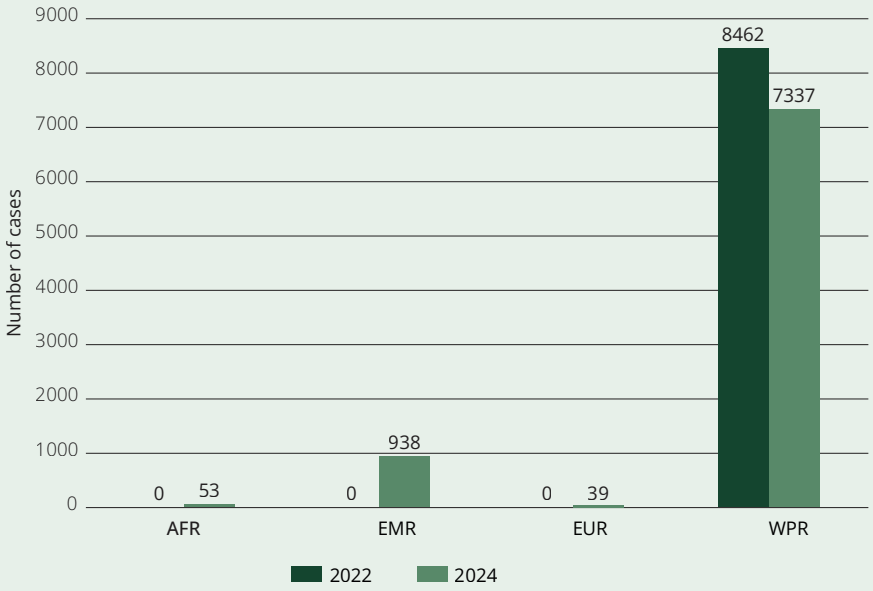
Burden of disease

About
1.04 million
DALYs in 2023

About
8400
reported cases in 2024

Source: GBD 2023.

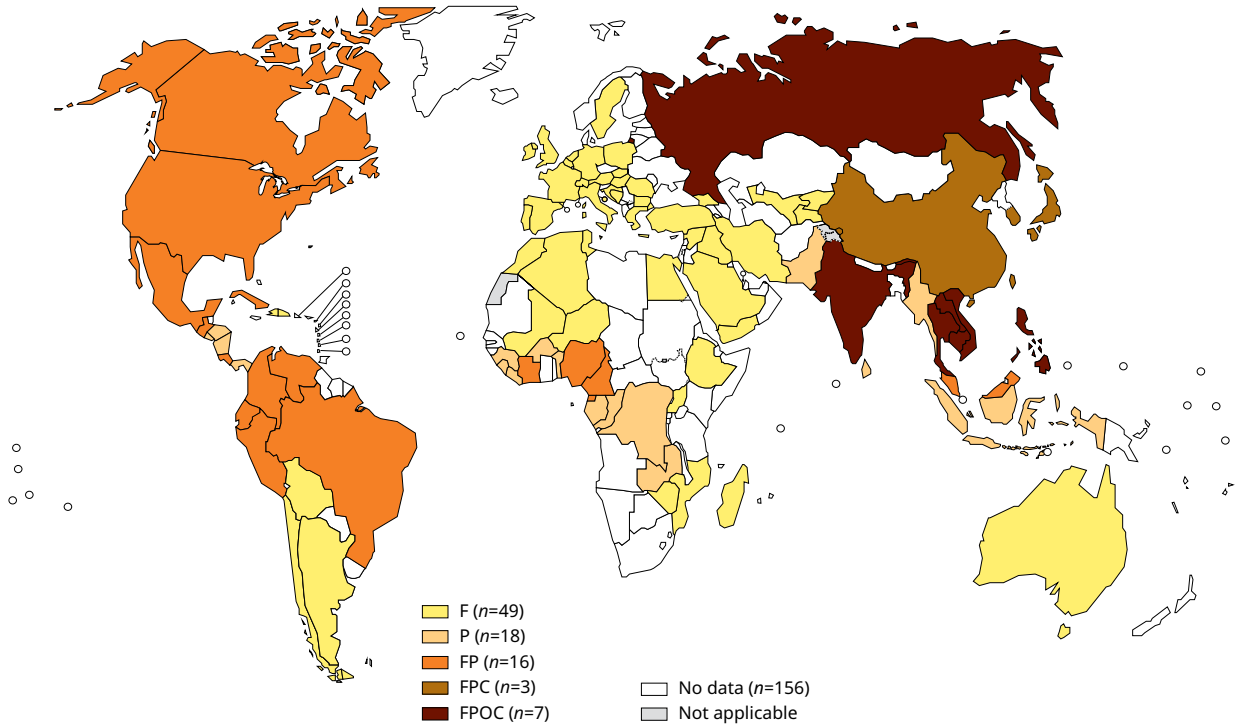
Number of foodborne trematodiases cases reported, by WHO region, 2022 and 2024



AFR: WHO African Region; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Co-endemicity of the foodborne trematodiases targeted for control, as reported to WHO, 2010–2024



F: fascioliasis; P: paragonimiasis; FP: fascioliasis and paragonimiasis; FPC: fascioliasis, paragonimiasis and clonorchiasis; FPOC: fascioliasis, paragonimiasis, opisthorchiasis and clonorchiasis. *n*= number of countries.

Progress at mid-term

Globally, the estimated prevalence of foodborne trematodiases increased from 44.8 million cases in 2020 to 46.3 million cases in 2023, representing an increase of 3.4%. The prevalence rate rose slightly, from 570.71 to 574.25 cases per 100 000 population, while the proportion of the global population affected remained unchanged, at about 0.59%.

Over the same period, the estimated burden increased from 1.01 million to 1.04 million DALYs, an increase of 2.6%. However, the age-unstandardized DALY rate remained essentially unchanged, declining marginally from 12.86 to 12.85 per 100 000 population. These findings indicate a modest increase in the absolute number of prevalent cases and DALYs, while the population-level DALY rate remained stable.

In 2024, a total of 8367 cases were reported to WHO – 94% were fascioliasis, 5% clonorchiasis, and the remaining 1% were caused by other flukes.

The diseases are endemic in 92 countries across all continents, except Antarctica.

Although progress is being made in the control of fascioliasis in some countries, such as the Plurinational State of Bolivia, the burden of clonorchiasis is rising in the Western Pacific Region.

There are critical actions that are needed, but limited resources and political will are hindering progress.

Collaboration with the animal sector at national and subnational levels is challenging due to competing interests.

Summary of critical actions to achieve targets

Strengthen surveillance and generate subnational risk mapping, with information on environmental factors involved in infection.

Develop TPPs for the diagnosis of foodborne trematodiases and adequately validate newly developed diagnostic tests.

Develop WHO global guidance for mapping, monitoring and evaluation, and case management.

Mobilize resources and secure praziquantel donation for preventive chemotherapy against small liver flukes.

Strengthen early detection through PHC and community-based screening initiatives and case management.

Strengthen collaborations with WASH and One Health partners.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• The parasites' life cycles are generally understood, but important gaps remain in epidemiology, pathology and transmission dynamics across many foodborne trematodiases. • Mapping and burden estimation remain incomplete in many endemic settings; available data are often derived from sparse, highly localized studies, limiting risk stratification, programme planning and efficient resource allocation. • Emerging evidence suggests that climate variability and environmental change may influence the geographical distribution and transmission patterns of foodborne trematodiases in some settings. • Important knowledge gaps remain regarding the contribution of livestock, wildlife, intermediate snail hosts and environmental reservoirs to transmission dynamics across parasite species and epidemiological settings.	• Support endemic countries to strengthen surveillance and generate nationally representative data on the distribution and burden of foodborne trematodiases, including through integration into existing NTD surveillance systems where feasible. • Expand and standardize risk mapping in endemic and suspected endemic areas to improve targeting of interventions, programme planning and resource allocation, especially at subnational level. • Mobilize resources and strengthen technical collaboration to support epidemiological, ecological and operational research aimed at improving understanding of transmission dynamics and informing context-specific control strategies, with a particular focus on One Health. • Strengthen research to assess the impacts of climate variability and environmental change on transmission and distribution of foodborne trematodiases.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• Limited understanding of transmission heterogeneity and changing risk factors constrain the development and adaptation of context-specific prevention and control strategies.	• Promote multidisciplinary One Health studies to better characterize the contribution of livestock, wildlife, intermediate snail hosts and environmental reservoirs of transmission across different parasite species and epidemiological settings. • Improve understanding of transmission pathways, disease pathogenesis, and the susceptibility and role of different animal hosts, including fish species. • Improve understanding of associations with other diseases (coinfections and protective effects (e.g. leptospirosis, noncommunicable diseases) to inform control strategies.
Diagnostics 2024 2020	• Clinical diagnosis, parasitological techniques (e.g. detection of eggs in stool) or sputum tests are used. • Imaging is useful for morbidity assessment, but it is not widely available. • More sensitive serological techniques and molecular techniques, such as polymerase chain reaction (PCR) testing, are used in research settings. • Several diagnostic tools (e.g. loop-mediated isothermal amplification, dipstick, antigen tests) are pending validation.	• Validate field-deployable, sensitive serological techniques, rapid tests and PCR methods. • Develop point-of-care diagnostics for intestinal, pulmonary and liver flukes in humans. • Develop rapid tests to detect *Fasciola* contamination in food sources. • Collaborate with industry to ensure affordable, validated tests in endemic zones. • Streamline the development of animal and human diagnostics.
Effective interventions 2026 2020	• Core prevention and treatment interventions are known, including preventive chemotherapy, case management, behaviour change initiatives and safe food practices, although evidence of implementation and coverage remains limited in many endemic settings. • Effective treatments are available for all foodborne trematodiases, but outcomes vary by species, infection intensity, chronicity, and setting. • Established pathology may persist, reinfection is common, and reduced triclabendazole responsiveness has been reported in some fascioliasis-endemic areas. • Although some medicines are donated, operational, delivery, forecasting and supply chain costs remain important constraints to achieving equitable and sustained access to these in endemic countries. • Prevention and control interventions are not consistently adapted to local epidemiology, dietary practices, animal husbandry systems, water and sanitation conditions, or food-chain risks, limiting their effectiveness in some settings. • Early diagnosis and treatment are important to reduce morbidity and interrupt transmission. • Although treatment effectively clears infection, it may not fully reverse chronic morbidity or prevent complications associated with long-standing infection. • Long-term sustainability of treatment strategies remains a concern, particularly regarding repeated anthelminthic use in livestock and reduced triclabendazole responsiveness reported in some fascioliasis-endemic settings; continued efficacy monitoring is needed.	• Strengthen early detection of foodborne trematodiases through PHC and community-based screening initiatives, and increase community awareness of transmission, prevention and health-seeking behaviour. • Strengthen adaptation of prevention and treatment packages to local epidemiology, dietary practices, animal husbandry systems, food-chain risks and WASH conditions. • Assess sustainability, affordability and country ownership of foodborne trematodiases programmes, including costs associated with forecasting, procurement, delivery and supply chain management beyond donated medicines. • Strengthen monitoring of treatment efficacy and investigate factors that may contribute to reduced drug responsiveness, including the use of anthelminthics in livestock where relevant. • Develop and evaluate practical One Health prevention packages integrating WASH, food safety, animal health and community-based interventions.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• WHO guidance for foodborne trematodiases primarily comprises preventive chemotherapy recommendations, medicine access mechanisms, and broad One Health prevention approaches, with some complementary regional guidance available, including from PAHO. • Guidance is better developed for prevention and control than for clinical management, with important gaps remaining in case detection, diagnostic algorithms, treatment pathways, follow-up and management of chronic morbidity. • Existing guidance often requires adaptation to heterogeneous epidemiological settings, reflecting differences in parasite species, host reservoirs, dietary practices, food systems, environmental conditions and health system capacities. • Operational guidance for implementing integrated One Health prevention packages remains limited, particularly regarding the coordination of human, animal and environmental health interventions in diverse endemic settings. • Foodborne trematodiases remain a relatively low public health priority in some endemic countries, which may limit demand for technical guidance and slow implementation.	• Develop comprehensive WHO normative guidance for case detection, diagnosis, treatment pathways, follow-up and management of chronic morbidity. • Develop WHO guidance for standardized mapping of foodborne trematodiases to support burden estimation, programme planning and targeted interventions. • Consolidate and expand existing WHO prevention and control recommendations into a globally applicable framework that can be adapted to different parasite species, regions and transmission settings. • Develop practical operational guidance for implementing integrated One Health prevention and control packages, including food safety, veterinary public health, WASH and community-based interventions. • Support countries, where requested, to adapt and operationalize guidance according to local epidemiology, dietary practices, food systems, sociocultural contexts and health system capacities. • Establish mechanisms for the periodic review and updating of normative and operational guidance as new evidence, diagnostic tools and intervention approaches become available.
Planning, governance and programme implementation 2026 2020	• Planning, governance and programme implementation remain limited across most endemic settings. • Few endemic countries have functional national coordination bodies that include foodborne trematodiases within national NTD coordination mechanisms, reflecting low priority in most endemic countries. • Control programmes are not implemented in all endemic areas and, where present, they are often limited, localized or dependent on specific research or regional initiatives. • National NTD plans frequently give limited attention to foodborne trematodiases, in part due to incomplete burden estimates and competing public health priorities. • Pharmacovigilance systems that include foodborne trematodiases medicines are generally absent or insufficient. • Technical advisory mechanisms and international support are available, but their translation into sustained country-led planning, reporting and implementation remains uneven.	• Support the inclusion of foodborne trematodiases within national NTD strategies, plans, coordination mechanisms and reporting systems in endemic countries. • Promote the implementation and scale-up of evidence-based control programmes in known or suspected endemic areas, and evaluate and disseminate lessons learned to inform programme improvement and capacity-building. • Strengthen capacity for training health workers in prevention, diagnosis and treatment of foodborne trematodiases and in programme implementation. • Strengthen pharmacovigilance, monitoring and integrated reporting systems for NTD interventions that include foodborne trematodiases, where relevant. • Facilitate the translation of global and regional technical guidance into country-led planning, implementation, monitoring and evaluation.
Monitoring and evaluation 2024 2020	• Disease burden in humans and animals is not well understood. • Assessments of the number of individuals at risk are not available in each endemic country. • Pilot surveys assessing prevalence and burden of foodborne trematodiases are underway. • *Paragonimus* screening is integrated with tuberculosis screening in co-endemic regions. • New PAHO guidelines (2024) include monitoring and evaluation guidance for human fascioliasis.	• Estimate individuals at risk by country, using accurate data and mapping. • Develop surveillance methods incorporating environmental factors linked to infection. • Report changes in liver cancer, cirrhosis and hepatic disease prevalence. • Link cancer and cirrhosis data with hyperendemic areas for targeted interventions. • Integrate mapping with other NTDs, such as soil-transmitted helminthiases and schistosomiasis, using shared diagnostics.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Access and logistics 2024 2020	• Triclabendazole donation by Novartis has continued and will include both *Fasciola* and *Paragonimus* infections; discussions are ongoing for future commitments. • Countries can apply for donated triclabendazole tablets through WHO, but only a few have done so. • Bayer has allowed praziquantel donations to be extended from taeniasis to foodborne trematodiases, if there is excess supply.	• Consider using the existing efficient supply chains established in most countries for other NTDs for product supply for foodborne trematodiases. • Ensure product supply for animal treatment strategies. • Develop and provide a list of pharmaceutical producers for the drugs recommended for animal fascioliasis (for all the parasite phases).
Health care infrastructure and workforce 2026 2020	• Integration of prevention, diagnosis, treatment, referral and follow-up for foodborne trematodiases within routine health services remains limited, particularly at community and PHC levels. • National guidance, referral pathways and specialist expertise are available in some endemic countries, but implementation is often inconsistent, and access outside referral centres remains limited. • Diagnostic capacity remains uneven across endemic settings; microscopy may be available but implementation is limited by personnel capacity gaps, while access to newer diagnostic tools is constrained by cost, equipment needs, expertise and availability. • Health workforce capacity for prevention, diagnosis, case management and long-term follow-up of foodborne trematodiases remains insufficient in many endemic settings, reflecting limited training opportunities and low disease prioritization. • Awareness and clinical suspicion of foodborne trematodiases among health workers are frequently low, contributing to delayed diagnosis, missed opportunities for treatment and referral, and underutilization of existing diagnostic and treatment services.	• Strengthen integration of prevention, diagnosis, treatment, referral and follow-up of foodborne trematodiases within routine health services, particularly at community and PHC levels. • Improve training and continuing professional development for health workers to enhance recognition of foodborne trematodiases, appropriate use of available diagnostic tools, case management and referral practices. • Expand access to timely diagnosis and treatment in underserved and rural areas and strengthen referral pathways and continuity of care across all levels of the health system. • Strengthen laboratory capacity, including access to appropriate diagnostic tools, quality assurance systems and technical support for diagnosis of foodborne trematodiases in endemic settings. • Promote integrated service delivery and multisectoral collaboration, including linkages with food safety, veterinary public health, WASH and relevant disease programmes, to improve prevention, detection and management of foodborne trematodiases.

Category: Enablers

Advocacy and funding 2024 2020	• There is no strong advocacy group for a global vision on foodborne trematodiases. • Advocacy and funding are limited due to resource constraints. • There is insufficient One Health support from WOAH and FAO for foodborne trematodiases. • There is a lack of data to support effective advocacy messaging. • PAHO has produced guidelines for elimination of human fascioliasis as a public health problem in the Region of the Americas.	• Establish and sustain an advocacy group for foodborne trematodiases. • Secure funding to meet 2030 targets for foodborne trematodiases. • Advocate for a One Health approach through FAO, WOAH and the UN Environment Programme for disease management and control. • Raise awareness among medical personnel and enhance health education in endemic areas.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Collaboration and multisectoral action remain limited, despite strong recognition that foodborne trematodiases require a One Health approach. • Collaboration among public health, veterinary services, food safety, WASH, environmental sectors and communities is often fragmented, with limited coordination mechanisms and joint planning in many endemic settings. • Animal health activities, livestock surveillance and other relevant data sources may be available in some settings, but they are not routinely integrated into public health surveillance, risk assessment or response mechanisms. • Although One Health approaches are increasingly recognized within NTD strategies and policies, implementation and operationalization at country level remain inconsistent. • Community engagement in the design, implementation and evaluation of foodborne trematodiases interventions is often limited, reducing opportunities to tailor prevention and control measures to local practices and risk factors.	• Establish or strengthen functional One Health coordination mechanisms for prevention and control of foodborne trematodiases that engage public health, veterinary services, food safety, WASH, environmental sectors and affected communities. • Promote routine sharing and joint analysis of relevant human, animal and environmental surveillance data to support risk assessment, early detection and targeted interventions. • Develop operational protocols and multisectoral response mechanisms to facilitate coordinated investigation, prevention and control activities in endemic communities. • Strengthen community engagement and participation in the design, implementation and evaluation of foodborne trematodiases prevention and control interventions to improve their acceptability, sustainability and effectiveness.
Capacity and awareness building 2026 2020	• Capacity-building efforts for prevention and control of foodborne trematodiases remain limited in many endemic settings, particularly where formal programmes are not established. • Training opportunities for health workers and programme personnel are often insufficient to support prevention, diagnosis, treatment, surveillance and programme implementation for foodborne trematodiases. • Standardized training materials covering the full spectrum of foodborne trematodiases are limited, and countries frequently rely on locally developed or disease-specific resources. • Behaviour change communication and health education materials are not consistently available, disseminated or adapted to local languages, cultural practices and food-related risk behaviours. • Community awareness and social mobilization activities for prevention and control of foodborne trematodiases remain limited in many endemic settings, which may reduce uptake of preventive measures and health-seeking behaviours.	• Strengthen capacity-building for health workers, laboratory personnel, veterinarians and programme staff to improve prevention, diagnosis, treatment, surveillance and programme implementation for foodborne trematodiases. • Develop, maintain and disseminate standardized training, health education and communication materials for foodborne trematodiases, and support their adaptation to local languages, cultural contexts and food-related risk behaviours. • Promote behaviour change and social mobilization interventions that incorporate WASH, food safety and One Health approaches to reduce exposure and support sustained preventive practices in endemic communities. • Increase awareness and knowledge of foodborne trematodiases among clinicians, laboratory personnel, community health workers, programme managers and affected communities to strengthen early detection, referral and uptake of preventive measures. • Develop and disseminate practical tools and job aids to support early recognition, diagnosis, referral, follow-up and implementation of interventions for foodborne trematodiases within routine health services.

Human African trypanosomiasis (gambiense)

Gambiense human African trypanosomiasis is a chronic parasitic disease causing bouts of fever, headaches, joint pain and enlarged lymph nodes. As the infection progresses, it causes sleep disturbances, behavioural changes, confusion, and sensory and motor disturbances.

Disease and epidemiology

- Gambiense human African trypanosomiasis (HAT) is caused by infection with *Trypanosoma brucei gambiense* and accounts for 98% of all HAT cases.
- The disease mainly affects humans, but the parasite can also be found in animals.
- Gambiense HAT causes chronic infection in two stages: bouts of fever, headaches, joint pain and, frequently, enlarged lymph nodes (haemolymphatic stage); then sleep disturbances, behavioural changes, confusion, and sensory and motor disturbances (neurological stage) when the parasite crosses the blood–brain barrier.
- HAT is mainly transmitted through the bite of an infected tsetse fly of the genus *Glossina*; other modes of transmission include mother-to-child.

Risks that require mitigation

- Re-emergence or reintroduction of the disease after elimination
- Discontinuation of post-verification surveillance after countries declare an end to transmission
- Losing collective memory within the community and among health workers in the absence of HAT cases

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Safe water supply to reduce contact with tsetse flies
Vector control	• Baits and traps, including impregnated screens
Veterinary public health	• Treatment of animals (cattle and pigs), with restricted application of insecticides
Case management	• Medicines for treatment of gambiense HAT: pentamidine (haemolymphatic stage), eflornithine and nifurtimox (neurological stage), fexinidazole (Stage 1 and non-severe Stage 2 where <100 white blood cells/μL cerebrospinal fluid) and acoziborole (Stage 1 and Stage 2)
Other	• Cases are detected through active screening (mobile units visiting villages in endemic areas and screening the whole population) and passive screening (patients with suspected disease attending health facilities)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2025)	Milestone (2025)	Target (2030)
Number of countries verified for interruption of transmission	0	0	0	5/24 (21%)	**15/24 (63%)**
Number of gambiense HAT cases reported	<1000	500	430	200	**0**

Burden of disease

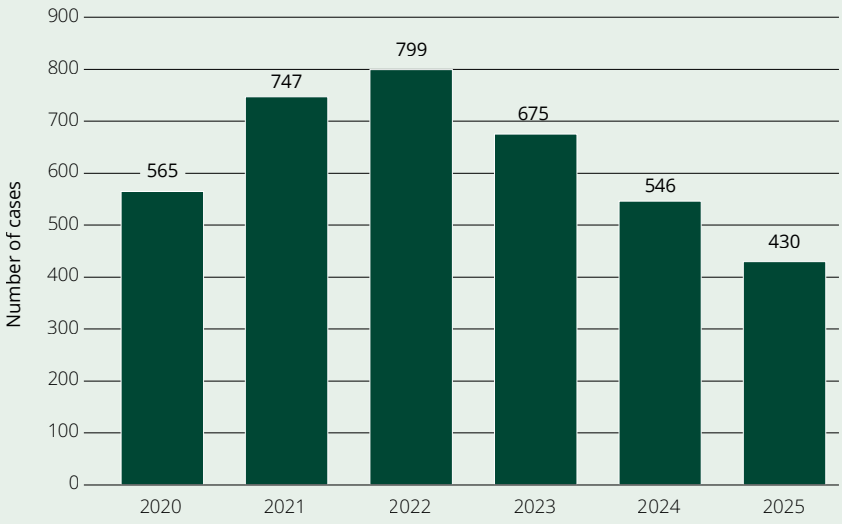
24
countries of west and central Africa are endemic for *T. b. gambiense*

430
reported cases in 2025

98%
decrease in the number of reported cases since 1999

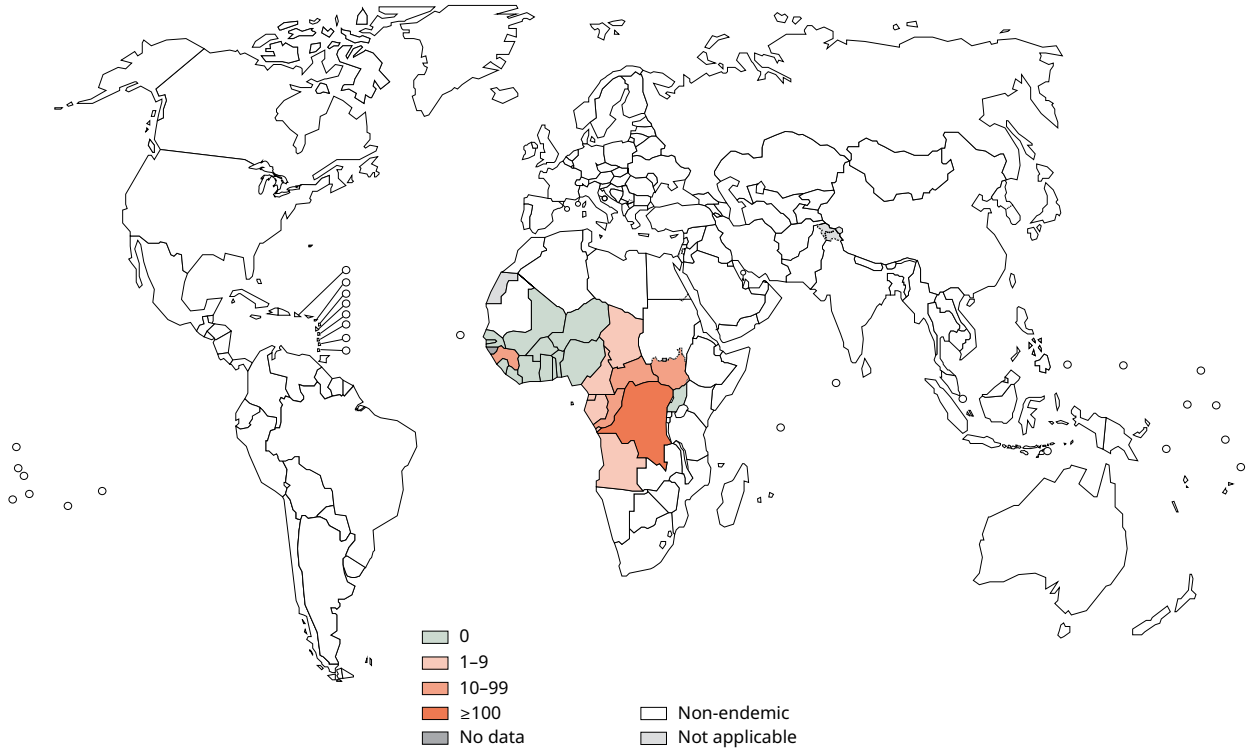
8
countries eliminated the disease as a public health problem

Number of *gambiense* HAT cases reported worldwide, 2020–2025



Geographical distribution and status

Number of new cases of gambiense HAT reported by countries and territories, 2025



Progress at mid-term

Six countries are eligible for verification of the interruption of transmission (Benin, Burkina Faso, Ghana, Senegal, Togo and Uganda); Benin and Burkina Faso have already submitted their dossiers, and the other countries are preparing theirs.

Summary of critical actions to achieve targets

Integrate control and surveillance activities in the peripheral health system, and identify and prepare sentinel sites for post-elimination surveillance.

Develop a long-term funding plan, including campaigns for resource mobilization to meet needs.

Reinforce ownership of elimination and targets by endemic countries through advocacy to health authorities and heads of states in the context of decreasing numbers of cases.

Support development of effective treatments and specific, cost–effective diagnostics (for diagnosis and surveillance), and adapt treatment and vector control to low-prevalence settings.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Transmission pathways, parasite biology and the epidemiology of *T. b. gambiense* are well characterized and provide a strong basis for the design and implementation of elimination strategies. • Geographical distribution and historical transmission foci are well documented across most endemic countries, but surveillance is not consistently maintained due to variable national capacity and competing health priorities. • Known foci have not been systematically reassessed in some settings, creating uncertainty regarding current transmission status and potential residual transmission. • Understanding of transmission dynamics remains limited in hard-to-access and insecure areas, including parts of central Africa, north-eastern areas of the Democratic Republic of the Congo, and South Sudan. • Significant gaps remain in understanding the occurrence, prevalence and epidemiological relevance of dermal infections, particularly their role in sustaining transmission in low-incidence settings. • The role of the relative contribution of animal reservoirs to persistence, maintenance or re-emergence of transmission is not fully understood. • Evidence on broader, nontarget effects of HAT interventions remains limited, including impacts of increasingly targeted diagnostics on incidental disease detection and referral of other illnesses, and the wider health, ecological and socioeconomic effects of tsetse fly vector control.	• Expand mapping and epidemiological reassessment of all known, historical and suspected gambiense HAT foci to confirm current transmission status and identify areas requiring continued surveillance. • Prioritize surveillance in low-incidence and previously endemic areas to ensure that declining case numbers reflect interruption of transmission rather than reduced detection. • Strengthen surveillance approaches in hard-to-access and insecurity-affected areas through flexible, risk-based and locally adapted strategies. • Maintain active investigation of residual transmission in settings approaching elimination, particularly where routine programme activity has reduced. • Prioritize research to quantify the prevalence, infectiousness and transmission potential of dermal infections and to establish whether they represent a significant reservoir sustaining transmission, particularly in low-incidence and elimination settings. • Assess whether current diagnostic and surveillance strategies are adequate to detect dermal or low-parasitaemia infections that may be missed by routine approaches. • Clarify the role of animal reservoirs in transmission, particularly in settings where persistence or re-emergence cannot be fully explained by human transmission. • Assess the broader effects of HAT interventions, including whether highly disease-specific diagnostic approaches reduce opportunities for integrated detection of other conditions. • Determine how climate change is affecting the distribution, abundance and ecology of tsetse fly populations, and quantify its impact on HAT transmission dynamics, geographical risk and the effectiveness of surveillance and vector control strategies.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• WHO has published TPPs for screening and diagnosis tools. • Screening is performed using serological tests, whereas diagnosis is confirmed by parasitological demonstration of trypanosomes in blood, lymph node aspirate or cerebrospinal fluid. • Screening tools exist but are imperfect, and case-finding (active and passive) is the main activity for surveillance. • Various initiatives are developing and evaluating new tools and protocols for screening and diagnosis, but existing funding is insufficient.	• Develop field-adapted diagnostic and detection tools (e.g. a simplified diagnostic that does not require confirmatory testing by microscopy). • Ensure independent, multicentre evaluation of new tools.
Effective interventions 2026 2020	• Preventive measures to reduce human–tsetse fly contact are effective but difficult to implement in settings where exposure cannot be avoided because of livelihoods such as agriculture, fishing, animal husbandry and hunting. • Vector control is recognized as an important complementary intervention for interrupting transmission, particularly in persistent foci, but remains challenging to sustain due to its high financial and operational demands. • Treatment delivery has been substantially simplified through the introduction of oral therapies, such as fexinidazole, for eligible patients, reducing the need for prolonged hospitalization and intravenous administration. • Development of the simplified, single-dose acoziborole oral treatment for both stages of *T. b. gambiense* infection has been completed, with distribution to begin after regulatory approval in endemic settings. • New drugs and improved interventions are not consistently or rapidly adopted across endemic countries because of regulatory, logistical, financing and health system constraints. • Rehabilitation, management of long-term sequelae and social support remain limited in many endemic settings, despite improvements in treatment.	• Scale up targeted vector control in persistent transmission foci to complement case detection and treatment and to reduce residual transmission. • Promote integrated vector control with other relevant vector-borne disease and NTD programmes where operational platforms, geography or ecological risk overlap. • Prioritize interventions for high-risk populations with unavoidable exposure, including those engaged in agriculture, fishing, hunting and livestock activities. • Accelerate regulatory approval and national registration of newly recommended treatment options to reduce delays in access, particularly for the new single-dose acoziborole oral treatment. • Streamline deployment of oral therapies through simplified treatment protocols and decentralized delivery models. • Expand access to post-treatment care, including management of long-term sequelae, and patient support services. • Integrate follow-up care into routine health services to ensure continuity beyond treatment completion. • Accelerate the development and evaluation of highly sensitive and specific diagnostic tools capable of detecting low-parasitaemia infections in low-prevalence and elimination settings, together with less invasive, field-applicable confirmatory diagnostics. • Develop a paediatric formulation of oral treatment for children aged under 6 years.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• The WHO *Control and surveillance of human African trypanosomiasis* technical report series remains the key normative framework supporting surveillance, diagnosis, vector control and case management for gambiense HAT. • WHO published guidance in 2023 on the criteria and procedures for verifying elimination of transmission of gambiense HAT, providing a standardized framework for countries seeking WHO verification. • WHO updated its *Guidelines for the treatment of human African trypanosomiasis* in 2024, consolidating previous recommendations, including the 2019 introduction of oral fexinidazole for eligible gambiense HAT cases, and supporting safer and simplified treatment approaches. • WHO has strengthened operational guidance on vector control through the 2022 joint WHO–FAO expert meeting report, recognizing tsetse fly control as an important complementary intervention to case detection and treatment in appropriate epidemiological settings. • Normative and operational guidance on rehabilitation, management of long-term sequelae and psychosocial support remains limited, although WHO treatment guidelines include recommendations for post-treatment monitoring and follow-up.	• Develop more detailed operational guidance on sustaining integrated surveillance in low-incidence, verification and post-verification settings, including risk-based surveillance approaches, integration into routine health systems, and mechanisms for detecting and responding to recrudescence. • Provide practical implementation guidance for the delivery of oral therapies within decentralized health systems, including referral pathways, pharmacovigilance and integration into routine health services as case numbers decline. • Develop more comprehensive operational guidance on the role of vector control in elimination programmes, including criteria for deployment, monitoring and evaluation, and integration with surveillance and case detection in areas of persistent or residual transmission. • Develop normative and operational guidance on rehabilitation and the management of long-term neurological, cognitive and psychosocial sequelae, including integration of post-treatment support into routine health services.
Planning, governance and programme implementation 2026 2020	• HAT control and surveillance is led by national sleeping sickness control programmes (NSSCPs), with the support of WHO's Network for HAT Elimination, which coordinates stakeholders in HAT control and surveillance. • Most endemic countries include HAT within broader NTD strategies and national health plans, but surveillance and treatment activities remain largely vertically implemented. • Surveillance and treatment activities do not consistently reach all areas of need, particularly in large countries and conflict-affected settings, such as the Democratic Republic of the Congo and South Sudan. • Programme capacity for surveillance, case detection and treatment varies as transmission declines and activities shift towards integration within routine health services. • Implementation of oral fexinidazole remains uneven across endemic countries owing to differences in national adoption, regulatory approval, health system preparedness and operational capacity. • Pharmacovigilance systems are not established in most endemic countries, while WHO provides oversight of drug quality at global level. • Uptake of newly recommended diagnostics and treatments remains slow, mainly due to delays in national registration, regulatory approval and programme-level implementation.	• Strengthen national planning to ensure sustained surveillance and treatment coverage across all known and historical foci, including in large and hard-to-reach areas. • Prioritize targeted support for surveillance and case detection in conflict-affected settings. • Transition from vertical programme delivery to integrated models by embedding HAT surveillance, diagnosis and treatment within routine health services. • Clarify roles and responsibilities for HAT activities within broader NTD and health system frameworks to support effective integration. • Strengthen national capacity for surveillance, case detection and treatment as activities shift from control to elimination and routine service delivery. • Establish or expand pharmacovigilance systems to support monitoring and safe use of newer treatment tools at country level. • Accelerate national adoption and implementation of WHO-recommended diagnostics and treatments, including timely regulatory approval, procurement, health worker training and equitable access to oral fexinidazole where indicated. • Strengthen coordination between national programmes and the WHO Network for HAT Elimination to support implementation and scale-up of updated tools and strategies. • Support countries to translate national strategic plans into costed operational plans with clear implementation timelines, monitoring frameworks and sustainable financing, including increased domestic resource mobilization.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• The Atlas of HAT is a helpful tool for planning and monitoring control and elimination activities. • Global indicators and methods for validation of elimination of HAT as a public health problem are available.	• Use data on disease distribution and case-mapping tools to improve case-finding activities. • Improve the coverage of population screening activities to help identify at-risk populations. • Secure financial and technical support for validation and verification of elimination of HAT as a public health problem. • Develop high-throughput tests to assess elimination and post-elimination surveillance in a reference laboratory. • Reinforce surveillance through sentinel surveillance sites with trained staff and equipment.
Access and logistics 2024 2020	• Access to treatment is available by donation from manufacturers, with distribution by WHO ensured until 2030. • There is no ensured access to screening and diagnostics, and distribution of diagnostic tools is not systematic. • The future availability of diagnostic tools is uncertain.	• Ensure availability of and access to HAT diagnostic tools through involvement of manufacturers.
Health care infrastructure and workforce 2026 2020	• Decreases in both HAT-skilled staff and HAT prevalence make it difficult for new health personnel to gain sufficient experience across all aspects of gambiense HAT management. • Case detection and treatment for gambiense HAT continue to rely on a combination of specialized HAT services with partial integration within community-based surveillance and PHC systems. • Approaches to case detection vary across endemic settings, with some countries maintaining targeted active screening, whereas others rely predominantly on passive surveillance through routine health services. • Diagnostic capacity for gambiense HAT is available in endemic countries but remains unevenly distributed, with limited access to confirmatory testing and specialized diagnostic procedures in peripheral health facilities. • Referral pathways for suspected cases nominally exist in most endemic settings but often depend on access to specialized facilities, transport systems and functioning referral networks. • Training materials for diagnosis, treatment and surveillance are available but not consistently updated, contributing to declining health care worker skills, especially in low-incidence endemic areas. • Introduction of oral treatment options has simplified case management and reduced reliance on hospital-based care. • Broader health system constraints continue to affect detection, referral and treatment, despite simplified case management pathways.	• Expand decentralized diagnostic capacity to enable confirmatory testing closer to where cases are detected, particularly at the peripheral health facility level. • Strengthen referral systems linking peripheral services to specialized centres, including transport, communication pathways and case tracking. • Identify and prepare sentinel sites for post-elimination surveillance. • Maintain a minimum level of active screening capacity in priority areas to complement passive detection as programmes transition. • Ensure sustainable integration of case detection and treatment into PHC systems, while retaining access to specialized expertise where needed. • Establish routine training and refresher programmes for health workers to maintain diagnostic and clinical skills as case numbers decline. • Develop targeted training approaches for frontline workers to improve recognition and management of low-incidence or atypical cases. • Strengthen laboratory networks to support timely confirmation of suspected cases, including access to specialized diagnostic procedures where required. • Adapt service delivery models to fully utilize simplified treatment regimens, including expansion of outpatient management where appropriate. • Address system-level constraints affecting detection, referral and treatment, including workforce availability, infrastructure gaps and service accessibility.

Category: Enablers

Dimension and assessment	Current status	Actions required
Advocacy and funding 2024 2020	• Important funding (from the Belgian Government, Sanofi, Bayer and the Gates Foundation) is guaranteed, but extension for long-term support is required. • Ownership by endemic countries of the elimination process and targets is weak, and there is limited domestic funding available.	• Develop a long-term funding plan and resource mobilization campaign. • Maintain support to sustain gains and prevent donor fatigue. • Advocate for stronger ownership of elimination by endemic countries' health authorities. • Support efforts to include gambiense HAT in UHC initiatives.
Collaboration and multisectoral action 2026 2020	• The WHO Network for HAT Elimination provides a platform in which activities conducted by its members are coordinated, facilitating HAT control and surveillance. • There is an interface with animal trypanosomiasis (One Health approach) through the FAO and Programme Against African Trypanosomosis initiative. • Partnerships with research institutions and product development partners have contributed substantially to advances in diagnostics, treatment development and evidence generation to inform elimination strategies. • Collaboration with other NTD programmes and broader health system initiatives is increasing in some endemic settings as gambiense HAT activities become more integrated within routine health services, although the extent of integration varies across endemic settings. • National coordination mechanisms do not consistently facilitate engagement with other sectors, such as environment, agriculture, wildlife and rural development, that may contribute to surveillance, vector control and long-term sustainability. • Community engagement approaches are implemented in some endemic settings to support case detection, screening participation and awareness raising but are not often systematically embedded within programme planning.	• Expand integration of gambiense HAT activities within broader NTD and health system platforms, including alignment with routine surveillance and service delivery initiatives. • Strengthen coordination through the WHO Network for HAT Elimination to maximize collaboration and synergies among countries and partners. • Develop clearer mechanisms to link HAT programme activities with sectors relevant to vector control and environmental risk, including agriculture, rural development and environmental management. • Strengthen collaboration with animal health initiatives, including One Health platforms such as the FAO and the Programme Against African Trypanosomosis, where relevant to shared surveillance and control priorities. • Systematically embed community engagement within national programme strategies, including defined roles for awareness, screening participation and follow-up. • Expand use of community-based approaches to support case detection and participation in screening in endemic transmission areas, including low-incidence and historical transmission areas. • Strengthen engagement with government leadership to sustain political commitment and prioritization of HAT, particularly as case numbers decline and the disease becomes less visible.
Capacity and awareness building 2026 2020	• The International Course on African Trypanosomiasis covers key aspects of surveillance, control, diagnosis and treatment of HAT to achieve elimination of transmission, supported by WHO and partners. • Efforts of multiple partners (e.g. the French Institut de Recherche pour le Développement, Institute of Tropical Medicine Antwerp, FIND, Drugs for Neglected Diseases initiative and Makerere University) in coordination with NSSCPs continue to support training activities, as well as research and development for new diagnostics and therapeutics. • WHO regional collaborating centres have been established to contribute to training efforts for HAT across the African Region, as well as in the European Region. • Global training materials, operational tools and technical resources are available for adaptation and use by endemic countries, although their uptake, updating and integration into national training systems vary between settings. • Community engagement, health education and awareness-raising activities are implemented in some endemic settings to support participation in screening and care-seeking behaviour but are not consistently institutionalized within programme strategies. • Training for diagnosis, treatment and surveillance is not always maintained at sufficient frequency as case numbers decline and programme activities become less intensive. • Knowledge and expertise related to gambiense HAT remain concentrated among specialized personnel and reference centres and are not yet uniformly embedded within routine health services.	• Integrate HAT training materials and competencies into national pre-service, in-service and continuous professional development programmes to ensure sustainable capacity within routine health services. • Establish regular refresher training for health care workers, delivered through face-to-face and digital learning platforms, to maintain capacity for surveillance, diagnosis and treatment as case numbers decline. • Strengthen the capacity of frontline health care workers to recognize and manage low-prevalence and atypical HAT presentations, and embed training, mentorship and supportive supervision within PHC services to sustain decentralized expertise. • Institutionalize community engagement and risk communication within national HAT strategies to maintain awareness, promote timely care seeking and support surveillance in low-incidence, elimination and post-verification settings. • Integrate HAT capacity-building into broader NTD and PHC training platforms to improve sustainability, efficiency and scale while preserving disease-specific competencies. • Identify and secure sustainable financing mechanisms to support ongoing training, mentorship and workforce development throughout the elimination continuum.

Human African trypanosomiasis (rhodesiense)

Rhodesiense human African trypanosomiasis is an acute parasitic disease that develops rapidly, initially causing bouts of fever, headaches, joint pains and cardiac and renal symptoms, then sleep disturbances, behavioural changes, confusion, and sensory and motor disturbances. It is a zoonosis that occasionally affects humans.

Disease and epidemiology

- Rhodesiense human African trypanosomiasis (HAT) is caused by infection with *Trypanosoma brucei rhodesiense* and accounts for 2% of all HAT cases.
- The disease is a zoonosis (of wild and domestic animals) that occasionally affects humans.
- Rhodesiense HAT causes acute infection that develops rapidly, initially with bouts of fever, chancre in the site of infection, headaches, joint pains and, frequently, cardiac and renal symptoms (haemolymphatic stage); then sleep disturbances, behavioural changes, confusion, and sensory and motor disturbances (neurological stage) when the parasite crosses the blood–brain barrier and invades the central nervous system.
- HAT is mainly transmitted through the bite of an infected tsetse fly of the genus *Glossina*; other modes of transmission include mother-to-child.

Risks that require mitigation

- Challenges with integration of activities in a weak health system
- Absence of collaboration with tourism companies
- Cessation of intervention activities in low-prevalence settings

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Safe water supply to reduce contact with tsetse flies
Vector control	• Insecticide spraying of livestock • Baits and traps, including impregnated screens • Release of sterile insects
Veterinary public health	• Treatment of animals (cattle and pigs), with restricted application of insecticides
Case management	• Medicines for treatment of rhodesiense HAT: suramin (haemolymphatic stage), melarsoprol (neurological stage) and fexinidazole (Stage 1 and Stage 2)
Other	• Cases are detected mainly through passive screening (patients with suspected disease attending health facilities)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2025)	Milestone (2025)	Target (2030)
Number of countries validated for elimination as a public health problem (defined as <1 case/10 000 people per year, in each health district of the country averaged over the previous 5-year period)	0	2 (15%)	2/13 (15%)	4/13 (31%)	**8/13 (61%)**
Area with ≥1 HAT case per 10 000 people per year (average of 5 years)	10 000 km^2	5000 km^2	No data	2000 km^2	**0**

Burden of disease

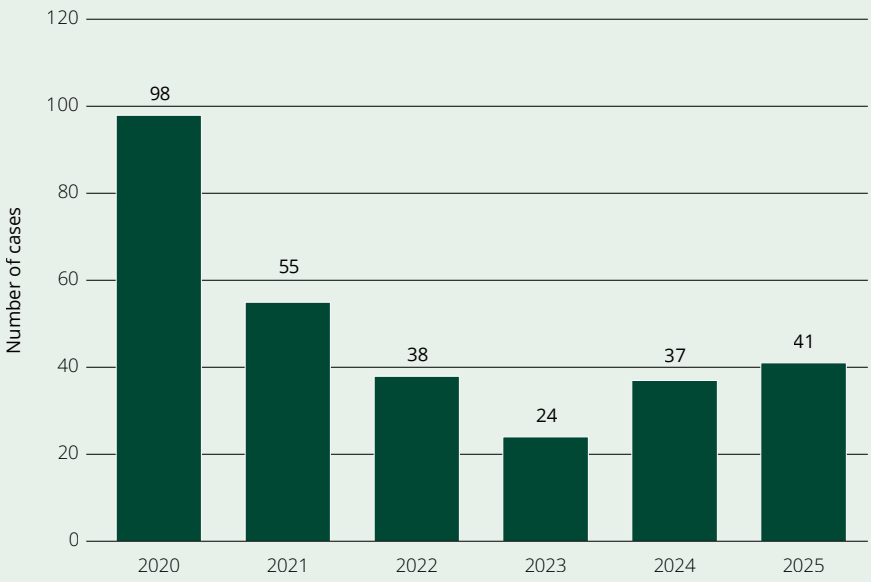
13
countries in eastern and southern Africa are endemic for *T. b. rhodesiense*

41
reported cases in 2025

93%
decrease in the number of reported cases since 1999

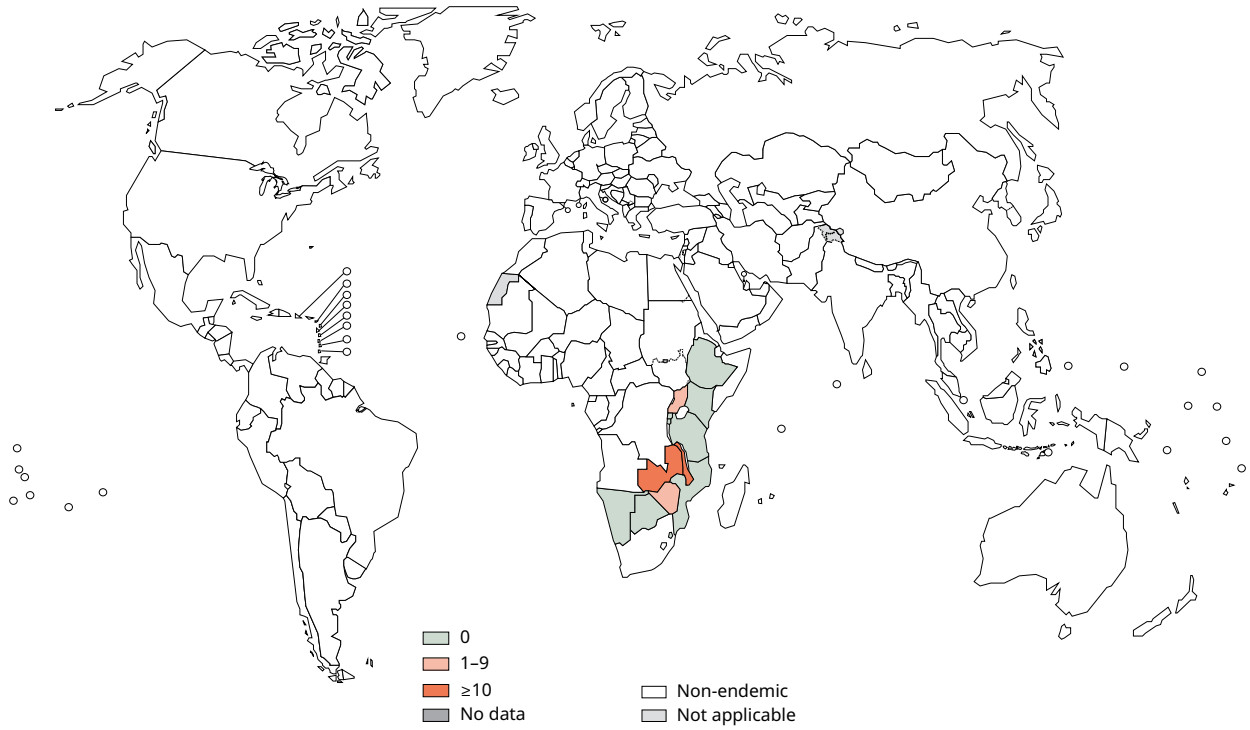
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countries eliminated the disease as a public health problem

Number of rhodesiense HAT cases reported worldwide, 2020–2025



Geographical distribution and status

Number of new cases of rhodesiense HAT reported by countries and territories, 2025



Progress at mid-term

The United Republic of Tanzania and Zimbabwe are eligible for elimination of rhodesiense HAT as a public health problem; they require support to prepare their dossiers for submission (likely in 2027).

Summary of critical actions to achieve targets

Develop new field-adapted tools to detect rhodesiense HAT (such as RDTs) for use in PHC facilities, and safe and effective treatment.

Integrate control and surveillance into national health systems, and strengthen capabilities through national plans for training, awareness and motivation among health care staff.

Coordinate vector control and animal trypanosomiasis management among countries, stakeholders and other sectors (such as tourism and wildlife) through multisectoral national bodies, to maximize synergies.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Transmission pathways, parasite biology and epidemiology of *T. b. rhodesiense* are well understood, with the central role of animal reservoirs and zoonotic transmission clearly established. • Geographical disease distribution is broadly known, particularly in areas associated with livestock, wildlife reservoirs and tourism-related exposure, but transmission risk remains heterogeneous and incompletely characterized at the subnational level. • Zoonotic transmission introduces greater complexity and reduces predictability of transmission patterns and control outcomes. • Important gaps remain in understanding human infection dynamics, including the occurrence and epidemiological significance of dermal infections. • Recent and historical outbreaks, including those reported in Malawi, Uganda and Zambia, demonstrate that transmission can persist or occur in areas without recent case reporting. • Cases among both local populations and travellers highlight the risk of undetected transmission or re-emergence and the need for continued surveillance in historically affected areas. • Evidence on broader, nontarget effects of HAT interventions remains limited, including impacts of increasingly targeted diagnostics on incidental disease detection and referral of people with other illnesses, and the wider health, ecological and socioeconomic effects of tsetse fly vector control.	• Expand risk mapping for rhodesiense HAT in areas associated with livestock, wildlife reservoirs and tourism-related exposure to better define heterogeneous transmission risk. • Prioritize surveillance in historical and previously affected foci where cases have not been reported for prolonged periods, but re-emergence remains possible. • Strengthen event-based and outbreak surveillance in areas with recent or unexplained transmission. • Maintain surveillance in areas where both local populations and travellers may be exposed, including recognized tourism and wildlife-interface areas. • Strengthen integrated One Health surveillance (human, livestock, wildlife and vector) to better characterize transmission at the human–animal interface. • Investigate sporadic cases and outbreaks to determine whether transmission reflects local persistence, reintroduction or previously undetected transmission foci. • Generate evidence on rhodesiense HAT dermal infections to determine whether these occur and whether they have epidemiological relevance for transmission or surveillance. • Strengthen predictive risk assessment for zoonotic transmission by combining epidemiological, ecological, livestock movement and vector distribution data. • Develop clearer approaches for identifying and monitoring areas where animal reservoirs may sustain transmission, despite limited or absent human case reporting. • Assess the broader effects of rhodesiense HAT interventions to understand their relevance for integrated zoonotic disease surveillance, vector control and wider public health outcomes. • Determine how climate change is affecting the distribution, abundance and ecology of tsetse fly populations, and quantify its impact on HAT transmission dynamics, geographical risk and the effectiveness of surveillance and vector control strategies.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• No serological tests are available and no research is ongoing. • Diagnosis is done through parasite confirmation (in blood, lymph nodes or cerebrospinal fluid). • Stage of progression is determined by examining cerebrospinal fluid from lumbar puncture. • Expanded use of RDTs for malaria has reduced the use of the blood smear diagnostic technique.	• Develop new field-adapted tools to detect rhodesiense HAT (such as RDTs) for use in PHC facilities (for screening or diagnosis). • Maintain blood microscopy in clinical and laboratory algorithms, especially in areas of high risk for rhodesiense HAT, to counteract the general decrease in use of microscopy for confirming suspected malaria because of the use of malaria RDTs.
Effective interventions 2026 2020	• Preventive interventions for rhodesiense HAT are well established and include vector control, passive case detection and treatment of domestic animal reservoirs. • Control of animal reservoirs can be achieved through trypanocidal treatment and insecticide application to livestock to reduce tsetse fly feeding and transmission. • Presence of wildlife reservoirs limits the feasibility of comprehensive reservoir control and contributes to persistence of transmission in some settings. • Zoonotic transmission introduces complexity and can limit the overall effectiveness of control measures, even where appropriate tools are available. • Implementation of interventions is constrained less by technical knowledge than by affordability, logistics and the need to coordinate across human, livestock and wildlife systems. • Recent WHO recommendations support use of oral fexinidazole for eligible patients, simplifying treatment and reducing the need for prolonged hospitalization and complex administration. • New and improved treatment options are not consistently adopted across endemic countries because of delays in national registration, health system readiness and programme uptake. • Rehabilitation, management of long-term sequelae and social support remain limited, despite improvements in treatment availability.	• Strengthen targeted vector control in areas with ongoing or recurrent rhodesiense HAT transmission, prioritizing settings where human exposure overlaps with livestock, tsetse fly habitats and known wildlife interfaces. • Promote integrated vector control with other relevant vector-borne disease and NTD programmes where operational platforms, geography or ecological risk overlap. • Expand coordinated use of livestock treatment and insecticide application in high-risk areas where domestic animals contribute to transmission. • Develop practical approaches for reducing transmission risk in settings where wildlife reservoirs limit the feasibility of comprehensive reservoir control. • Strengthen joint planning between human health, veterinary, livestock and vector control services to improve targeting of interventions at the human–animal interface. • Address affordability and logistical barriers that limit sustained use of vector control, livestock treatment and surveillance-based interventions. • Accelerate national registration and programme adoption of newly recommended treatment options, including oral fexinidazole for eligible patients. • Strengthen pathways for rapid diagnosis and treatment of acute cases to reduce delays between case detection, referral and care. • Expand access to post-treatment follow-up, rehabilitation and social support for patients affected by severe disease or with long-term sequelae.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• WHO *Guidelines for the treatment of human African trypanosomiasis* were updated in 2024 to include recommendations on the use of oral fexinidazole in eligible patients with *T. b. rhodesiense* infection, including patients with both first-stage and second-stage disease. • Updated WHO treatment recommendations reduce reliance on suramin and melarsoprol in eligible patients and remove the need for routine cerebrospinal fluid staging before fexinidazole treatment. • The WHO *Control and surveillance of human African trypanosomiasis* technical report series remains the principal normative framework supporting surveillance, diagnosis, vector control and case management for rhodesiense HAT.	• Develop comprehensive operational guidance for implementing One Health approaches to rhodesiense HAT, including coordination between the human, animal and environmental health sectors and practical strategies for managing transmission at the human–livestock–wildlife interface. • Strengthen operational guidance on integrated control of zoonotic transmission, including the use of livestock-based interventions, management of wildlife interfaces where feasible, and criteria for deploying vector control alongside veterinary and public health measures. • Develop more detailed guidance on surveillance and outbreak preparedness in endemic and historically affected areas, including risk-based surveillance, triggers for investigation and coordinated responses to sporadic cases and re-emergence.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Operational and normative guidance *(cont.)*	• WHO guidance recognizes the zoonotic nature of rhodesiense HAT and promotes a One Health approach to surveillance and control, including coordination between the human health, veterinary and vector control sectors. • Unlike gambiense HAT, WHO has not established targets, verification procedures or pathways for elimination of transmission of rhodesiense HAT, reflecting the persistence of animal reservoirs and the resulting epidemiological challenges. • WHO guidance supports vector control and livestock-based interventions, including insecticide treatment of cattle, as complementary measures to reduce transmission risk but provides limited operational guidance on the management of wildlife reservoirs and integrated animal reservoir control. • Current WHO normative guidance remains primarily focused on clinical management and surveillance of human disease, with comparatively limited guidance on integrated management of transmission within domestic and wild animal reservoir systems.	• Support countries to translate WHO normative guidance into context-specific national operational strategies that reflect local epidemiology, reservoir hosts, vector ecology and health system capacity.
Planning, governance and programme implementation 2026 2020	• HAT control and surveillance is led by national sleeping sickness control programmes (NSSCPs), with the support of WHO's Network for HAT Elimination, which coordinates stakeholders in HAT control and surveillance. • Most endemic countries include rhodesiense HAT within broader NTD strategies and national health plans, but surveillance, diagnosis and treatment activities remain largely vertically implemented within health systems. • Planning frameworks recognize zoonotic transmission but do not consistently translate into integrated approaches linking human case detection with treatment of livestock reservoirs and vector control. • Surveillance systems focus primarily on detection of human cases and do not systematically incorporate monitoring of infection in livestock or other animal reservoirs. • Coordination between public health and veterinary services is required for case detection, reservoir control and vector management but is not consistently formalized. • Integration with broader NTD platforms is limited, with rhodesiense HAT activities not routinely aligned with other vector-borne or zoonotic disease programmes. • Pharmacovigilance systems are not established in most endemic countries, while WHO provides oversight of drug quality at global level. • Uptake of newly recommended diagnostics and treatments remains slow, mainly due to delays in national registration, regulatory approval and programme-level implementation.	• Strengthen formal coordination mechanisms between human health, veterinary and environmental sectors to support joint planning, implementation and monitoring of interventions. • Develop and institutionalize One Health approaches within national programmes to address transmission across human, livestock and wildlife systems. • Integrate surveillance of human cases with monitoring of livestock infection, animal reservoirs and vector distribution within national surveillance and data systems. • Expand programme frameworks to include structured approaches for managing animal reservoirs, particularly in livestock-dependent settings. • Align rhodesiense HAT activities with broader zoonotic disease and vector-borne programme platforms to improve efficiency and coordination. • Support development of national strategies that explicitly address transmission at the human–livestock–wildlife interface. • Strengthen national capacity to plan and deliver multisectoral interventions, including roles, responsibilities and coordination pathways across sectors. • Establish pharmacovigilance systems to support safe introduction and monitoring of newer treatment tools at country level. • Accelerate national processes for registration and programme adoption of updated diagnostics and treatments.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• Global indicators and methods for validation of elimination of HAT as a public health problem are available. • Underdetection remains a concern.	• Use data on disease distribution and case-mapping tools to improve targeting of case-finding activities. • Reinforce human case detection activities. • Secure technical support for validation process. • Reinforce surveillance through setting up sentinel surveillance sites with trained staff and equipment.
Access and logistics 2024 2020	• Access to treatment is ensured through donated medicines that are distributed by WHO.	• Ensure logistics and supply of new diagnostic tools that become available.
Health care infrastructure and workforce 2026 2020	• Decreases in both HAT-skilled staff and HAT prevalence make it difficult for new health personnel to gain sufficient experience across all aspects of rhodesiense HAT management. • Case detection for rhodesiense HAT occurs primarily through passive detection within routine health services, with referral to specialized facilities required for confirmation and management of severe disease. • Health system capacity to detect and manage cases varies widely due to the disease's acute presentation and need for rapid diagnosis and treatment. • Diagnostic capacity is available but concentrated in higher-level facilities, requiring timely referral from peripheral services. • Access to diagnosis and treatment in remote areas is constrained by distance to facilities with appropriate diagnostics, specialized expertise and inpatient care. • Training opportunities and clinical familiarity vary across countries and subnational areas, particularly where case numbers are low and exposure is infrequent. • Timely case management depends on effective coordination between peripheral facilities, laboratories and referral centres, which is not consistently established. • Broader health system constraints continue to affect rapid detection, referral and treatment, despite improvements in available therapies.	• Strengthen rapid referral systems to ensure suspected cases are identified and transferred quickly to facilities capable of diagnosis and treatment. • Expand access to diagnostic capacity through improved linkage between peripheral services and higher-level facilities, including clear referral pathways and case management protocols. • Improve geographical access to specialized diagnostic and treatment services in remote and underserved areas through targeted service delivery models. • Strengthen capacity for early recognition of acute disease at peripheral health facilities through targeted training of frontline health workers. • Establish routine refresher training to maintain clinical skills and awareness in settings with low case numbers and infrequent exposure. • Develop and implement clear protocols for rapid diagnosis and treatment of suspected cases to reduce delays associated with acute disease progression. • Strengthen coordination between peripheral facilities, laboratories and referral centres to support timely case management. • Ensure availability of trained personnel and essential medicines and infrastructure at referral centres to manage severe and advanced cases. • Adapt service delivery models to reflect improved treatment options while maintaining capacity to manage severe cases requiring inpatient care. • Address system-level constraints affecting timely diagnosis and treatment, including workforce shortages, limited infrastructure and access barriers. • Support countries to translate national strategic plans into costed operational plans with clear implementation timelines, monitoring frameworks and sustainable financing, including increased domestic resource mobilization.

Category: Enablers

Advocacy and funding 2024 2020	• Due to the low prevalence of rhodesiense HAT, there is a significant funding gap for control, research, and monitoring and evaluation activities. • There is limited domestic funding available. • There has been an increase in the number of countries in contact with WHO to engage in advocacy and funding activities for rhodesiense HAT.	• Develop a long-term funding plan, including a campaign to mobilize resources to meet needs. • Maintain current support to ensure the sustainability of gains (e.g. lobbying to avoid donor fatigue). • Advocate to health authorities and leaders to strengthen endemic country ownership of elimination targets. • Contribute to efforts advocating for UHC.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• The WHO Network for HAT Elimination provides a platform in which activities conducted by its members are coordinated, facilitating HAT control and surveillance. • There is an interface with animal trypanosomiasis (taking a One Health approach) through the FAO and the Programme Against African Trypanosomosis initiative. • Engagement with livestock, wildlife and environmental sectors is recognized as important for reducing transmission risk, and is occurring in some endemic settings, but is not systematically integrated into programme planning and implementation. • Community engagement approaches are implemented in some endemic settings to support case detection, screening participation and awareness raising but are not consistently embedded within programme planning. • Cross-sectoral coordination is not consistently formalized or sustained, which may limit the ability of programmes to address transmission occurring at the human–livestock–wildlife interface.	• Formalize collaboration between human health, veterinary, livestock and wildlife sectors through defined national coordination mechanisms. • Operationalize One Health approaches within national programmes to enable joint planning and delivery of interventions across sectors. • Integrate surveillance systems across human and animal health to support detection of transmission at the human–livestock–wildlife interface. • Strengthen collaboration with initiatives addressing animal trypanosomiasis, including platforms linked to the FAO and the Programme Against African Trypanosomosis, to align control activities. • Expand community engagement approaches to support reporting of suspected cases, awareness of risk areas and timely care seeking. • Systematically incorporate community-based surveillance into programme design to strengthen detection in areas with sporadic transmission. • Establish sustainable mechanisms for multisectoral coordination at subnational level, particularly in high-risk transmission zones.
Capacity and awareness building 2026 2020	• The International Course on African Trypanosomiasis covers key aspects of surveillance, control, diagnosis and treatment of HAT to achieve elimination of transmission, supported by WHO and partners. • Efforts to maintain diagnostic and treatment capacities, supported by WHO, NSSCPs and other partners (e.g. the French Institut de Recherche pour le Développement, Institute of Tropical Medicine Antwerp, FIND, Drugs for Neglected Diseases initiative and Makerere University), continue to support training activities, as well as research and development for new diagnostics and therapeutics. • WHO regional collaborating centres have been established to contribute to training efforts for HAT across the African Region, as well as in the European Region. • Global training materials and technical resources are available for adaptation and use by endemic countries; however, existing materials provide limited guidance for integrated One Health training implementation and cross-sectoral capacity development. • Training approaches are not always adapted to the zoonotic nature of transmission or to the need for rapid recognition and management of acute disease presentations. • Health worker awareness and familiarity with rhodesiense HAT vary considerably across endemic settings, with limited experience in recognizing and managing cases in areas where transmission is infrequent or sporadic. • Community awareness and risk communication activities are implemented in some endemic settings but are not consistently maintained, despite the potential for sporadic outbreaks and re-emergence. • Capacity-building initiatives that engage human health, veterinary, wildlife and environmental sectors remain limited and are not systematically incorporated into programme activities.	• Update training materials to reflect the zoonotic epidemiology of rhodesiense HAT, including recognition of transmission risks at the human–livestock–wildlife interface and application of a One Health approach. • Deliver training through a combination of face-to-face and online modalities, supported by regular refresher training to maintain clinical awareness and diagnostic capacity in areas where case exposure is infrequent. • Strengthen the capacity of frontline health care workers to rapidly recognize, diagnose and manage acute rhodesiense HAT, and expand training beyond specialized programmes to ensure expertise is maintained at district and peripheral health facility levels. • Strengthen cross-sectoral capacity by incorporating veterinary, livestock, wildlife and environmental stakeholders into surveillance, outbreak response and One Health training programmes. • Develop standardized approaches for risk communication and community engagement to sustain awareness in historically affected and high-risk areas and to support early care seeking and case detection. • Integrate HAT capacity-building into broader zoonotic disease, vector-borne disease and One Health programmes to improve sustainability and maximize use of existing training platforms. • Identify and secure sustainable financing mechanisms to support ongoing training, cross-sectoral capacity-building and workforce development.

Leishmaniasis (cutaneous)

Cutaneous leishmaniasis is a parasitic disease that causes skin lesions, mostly ulcers, leaving permanent scars and serious disability. It is associated with population displacement, poor housing, lack of financial resources, malnutrition and a weak immune system.

Disease and epidemiology

- Cutaneous leishmaniasis is caused by infection with the protozoan *Leishmania* parasite, which is transmitted by the bite of female phlebotomine sandflies; only 10–25% of people infected by the *Leishmania* parasite will develop the disease.
- The disease causes skin lesions (mostly ulcers), leaving permanent scars and serious disability, stigmatization and mental health problems (especially for young girls); mucocutaneous leishmaniasis can cause severe mutilations, especially on the face.
- Cutaneous leishmaniasis is associated with population displacement, poor housing, lack of financial resources, malnutrition and a weak immune system.

Risks that require mitigation

- Challenges in achieving diagnosis and treatment of patients with minor lesions, in the absence of a topical, painless treatment
- A cost of US$ 7–8 million for medical supplies and devices to treat about 150 000 new cases annually, with no domestic funding or external donors having yet committed that level of support

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• N/A
Vector control	• Insecticide spraying, insecticide-treated nets and environmental management
Veterinary public health	• Rodent control
Case management	• Treatment of leishmaniasis depends on several factors, including type of disease, comorbidities, parasite species and geographical location • Local treatment includes intralesional pentavalent antimonials, paromomycin ointments, cryotherapy and thermotherapy • Systemic medicines include pentavalent antimonials, miltefosine, pentamidine and liposomal amphotericin B
Other	• Early diagnosis (RDTs combined with clinical signs) and prompt treatment

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries in which: 85% of all cases are detected[a] and reported and 95% of reported cases are treated	N/A	44/87 (51%)	No data	66/87 (76%)	**87/87 (100%)**

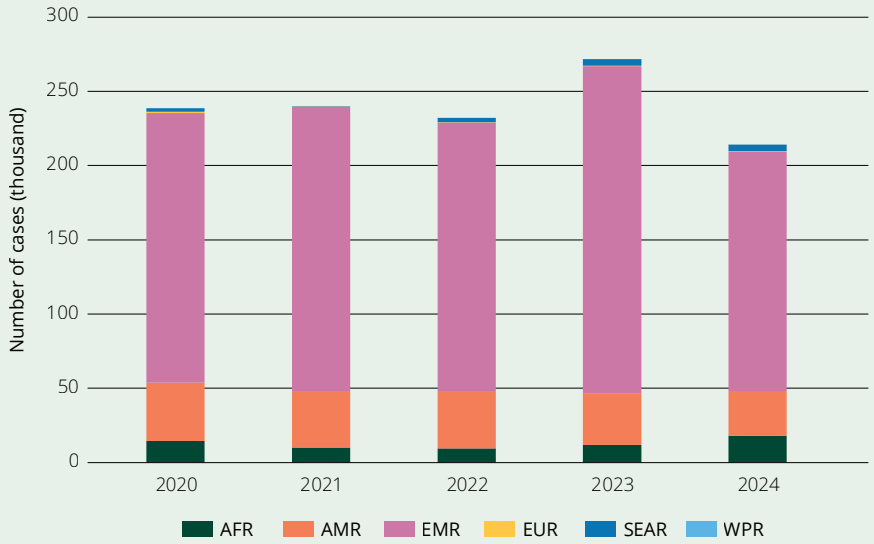
[a] Detected through active case search and/or strengthened passive surveillance.

Burden of disease

About 214 000
new cases reported in 2024

About 754 400
DALYs in 2023

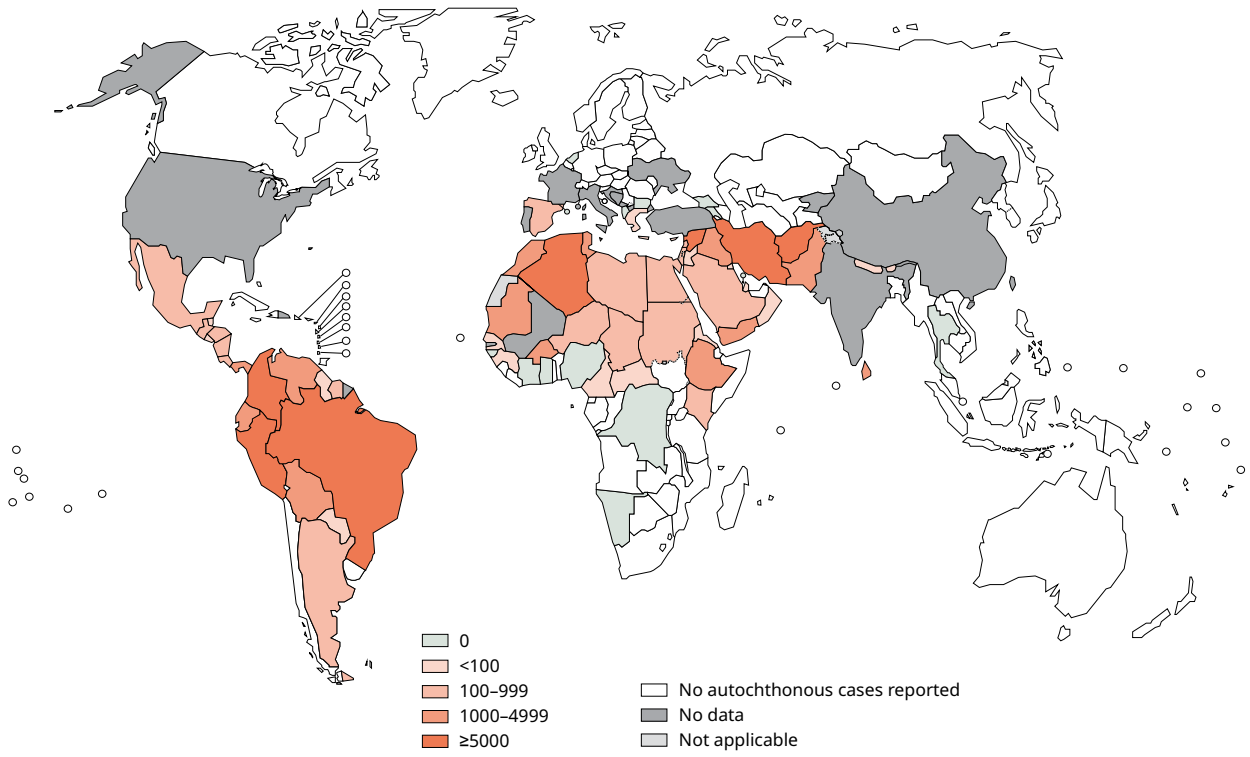
Number of reported cutaneous leishmaniasis cases, by WHO region, 2020–2024



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Number of new cases of cutaneous leishmaniasis reported by countries and territories, 2024



Progress at mid-term

Between 2020 and 2024, the global number of reported cutaneous leishmaniasis cases decreased by 10.2%, from 238 594 to 214 228. This represents modest progress, but the trend should be interpreted cautiously because surveillance coverage, access to diagnosis and reporting completeness vary considerably between and within regions. Changes in reported cases may therefore reflect changes in transmission, case detection, service access or reporting practices.

Regional trends were heterogeneous. The Eastern Mediterranean Region continued to account for about three quarters of reported cases globally. Interpretation of trends in this Region remains difficult because conflict, humanitarian emergencies, disrupted health services, inadequate surveillance and shortages of diagnostic and treatment products may affect case detection and reporting. The Region of the Americas reported an overall decline in cases during the evaluation period, although trends varied between countries. Reported cases increased in the African and South-East Asia regions, potentially reflecting persistent or increasing transmission, outbreaks, improved detection and reporting, or a combination of these factors. In the European Region, incomplete reporting limits assessment of regional trends.

Despite the global reduction in reported cases, cutaneous leishmaniasis remains highly neglected. Major constraints include limited access to affordable and field-adapted diagnostics; variable availability of effective topical, oral, physical and systemic treatments; insufficient evidence on vector control; and inadequate programme financing. Unlike visceral leishmaniasis, cutaneous leishmaniasis does not benefit from a global medicine donation programme. Accelerated progress will require stronger routine surveillance, improved access to diagnosis and treatment through PHC, sustainable financing, and interventions adapted to local epidemiological conditions.

Summary of critical actions to achieve targets

Expand access to early diagnosis and effective treatment by supporting the development, evaluation and scale-up of affordable oral, topical and point-of-care interventions that can be delivered through PHC services.

Strengthen surveillance and routine health information systems to improve estimation of disease burden, enhance data quality and support timely monitoring of progress towards the 2030 targets.

Scale up integrated case detection, case management and vector control interventions in high-burden settings, particularly in areas affected by conflict, population displacement and weak health systems.

Mobilize sustainable financing and political commitment to ensure equitable access to diagnosis, treatment and prevention services and to support long-term programme implementation.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• There is generally good understanding of the epidemiology and pathology of major high-burden *Leishmania* species, but gaps remain in understanding of transmission dynamics, particularly across different epidemiological settings and for less common species. • Country-level data on cutaneous leishmaniasis presence are available for many endemic countries, but there are gaps concerning subnational disease presence, distribution of *Leishmania* species and mapping of vector species. • Animal reservoirs contribute to cutaneous leishmaniasis transmission in some settings, depending on the local *Leishmania* species and transmission cycle.	• Conduct context-specific studies on transmission dynamics, including those pertaining to less common *Leishmania* species. • Strengthen subnational surveillance systems to characterize disease distribution, *Leishmania* species, vector presence and incidence trends through cost–effective approaches, including using secondary data sources and targeted surveys where needed. • Invest in operational research to evaluate the effectiveness of integrated vector control strategies for reducing cutaneous leishmaniasis incidence and transmission across different biological and ecological conditions. • Generate robust estimates of the burden of disease, including its economic, physical and psychosocial impacts.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• WHO guidance supports integrated cutaneous leishmaniasis control, including vector control, environmental management and targeted reservoir interventions where appropriate. However, implementation depends on robust local epidemiological and surveillance data. • Evidence on the effectiveness of vector control measures in reducing cutaneous leishmaniasis incidence and transmission across diverse epidemiological settings remains limited. • Robust estimates of the overall burden of cutaneous leishmaniasis, including its economic costs and health and psychosocial impacts, are lacking. • Additional evidence is needed to characterize the behavioural factors contributing to cutaneous leishmaniasis transmission and to identify effective strategies to modify risk behaviour and enhance treatment seeking.	• Conduct context-specific behaviour-change studies to identify factors contributing to transmission, to inform interventions aimed at reducing exposure and improving treatment-seeking practices. • Develop and validate mathematical models to project cutaneous leishmaniasis incidence under different intervention scenarios, including vector control measures, where quality data are available.
Diagnostics 2024 2020	• Currently, diagnosis is based on parasitological tests. • Clinical features lack adequate sensitivity, specificity and reliability in several endemic areas, and laboratory and parasitological diagnostics are not always available. • Polymerase chain reaction testing is only available in reference laboratories and its use to support cutaneous leishmaniasis programmes is limited.	• Develop affordable, more general, sensitive RDTs that can be used at health centre and community levels and in all epidemiological situations. • Ensure that the process of registration and validation for new diagnostics is aligned with the technical requirements of endemic countries.
Effective interventions 2026 2020	• Cutaneous leishmaniasis is often treated with pentavalent antimonials, which can be difficult to obtain and administer and show variable effectiveness, depending on species and epidemiological setting. • Intralesional treatment is increasingly used in endemic settings, but regulatory and implementation barriers limit access in some countries. • Follow-up after treatment is often difficult to implement and sustain. • Provision of post-treatment care, including management of long-term sequelae and psychosocial impacts, remains limited. • Cryotherapy and thermotherapy are used in some settings, but routine implementation remains limited due to operational constraints, including equipment and infrastructure requirements. • Treatment availability and affordability remain challenging in some settings. Pooled procurement via the PAHO Strategic Fund and WHO-supported forecasting and stakeholder coordination enhance access, but supply needs persist. • Evidence on the effectiveness of vector control in reducing cutaneous leishmaniasis incidence remains limited, partly due to insufficient implementation and evaluation across diverse transmission settings.	• Support the development of effective treatment regimens, including topical options, that are suitable for decentralized delivery at health centre and community levels. • Enhance global coordination to improve availability and affordability of cutaneous leishmaniasis treatments, including pooled procurement, forecasting and engagement with manufacturers. • Expand access to cryotherapy and thermotherapy in endemic areas by addressing service delivery capacity challenges, including infrastructure and equipment. • Monitor drug resistance in cutaneous leishmaniasis treatment. • Support the development and evaluation of preventive vaccines for cutaneous leishmaniasis. • Support clinical research of novel immunotherapy approaches for treatment. • Ensure provision of post-treatment care, including rehabilitation and long-term support, developing feasible strategies for patient follow-up and care continuity. • Strengthen evidence on the effectiveness of vector control and animal reservoir interventions by expanding implementation and conducting operational research across transmission settings. • Develop context-specific guidelines, adapting prevention, control and monitoring to the characteristics of local species and eco-epidemiology.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• There are regional case management guidelines, including for the Region of the Americas (2022) and Eastern Mediterranean (2014) and European regions (2017). • WHO released the *Operational manual on leishmaniasis vector control, surveillance, and monitoring and evaluation* in 2023, and additional guidance on vector and animal reservoir control is under development. • Guidance on cutaneous leishmaniasis-specific long-term sequelae management and rehabilitation remains limited. • Operational guidance for programme implementation is available in the Region of the Americas (2023), but additional context-specific guidance is needed to support implementation across diverse epidemiological and clinical settings. • WHO has developed standardized indicators for programme monitoring.	• Support the adaptation and implementation of existing WHO guidelines on vector control and disease surveillance in local eco-epidemiological settings. • Develop operational guidelines on management of long-term sequelae and rehabilitation for patients with cutaneous leishmaniasis. • Support the development of context-specific operational guidance for the implementation of national-level routine programmatic activities for the control of cutaneous leishmaniasis. • Support the adoption and integration of the Toolkit for Routine Health Information Systems into cutaneous leishmaniasis programme surveillance systems.
Planning, governance and programme implementation 2026 2020	• Cutaneous leishmaniasis is frequently underreported due to weak surveillance, contributing to underestimation of its burden and limiting its prioritization in national health agendas and NTD master plans. • Implementation of core interventions, including treatment, and animal reservoir and vector control, is often limited in endemic countries because of a lack of resources allocated to cutaneous leishmaniasis programmes. • A WHO Expert Committee report on the control of leishmaniases (WHO technical report series 949) provides guidance on cutaneous and visceral leishmaniasis, and regional expert groups and WHO regional offices (e.g. those in the Region of the Americas and Eastern Mediterranean and South-East Asia regions) provide additional technical support and guidance. • Emerging initiatives under the skin NTD platform promote the development of integrated screening, surveillance and case management approaches (e.g. Skin NTDs Laboratory Network).	• Strengthen cutaneous leishmaniasis surveillance and reporting to improve burden estimation and support inclusion in national health agendas, NTD master plans and coordination bodies. • Ensure that national health systems provide access to drugs or appropriate alternatives (e.g. thermotherapy and cryotherapy) at the primary care level, including in peripheral health centres. • Increase investment in cutaneous leishmaniasis programmes to enable effective implementation of core interventions, including case management and vector control. • Conduct economic burden, social impact and equity studies to strengthen the evidence base for cutaneous leishmaniasis prioritization and policy-making. • Promote and scale up integrated approaches for cutaneous leishmaniasis within the skin NTDs framework, including integrated care for all skin NTDs, alongside coordinated screening and surveillance.
Monitoring and evaluation 2024 2020	• Most countries either use aggregate data that do not allow for in-depth analysis or struggle to report data accurately. • Most countries lack comprehensive databases, including disease and vector surveillance and control intervention data.	• Integrate national databases with patient, vector surveillance and control intervention data for analysis. • Make cutaneous leishmaniasis a notifiable disease, and separate roles for case management and reporting responsibilities. • Develop active surveillance systems and digital tools for timely, responsive interventions. • Collect data on mental health and quality-of-life impacts for affected individuals.
Access and logistics 2024 2020	• Several high-burden countries face challenges in the procurement of necessary medicines, diagnostics or physical treatment options for case management. • Several endemic countries lack the capacity to ensure the adequate distribution of health products in peripheral areas.	• Ensure availability of medicines and defined preventive actions and physical treatments for case management (procured or donated) in all countries, and undertake registration in endemic countries where this has not been addressed. • Improve access to, and technical capacity for, diagnosis and treatment in rural populations.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026 2020	• Availability of cutaneous leishmaniasis treatments, including medicines and alternative therapies (cryotherapy and thermotherapy), is limited at the primary care level in many endemic countries. • Sustained investment in cutaneous leishmaniasis programmes remains limited, with resource allocation varying across settings and constrained by competing public health priorities. • Shortages of adequately trained health personnel, infrastructure and equipment at the primary care level persist in several highly endemic areas, limiting capacity for early diagnosis and service delivery, particularly in peripheral areas. • High turnover of health personnel limits the sustained availability of adequately trained staff, undermining continuity and quality of service delivery.	• Expand availability of cutaneous leishmaniasis treatments at primary care level by improving access to essential medicines and appropriate therapies, including cryotherapy and thermotherapy, in endemic areas. • Adopt innovative approaches to improve case detection and access to treatment in peripheral areas, including mobile outreach services, integrated skin NTD screening or digital health tools. • Strengthen sustainable financing for cutaneous leishmaniasis control programmes to support routine implementation, reducing reliance on short-term funding. • Invest in training and deployment of health personnel at primary care level, alongside infrastructure and equipment, in highly endemic areas to strengthen diagnosis and treatment capacity. • Implement strategies to improve retention of trained health personnel to ensure continuity and quality of cutaneous leishmaniasis services.

Category: Enablers

Advocacy and funding 2024 2020	• Key interventions, such as the provision of medical supplies, physical treatments or monitoring and evaluation, are fully reliant on external donors in high-burden countries. • For countries with a high burden of disease, there is insufficient domestic and international support.	• Increase domestic and international funding and improve other mechanisms to procure quality-assured medicines, physical treatments and diagnostics. • Develop national sustainability plans to ensure continued support in the future. • Train community and policy advocates to improve awareness, knowledge and funding from all stakeholders. • Engage with multilateral organizations and stakeholders to coordinate funding and advocacy efforts at the global level.
Collaboration and multisectoral action 2026 2020	• Engagement with health sector stakeholders has increased under the skin NTDs framework but remains at an early stage and is occurring in a limited number of countries. • Intersectoral coordination for comprehensive cutaneous leishmaniasis control activities, including vector control, remains insufficient in most endemic countries. • Cross-border coordination mechanisms, including joint meetings, are limited or inconsistently implemented in many endemic regions. • Community engagement in routine cutaneous leishmaniasis programme activities remains limited and is often confined to small-scale interventions and research projects. • Regular coordination meetings on cutaneous leishmaniasis take place at national and regional levels, but outputs are not sufficiently disseminated to all stakeholders.	• Scale up integrated stakeholder engagement under the skin NTDs framework, to strengthen coordination across NTD programmes, public health agencies and other relevant health sector stakeholders. • Strengthen intersectoral coordination across the animal, environmental and WASH sectors, under a One Health platform, for comprehensive cutaneous leishmaniasis control, including vector and animal reservoir interventions. • Establish and strengthen cross-border coordination platforms, including regular joint meetings and information-sharing mechanisms. • Integrate community engagement into routine programme activities, scaling up participatory approaches to improve case detection, and treatment uptake and adherence. • Improve dissemination of national and regional coordination meeting outputs through efficient communication mechanisms to ensure alignment, accountability and effective coordination across stakeholders, including at frontline levels.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Capacity and awareness building 2026 2020	• Training resources on cutaneous leishmaniasis management are available online through various sources, including WHO Collaborating Centres and regional offices (e.g. PAHO). • Systematic large-scale implementation of training programmes reaching primary and community-level health workers remains limited in most endemic countries. • High health workforce turnover remains a major challenge, creating service gaps and increasing the need for repeated training and capacity-building. • Community engagement to promote timely treatment seeking and adherence to follow-up remains limited. Loss to follow-up after treatment is common, hindering confirmation of cure and continuity of care.	• Scale up systematic training programmes for health care staff, including primary and community-level health workers, to support timely cutaneous leishmaniasis diagnosis and treatment. • Strengthen retention strategies for health personnel, to reduce turnover and ensure continuity of trained workforce capacity. • Enhance community engagement, sensitization and awareness-raising activities to promote timely treatment-seeking behaviour and improve patient follow-up.

Leishmaniasis (visceral)

Visceral leishmaniasis is a parasitic disease transmitted by sandflies that causes irregular bouts of fever, weight loss, enlargement of the spleen and liver, and anaemia. Untreated, it is fatal in more than 95% of cases. It is associated with malnutrition, population displacement, poor housing, a weak immune system and lack of financial resources.

Disease and epidemiology

- Visceral leishmaniasis is caused by infection with protozoan *Leishmania* parasites that are transmitted by the bite of female phlebotomine sandflies; only 10–25% of people infected develop the disease.
- The disease causes irregular bouts of fever, weight loss, enlargement of the spleen and liver, and anaemia; if left untreated, it is fatal in more than 95% of cases.
- Cases of HIV–*Leishmania* coinfection are harder to treat and have a poorer prognosis.
- Post-kala-azar dermal leishmaniasis (PKDL) occurs in 5–17% of patients, who develop a rash up to 2–3 years after treatment for visceral leishmaniasis; people with PKDL are considered a potential source of infection.
- Visceral leishmaniasis is associated with malnutrition, population displacement, poor housing, a weak immune system and lack of financial resources.

Risks that require mitigation

- Outbreaks may overwhelm the capacity of existing health infrastructure and workforce
- Single manufacturers of medicines that are difficult to produce at the required quantity and quality
- Limited availability of treatments for concomitant diseases (e.g. anaemia, malnutrition, coinfections) may increase case fatality rate

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• N/A
Vector control	• Insecticide spraying, insecticide-treated nets and environmental management
Veterinary public health	• Insecticide-treated dog collars • Infected dog population management • Strategies such as vaccines are being evaluated in dogs
Case management	• Treatment of leishmaniasis depends on several factors, including type of disease, comorbidities, parasite species and geographical location • For treatment of *L. infantum* infection, medicines are mainly pentavalent antimonials and liposomal amphotericin B • For treatment of *L. donovani* infection, medicines are pentavalent antimonials, liposomal amphotericin B, paromomycin and miltefosine
Other	• Early diagnosis (RDTs combined with clinical signs) and prompt treatment

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries validated for elimination as a public health problem (defined as <1% case fatality rate due to primary visceral leishmaniasis)[a]	0/75 (0%)	32/75 (43%)	0/75 (0%)	56/75 (75%)	**64/75 (85%)**
Number of countries in South-East Asia Region validated for elimination as a public health problem (defined as <1 case (new and relapses) per 10 000 population at district level in Nepal and at subdistrict level in Bangladesh and India)	0/3 (0%)	3/3 (100%)	1/3 (33%)	3/3 (100%)	**3/3 (100%)**
In South-East Asia Region, PKDL cases detected (visceral leishmaniasis post-treatment follow-up of 3 years) and treated	Unknown	90%	No data	95%	**100%**

[a] Defined as an immunocompetent patient with no other concomitant condition that does not result from visceral leishmaniasis (e.g. transplantation, HIV, cancer, immunosuppressive medicines, diabetes, renal failure).

Burden of disease

80

countries were endemic for visceral leishmaniasis in 2024

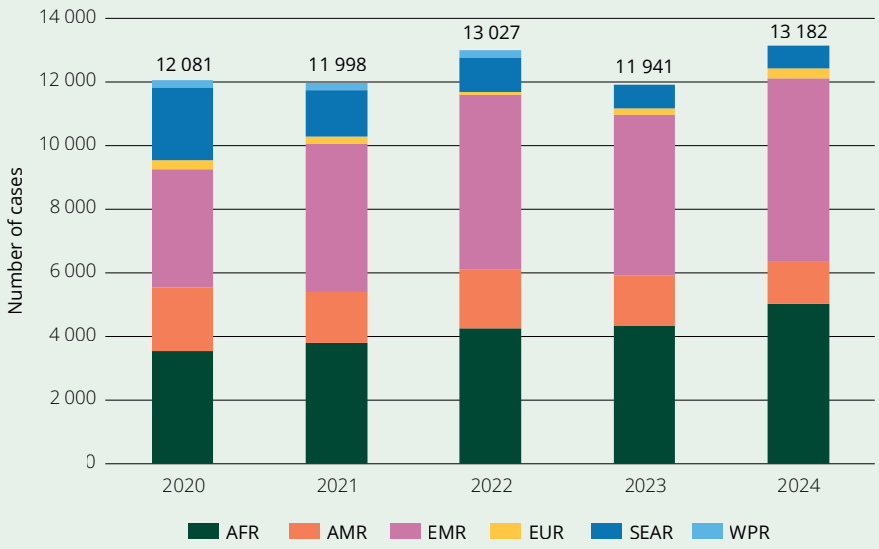
13 182

new visceral leishmaniasis cases reported in 2024

482

deaths reported among patients with all types of visceral leishmaniasis (new, relapse and unspecified) in 2024

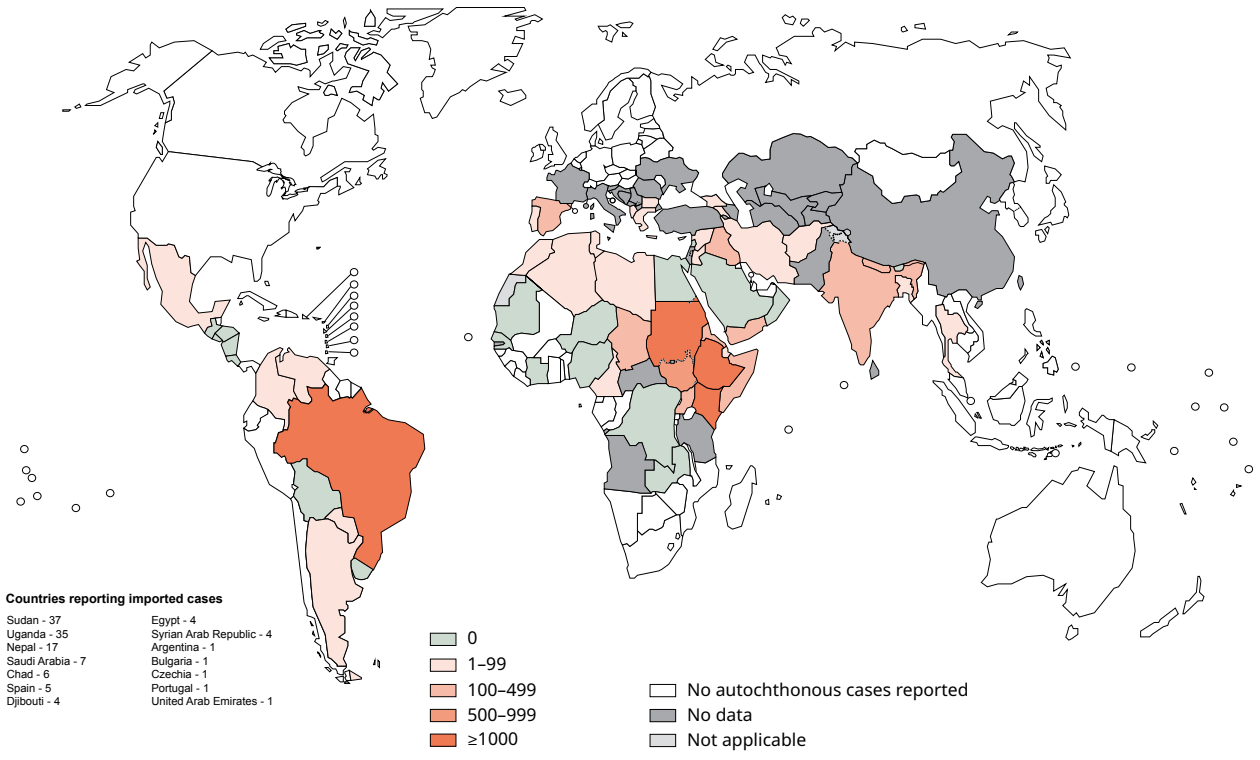
Number of reported visceral leishmaniasis cases, by WHO region, 2020–2024



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Number of cases of visceral leishmaniasis reported by countries and territories, 2024



Progress at mid-term

In the past decade (2014–2024), there has been a 58% decline in visceral leishmaniasis cases worldwide. This decline has not been equal across different hotspots and endemic regions. A major driver has been the successful elimination initiative in the South-East Asia Region, which has seen a 93% reduction in cases, followed by the Region of the Americas, with a 63% reduction. Declining or stagnating trends in high-endemicity areas of the African and Eastern Mediterranean regions are difficult to interpret because of frequent outbreaks, lack of security resulting from local conflict in high-transmission areas, inadequate surveillance and frequent stock-outs of health products. Disease endemicity remains low in the European Region; however, recent climate impact studies indicate higher predictability of transmission. In the Western Pacific Region, China remains a high-burden country with a stagnant trend of 200–300 new cases annually.

The visceral leishmaniasis programme has been advanced by the new elimination initiative in eastern Africa, with the launch of a strategic framework for elimination as a public health problem, along with the Nairobi Declaration as an advocacy tool. The initiative has received high-level political commitment through the signing of a memorandum of understanding among nine countries of this eco-epidemiological area. The South-East Asia Region and the Region of the Americas have also renewed or extended their 5-year elimination frameworks or plans of action.

In conjunction with the NTD road map, the programme has progressed with the publication of new treatment guidelines for visceral leishmaniasis–HIV coinfection in eastern Africa and South-East Asia, leishmaniasis treatment guidelines in the Region of the Americas, diagnostic TPPs for visceral and dermal leishmaniasis (in 2024), and new visceral leishmaniasis and PKDL treatment guidelines for eastern Africa and South-East Asia (in 2026). Additional normative publications include the *Operational manual on leishmaniasis vector control, surveillance, monitoring and evaluation*, *Determining discriminating concentrations of insecticides for monitoring resistance in sand flies* and *Standard operating procedure for testing the susceptibility of adult sand flies to insecticides in WHO tube tests*. Four commercial antileishmanial medicinal products (meglumine antimoniate, liposomal amphotericin B, miltefosine and a generic version of liposomal amphotericin B) are WHO-prequalified or registered with a stringent regulatory authority, with two new generic miltefosine products added to the WHO prequalification list. A WHO paediatric drug optimization initiative has identified a 20 mg scored dispersible miltefosine tablet and an oral solid dosage form of amphotericin B (as a potential oral alternative, subject to more credible evidence) in its priority list (development within 3–5 years), as well as including LXE408 – a novel, first-in-class, selective inhibitor of the kinetoplastid proteasome that is under investigation in human Phase 2 trials – in its watch list (development in 5–10 years). Use of insecticide-treated dog collars for animal reservoir control has been scaled up in the Region of the Americas (mainly in Brazil). Candidate vaccine work is also progressing. The drug donation programme has been extended, with a renewed commitment for a 5-year period (2026–2030) and a major focus on eastern Africa.

However, challenges remain in high-burden areas, especially incomplete surveillance for visceral leishmaniasis and PKDL, the need for better diagnostics and effective vector control in eastern Africa and the need for a better treatment regimen for PKDL in South-East Asia.

Summary of critical actions to achieve targets

Enable early detection through, for example, active case detection, to ensure prompt treatment.

Ensure supply of medicines to enable prompt access to treatment, especially during outbreaks and for children and young adults, who make up 50–70% of the affected population.

Develop more effective and user-friendly treatments and diagnostics, especially for eastern Africa.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Stratified risk mapping at subnational level has been conducted in some endemic areas, particularly in the Region of the Americas; however, understanding of both risk patterns and the geographical distribution of cases remains limited in known low-endemicity settings. • The impact of climate change and other environmental factors on visceral leishmaniasis burden and transmission dynamics remains poorly understood.	• Strengthen epidemiological mapping in all endemic and high-burden areas to better target interventions and identify environmental, ecological and human risk factors associated with transmission. • Enhance surveillance systems and data integration to improve estimation of disease burden, and stratify data by location, sex and age group to support timely programmatic decision-making.

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• Important gaps remain in understanding vector ecology and behaviour across transmission settings, particularly in relation to changing environmental conditions and persistent transmission. • Understanding of the pathogenesis of visceral leishmaniasis and PKDL, as well as sources and mechanisms of transmission, remains limited. • Research investigating factors associated with fatal outcomes of visceral leishmaniasis has been conducted in selected settings.	• Generate evidence on the impact of climate change, environmental modification and population movement on visceral leishmaniasis transmission, emergence and resurgence. • Strengthen research on parasite, host and treatment-related factors associated with poor clinical outcomes and mortality. • Improve understanding of the immune response and risk factors associated with PKDL versus non-PKDL cases. • Improve understanding of biomarkers and risk factors associated with visceral leishmaniasis relapses. • Improve understanding of vector biology, behaviour and ecology to optimize and sustain effective vector control interventions, as well as of important animal reservoirs, depending on the transmission cycle. • Accelerate development and evaluation of sensitive molecular and point-of-care diagnostics for visceral leishmaniasis, PKDL, relapse detection and test of cure. • Support development and validation of improved diagnostic tools, including next-generation skin tests and biomarkers for infection, exposure and disease progression.
Diagnostics 2024 2020	• RDTs lack sensitivity in certain regions. • Polymerase chain reaction testing is available in reference laboratories for diagnostic confirmation. • There is no deployable test of cure for visceral leishmaniasis and PKDL, besides invasive microscopy. • A second-line serological test (direct agglutination test) is used if RDTs are negative for visceral leishmaniasis. • There is limited post-treatment follow-up for patients with visceral leishmaniasis. • TPPs have been established and published.	• Develop RDTs for decentralization to PHC settings, especially in eastern Africa. • Create effective, user-friendly diagnostics and treatments, especially for eastern Africa. • Develop less invasive, highly specific tests to measure parasite levels. • Design a less invasive test of cure for visceral leishmaniasis and PKDL. • Design and apply strategies and tools for patient tracking. • Further evaluate available tests that have not yet been validated.
Effective interventions 2026 2020	• Insecticide-treated dog collars are being implemented in the Region of the Americas to control zoonotic transmission of visceral leishmaniasis and reduce the risk of human transmission. • Recommended vector control interventions are considered effective in most settings; however, evidence gaps remain regarding the most effective approaches in specific epidemiological contexts, particularly in eastern Africa (WHO's new vector control guidelines are under development). • Effective treatment is available, and in the South-East Asia Region, first-line treatment has reduced treatment duration from 28 days to a single day. • New alternative treatments for visceral leishmaniasis and PKDL have been recommended for eastern Africa. • The new oral short-course regimen is currently under Phase 2/3 human trials. • Available treatments remain costly and require skilled health personnel for administration.	• Strengthen surveillance and active case-finding to enable early diagnosis and reduce delays from symptom onset to prompt treatment. • Ensure a reliable supply of diagnostic tests and medicines to enable prompt access to treatment, especially during outbreaks and for children and young adults. • Develop new, safe and affordable oral medicines that do not require cold chain storage. • Assess the shorter regimen for first-line treatment in eastern Africa. • Pursue further research on combination therapies to expand treatment options and mitigate the threat of drug resistance. • Prioritize monitoring drug resistance in areas where there is evidence of existing and emerging resistance. • Ensure appropriate facilities and treatments are available for the management of visceral leishmaniasis, including for patients with coinfection and other complex comorbidities. • Develop a preventive vaccine.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Effective interventions *(cont.)*	• Effective case management at the PHC level remains challenging, as many patients require antibiotics, management of severe malnutrition and, in some cases, blood transfusions, in addition to antileishmanial treatment. • Treatment and management of immunosuppressed patients with visceral leishmaniasis is particularly complex. • No preventive vaccine is available, although several candidates are under development. • Delays between symptom onset and treatment remain substantial, often ranging from 1 to 3 months for visceral leishmaniasis and longer for PKDL skin lesions.	• Improve understanding of sandfly ecology, behaviour and adaptation to inform the development and optimization of novel vector control measures across all endemic settings.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• Global normative and operational guidance for visceral leishmaniasis prevention, surveillance and case management is available; however, region-specific frameworks have been developed to address differences in epidemiology and transmission dynamics. • Implementation of available guidance remains challenging in some settings due to technical, operational and financial constraints. • New WHO guidance on visceral leishmaniasis surveillance and vector control in the African Region is under development. • Normative guidance on leishmaniasis vector surveillance, monitoring and evaluation; determining discriminating concentrations of insecticides for monitoring resistance in sandflies; and a standard operating procedure for testing the susceptibility of adult sandflies to insecticides in WHO tube tests has facilitated sandfly work. • New WHO guidelines for vector and animal reservoir control are under development. • Guidance on region-specific post-elimination surveillance is not yet available.	• Develop and regularly update normative and operational guidance tailored to regional epidemiological and transmission contexts, including zoonotic transmission in high-burden areas, such as the Region of the Americas. • Support national adoption and implementation of updated guidance on visceral leishmaniasis surveillance and vector control. • Develop strategies and operational guidance for post-elimination surveillance and prevention of re-establishment of transmission across all endemic settings. • Update case management guidance to address the diagnosis, treatment and follow-up of patients with comorbidities and other complex clinical presentations.
Planning, governance and programme implementation 2026 2020	• National NTD coordination mechanisms that include visceral leishmaniasis are established in most high-burden countries; however, the disease may not be formally included within such structures in some low-endemicity countries. • Not all endemic areas are reached with effective interventions, in part due to gaps in risk mapping and epidemiological data. • National guidelines for visceral leishmaniasis control are available in many high-burden settings, although implementation remains variable within and across regions. • A WHO expert advisory group and regional technical advisory groups provide support to endemic countries, although engagement is not always regular or systematic. • Implementation of case management guidelines remains inconsistent across endemic settings.	• Strengthen coordination and communication between national and subnational levels of government. • Establish a global technical advisory group. • Strengthen implementation of case management guidelines across all levels of the health system. • Develop and implement strategies for patient tracking, active case detection and follow-up. • Strengthen collaboration between public and private sectors and promote integration of visceral leishmaniasis activities within broader health systems.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation *(cont.)*	• The visceral leishmaniasis elimination programme in the South-East Asia Region has largely been implemented through a vertical programme approach. • Many countries report integration of NTD activities within national health systems, although evidence on the extent and effectiveness of integration remains limited. • Information on the availability and functionality of national pharmacovigilance systems for visceral leishmaniasis medicines remains limited.	• Define and operationalize integration pathways for visceral leishmaniasis prevention, surveillance and case management within existing NTD and other relevant health programmes, where feasible.
Monitoring and evaluation 2024 2020	• A standardized, integrated national, regional and global information system for all components, including patient follow-up, pharmacovigilance and directing vector control, is lacking. • Entomological surveillance needs additional attention in terms of operationalization and implementation. • The first leishmaniasis vector control manual was published in 2023. • In 2023, WHO published two key documents: on determining discriminating concentrations of insecticides for monitoring resistance in sandflies, and a standard operating procedure for testing the susceptibility of adult sandflies to insecticides in WHO tube tests. • PAHO has published a manual of procedures for surveillance and control in the Region of the Americas.	• Create a standardized, integrated national, regional and global information system for all components (disease surveillance, pharmacovigilance, vector control and animal reservoirs). • Conduct periodic independent external reviews, and create incentives to improve implementation and monitoring. • Implement independent monitoring and evaluation of vector control activities to ensure quality and measure impact.
Access and logistics 2024 2020	• Forecasting and stock management of insecticides, diagnostics and medicines at the implementation level are poor. • Procurement policies may affect the quality of purchased products. • Some medicines are unavailable or unaffordable in certain regions. • In-kind donations from Gilead to supply medicines have been extended until 2030. • The Drugs for Neglected Diseases initiative, in collaboration with WHO, has discussed establishment of a spreadsheet-based forecasting template for eastern Africa. • AmBisome (liposomal amphotericin B) is WHO-prequalified, and Impavido (miltefosine) and Glucantime (meglumine antimoniate) are registered with stringent regulatory authorities. • Two generic versions of miltefosine have been WHO-prequalified, and a generic version of liposomal amphotericin B is registered with a stringent regulatory authority. • WHO has pricing and long-term agreements for generic sodium stibogluconate, meglumine antimoniate, RDTs and three miltefosine products. • The Special Programme for Research and Training in Tropical Diseases (TDR) in collaboration with WHO, is evaluating a visceral leishmaniasis in vitro RDT for use in eastern Africa, with development of a generic evaluation protocol.	• Develop a monthly reporting system to anticipate and avoid stock-outs at the health facility level. • Ensure accessibility of WHO quality-assured medical supplies through improved country procurement policies and capacity. • Improve access to affordable, quality-assured medicines for visceral leishmaniasis.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Access and logistics *(cont.)*	• WHO has published two diagnostic TPPs for visceral leishmaniasis and a TPP for dermal leishmaniasis. • WHO has undertaken a paediatric drug optimization initiative for visceral leishmaniasis, with a 20 mg scored dispersible miltefosine tablet and oral amphotericin B (subject to further evidence) on its priority list, and LXE408 (currently undergoing Phase 2 clinical trials) as a new chemical entity on its watch list.	• Develop innovative funding mechanisms, identify manufacturers and secure pricing agreements.
Health care infrastructure and workforce 2026 2020	• Integrated, comprehensive patient care is not universally available in many endemic settings, with services often fragmented across providers, making coordination and continuity of care challenging (mainly in eastern Africa). • RDTs are available in PHC services, but access to more sensitive tools remains limited; this is significant in eastern Africa, where available RDTs have lower sensitivity and may contribute to delays in diagnosis and treatment. • A substantial health workforce exists in many high-burden settings, but high staff turnover remains a challenge for skillset retention, particularly in remote and underserved endemic areas. • Community health workers are not always adequately trained to support visceral leishmaniasis detection and management. • Shortages of trained health personnel and diagnostic capacity persist at all levels of the health system in several low-endemicity settings. • Gaps in specialized expertise remain across many endemic settings, particularly in vector biology, entomology and insectary management, as well as in reservoir control, depending on the transmission cycle. • In parts of eastern Africa, civil conflict and insecurity continue to disrupt health services, particularly at PHC level, affecting access to visceral leishmaniasis diagnosis, treatment and care.	• Strengthen the capacity and quality of health facilities to provide timely diagnosis, treatment and care. • Strengthen laboratory capacity to ensure diagnostic services are available at peripheral and community-level health services. • Ensure health care professionals are adequately trained within and beyond endemic areas, with a focus on high-transmission and high-risk settings. • Improve deployment, retention and support of trained health personnel in all endemic areas and settings. • Maintain awareness and capacity within health systems and communities to support early detection and treatment of cases. • Develop strategies to identify and respond to emerging transmission foci within the context of elimination efforts and outbreak preparedness. • Promote cross-border collaboration and harmonization of surveillance, case management and health care practices. • Strengthen health services in humanitarian and conflict settings to ensure continuity of care for affected populations.

Category: Enablers

Advocacy and funding 2024 2020	• Key interventions, such as provision of medical supplies or monitoring and evaluation tools, are fully dependent on external donors in several high-burden countries, especially in eastern Africa. • Ensuring availability of antileishmanial health products is challenging in several low-endemicity countries in the European Region. • In the Indian subcontinent, visceral leishmaniasis programmes are domestically funded; in the Region of the Americas, programmes are also domestically funded, with antileishmanial health products procured from PAHO strategic funds. • Even when countries have advocacy and funding for NTDs, support for visceral leishmaniasis is generally poor.	• Increase sustained domestic funding to procure quality-assured medical health products for diagnosis and treatment. • Advocate for sustained funding and political commitment for research innovation.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Memoranda of understanding have been established between endemic countries in Africa and Asia for elimination of visceral leishmaniasis as a public health problem and to support cross-border surveillance efforts and, in the Region of the Americas, uptake of the *Plan of action to strengthen the surveillance and control of leishmaniasis in the Americas 2023–2030*. • Coordination efforts exist at national, regional and global levels, with regular meetings taking place. • Cross-border coordination efforts are in place, especially in Asia and Africa; however, collaboration remains uneven and could be strengthened to support coordinated surveillance and response. • Multisectoral collaboration remains limited in many endemic settings, with visceral leishmaniasis programmes often operating vertically and engaging few partners and sectors, such as animal health, environmental and other NTD programmes. • Engagement of affected communities in the design, implementation and evaluation of interventions remains limited in many settings.	• Establish and strengthen regular coordination mechanisms at national, regional and cross-border levels, and improve dissemination of decisions and recommendations to all stakeholders. • Strengthen multisectoral collaboration by engaging relevant sectors, including animal health, environmental agencies, water and sanitation services, and other NTD programmes, in visceral leishmaniasis planning and implementation. • Integrate visceral leishmaniasis surveillance, prevention and case management activities with other disease control and public health programmes, where appropriate. • Strengthen cross-border collaboration to support coordinated surveillance, case detection, information sharing and response for displaced and at-risk populations. • Increase the meaningful engagement of affected communities in the design, implementation and evaluation of interventions.
Capacity and awareness building 2026 2020	• Shortages of adequately trained human resources remain a major constraint to effective surveillance, diagnosis, case management and programme implementation in many endemic areas. • Information, education and communication activities for visceral leishmaniasis occur in some high-burden settings; however, at the community level, awareness materials are often limited or absent in low-endemicity areas. • Regular medical training and continuing professional development on visceral leishmaniasis clinical management are not consistently available across endemic settings. • Capacity-building activities are conducted in many endemic areas, but high staff turnover can result in persistent knowledge and skills gaps.	• Strengthen pre-service, in-service and continuing professional development training on visceral leishmaniasis diagnosis, treatment and case management for health personnel at all levels of the health system. • Provide targeted training and support for newly deployed health personnel in endemic areas, including implementation of diagnostic and treatment algorithms. • Strengthen the capacity of community health workers to support early case detection, referral, treatment follow-up, reporting and community awareness. • Develop and disseminate context-specific training, information and communication materials tailored to programme and stakeholder needs. • Strengthen institutional capacity to adopt, disseminate and implement updated WHO guidance and technical recommendations. • Enhance sustainability of visceral leishmaniasis programmes through greater engagement of national institutions, local authorities and affected communities. • Strengthen medical entomology and vector biology capacity through specialist training and investment in insectary infrastructure to support vector research and surveillance, and for animal health where zoonotic transmission is relevant.

Leprosy (Hansen disease)

Leprosy is a communicable disease affecting the skin and peripheral nerves. It can cause permanent damage to the skin, nerves, face, hands and feet, leading to impairment, disability and exclusion. Stigma and discrimination play a major role. The disease is curable, and treatment in early stages can prevent disability.

Disease and epidemiology

- Leprosy (Hansen disease) is a communicable disease caused by the bacillus *Mycobacterium leprae.*
- The disease has a long and variable incubation period (average of 5 or more years).
- Leprosy affects the skin and peripheral nerves and can cause permanent damage to the skin, nerves, face, hands and feet; untreated leprosy can lead to impairment, disabilities and exclusion.
- Leprosy is curable, and treatment in early stages can prevent disability and interrupt transmission.
- Infection is likely transmitted by droplets from the nose and mouth during prolonged close contact with people with untreated leprosy. Note: Up to 95% of the world's population has some immunity.
- Diagnosis of leprosy is mainly clinical.
- Stigma and discrimination play a major role in leprosy; overcoming them is important to reach zero leprosy.
- New cases of leprosy have been reported by more than 120 countries across all six WHO regions.

Core strategic interventions

Preventive chemotherapy	• PEP administered to all contacts of detected and consenting cases (single-dose rifampicin reduces the risk of leprosy among contacts by 60%[a])
WASH	• Access to clean water for wound care and routine self-care, including daily soaking of hands and feet to prevent secondary disabilities • WASH in health care facilities
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Active case-finding (including contact screening) • Multidrug therapy (MDT) combining dapsone, rifampicin and clofazimine for 6 to 12 months • Periodic monitoring, detection and treatment of immunological reactions (Types 1 and 2) and nerve damage • Management of adverse drug reactions • Counselling and psychological first aid • Wound care, and prevention and management of disability, including self-care • Rehabilitation to optimize functioning of the individual in the community
Other	• Early detection by active case search (including contact screening) and prompt treatment with MDT, along with PEP for eligible contacts, to contain the spread of infection and prevent disabilities • Interventions addressing stigmatization and discrimination to help reduce their unfavourable consequences and promote inclusion of people affected by leprosy in society • Counselling and health education to help patients with leprosy, their families and communities with completing treatment and coping with physical and mental consequences

[a] Single-dose rifampicin as a blanket approach can be used in areas characterized by small populations and hyper transmission.

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries with zero new autochthonous leprosy cases	50/194 (26%)	75/194 (39%)	55/194 (28%)	95/194 (49%)	**120/194 (62%)**
Annual number of new leprosy cases detected	184 000	148 000	172 717	123 500	**62 500**
Rate (per million population) of new cases with grade 2 disability	1.30	0.92	1.10	0.68	**0.12**
Rate (per million children) of new paediatric cases with leprosy	7.81	5.66	4.70	4.24	**0.77**

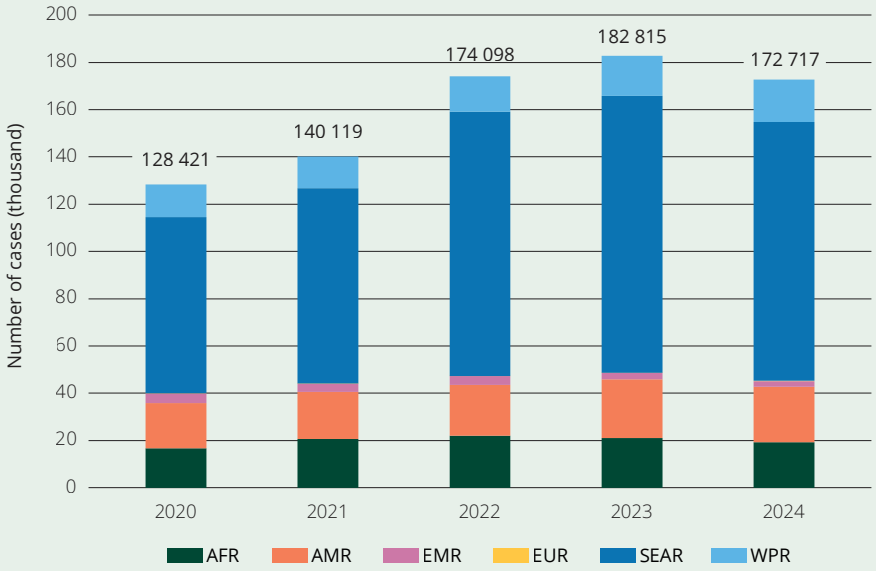
Burden of disease

172 717
new leprosy cases reported globally in 2024

9397
new paediatric cases reported in 2024

9157
new leprosy cases with grade 2 disability in 2024

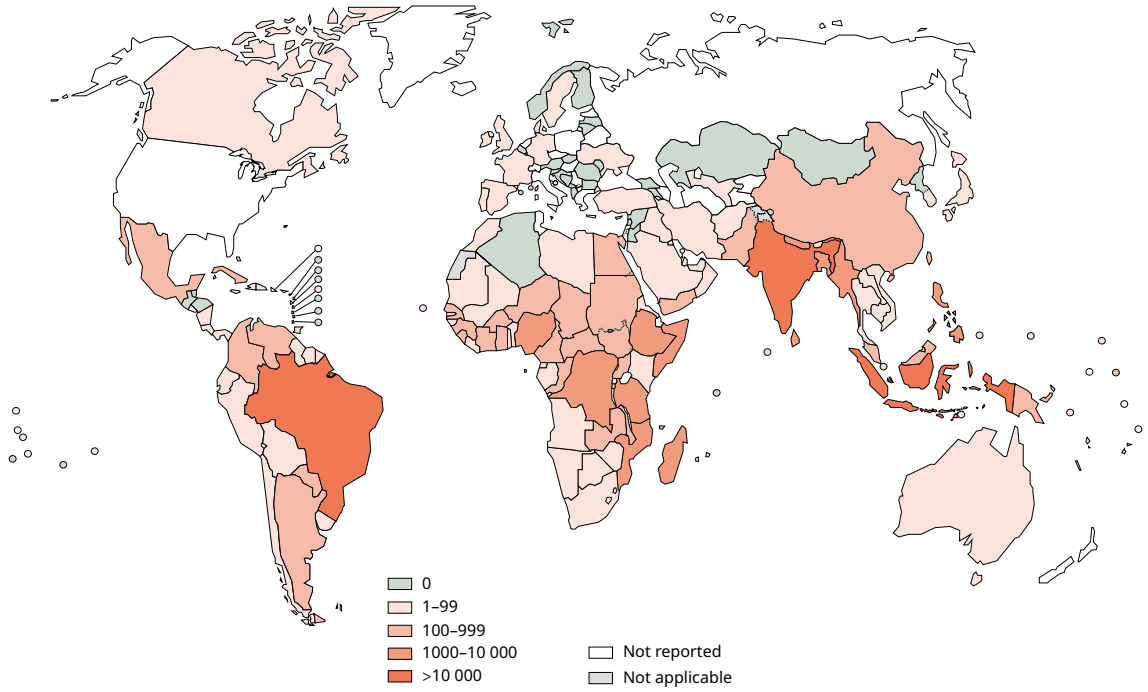
Number of new leprosy cases reported, by WHO region, 2020–2024



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Number of new cases of leprosy reported by countries and territories, 2024



Leprosy remains geographically concentrated despite being reported across all six WHO regions. According to the global leprosy update 2024, the South-East Asia Region alone accounted for 63.5% of new cases globally, followed by the Region of the Americas (13.7%), the African Region (11.1%), Western Pacific Region (10.3%), Eastern Mediterranean Region (1.4%) and European Region (<1%). The 23 WHO global priority countries for leprosy accounted for 95.9% (165 578 cases), a concentration that has held above 95% for the past decade.

At the same time, reporting has broadened: 55 countries reported zero new cases during 2024, 85 reported 1–99 cases, 32 reported 100–999 cases, and 12 reported 1000–10 000 cases. Three countries (Brazil, India and Indonesia) each reported more than 10 000 new cases, together making up 79.8% of the global total. Non-autochthonous cases were also documented in 56 countries, with 946 such cases overall. Notably, 19 countries, mostly in the European Region, reported that all their detected cases were non-autochthonous, and the European Region as a whole reported 72.2% of its new cases as non-autochthonous.

In a notable programmatic milestone, Jordan became the first country verified by WHO for elimination of leprosy disease in August 2024, moving it into the post-elimination phase. However, elimination is not an endpoint, as sporadic and migrant-related cases are expected to continue even after verification, requiring sustained surveillance, as well as care and support capacity.

Progress at mid-term

In 2024, 172 717 new leprosy cases were reported globally, corresponding to a case detection rate of 21.1 per million population. The number of new cases detected globally has decreased by 19.4% compared with 2015.

Despite this downward trend, markers of continued transmission and delayed diagnosis persist: 9397 new cases (5.4%) occurred in children, with a child case detection rate of 4.7 per million child population, and 9157 cases (5.3%) presented with grade 2 disability at diagnosis. Women accounted for 40.2% of new cases. Multibacillary disease comprised 69.6% (120 262) of all cases detected. A total of 15 638 retreatment cases were reported, of which relapses made up 28.7% (4488 cases).

Risks that require mitigation

- Continued transmission, as case detection and treatment with MDT alone have proven insufficient to interrupt transmission
- Delays in early detection and management due to dwindling clinical expertise
- Stigma and declining political priority undermining early case detection and financing required for accelerated action towards elimination

Summary of critical actions to achieve targets

Adopt and adapt the Global Leprosy Strategy 2021–2030 and Leprosy Elimination Framework to national and subnational contexts, using disaggregated data and stakeholder engagement to guide country-owned strategies.

Shift case-finding from passive to active approaches, accelerating contact screening and scaling single-dose rifampicin post-exposure prophylaxis (SDR-PEP) into routine programme delivery.

Strengthen disability prevention and long-term care.

Integrate with primary care, skin NTD, TB and other relevant programmes where appropriate, while guarding against loss of leprosy-specific technical capacity, training content and referral pathways.

Ensure supply of medicines, including MDT, prophylactic drugs, second-line treatments and reaction management medicines, and monitor adverse events (pharmacovigilance) and resistance.

Continue investment in diagnostics research and develop surveillance strategies, systems and guidelines for case-finding, treatment and validation.

Engage organizations of people affected by leprosy in programme design and monitoring, combat stigmatization and discrimination to ensure access and inclusion, and ensure human rights are respected.

Sustain political commitment and financing.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Knowledge of the epidemiology, pathology and clinical spectrum of leprosy is well established and provides a strong scientific foundation for prevention, diagnosis and control strategies. • Routine surveillance, reporting and case-based mapping have strengthened programme implementation in many endemic countries, but data remain dependent on reported cases and may underestimate the true geographical distribution and burden of leprosy. • Although armadillos are established zoonotic reservoirs in some endemic settings, important knowledge gaps remain regarding the contribution of zoonotic transmission to leprosy epidemiology, including the role of other potential animal reservoirs.	• Strengthen epidemiological approaches to improve understanding of the true geographical distribution and burden of leprosy, including strategies to identify cases that may be missed through routine surveillance and reporting systems. • Strengthen research to improve understanding of zoonotic transmission and the role of animal reservoirs in the epidemiology of leprosy. • Conduct targeted biosurveillance and research in high-burden areas to investigate other potential animal reservoirs and assess their contribution to leprosy transmission. • Generate evidence to improve prevention and management of leprosy reactions, nerve damage and disease progression, including reactions occurring after completion of MDT.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• Risk factors for the development of leprosy reaction are known, but the mechanism of reactions is not fully understood. • Evidence to inform post-treatment surveillance of individuals at increased risk of leprosy reactions, relapse or disability remains limited.	• Generate evidence to inform post-treatment surveillance and long-term follow-up of individuals at increased risk of leprosy reactions, relapse or disability. • Evaluate the broader health, social and programme benefits of integrated leprosy interventions, including disability prevention, self-care, contact screening, stigma reduction and integration with other skin NTD and public health programmes.
Diagnostics 2024 2020	• Leprosy diagnosis remains primarily clinical. • Polymerase chain reaction (PCR) testing aids diagnosis and surveillance but is limited to some countries. • Slit-skin smear testing is available in some settings. • Serology detects infection but has limited predictive value, and tools are unavailable in most countries. • No tool to enable diagnosis of relapses at field level is available.	• Strengthen capacity for clinical diagnosis and improve existing diagnostic tools. • Increase access to and capacity for slit-skin smear testing within and across countries. • Optimize slit-skin sampling to strengthen microscopy and support the development and validation of PCR-based diagnostics. • Develop point-of-care tests to support early leprosy diagnosis and strengthen histopathological capacity for confirmatory diagnosis where appropriate. • Develop and improve tools for diagnosis of subclinical cases. • Develop tools to enable diagnosis of leprosy relapses at field level.
Effective interventions 2026 2020	• MDT, comprising rifampicin, dapsone and clofazimine, remains the WHO-recommended first-line treatment for leprosy. • SDR-PEP is supported by a strong evidence base and is being progressively scaled up through national programmes, although coverage remains incomplete across endemic countries. • Rifampicin for SDR-PEP is available to countries through WHO. • Paediatric MDT formulations have been developed, with child-friendly dosing representing an important advance to support treatment of children with leprosy. • Clinical trials are underway to evaluate new multidrug regimens for treatment of leprosy and new therapeutic options for management of leprosy reactions. • Active case-finding and contact screening are increasingly being implemented in subnational health systems to support early diagnosis and interruption of transmission. • Clinical assessment remains the primary approach for detecting nerve function impairment, although timely recognition and management remain challenging in many settings. • Disability prevention, rehabilitation and reconstructive surgery are recognized as essential components of comprehensive leprosy care, although access and implementation remain inconsistent across endemic countries. • Antimicrobial resistance surveillance for leprosy is reported by only a few countries. • Self-care is a well-established and widely implemented approach for prevention and management of disability, and peer support has become an important component of mental wellbeing and psychosocial support for people affected by leprosy. • WHO has developed integrated self-care guidance for skin NTDs, providing an important resource to support disability prevention and long-term management across diseases.	• Expand implementation of contact screening and SDR-PEP, in accordance with WHO recommendations. • Strengthen early case detection within the PHC system through active case-finding approaches, to reduce delays in diagnosis, interrupt transmission and prevent disability. • Accelerate introduction and scale-up of child-friendly MDT formulations within national leprosy programmes. • Support research and evaluation of new multidrug regimens, improved treatment options for leprosy reactions and repurposing of existing medicines to strengthen the therapeutic pipeline. • Improve equitable access to comprehensive leprosy care, including management of leprosy reactions, disability prevention, rehabilitation, mental health care, reconstructive surgery, and long-term follow-up through integrated routine health services. • Strengthen implementation of self-care, rehabilitation and psychosocial support within routine health and community-based services. • Integrate leprosy case detection with other relevant health services, including skin NTD programmes and services managing conditions with similar clinical presentations, where appropriate. • Strengthen Antimicrobial resistance surveillance to support early detection of drug resistance and inform treatment policy. • Strengthen pharmacovigilance to monitor the safety of MDT and any future therapeutics. • Engage with the private sector to support development and evaluation of new diagnostics, medicines and other innovations for leprosy care and management, and access to these.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• *Guidelines for the diagnosis, treatment and prevention of leprosy* have been published (2018). • *A guide for surveillance of antimicrobial resistance in leprosy* was updated in 2017. • The Global Leprosy Strategy 2021–2030 provides basic directions, goals and strategic pillars at a global level. • Technical guidance on management of reactions and prevention of disabilities was issued in 2020. • WHO has published technical guidance on *Interruption of transmission and elimination of leprosy disease* (2023), providing normative guidance on surveillance, programme monitoring, milestones and elimination pathways for endemic countries. • Technical guidance and operational tools, including the Leprosy Elimination Dossier, Leprosy Programme and Transmission Assessment, and Leprosy Elimination Monitoring Tool, have been developed to support countries in achieving interruption of transmission and elimination. • Recent WHO normative guidance, including recommendations on SDR-PEP and uniform MDT, has been progressively incorporated into national strategic plans and programme implementation in many endemic countries. • Normative guidance for rehabilitation and long-term management remains limited, although recent WHO resources have strengthened guidance on mental health and essential care.	• Support endemic countries to implement the WHO technical guidance on *Interruption of transmission and elimination of leprosy disease* and associated operational tools. • Develop practical operational guidance and tools to support rehabilitation, disability prevention and long-term care for people affected by leprosy. • Develop WHO technical guidance for pharmacovigilance and management of adverse drug reactions. • Develop WHO guidance for post-elimination surveillance to support early detection of sporadic and non-autochthonous cases. • Strengthen technical support to endemic countries to adapt and implement WHO guidance in national policies, guidelines and programmes, reflecting local epidemiology, health systems and opportunities for integration with skin NTD and other health programmes.
Planning, governance and programme implementation 2026 2020	• The Global Partnership for Zero Leprosy was formed in 2018 as a coalition committed to ending leprosy. • Most endemic countries have functional national coordination mechanisms that include leprosy, although these are often integrated within skin NTD or broader health programmes, rather than existing as standalone leprosy programmes. • Most endemic countries have national strategic plans that include leprosy and provide a framework for programme implementation, increasingly aligned with WHO strategies and the interruption of transmission and elimination agenda. • Implementation of leprosy control activities remains variable both between and within endemic countries, particularly in settings with low case numbers, dispersed endemic populations or constrained programme capacity. • A global technical advisory group has been established to provide strategic direction and technical oversight to support WHO policy development and global leprosy programme implementation. • Integration of leprosy activities within broader health systems, skin NTD programmes and other relevant health programmes is increasing, although implementation varies according to local epidemiology, health system capacity and programme priorities.	• Support integration of leprosy within broader skin NTD and other health programmes where appropriate, while recognizing differences in epidemiology, programme structure and health system capacity between countries. • Support countries in implementing an electronic case-based surveillance system, including geographic information system mapping of all new cases. • Ensure equitable programme coverage across all geographical areas requiring intervention, including community-based approaches that are appropriate and feasible across different epidemiological settings. • Support countries to develop and implement post-elimination surveillance and response systems to sustain interruption of transmission. • Strengthen global efforts to support national programmes in reducing stigma and discrimination and promoting the human rights and social inclusion of people affected by leprosy. • Sustain political commitment, programme capacity and sustainable domestic financing during the last mile towards interruption of transmission and elimination of leprosy disease, particularly in low-endemicity settings. • Develop a framework for advocacy at the ministerial level to ensure leprosy remains a priority as case numbers decline.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• Integrated programme reviews are occurring, with focus on reviewing progress in reaching the leprosy programme targets. • Periodic monitoring for leprosy reactions is weak. • The referral system for patients with leprosy is not clearly defined across several settings. • Post-MDT surveillance remains underdeveloped. • Rollout of a digitalized case-based data management system is ongoing. • Mapping of cases is being introduced.	• Address training needs of health staff to ensure the expertise required to support monitoring and evaluation is available where required. • Improve notification systems to capture cases identified by private practitioners and community health workers.
Access and logistics 2024 2020	• MDT medicines and clofazimine are available through donations from Novartis. • Availability of second-line medicines for leprosy treatment is limited. • There is limited access to medicines for managing leprosy reactions. • Assistive devices and social support services are limited in both access and quality.	• Align drug supply chains with annual leprosy data for better planning. • Ensure consistent supply of MDT, prophylactics, second-line drugs and leprosy reaction treatments. • Ensure availability of wound care supplies, protective footwear and assistive devices for people affected by leprosy with disability-related needs. • Enhance equitable access to disability prevention, rehabilitation and social support services, including for women and girls.
Health care infrastructure and workforce 2026 2020	• Leprosy prevention, diagnosis and treatment have been progressively integrated into routine PHC services in some endemic countries. • MDT is widely available through established procurement and distribution systems, supporting uninterrupted treatment in most endemic settings. • Diagnosis of leprosy continues to rely primarily on clinical expertise, while specialized laboratory services support confirmatory diagnosis and antimicrobial resistance surveillance, where available. • New diagnostic tests have emerged and continue to be evaluated, although they are not yet recommended for routine programme implementation. • Referral pathways for management of leprosy reactions, nerve damage and complex cases remain limited in many endemic countries. • Integration of leprosy services within routine health systems has improved the sustainability of service delivery but has also reduced opportunities to maintain specialist expertise in some endemic countries.	• Strengthen PHC services to recognize early signs and symptoms of leprosy, provide timely diagnosis and treatment, and ensure appropriate referral for management of reactions and complications. • Strengthen programme management capacity, including interpretation and use of programme indicators, mapping data and cluster analyses, to support evidence-informed decision-making and adaptive programme implementation. • Maintain clinical expertise through specialist referral networks, mentoring, e-learning and continuous professional support for frontline health care workers, including use of WHO training resources. • Strengthen referral systems to improve equitable access to specialist diagnosis, management of leprosy reactions, reconstructive surgery, rehabilitation and multidisciplinary care. • Evaluate and introduce new diagnostic tools into routine health services as evidence becomes available and WHO recommendations are updated.

Category: Enablers

Advocacy and funding 2024 2020	• Many countries still depend on external sources of funding. • Where the prevalence of leprosy has decreased, support for local programmes has often diminished. • High-level advocacy is essential to sustain interest in elimination of leprosy but is currently insufficient. • There is ongoing promotion of interest and investment in clinical, basic and operational research.	• Advocate for sustained domestic funding despite declining leprosy prevalence and post-elimination trends. • Strengthen advocacy to restore leprosy as a public health priority after the COVID-19 pandemic. • Use evidence-based advocacy and research to inform policy and increase engagement and investments. • Use the WHO Global Leprosy Strategy 2021–2030 for advocacy and funding.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Long-standing collaboration between ministries of health, WHO, nongovernmental organizations, research institutions and associations of affected populations continues to support programme implementation, research and advocacy. • Organisations of people affected by leprosy are increasingly engaged in policy development and programme implementation, strengthening person-centred services, although meaningful participation remains inconsistent across endemic countries. • Collaboration across the health, disability, rehabilitation, education and community sectors has strengthened comprehensive approaches to leprosy prevention, care and social inclusion in some endemic settings. • Regional and international collaboration supports knowledge exchange, technical assistance and sharing of best practices, although opportunities to strengthen collaboration and learning across endemic regions remain.	• Establish mechanisms to ensure meaningful participation of people affected by leprosy in national policy development, programme planning, implementation, monitoring and evaluation. • Continue strengthening collaboration and integration between leprosy, skin NTD and other relevant health programmes where appropriate to support coordinated, person-centred service delivery. • Promote participation in formal multisectoral coordination mechanisms linking health, disability, rehabilitation, education, social protection and community sectors, to support integrated, person-centred leprosy services. • Strengthen collaboration between WHO, governments, research institutions, nongovernmental organizations, and organisations of people affected by leprosy to coordinate research priorities, technical support and programme implementation. • Strengthen regional collaboration between endemic countries to facilitate exchange of technical expertise, operational experience and best practices for leprosy prevention, care and elimination. • Document, evaluate and disseminate successful models of community engagement and participation of people affected by leprosy to support adaptation and scale-up across endemic countries. • Create a centralized "best practices" repository, where organizations of people affected by leprosy can share peer-led strategies, to contribute to reducing stigma and improve early case detection.
Capacity and awareness building 2026 2020	• WHO has developed comprehensive training materials and educational resources to support leprosy prevention, diagnosis, treatment and programme implementation, although uptake within national health systems remains variable. • Training on leprosy is not consistently incorporated into pre-service, in-service and continuing professional development programmes, particularly in low-endemicity settings where opportunities to maintain clinical competency are limited. • Awareness of leprosy among health care workers, policy-makers and communities remains variable, contributing to delayed diagnosis, stigma and inadequate political prioritization. • Community awareness, health education and social mobilization activities are often not routinely embedded within national health systems and continue to rely heavily on partner organizations and project-based funding in many endemic countries. • Persistent stigma and discrimination influence care seeking, quality of life and social inclusion of people affected by leprosy. • Community engagement has strengthened through contact management, PEP and involvement of people affected by leprosy, although sustained engagement remains inconsistent across endemic countries.	• Integrate leprosy into pre-service, in-service and continuing professional development programmes to strengthen and maintain workforce capacity, particularly in low-endemicity settings. • Promote uptake and routine use of existing WHO training materials and educational resources within national health systems to support ongoing capacity-building across the health system. • Integrate basic psychological first aid and counselling training into continuing professional development for frontline health workers. • Regularly review, update and disseminate health education, communication and behaviour change materials to ensure they remain relevant, culturally appropriate and accessible. • Develop sustainable national awareness and social mobilization programmes with dedicated domestic funding to reduce reliance on short-term project funding and external partners. • Strengthen community engagement to support early case detection, contact management, stigma reduction and sustained participation in leprosy programmes. • Support organizations of people affected by leprosy to lead awareness raising, stigma reduction and community engagement activities.

Lymphatic filariasis

Lymphatic filariasis is a parasitic disease that damages the lymphatic vessels, leading to swelling and disfigurement of the limbs and genitals. Painful acute attacks are accompanied by fever. People who are physically impaired by the disease may live for years with disability, stigmatization and mental health comorbidities.

Disease and epidemiology

- Lymphatic filariasis is caused by infection with the filarial parasites *Wuchereria bancrofti*, *Brugia malayi* and *B. timori*.
- Infection is transmitted by mosquito species from the genera *Culex*, *Anopheles*, *Mansonia* and *Aedes*.
- Morbidity results from damage to the lymphatic vessels caused by adult parasite nests and microfilaria released in the blood.
- Impaired lymphatic function leads to chronic, overt manifestations of lymphoedema and hydrocele, as well as acute episodes of adenolymphangitis.
- Lymphatic filariasis threatens both the physical and mental health of affected people.

Risks that require mitigation

- Never-treated groups could impact effective coverage and success of MDA programmes
- Limitations of health care systems to provide the essential package of care for affected people
- Inability to establish and sustain surveillance and respond to the potential recrudescence of lymphatic filariasis infection and disease after transmission assessment surveys are cleared, or once validated by WHO
- Zoonotic transmission of *B. malayi* in limited, subnational areas of some lymphatic filariasis-endemic countries of the South-East Asia and Western Pacific regions

Core strategic interventions

Preventive chemotherapy	• MDA stops the spread of infection through WHO-recommended regimens of ivermectin, diethylcarbamazine and albendazole (IDA)[a], in different combinations depending on co-endemicity with loiasis and onchocerciasis and status of MDA programme
WASH	• Hygiene of affected limbs for morbidity management • Sanitation improvements to reduce vector breeding habitats
Vector control	• Vector control to reduce transmission based on parasite–vector combinations and local ecology (e.g. insecticide-treated nets in areas where *Anopheles* is the primary vector)
Veterinary public health	• A One Health approach to reduce zoonotic transmission of nocturnal subperiodic *B. malayi*
Case management	• Essential package of care: – hygiene and skin care, exercises and elevation to prevent severity and progression of lymphoedema – treatment for episodes of adenolymphangitis – surgery to cure hydrocele – antifilarial medicines for treatment of infection – psychosocial support

[a] See WHO guideline for specific recommendations for use of drug combinations and frequency.

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2025)	Milestone (2025)	Target (2030)
Number of countries validated for elimination as a public health problem (defined as: – infection sustained below transmission assessment survey thresholds for at least 4 years after stopping MDA; and – availability of essential package of care in all areas of known patients)	19/74 (26%)	25/74 (34%)	23/74 (31%)	36/74 (49%)	**60/74 (81%)**
Number of countries implementing post-MDA or post-validation surveillance	28/74 (38%)	39/74 (53%)	40/74 (54%)	42/74 (57%)	**74/74 (100%)**
Population requiring MDA	863 million	330 million	362 million[a]	180 million	**0**

[a] Preliminary data as of August 2026.

Burden of disease

34 of 74

endemic countries were considered to require preventive chemotherapy to eliminate the transmission of infection in 2025

362 million

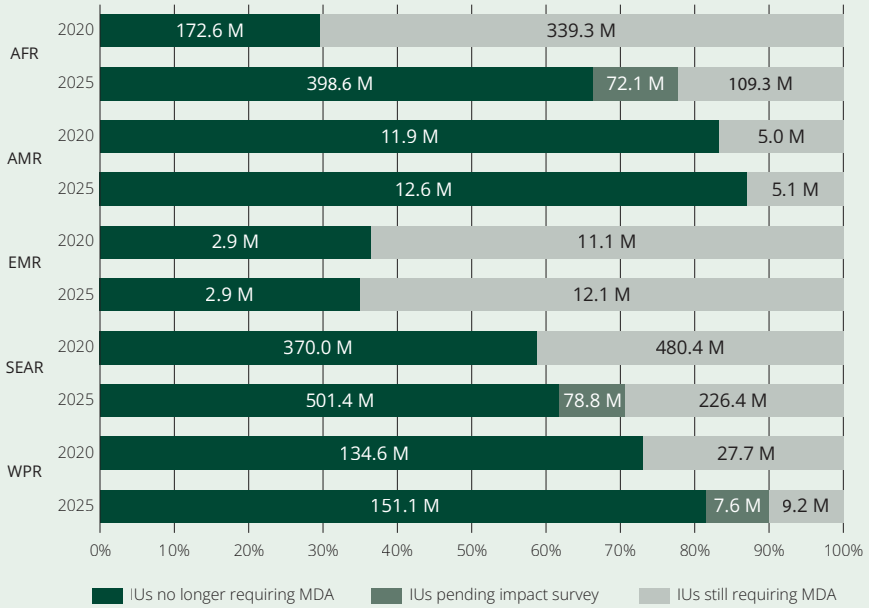
people living in endemic areas required MDA in 2025

1.3 million

DALYs in 2021, down from 5.25 million in 1990[a]

[a] *Source:* GHE 2021.

Proportions (and populations) of endemic IUs that no longer require MDA,[a] IUs that are pending impact surveys[b] and remaining IUs still requiring MDA, by WHO region, 2020 and 2025



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

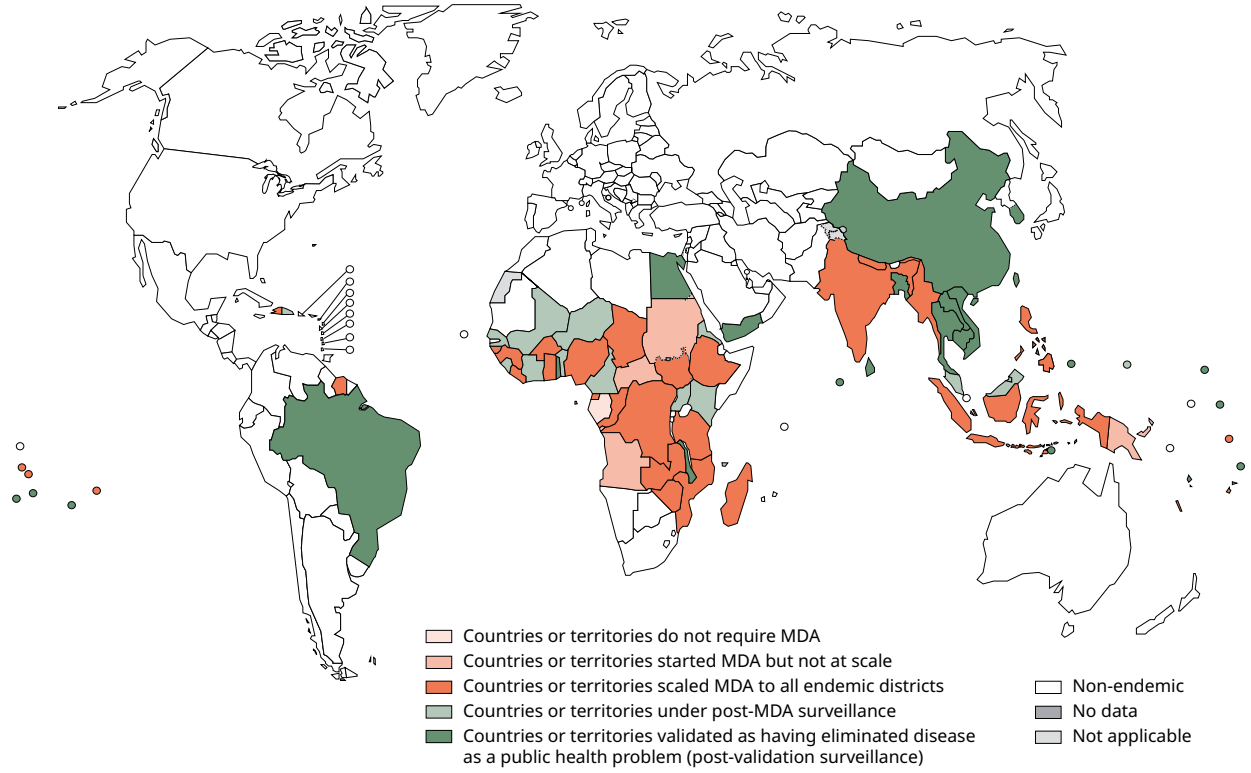
IIS1: first IDA (ivermectin, diethylcarbamazine and albendazole) Impact Survey; IU: implementation unit; M: million; MDA: mass drug administration; TAS1: first Transmission Assessment Survey.

[a] Percentage of all known endemic IUs in countries that have completed TAS1/IIS1 or previous stop-MDA surveys and reported meeting criteria for stopping MDA.

[b] Percentage of all endemic IUs in countries where MDA was not done in 2024 and impact surveys (pre-TAS, TAS1 or IIS1) were pending or survey results were not yet reported.

Geographical distribution and status

Status of countries and territories in implementing MDA for lymphatic filariasis elimination, as of 2025



Progress at mid-term

Since 2020, the Global Programme to Eliminate Lymphatic Filariasis (GPELF) has made good progress towards achieving the 2030 targets. Notable mid-term achievements include four additional countries (Bangladesh, Brazil, the Lao People's Democratic Republic and Timor-Leste) being acknowledged for achieving criteria for elimination of lymphatic filariasis as a public health problem, and eight additional countries reduced infection levels below target thresholds and stopped MDA nationally. The global population requiring MDA declined by 502 million people since 2020, indicating the continued success of MDA in reducing infection below target thresholds. Overall, this represents a 77% decline in the population requiring MDA since the inception of the GPELF in 2000. All endemic countries where MDA is still required are using the WHO-recommended regimens. All except four countries (Angola, the Central African Republic, Papua New Guinea and the Sudan) have been able to reach all endemic areas with at least one round of MDA (100% geographical coverage).

The COVID-19 pandemic delayed MDA and survey activities, offsetting the elimination timeline by at least 2 years in several countries, and is a major reason why mid-term progress more closely reflects milestones set for 2023 than 2025. Continued progress with MDA and survey implementation has also been limited by insecurity due to conflict in subnational areas of five countries (Haiti, Nigeria, Mozambique, Myanmar and the Sudan). Until public health interventions can safely reach populations in these areas, national-level progress will be hindered.

Work remains to be done in achieving the GPELF aim of providing the essential package of care for people with lived experience of hydrocele and lymphoedema, as provision of this care can only be documented in 49 of 74 countries; 22 countries have been unable to provide estimates on the total number of people with lymphoedema and hydrocele for all areas in the country. An important milestone of having all countries reporting on lymphatic filariasis morbidity is yet to be reached. Among the countries that have met criteria to stop MDA nationally, the lack of progress in morbidity management and disability prevention (MMDP) will likely delay the achievement and acknowledgement of eliminating lymphatic filariasis as a public health problem.

Since 2020, several emerging operational and technical challenges have also complicated progress towards elimination. Although *Brugia* species account for less than 10% of the global lymphatic filariasis burden, a subset of endemic areas is affected by zoonotic *B. malayi*, which infects both humans and animals (reservoirs). Ongoing transmission from infected animals is contributing to persistent infection despite effective MDA coverage in localized areas of Indonesia, Malaysia, Thailand and potentially Brunei Darussalam and Sri Lanka. The available diagnostic tests for all *Brugia* species are limited to antibody detection and have shown variable performance.

In the Western Pacific Region, particularly in settings where *Aedes* mosquitoes are the principal vector, *W. bancrofti* transmission has proven difficult to interrupt. Transmission persists in countries still under MDA; areas that have stopped MDA for years have had to resume treatment after a subsequent Transmission Assessment Survey (TAS) found infections above target thresholds. Focal recrudescence has also been documented in three settings that had previously achieved elimination of lymphatic filariasis as a public health problem: Cook Islands, Tonga, and Wallis and Futuna.

These experiences underscore the importance of establishing and sustaining robust post-validation surveillance and response systems to detect and rapidly address any resurgence of transmission.

Financial sustainability has emerged as a growing concern. Early progress in the African Region was substantially supported by overseas development assistance (ODA), but significant reductions in ODA commitments for NTD programmes in 2025 created funding gaps for planned lymphatic filariasis elimination activities. These shortfalls threaten to delay progress towards the 2030 targets in at least 12 countries and underscore the importance of securing sustainable domestic and international financing for elimination efforts.

Despite these challenges, GPELF remains one of the most successful global disease elimination programmes. For most endemic countries still under MDA, achieving nationwide cessation of MDA and transitioning to post-treatment surveillance are realistic and attainable targets. Continued commitment, adequate financing, strengthened surveillance and reprioritization of morbidity management will be critical to ensuring that the gains achieved over the past 25 years translate into lasting elimination of lymphatic filariasis as a public health problem.

Summary of critical actions to achieve targets

Sustain coordinated procurement of diagnostic tests to enable continued implementation of surveys required to measure impact and stop MDA where warranted.

Develop guidance on vector control to identify the most effective interventions that may enhance MDA strategies in settings where MDA alone has not achieved the expected impact.

Develop a multisector strategy to control zoonotic *B. malayi*, considering a One Health approach that includes practical veterinary interventions, enhanced surveillance and timely community-targeted treatment.

Establish and evaluate feasible post-validation surveillance platforms that are integrated, sensitive and provide meaningful signals to which programmes can respond.

Expand integration best practices for the remaining MDA rounds, delivery of care for people affected by lymphatic filariasis, surveillance and domestic financing.

Reprioritize the provision of care for people with lymphoedema and hydrocele by including lymphatic filariasis in routine disease reporting systems, completing burden assessments, reporting annually to WHO and ensuring health workforce capacity to provide the essential package of care in all implementation units with people affected by lymphatic filariasis.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• The parasite's transmission dynamics, life cycle and epidemiology are well understood. • The geographical distribution of lymphatic filariasis is well characterized, but as some countries move towards elimination, confirmatory mapping in uncertain areas might be required. • Gaps remain in the understanding of persistent infection with *B. malayi* in animal hosts and zoonotic transmission, despite repeated MDA in humans, and the impact this may have on efforts to interrupt transmission.	• Specify clear thresholds for intervention, and types of intervention, in response to surveillance data, including vector-based surveillance (e.g. molecular xenomonitoring). • Strengthen ongoing research of zoonotic filariasis to inform the design of optimal intervention approaches. • Support research on strategies to achieve interruption of transmission, with particular attention to human migration, and mobile and hard-to-reach populations. • Assess and monitor the risk of transmission rebound associated with infection prevalence below current survey thresholds. • Continue research into correlation of biological markers of infection and exposure with transmission interruption.
Diagnostics 2024 2020	• There are diagnostic tests available for recommended monitoring and evaluation. • A new *Brugia*-specific test (*Brugia* Test Plus) has been validated and is being used but is not fully commercialized. • *Loa loa* infection continues to create a false positive result with the recommended lymphatic filariasis antigen tests. • The lymphatic filariasis subgroup of the WHO Diagnostics Technical Advisory Group has helped validate new diagnostics and identify diagnostic gaps. • The WHO Expert Review Panel for Diagnostics has provided a standardized evaluation process for new lymphatic filariasis diagnostics.	• Develop and improve diagnostic tests to inform decisions to stop IDA that do not cross-react with *L. loa*, are more field-reliable and are appropriate for surveillance. • Continue to evaluate diagnostic tests that are currently available and in the pipeline to ensure capacity to meet the programmatic needs of the lymphatic filariasis monitoring and evaluation framework and surveillance guidance. • Ensure sustained access to available, recommended tests.
Effective interventions 2026 2020	• Recommended annual MDA regimens are effective in reducing infection prevalence below target thresholds after multiple rounds, provided that high coverage is consistently attained (estimated over the total population). • Vector control through insecticide-treated bed nets complements preventive chemotherapy, and nets serve as an integrated intervention in lymphatic filariasis and malaria co-endemic areas. • MMDP approaches are effective, surgery cures hydrocele, and management of lymphoedema reduces acute attacks. • Affordability of surgical interventions and long-term care remains a challenge because affected individuals often face out-of-pocket costs. • MDA effectiveness in interrupting transmission of zoonotic brugian filariasis is confounded by infection in animal reservoirs; feasible, effective veterinary interventions may be needed. • Interventions are effective; delivery is the challenge.	• Ensure directly observed therapy and sustain high coverage. • Implement IDA and alternative MDA regimens where warranted. • Develop strategies to mitigate hotspots of persistent infection. • Develop strategies for hard-to-reach populations, including mobile populations and those in emergency or humanitarian settings. • Identify and reach never-treated populations. • Develop new approaches for urban settings. • Ensure that accessible and inclusive care for patients to reduce stigma and improve mental well-being is part of UHC essential packages.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• Updated guidance is available for monitoring and epidemiological assessment of MDA (2025) and MMDP (2021). • There is specific guidance on MDA and MMDP for hard-to-reach populations, including mobile populations and those in emergency and humanitarian settings. • Additional specific operational guidance for post-validation surveillance is still needed to complement the surveillance section in the new monitoring and evaluation manual. • Criteria for interruption of transmission are not defined.	• Develop new guidelines for management of lymphoedema. • Develop operational guidance for the implementation and long-term maintenance of post-validation surveillance. • Develop guidance on integrating MMDP and rehabilitation services within the public health system. • Outline guidance on MDA and MMDP interventions for hard-to-reach populations, including mobile groups and those in emergency and humanitarian settings. • Develop WHO guidelines on vector control interventions for lymphatic filariasis. • Work towards the development of criteria for verification of interruption of lymphatic filariasis transmission.
Planning, governance and programme implementation 2026 2020	• MDA interventions are implemented in most endemic areas, but provision of MMDP services is more limited in these settings. • Lymphatic filariasis elimination activities are customarily included in national NTD master plans. • Integrated initiatives for lymphatic filariasis elimination primarily focus on MDA, in coordination with preventive chemotherapy for other NTDs or vaccinations, and there are examples of integrated surveys for surveillance of multiple conditions. • WHO launched the GPELF in 2000, which represents the aggregate effort of all individual stakeholders towards lymphatic filariasis elimination.	• Expedite completion of confirmatory mapping in areas of uncertainty or suspected residual transmission. • Further mainstream MMDP services in PHC delivery within public health systems, to expand access to lymphoedema management and hydrocele surgery. • Promote coordinated resource mobilization, particularly at country level, to ensure programme sustainability in the context of funding constraints. • Strengthen existing cross-country learning initiatives to facilitate the adaptation of best practices, particularly those concerning integrated approaches to lymphatic filariasis elimination. • Strengthen political commitment, social mobilization, microplanning, supervision and adverse event management to ensure quality of remaining MDA rounds. • Include patients in planning, policy development and mobilization. • Emphasize the importance of developing and putting in place post-validation surveillance systems after clearing TAS. • Support cross-cutting coordination and planning across NTD programmes to ensure sustained control of co-endemic diseases benefiting from lymphatic filariasis MDA (e.g. scabies, soil-transmitted helminthiases or strongyloidiasis), particularly when MDA is stopped.
Monitoring and evaluation 2024 2020	• Limited resources hinder monitoring and evaluation implementation and surveillance in some countries. • Post-validation surveillance is limited, making residual infection identification challenging. • Implementation of integrated surveillance has progressed in some countries. • Progress has been made in estimating lymphatic filariasis endemicity in previously uncertain districts using the confirmatory mapping protocol. • There is a lack of monitoring for implementation of the essential care package for lymphatic filariasis.	• Identify areas where current MDA stopping thresholds may be insufficient, and define new thresholds. • Continue to monitor zoonotic *B. malayi* areas. • Disseminate guidance for post-TAS and post-validation surveillance and interventions. • Integrate surveillance with other NTDs, malaria or other diseases where feasible. • Improve post-validation surveillance.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Access and logistics 2024 2020	• MSD (ivermectin), GSK (albendazole) and Eisai (diethylcarbamazine) donate the supply of medicines needed for MDA. • MSD extended its commitment of 100 million ivermectin treatments annually for IDA until 2030. • Supply chain efficiency varies by product and region. • It is challenging to reach remote rural communities, islands and conflict areas. • Low priority given to MMDP in many countries remains a concern.	• Sustain access to and supply of validated lymphatic filariasis diagnostic tests. • Mitigate bottlenecks for importation of donated drugs, balancing increased capacity for local procurement and manufacturing. • Improve planning and request sufficient medicines and diagnostic tests well in advance of programme activities. • Make contingency plans for failed impact assessments or emergencies. • Make materials for lymphoedema management, hydrocele surgery and medicines to treat acute attacks available through the health system.
Health care infrastructure and workforce 2026 2020	• There is a risk of losing skilled health care workers as some countries scale down their operations following progress towards elimination. • There is limited capacity within PHC to deliver the essential package of care for MMDP. • Capacity to implement recommended epidemiological surveys is limited. • There is limited capacity for post-validation surveillance.	• Include lymphatic filariasis morbidity management modules in health workforce training curricula and include training on identification and referral of cases. • Include lymphatic filariasis interventions in essential UHC packages, ensuring equitable access to treatment and MMDP services across affected populations. • Ensure adequate availability of stocks of essential medicines at primary care level. • Strengthen capacity for detection of microfilaria according to the new monitoring and evaluation guidance. • Strengthen capacity for early diagnosis of lymphoedema and provision of treatment. • Ensure MMDP service delivery points are functional, with adequate physical accessibility, equipment and infrastructure.

Category: Enablers

Advocacy and funding 2024 2020	• The Global Alliance to Eliminate Lymphatic Filariasis supports advocacy and resource mobilization with international and local donors; additional activities might be needed to support elimination worldwide. • There are limited prioritization and resourcing for MMDP and post-validation surveillance in some countries. • Abrupt cuts were made to ODA that was specifically committed to lymphatic filariasis elimination.	• Advocate on the cost–effectiveness of interventions to gain governmental support for lymphatic filariasis elimination. • Increase domestic funding and prioritize lymphatic filariasis efforts at all government levels. • Fill funding gaps left from drop in ODA. • Sustain government commitment to fund post-validation surveillance. • Integrate lymphatic filariasis in PHC with no out-of-pocket cost for the essential package of care.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Collaborative arrangements with stakeholders are established across all levels, from community to international, but often centred on preventive chemotherapy activities. • Coordination with soil-transmitted helminthiases and onchocerciasis programmes for integrated preventive chemotherapy delivery has improved but remains variable across settings. • There is limited collaboration and coordination with environmental and vector control, animal and WASH sectors and the PHC system. • GPELF partners are active in supporting innovation through basic and operational research.	• Engage with rehabilitation, mental health and social services to build capacity for assessment and referral for psychosocial support. • Create links with surgery capacity-building initiatives to ensure availability of surgery in implementation units. • Expand local partnerships to sustain MMDP and surveillance after validation. • Integrate vector management and surveillance (where feasible) through the *Global vector control response 2017–2030* to supplement MDA. • Strengthen integrated management of skin NTDs. • Coordinate with soil-transmitted helminthiases, onchocerciasis, scabies and strongyloidiasis programmes for evidence-based planning when implementation units implement TAS and stop MDA. • Coordinate with the animal sector under a One Health platform to support vector control and address zoonotic transmission.
Capacity and awareness building 2026 2020	• Training programmes are available in most endemic countries, but ensuring consistent quality across all areas remains a challenge. • Countries can deliver high-quality MDA campaigns. • Updated guidance on MMDP was released in 2021, and a new guideline on lymphoedema management is being developed. • Capacity for and delivery of MMDP in PHC remain limited. • Technical and operational capacity to implement new lymphatic filariasis monitoring and evaluation survey protocols and post-validation surveillance needs strengthening. • Information, communication and education (IEC) activities are implemented, but further research is needed to confirm their effectiveness. IEC activities to support acceptability of MMDP services remain less common than those for MDA.	• Support programmes to sustain the quality standards achieved in MDA delivery. • Strengthen capacity for high-quality implementation of updated monitoring and evaluation guidelines and post-validation surveillance. • Develop and disseminate updated guidelines on MMDP and increase training for providers and patients. • Adopt the strategic recommendations from the Global Action Plan on Skin Diseases to support integration of service delivery platforms. • Reduce stigma within the community.

Mycetoma, chromoblastomycosis and other deep mycoses (mycetoma)

Mycetoma is a chronic infection of the skin, connective tissue, muscle and bone, eventually leading to deformities and disabilities. It is associated with severe morbidity and an increased risk of mortality, and mainly affects poor people working in agriculture.

Disease and epidemiology

- Mycetoma results from infection with one of several microorganisms of bacterial or fungal origin.
- Based on its causative agent, the disease is classified as actinomycetoma (bacterial mycetoma) or eumycetoma (fungal mycetoma).
- The disease causes chronic infection of skin, connective tissue, muscle and bone, eventually leading to deformities and disabilities; it is associated with severe morbidity and an increased risk of mortality.
- The mode of transmission is not well understood; the disease affects people of all ages, is more common in men than in women, and affects mainly poor people who work in agriculture (farming and livestock breeding).

Risks that require mitigation

- Painless early lesions, limited awareness and the lack of a rapid point-of-care test contribute to delayed diagnosis and advanced disease
- Treatment is lengthy, costly and often inaccessible
- Weak surveillance and disruption of specialized services, particularly in the Sudan, constrain case detection, reporting and continuity of care

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Personal hygiene and self-care of the affected limbs to avoid secondary infections
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Treatment depends on the causative organism: – bacterial: long-term antibiotic combinations – fungal: combined antifungals (mainly itraconazole) and surgery (ranging from local excision to debridement or amputation) • Wound care (cleaning, dressing and disinfecting)
Other	• Wearing protective clothes (long sleeves and trousers) and close-toed shoes

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries in which mycetoma, chromoblastomycosis, sporotrichosis and/or paracoccidioidomycosis are included in national control programmes and surveillance systems	1/30 (3%)	4/30 (13%)	5/30 (17%)	8/30 (27%)	**15/30 (50%)**

Burden of disease

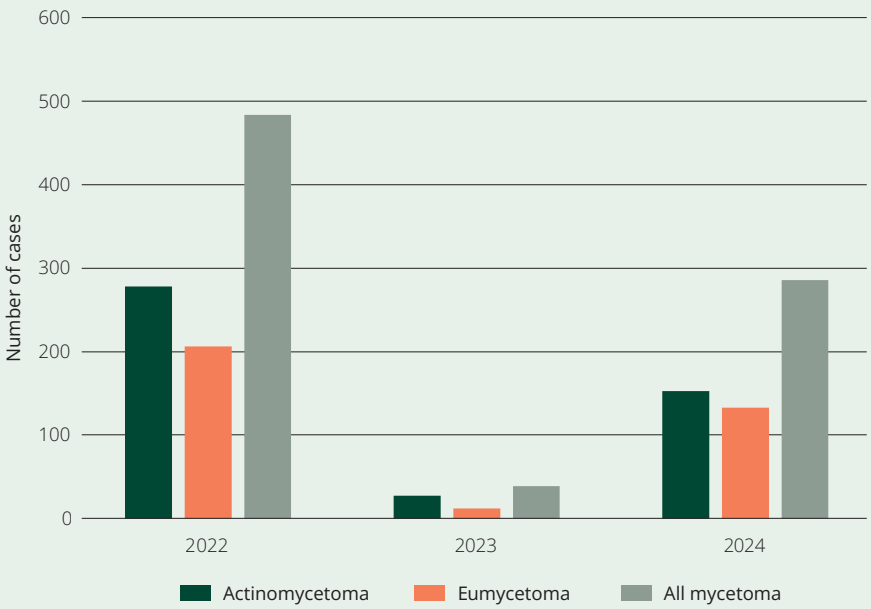
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countries reported mycetoma cases to WHO during 2022–2024

About 800

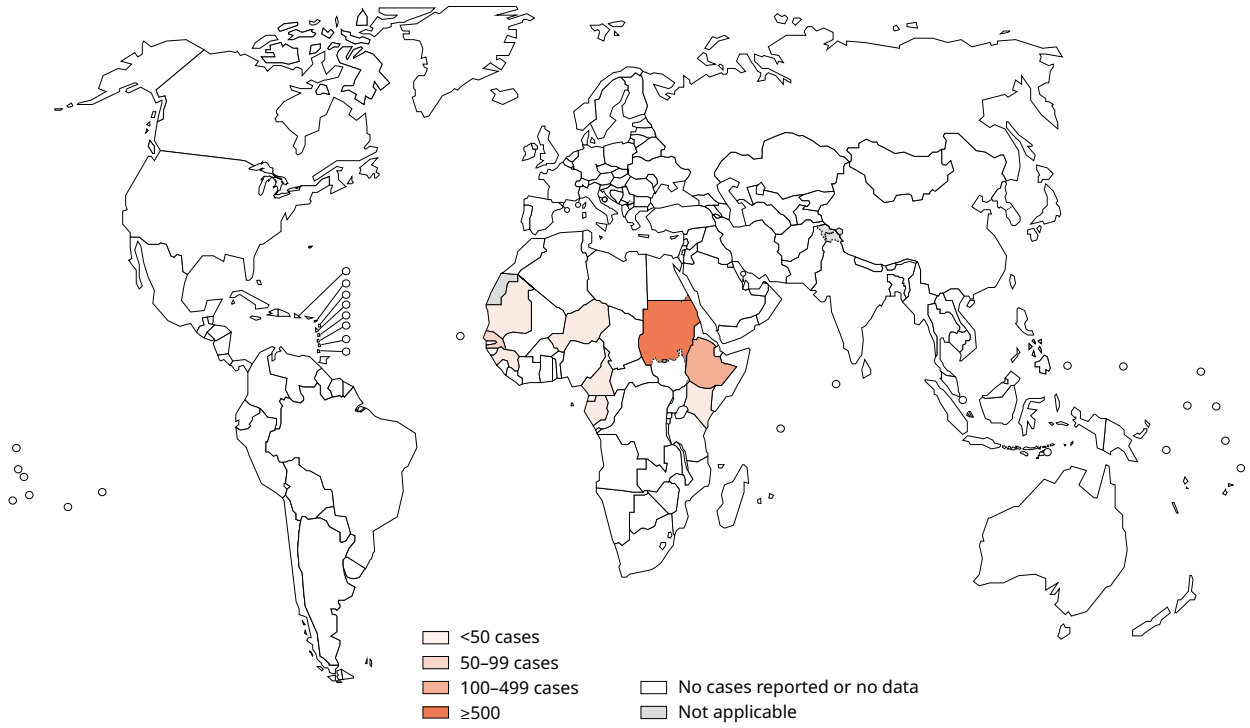
reported cases (2022–2024)

Number of reported mycetoma cases worldwide, 2022–2024



Geographical distribution and status

Cumulative number of mycetoma cases reported by countries and territories, 2022–2024



Progress at mid-term

The causative organisms of mycetoma are distributed worldwide, but the disease occurs predominantly in tropical and subtropical areas of Africa, Asia and Latin America. The highest burden is believed to occur in arid and semi-arid areas within the so-called mycetoma belt, extending roughly from a latitude of 30°N to 15°S. During 2022–2024, nine countries reported one or more cases to WHO, but this does not represent the complete geographical distribution of the disease because cases may remain undetected or unreported.

In 2023, WHO began collecting information on actinomycetoma and eumycetoma through the GNARF, initially covering data for 2022. Although this represents an important step towards standardized reporting, the available data remain sparse, and the number and composition of reporting countries vary considerably between years. In 2024, 286 mycetoma cases were reported to WHO, comprising 153 cases of actinomycetoma and 133 cases of eumycetoma. Actinomycetoma cases were reported by Guinea (4 cases), the Niger (15 cases) and the Sudan (134 cases), whereas all reported eumycetoma cases were from the Sudan. Gabon reported zero cases of actinomycetoma, and the Gambia reported zero cases of eumycetoma.

The number of mycetoma cases reported to WHO declined from 484 in 2022 to 39 in 2023, largely because of disruption to reporting, including from the Sudan. Reporting partially resumed in 2024, when 286 cases were reported. This represented a 633% increase compared with 2023 but remained 41% below the number reported in 2022. The Sudan accounted for 267 cases, or 93% of all cases reported in 2024. These fluctuations primarily reflect differences in reporting coverage and completeness, disruption of surveillance and health services, and changes in case detection. They should not be interpreted as changes in disease incidence.

The global burden of disease remains unknown. Surveillance and case registration systems are limited, and mycetoma is not notifiable in many countries. Consequently, its geographical distribution, incidence, prevalence, disability and mortality remain incompletely characterized. The available data substantially underestimate the global burden of mycetoma. More cases are likely to occur than are detected, and more cases may be detected than are reported through national surveillance systems. Access to early diagnosis and appropriate treatment also remains limited, particularly in remote and underserved endemic areas. Priorities include establishing standardized case definitions and surveillance indicators; integrating mycetoma into national health information systems; expanding laboratory confirmation; strengthening the capacity of health workers to detect, diagnose and manage cases; and improving access to affordable diagnostics, medicines, surgery, wound care and rehabilitation services.

Summary of critical actions to achieve targets

Develop differential RDT and effective treatment, and establish surveillance for case detection and reporting.

Develop a standardized field manual for diagnosis and treatment, and ensure proper training of health care workers.

Provide access to affordable diagnosis and treatment.

Produce awareness materials and use them to educate communities about the disease in the mycetoma belt.

Gap assessment, by category and dimension

Category: Technical progress

No hindrance towards target — Critical action required to reach target

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• The mechanisms of transmission of mycetoma are not yet fully understood, which has constrained the development of effective preventive strategies. • Knowledge of mycetoma's geographical distribution remains limited; not all endemic countries have conducted mapping activities. • Molecular assays have been developed to identify the most common causative agents of mycetoma.	• Improve understanding of transmission pathways and risk factors. • Identify the natural niche of the causative agents for mycetoma to design effective preventive interventions. • Expand mapping activities and strengthen surveillance systems to better assess disease presence and distribution, identify hotspots and improve epidemiological understanding. • Investigate the epidemiology of mycetoma in understudied population groups, including pregnant women. • Improve understanding of mycetoma pathology to support the development of more effective treatments. • Strengthen research on biomarkers to improve understanding of mycetoma pathogenesis, disease progression and host–pathogen interactions.
Diagnostics 2024 2020	• The diagnosis of mycetoma is largely based on clinical presentation. • Causative organisms are identified through histopathology, culture of mycetoma grains or molecular identification directly from grains. • Ultrasound can be used for the identification of the disease and to differentiate actinomycetoma from eumycetoma. • Imaging can be used for diagnosis but requires trained technicians.	• Develop differential rapid diagnostic or serological tests to improve early detection at PHC level. • Develop a point-of-care test of cure. • Increase access to ultrasound to support diagnosis.
Effective interventions 2026 2020	• The use of protective clothing and footwear is recommended, but uptake is affected by limited community awareness and costs; environmental factors, such as flooding, may reduce their effectiveness. • Innovative research in key areas, such as diagnostics, surveillance and treatment, is underway in some countries, including Senegal and the Sudan, but remains limited in most settings. • Diagnosis relies primarily on clinical assessment, with laboratory confirmation of the causative agent where available. • For actinomycetoma, the reported cure rate with antibiotics is 60–90%; for eumycetoma, the cure rate with antifungals, in combination with surgery, is about 80%. • A clinical trial in the Sudan found fosravuconazole was not superior to itraconazole (both combined with surgery), but it may offer advantages in pill burden, drug interactions and cost. • Fosravuconazole is not yet registered outside the Sudan; additional studies are underway to gather further safety and efficacy data to enable global treatment recommendations.	• Standardize mycetoma grading to enhance assessment of disease severity and inform treatment and disease management guidelines across endemic settings. • Develop guidance on how to recognize early stages of disease to ensure early detection. • Support the development of point-of-care diagnostics to facilitate early case detection. • Evaluate the impact of livestock management practices, including separation from human dwellings, on mycetoma risk. • Invest in the development of effective treatment for early-stage mycetoma to reduce the need for costly surgical interventions. • Improve treatment regimens for both actinomycetoma and eumycetoma, ensuring high efficacy, short duration and low cost.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• There is no official WHO global guidance that standardizes management, surveillance, prevention and control measures; however, the Mycetoma Research Center (MRC) has produced several guidance documents. • A minority of countries have developed national guidelines on mycetoma management. • The MRC has developed a mycetoma grading system, but standardized approaches to grading disease severity have not yet been widely implemented.	• Develop global and national guidelines on surveillance, prevention, case management and control, including standard indicators for monitoring and evaluation. • Support the development of standardized operational guidance on mycetoma grading for all endemic regions.
Planning, governance and programme implementation 2026 2020	• A growing number of endemic countries have reported including mycetoma in their national NTD master plans, including 15 from the African Region. • A limited number of countries are reported to have a national control plan for mycetoma, either with a stand-alone focus or under an integrated skin NTDs approach, including seven countries from the African Region.	• Support the inclusion of mycetoma in national NTD master plans in all endemic countries. • Support the development of national control plans that include mycetoma, either with a stand-alone focus or under an integrated approach for skin NTDs, in all endemic countries.
Monitoring and evaluation 2024 2020	• There are no disease-specific surveillance protocols or systems, no standard indicators for monitoring and evaluation and no standardized case definition for mycetoma. • Guidance is being developed, and the mycetoma case report form on the CURE ID platform is live. • A small number of endemic countries report mycetoma data, with Senegal and the Sudan providing the most frequent reports; Côte d'Ivoire, Ethiopia, Guinea and Kenya occasionally report cases.	• Establish standardized case definitions for mycetoma. • Assess burden of mycetoma through integrated surveillance of skin NTDs. • Integrate data collection with national health information systems and encourage the use of the CURE ID platform. • Better describe the true burden in terms of disability and quality of life, as well as incidence and prevalence.
Access and logistics 2024 2020	• No medicine donations from manufacturers are currently in place. • Countries procure and manage their supply systems; availability and affordability of antifungal medicines remain low. • Fosravuconazole will be made available for early access in the Sudan.	• Ensure access to medicines, including prequalification, procurement and affordability. • Ensure access to medicines and diagnostics (biological and ultrasound) in remote areas. • Make drugs that are donated and indicated for HIV-associated fungal and bacterial diseases also available for mycetoma.
Health care infrastructure and workforce 2026 2020	• The capacity of health systems to provide control services or run control programmes is limited. • Health workers at the primary and community levels often have limited capacity to identify the disease.	• Strengthen the health system, within the framework of UHC, to ensure detection, referral and provision of care for mycetoma. • Raise awareness among and provide training to primary- and community-level health workers to improve early detection. • Improve capacity for appropriate wound care in health facilities, including both material and human resources. • Ensure the availability of essential medicines for mycetoma treatment across all health system levels. • Ensure sufficient laboratory capacity for appropriate and timely diagnosis.

Category: Enablers

Dimension and assessment	Current status	Actions required
Advocacy and funding 2024 2020	• Few partners and institutions focus on raising awareness for mycetoma, leading to a lack of funding. • Some partners and governments continue advocating for mycetoma awareness and action. • Key organizations are collaborating on clinical trials and surveillance studies for mycetoma. • Eumycetoma is included in the WHO fungal priority pathogens list. • Limited funding affects research and development for novel diagnostics.	• Ensure political commitment from countries, donors and partners to mobilize funding and resources. • Increase country and partners' commitment to improving access to medicines for mycetoma. • Engage communities to support mycetoma control programmes. • Push for countries to formally include mycetoma as a reportable disease and on national medicines lists. • Mobilize research funding for diagnostics, treatment, and monitoring and evaluation. • Seek integration with tuberculosis or other skin disease programmes.
Collaboration and multisectoral action 2026 2020	• Collaboration with various professional societies, nongovernmental organizations, research and academic institutes has been initiated and is ongoing. • The Global Mycetoma Working Group has coordinated collaboration between researchers and public health professionals to inform research and development priorities, disseminate and adapt programmatic guidance, and support advocacy and policy-making.	• Strengthen collaboration among research institutions and drug and diagnostic developers, manufacturers and donors. • Develop an integrated approach for mycetoma detection and diagnosis alongside other skin NTDs. • Coordinate with non-health stakeholders, such as the agriculture and environment sectors, under a One Health approach, to support control activities.
Capacity and awareness building 2026 2020	• Ongoing efforts to integrate mycetoma control activities with other skin NTD programmes are underway. • In many endemic countries, health workers often lack the required knowledge and skill to manage cases. • In many peripheral areas, health workers' capacity to recognize early stages of disease remains limited. • Online training resources are available through WHO (WHO Academy) and the MRC. • A minority of countries have developed and implemented training and awareness-raising materials for mycetoma, but there is limited adaptation and use of these materials across regions.	• Raise awareness and train health staff and community health workers across skin NTDs to improve early detection. • Integrate teledermatology into training programmes to strengthen diagnostic capacity and specialist support. • Strengthen the diagnostic and case management capacity of health care workers to promote early detection, improve treatment outcomes and minimize unnecessary amputations.

Mycetoma, chromoblastomycosis and other deep mycoses
(chromoblastomycosis and other deep mycoses)

Chromoblastomycosis and other deep mycoses are chronic fungal infections of the skin and subcutaneous tissue. They cause persistent lesions, commonly nodules, ulcers or tumour-like growths, that can affect the skin, mucous membranes and lymph nodes.

Disease and epidemiology

- Chromoblastomycosis (CBM) is a chronic fungal infection of the skin and subcutaneous tissue caused by a group of fungi; the three most common species are *Fonsecaea pedrosoi, Cladophialophora carrionii* and *Phialophora verrucosa*.
- Other deep skin mycoses affecting vulnerable populations in tropical countries are paracoccidioidomycosis (PCM, caused *by Paracoccidioides* species) and sporotrichosis (ST, caused by *Sporothrix* species).
- CBM causes lesions that are clinically polymorphic, the most frequent being nodular, verrucous and tumoral.
- ST causes skin lesions that are commonly single nodules or ulcers, or chains of nodules.
- PCM is a respiratory infection, although lymph nodes, skin and mucous membrane lesions are the most common sites for dissemination in the bloodstream, which can occur in otherwise healthy people.
- CBM and ST are transmitted by traumatic inoculation of relevant microorganisms through broken skin.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Personal hygiene
Vector control	• N/A
Veterinary public health	• Pet control for ST to prevent transmission to humans
Case management	• No "gold standard" treatment for CBM exists; treatment options include antifungals (itraconazole), physical therapies, immune adjuvants and surgery for minor lesions • Itraconazole is the treatment of choice for PCM and ST
Other	• Wearing protective clothes and shoes • Minimizing contact with feral cats (ST)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries in which mycetoma, chromoblastomycosis, sporotrichosis and/or paracoccidioidomycosis are included in national control programmes and surveillance systems	1/30 (3%)	4/30 (13%)	5/30 (17%)	8/30 (27%)	**15/30 (50%)**

Burden of disease

At least 10 000

cases of CBM, PCM and ST have been recorded globally since the 1940s; the exact burden is unknown and thought to be higher.

CBM and ST

are distributed worldwide, whereas PCM is transmitted only in the Region of the Americas.

Highest burden

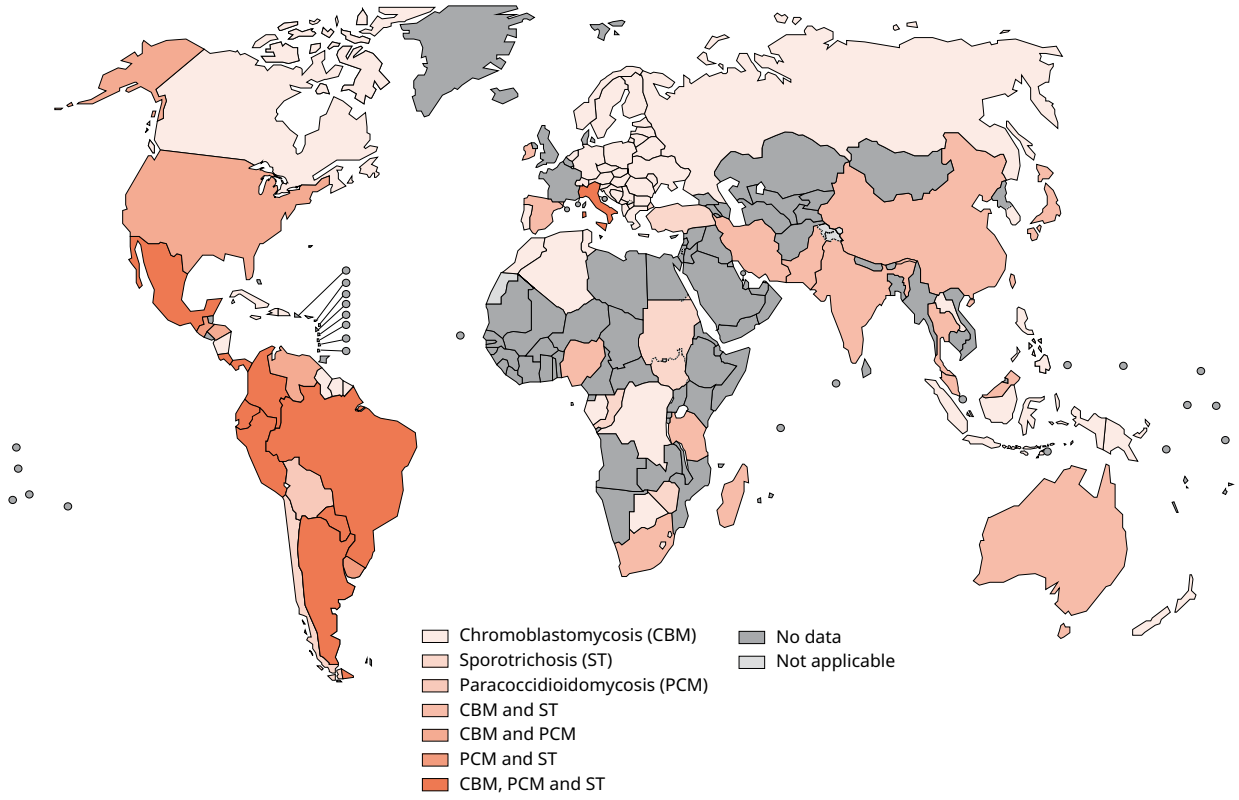
is found in tropical and subtropical regions of Africa, Asia and Latin America.

Brazil and Madagascar

have the highest recorded number of CBM cases.

Geographical distribution and status

Distribution of deep mycoses, by country and territory



Note: Current mapping of deep mycoses is constrained by important data quality limitations and substantial underreporting. Available data are derived from small or non-representative studies, limiting comparability across countries and potentially obscuring transmission hotspots and populations at greatest risk.

Risks that require mitigation

- Occupational and environmental exposure to contaminated soil, vegetation and plant material causing traumatic inoculation through broken skin
- Limited use of protective footwear, gloves and clothing among at-risk populations
- Low community awareness and delayed health-seeking behaviour leading to late-stage disease presentation
- Inadequate diagnostic capacity and limited access to specialized laboratory services
- Prolonged and costly treatment regimens, poor adherence, and inadequate access to antifungal medicines
- Disability, stigma, social exclusion and loss of productivity associated with advanced disease
- Weak surveillance systems, underreporting and limited epidemiological data
- Insufficient funding, research and understanding of transmission pathways and environmental reservoirs

Summary of critical actions to achieve targets

Develop differential RDT and effective treatment, and establish surveillance for case detection and reporting.

Develop a standardized field manual for diagnosis and treatment, and ensure proper training of health care workers.

Provide access to affordable diagnosis and treatment.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• The mechanism of transmission is generally understood, but further evidence is needed to better characterize transmission pathways. • Mapping activities remain limited, mainly to some areas in the Region of the Americas, affecting knowledge of global disease presence and geographical distribution.	• Find the natural niche of the causative agents to design effective preventive interventions. • Support research to improve understanding of transmission pathways and disease pathogenesis. • Expand mapping activities and strengthen surveillance systems to better assess disease presence and distribution, identify hotspots and improve epidemiological understanding.
Diagnostics 2024 2020	• Diagnosis is based on clinical manifestation, epidemiological link, and demonstration of etiological agents from skin scrapings, biopsy specimens or fungal cultures. • No RDT or any serological test is available for CBM and ST. • Early detection improves outcomes. • IMMY, a diagnostics manufacturer, is developing a point-of-care test for ST.	• Develop rapid diagnostic or serological test to improve early detection at PHC level. • Evaluate and standardize sporotrichin skin testing for diagnosis of ST. • Facilitate skin scraping and biopsy sampling, and fungal culture and histopathology assessment of deep skin lesions.
Effective interventions 2026 2020	• Case management with antifungals and local treatment requires prolonged treatment and often achieves limited cure rates. • Early management of suspected cases can prevent progression to advanced stages of disease. • Protective shoes, gloves or garments help prevention, but their adoption is limited due to low community awareness and costs, and environmental factors, such as flooding, may reduce their effectiveness. • The optimal treatment regimen for CBM has not yet been established. • Studies are underway to evaluate fosravuconazole as a treatment for CBM.	• Develop innovative preventive tools based on improved understanding of local transmission pathways and exposure risk factors. • Evaluate the effectiveness of itraconazole and other antifungals through prospective studies. • Standardize CBM grading to enhance assessments of disease severity and inform treatment and disease management guidelines across regions. • Improve therapeutic regimens, ensuring shorter treatment duration, increased efficacy and better patient outcomes.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• There are no global WHO guidelines on case management, surveillance, prevention and control.	• Develop a CBM grading system to assess disease severity, applicable across endemic regions. • Develop a field manual on prevention, case management and surveillance.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• A growing number of countries have reported including CBM and other mycoses into their national NTD master plans, including 36 from the African Region. • A small number of countries are reported to have national control plans for CBM and other deep mycoses under either a stand-alone focus or an integrated skin NTDs approach (including four from the African Region).	• Support the inclusion of CBM and other deep mycoses in NTD master plans in all endemic countries. • Support the development of national control plans that include CBM and other deep mycoses in all endemic countries, under either a stand-alone focus or an integrated approach for skin NTDs. • Include CBM, PCM and ST in national NTD or communicable disease control programmes in endemic countries.
Monitoring and evaluation 2024 2020	• There is no disease-specific surveillance protocol or system, and no standard indicators for monitoring and evaluation. • Guidance is being developed and the CURE ID project is live. • Some states in Brazil have human ST as a reportable disease, and national reporting for human cases is in development.	• Develop a surveillance guide with standard indicators and standardized case definitions. • Assess burden of CBM through active case detection and integrated surveillance of skin NTDs. • Establish a monitoring and evaluation system, integrate with national health information systems, and encourage the use of CURE ID. • Describe burden better, not just as incidence and prevalence, but also in terms of disability and quality of life.
Access and logistics 2024 2020	• There is no donation of medicines. • Countries procure and manage their supply system; availability and affordability of antifungal medicines remain low.	• Ensure access to affordable and quality-assured itraconazole for CBM, PCM and ST. • Provide affordable skin biopsy and sample processing for diagnosis. • Make drugs that are donated and indicated for HIV-associated fungal diseases also available for CBM.
Health care infrastructure and workforce 2026 2020	• The capacity of health systems to provide control services or run control programmes remains limited. • Health workers at primary and community levels have limited capacity to recognize and diagnose the diseases.	• Strengthen the health system, within the framework of UHC, to ensure detection, referral and provision of care. • Improve capacity for appropriate wound care in health facilities, including both material and human resources. • Ensure the availability of essential antifungal medicines across all levels. • Raise awareness and provide training to primary and community-level health workers to improve early detection. • Ensure sufficient laboratory capacity for appropriate and timely diagnosis.

Category: Enablers

Advocacy and funding 2024 2020	• Some organizations and groups, such as the International League of Dermatological Societies, the United States Centers for Disease Control and Prevention (CDC), Drugs for Neglected Diseases initiative, and the International Society for Human and Animal Mycology, are making advocacy, awareness-raising and capacity-building efforts. • Progress pertaining to advocacy and funding since 2020 has been limited.	• Ensure political commitment from endemic countries and donors or partners to mobilize funds and human resources to support effective programme implementation. • Mobilize funding for research on diagnostics, treatment, and monitoring and evaluation. • Push for formal inclusion in countries' lists of reportable diseases and national medicines. • Integrate with programmes such as tuberculosis and other skin diseases.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Collaboration with various professional societies, nongovernmental organizations, and research and academic institutes has been initiated and is ongoing. • The Global Chromoblastomycosis Working Group was established in 2024 to develop a global strategy and coordinate efforts in research, advocacy and policy-making.	• Strengthen and expand collaboration with various research institutes, medicine and diagnostic developers, manufacturers and donors to improve access to diagnosis and treatment in all endemic countries. • Coordinate with WASH stakeholders to improve sanitation and hygiene in households and health care facilities. • Coordinate with non-health stakeholders, including the agriculture and environment sectors, under a One Health approach to support control activities.
Capacity and awareness building 2026 2020	• Health workers in endemic areas are often unable to recognize most of the deep mycoses at an early stage and lack the required knowledge and skills to manage cases. • Online training resources are available, including from WHO (WHO Academy) and CDC (CDC Train). • No standardized and structured training programmes are available for health professionals.	• Raise awareness and train health professionals and community health workers across skin NTDs to improve early detection based on local epidemiological contexts. • Integrate teledermatology into training programmes to strengthen diagnostic capacity and specialist support. • Improve the diagnostic capacity (e.g. skin biopsy and histopathology) and management capacity of health care systems in endemic regions.

Noma

Noma is a non-contagious, rapidly progressing, gangrenous disease of the mouth and face that primarily affects young children in extreme poverty. It is associated with malnutrition, poor oral hygiene, weakened immunity, limited health care access and other social determinants common to NTDs.

Disease and epidemiology

- Noma is a non-contagious, rapidly progressing, gangrenous disease that mainly affects children aged 2–6 years.
- The disease progresses through five clinical stages – 1) necrotizing gingivitis; 2) oedema; 3) gangrene; 4) scarring; and 5) sequelae – with rapid progression from stages 1–2 to the severe, irreversible stages 3–5 within about 2 weeks.
- Noma is associated with opportunistic oral bacteria triggered by various risk factors, such as malnutrition, poor oral hygiene, weakened immunity and extreme poverty.
- It is diagnosed clinically, with no specific diagnostic test available.
- Noma has a high case fatality rate if left untreated, and survivors may experience severe disfigurement, disability, stigma and discrimination.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Improved access to WASH, including environmental hygiene, as inadequate WASH is a risk factor for noma and affects other risk factors, such as malnutrition, poor oral hygiene, diarrhoea and the occurrence of infectious diseases • Hygiene for self-care and wound care
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Antibiotic medicines providing broad coverage against both aerobic and anaerobic bacteria that cause oral and pharyngeal infections (e.g. combinations of beta-lactams and metronidazole) • Wound management (cleaning, dressing, disinfecting and debridement) • Rehydration, nutritional support and vitamin supplementation • Prevention, treatment and management of concomitant infections, such as measles, malaria, tuberculosis and HIV/AIDS • Functional and aesthetic rehabilitation during the sequelae stage, through reconstructive surgery and physiotherapy • Mental health care, including counselling and psychosocial first aid • Oral health care
Other	• Raising awareness and strengthening knowledge about noma among families, communities, health care workers, and governmental and nongovernmental actors to: – facilitate early detection of cases; – promote timely referral, treatment and case notification; and – address stigmatization and discrimination and foster societal and professional reinsertion • Interventions to improve general health and living conditions, including efforts to enhance nutrition and immunization coverage

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2023)	Achieved (2025)	Milestone (2025)	Target (2030)
Number of countries having integrated noma into their national health policies, strategies or action plans (including disease-specific, NTD or oral health plans)	9	9	22	**35**

Indicator	Baseline (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Proportion of confirmed noma cases that are diagnosed at an early stage of the disease (stages 1–2)	70%	63%	80%	**95%**
Number of countries that collect noma data routinely through national information systems	10	12	22	**35**

Burden of disease

About 1200

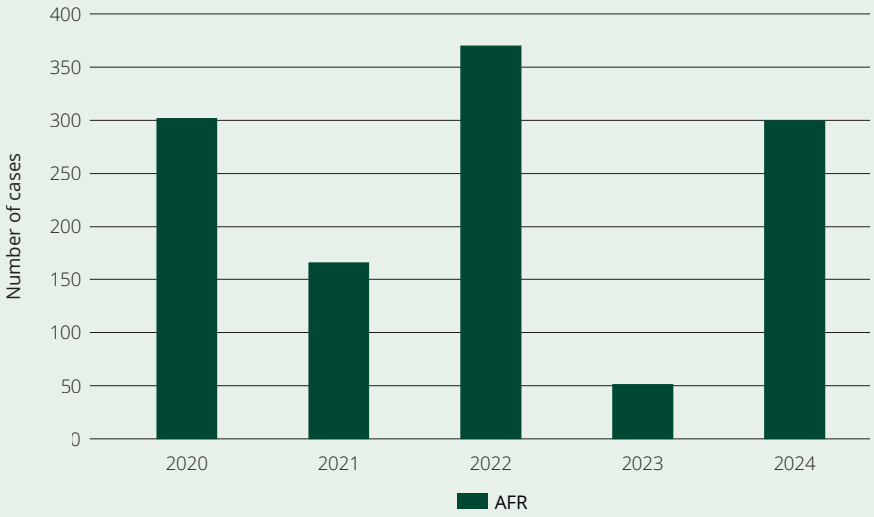
cumulative clinically confirmed cases reported during 2020–2024

63%

of cases diagnosed at an early stage in 2024

The burden of noma remains uncertain because of rapid disease progression, high mortality, underreporting, stigma and limited awareness. An average of 240 cases was reported annually during 2020–2024, underscoring the urgent need to strengthen surveillance, case detection, research and awareness.

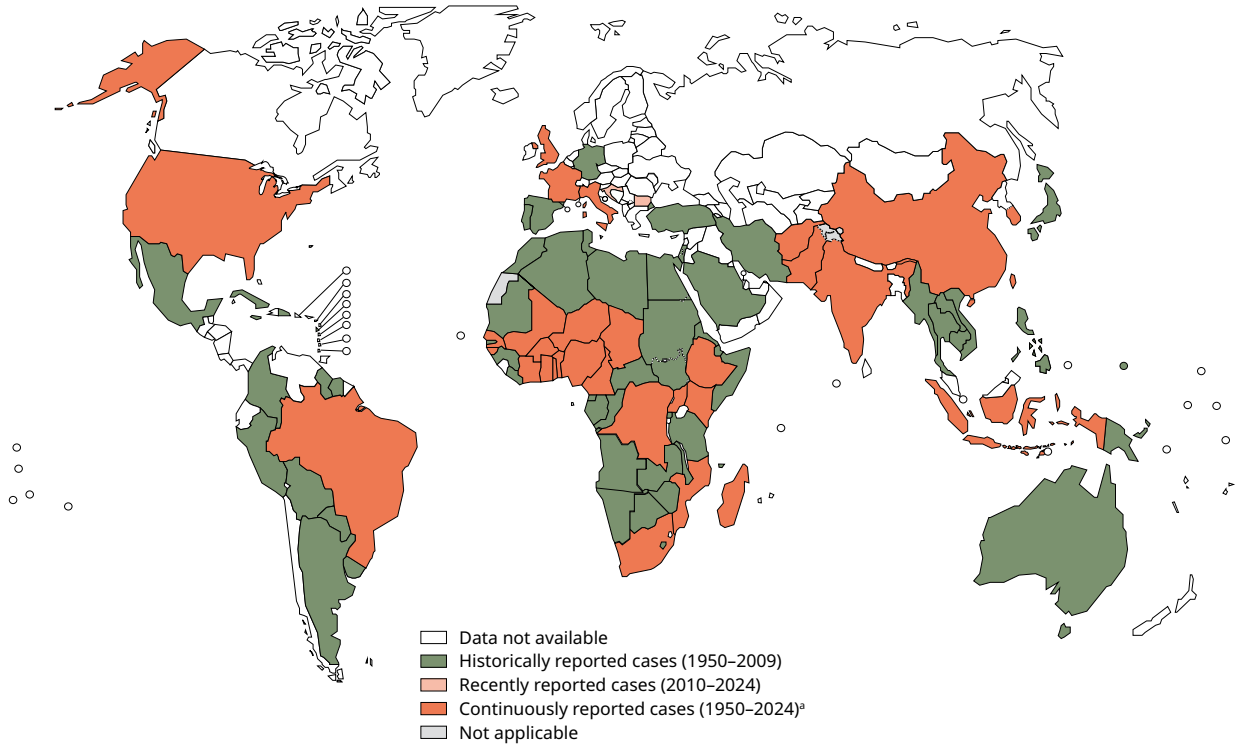
Number of noma cases reported worldwide, 2020–2024



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Status of country reporting of noma cases, 1950–2024



[a] Countries that reported at least one noma case in both the historical period (1950–2009) and the recent period (2010–2024); "continuously reported" does not imply annual reporting throughout the entire period (*1*).

Progress at mid-term

Accurate estimation of the burden of noma remains difficult because of its rapid progression, high mortality, weak surveillance systems, social stigma and limited awareness among health workers and communities. Under these circumstances, WHO global estimates published in 1998 – of an annual incidence of 140 000 cases, a prevalence of 770 000 cases and a 90% case fatality rate *(2)* – remain the most widely cited figures, despite their methodological limitations. Based on cases reported to the WHO Regional Office for Africa and identified through recent systematic reviews *(3, 4)*, 32 countries reported noma cases between 2010 and 2023. Guinea-Bissau, the Niger and Nigeria reported the highest numbers of cases during this period. An annual average of 240 cases was reported during 2020–2024.

The geographical distribution of reported cases indicates that noma extends beyond the so-called noma belt of Africa, traditionally described as stretching from Mauritania to Ethiopia. Cases have been documented in African countries outside this area, as well as in other world regions, including Asia, the Americas, the Middle East and Europe.

Strengthening surveillance, improving case detection and reporting, advancing research and increasing awareness are essential to generate reliable data and guide evidence-based prevention and control efforts. A range of WHO resources is available to support the implementation of an integrated approach to noma prevention and control within NTD, oral health and other relevant programmes *(1, 5–7)*.

Risks that require mitigation

- Increased exposure to noma risk factors because of armed conflict, political and social instability, economic inequality and consequences of climate change
- Antimicrobial resistance potentially reducing effectiveness of noma treatments
- Limited awareness, misconceptions, traditional beliefs and poor access to health services hindering early detection, referral, treatment and reporting
- Lack of adequate food, WASH, health care, housing and education in communities
- Weak intersectoral and multisectoral collaboration limiting effective prevention and response

Summary of critical actions to achieve targets

Conduct rapid assessments to better understand the burden, distribution and public health impact of noma, particularly in endemic and potentially endemic countries.

Use the findings of rapid assessments to raise awareness among policy-makers and key stakeholders and to advocate for the integration of noma into national NTD, oral health, child health and other relevant health policies, strategies, action plans and budgets through multisectoral and multi-stakeholder dialogue.

Adopt and implement standardized and validated clinical protocols for noma diagnosis in endemic countries.

Integrate noma training into pre-service and in-service curricula for oral health and other health professionals at primary, secondary and tertiary levels; and train community health workers and traditional healers to recognize the early signs of noma and facilitate timely referral.

Place the voices of noma survivors with lived experience at the centre of advocacy, awareness raising and programme implementation efforts, with the active engagement of local communities, survivor groups and community leaders, to support noma prevention, promote early detection and facilitate timely referral and treatment.

Incorporate noma into existing national health information and surveillance systems, including routine health facility reporting, community-based surveillance, and disease surveillance platforms; this should be guided by WHO-recommended indicators and the standardized WHO five-stage classification of noma to improve data quality, comparability and reporting.

Integrate active case-finding into existing public health programmes and campaigns, where appropriate.

Foster intersectoral and multisectoral collaboration and integrate noma screening, treatment and referral into existing health services and campaigns, including nutrition programmes, child health services, immunization activities, primary care services, skin NTD activities and other relevant programmes, to enhance early case detection and access to care.

Implement social mobilization, health promotion and awareness-raising activities to improve community knowledge of noma, encourage timely care seeking and reduce stigma and discrimination.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026	• The standardized WHO case definition is not being uniformly used, which limits comparability of epidemiological evidence across settings. • Major gaps in epidemiology, pathology, disease etiology and social consequences of noma remain. • Current understanding of global epidemiology is primarily based on reports and small studies, which are not representative and are concentrated in a few settings. • Mapping of the disease is incomplete; not all endemic countries or areas within countries have been identified. • Research on noma remains difficult due to the rapid progression of the disease, poor access to care because of weak health systems and social stigma, and low awareness among health care workers and communities at risk. • Research attention on noma has improved in recent years, and there is progress towards developing a research agenda and prioritization framework to inform control initiatives.	• Adopt a standardized case definition of WHO's five key stages of noma and promote its adoption across affected countries, to enable comparable global data. • Expand epidemiological and disease burden studies across endemic settings to improve understanding of noma distribution, risk factors and disease determinants. • Prioritize systematic mapping to identify endemic countries and affected areas within countries and inform prevention and control activities. • Establish a minimum set of standardized indicators for inclusion in reporting systems to improve monitoring and comparability across settings. • Integrate noma into active and passive surveillance systems by leveraging existing platforms, such as DHIS2, and incorporating active case-finding into existing public health campaigns or services, to inform epidemiological research. • Establish a noma patient cohort registry to systematically and ethically collect longitudinal data at scale and to investigate effects of noma across the life course. • Integrate noma into broader NTD and oral health research initiatives to improve the cost–effectiveness of noma research and development.
Diagnostics 2024	• Diagnosis of noma is done clinically; there is no diagnostic tool. • Clinical diagnosis can be challenging, as clinical features overlap with those of other oral and facial conditions, and standardized diagnostic criteria are lacking. • Due to a lack of awareness and training, and limited access to health care, clinical diagnosis is often missed or occurs too late to treat the disease before irreversible orofacial damage occurs. • Early detection and treatment are essential to reduce morbidity and mortality. • Current scientific knowledge of disease etiology is insufficient to develop a point-of-care test.	• Invest in research to determine the etiology of noma and provide the evidence needed for developing one or more point-of-care diagnostic tests to detect it, especially in its early stages and ideally in all stages of the disease. • Develop a standardized, validated and accepted protocol for clinical noma diagnosis. • Train health care personnel, traditional healers and communities at risk regarding early detection of noma. • Provide the necessary material to help diagnose noma in remote areas with limited access to health care, such as diagnostic tests to rule out other conditions, and water and electricity in health centres. • Foster intersectoral and multisectoral collaborations and integrate noma screening into existing health programmes.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Effective interventions 2026	• Prevention and case management approaches are generally known, but the evidence base is limited and depends on noma stage and context. • Early-stage antibiotic treatment is relatively affordable, but constraints remain in access to care, early diagnosis, established referral pathways, and advanced-stage reconstruction capacity and affordability, especially in the health services of endemic countries. • Long-term care of survivors, including self-care, is highly individual and requires services, such as mental health support, physiotherapy and specialized oral health services, that are rarely available. • Key technical uncertainties remain, including evidence-based antibiotic regimens, limited understanding of causative organisms, and long-term management and rehabilitation.	• Prioritize prevention, early detection and treatment to prevent death and disability and to limit the costs and complexity of managing advanced noma stages (stages 3–5). • Integrate noma screening into relevant public health services, such as malnutrition clinics and community care, and health campaigns, such as immunization or MDA for other NTDs. • Include oral health or core noma interventions in essential health care packages to enhance prevention and access to treatment at primary care level. • Support research on optimal antibiotic regimens, disease causation and long-term rehabilitation to strengthen evidence-based noma management. • Update and disseminate clinical guidance for effective stage-based management, referral and rehabilitation. • Promote holistic case management beyond surgery, including physiotherapy, nutrition, mental health and peer support for affected individuals and their families.

Category: Strategy and service delivery

Operational and normative guidance 2026	• Existing normative guidance provides suitable overall strategic direction. • The inclusion of noma in the WHO list of NTDs strengthened its visibility in policy discussions. • Existing technical guidance on treatment and case management can be considered dated (about 10 years old) and requires updating. • Noma remains underresearched, and the slow generation of new evidence to inform programmatic action at scale constrains the development of operational guidance. • WHO is developing and publishing additional guidance, including the noma summary for the NTD road map and routine noma surveillance and health facility data to support country reporting. • The forthcoming research and development blueprint for NTDs aims to identify research priorities aligned with current programmatic needs.	• Finalize and publish updated guidance for noma treatment and management. • Incorporate rehabilitation and societal reintegration of survivors into future case management guidance. • Adopt a "living guidelines" approach, with systems in place to monitor and review new evidence regularly, enabling its rapid integration into guidelines. • Finalize a noma-specific research agenda jointly with researchers and programme managers, to set priorities according to current programmatic needs and goals.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026	• Integration of noma into NTD coordination platforms and master plans remains inconsistent; despite recent progress, recognition and integration are still at an early stage. • Limited epidemiological data constrain integration of noma into national planning; many countries are unaware of their noma endemicity status, distribution and burden. • No official global technical advisory group for noma is currently in place, although there are various expert networks that collaborate.	• Strengthen efforts to integrate noma into national NTD and oral health coordination systems, master plans and budgets. • Strengthen noma mapping, surveillance and reporting by integrating noma into NTD governance frameworks, routine health information systems (DHIS2) and the Integrated Disease Surveillance and Response (IDSR), while promoting standardized reporting to improve data comparability. • Strengthen country-level advocacy, including engagement of noma survivors and affected population associations, to support integration into NTD planning processes. • Promote intersectoral and multisectoral collaboration across oral health, other NTDs, nutrition, child health, WASH and other relevant programmes on monitoring and evaluation, research and advocacy to facilitate integration into policy-making platforms. • Establish a global technical advisory group or formal working group to coordinate standards, guidance and knowledge sharing.
Monitoring and evaluation 2024	• The burden of disease, including incidence and prevalence of noma, remains poorly understood. • Noma has been integrated into the GNARF since 2025; this form includes indicators reporting on clinical stages and service coverage disaggregated by sex and age, but reporting rates remain low. • Difficulties in diagnosing noma, the rapid disease progression, lack of access to health care and stigmatization lead to underreporting of the disease.	• Develop a global monitoring and evaluation framework for noma as part of the NTD road map, with targets and indicators. • Facilitate the routine collection of relevant data on noma through the GNARF. • Establish an active and passive noma surveillance, mapping, and monitoring and evaluation framework, including indicators for all disease stages at the national and subnational levels. • Integrate noma into mapping and monitoring and evaluation in national health information systems (e.g. DHIS2, IDSR) and other health programmes (e.g. other NTDs, oral health, child health and nutrition, social services). • Declare noma a notifiable disease to strengthen the reporting system for identified suspected noma cases at the community and primary care levels. • Improve data collection and reporting with digital tools and accessible data repositories. • Invest in capacity-building for noma diagnosis, reporting, and monitoring and evaluation.
Access and logistics 2024	• Availability, adequacy and accessibility (including affordability) of preventive products (i.e. nutritious food, fluoride toothpaste and vaccinations against childhood diseases) remain low in endemic areas. • Broad-spectrum antibiotics to treat noma are available and affordable in most endemic areas, but growing rates of antimicrobial resistance mean there is an urgent need to develop targeted noma treatments. • Human resources, materials, tools and infrastructure to perform reconstructive surgery are mostly lacking in endemic areas. • The population at risk rarely has access to adequate health care. • The lack of noma awareness, monitoring and integration into health programmes leads to poor forecasting of supplies and stock management.	• Ensure access to preventive products, including nutritious food and supplements, fluoride toothpaste and vaccinations, by integrating them into the national essential medicines list. • Ensure access to the material, tools and infrastructure needed for reconstructive surgery by integrating them into the national procurement list. • Integrate materials and tools for noma prevention and control into the national supply chain system (e.g. procurement, warehouse storage, distribution) with other NTDs, to allow coordination and transparency in how and where supplies for noma and other NTDs are distributed. • Promote mapping of areas with many noma risk factors or high incidence to facilitate the planning and management of supplies.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026	• Frontline health care providers, including primary care workers, often lack awareness of noma or have limited capacity to recognize and manage the disease in its early stages. • Provision of oral care services at primary care level is often limited or non-existent, particularly in poor and remote settings where noma risk is highest. • Efforts are underway to provide integrated training for skin NTDs, including in noma detection (e.g. alongside onchocerciasis MDA, integration into the Skin NTDs app, and the noma course that forms part of the WHO Academy Skin NTDs training course). • Capacity to diagnose, treat and manage noma cases is relatively strong at secondary or tertiary levels, but it varies significantly across affected countries.	• Integrate noma recognition and early management into training curricula for oral health and other health professionals at all levels (i.e. primary, secondary and tertiary care) and monitor their routine implementation. • Develop and deliver community level-training, including for community volunteers and traditional healers, on early recognition, timely referral and reduction of delays in seeking care. • Include noma in countries' essential health care packages to enhance access to treatment, especially at primary care level. • Continue and expand provision of integrated training for skin NTDs that includes noma. • Expand access to rehabilitation, reconstructive services and psychosocial support. • Integrate community health workers into reporting systems for noma, to improve assessment of local needs.

Category: Enablers

Advocacy and funding 2024	• Overall, there is minimal donor support and domestic prioritization for noma. • People living with noma, nongovernmental organizations, academic institutions and countries (particularly endemic countries) are advancing noma advocacy. • Partnerships and collaborations remain insufficient to increase advocacy and funding.	• Ensure and sustain political and financial commitment from endemic countries and international donors to mobilize funds and support human resources based on evidence-informed integrated action plans. • Integrate noma into existing programmes (e.g. NTDs, noncommunicable diseases, oral health, child health, immunization, WASH, education, social protection and SDGs). • Integrate noma into national packages of essential services with financial protection. • Mobilize partnerships and multisectoral collaboration across academia, policy-makers at all levels, nongovernmental organizations and the private sector. • Centre the agency and voices of people living with noma, and work with local communities and local leadership in advocacy programmes.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026	• Collaboration within the health sector exists, through broader oral health services, but dedicated collaboration on noma remains weak in most affected countries. • Multisectoral collaboration to tackle noma comprehensively (e.g. WASH, education, human rights) remains minimal. • Growing collaboration has been observed between programmatic and research communities since noma was listed as an NTD. • Participation of affected populations and survivors in awareness-raising and research activities has increased, but their involvement in the design and implementation of control activities remains minimal in most countries.	• Support noma advocacy and awareness-raising efforts, targeting national stakeholders across key governmental sectors. • Develop and promote comprehensive noma strategies to foster multisectoral collaboration with nutrition, WASH, education and human rights sectors. • Engage civil society organizations and local authorities operating in isolated and conflict areas, to enable noma control among hard-to-reach populations. • Encourage documentation and dissemination of multisectoral collaboration experiences, including processes, costs and outcomes, to inform the broader sector. • Establish an international noma coalition or a regional platform to strengthen cross-pollination between researchers, implementers and policy-makers. • Develop formal mechanisms for the engagement of affected populations (survivors and their families) in programme design, planning and feedback. • Strengthen the role of noma survivors and affected groups in awareness-raising activities.
Capacity and awareness building 2026	• Training materials are available from multiple sources, primarily focusing on screening and early treatment, but they lack standardization. • Global training content is available through the WHO Academy portal, but it needs updating and wider uptake. • Established routine training activities focused on noma are uncommon in most affected countries. • Most countries have yet to develop and distribute sensitization and behaviour change communication materials; where they have been produced, dissemination is rarely at scale. • Social mobilization efforts have increased in recent years but are often sporadic initiatives, linked to pilot projects, rather than systematic activities.	• Develop a standardized training package and adaptable country toolkit, ensuring that materials are reviewed and updated regularly. • Support the development of a digital library of dignified and approved audiovisual material for training and communications materials; explore the use of AI tools for these purposes. • Embed noma modules into pre-service and in-service training curricula for oral health and other health professionals at all levels (i.e. primary, secondary and tertiary care). • Support the dissemination of sensitization and behaviour change information, education and communication materials, mainly at primary and community levels, to promote early recognition, timely care seeking and stigma reduction. • Engage affected populations in the design and implementation of sensitization and behaviour change communication campaigns, ensuring their lived experience is reflected in sensitization materials. • Embed communications, sensitization and behaviour change activities within routine prevention and control interventions of noma programmes.

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Onchocerciasis

Onchocerciasis (river blindness) is a parasitic disease that causes severe itching, disfiguring skin conditions and visual impairment. It can result in permanent blindness.

Disease and epidemiology

- Onchocerciasis (river blindness) is a parasitic disease caused by infection with the worm *Onchocerca volvulus*.
- The disease causes severe itching, disfiguring skin conditions and visual impairment and can result in permanent blindness.
- Human infection is transmitted through repeated bites of infective *Simulium* black flies, which breed mostly along fast-flowing water.
- By the end of 2024, an estimated 25.5 million people no longer required treatment following interruption of transmission.
- WHO has verified five countries for elimination of transmission: Colombia, Ecuador, Guatemala and Mexico in the Region of the Americas; and the Niger in 2025, the first country in the African Region.

Risks that require mitigation

- Constraints on ivermectin MDA in parts of central Africa with loiasis (*Loa loa* infection) co-endemicity because of the risk of severe, sometimes fatal, neurological reactions; hypoendemic onchocerciasis areas with high prevalence of loiasis still lack a safe, scalable elimination strategy (e.g. Gabon is not yet implementing treatment)
- Re-establishment or recrudescence of transmission as countries stop MDA and move to surveillance, if post-treatment and post-verification surveillance and cross-border coordination between neighbouring countries are not sustained
- Stalled elimination due to funding interruptions resulting from heavy reliance on donor funding, particularly if surveillance and response after treatment stop
- Undetected residual transmission foci or reintroduction of transmission due to incomplete onchocerciasis elimination mapping in hypoendemic and epidemiologically uncertain areas

Core strategic interventions

Preventive chemotherapy	• Annual or semi-annual community-based MDA of ivermectin, with adequate coverage for 12 or more years • New alternative treatment strategies are being studied
WASH	• N/A
Vector control	• Environmentally safe spraying of insecticides at black fly habitats and larval breeding sites
Veterinary public health	• N/A
Case management	• Ivermectin or moxidectin to manage symptoms in settings not endemic for *L. loa* • Doxycycline for cure • Management of visual impairments
Other	• Where loiasis is co-endemic, systems to manage serious adverse events must be in place; new strategies applicable to loiasis co-endemic settings are being developed

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries verified for interruption of transmission	4/38 (11%)	5/38 (13%)	5/38[a] (13%)	8/38 (21%)	**12/38 (32%)**
Number of countries that stopped MDA for ≥1 focus	9	22	17	24	**34**
Number of countries that stopped MDA for ≥50% of population	6	10	9	25	**>16**
Number of countries that stopped MDA for 100% of population	4	6	6	10	**>12**

[a] The fifth country, the Niger, was acknowledged for verification of interruption of transmission in January 2025.

Burden of disease

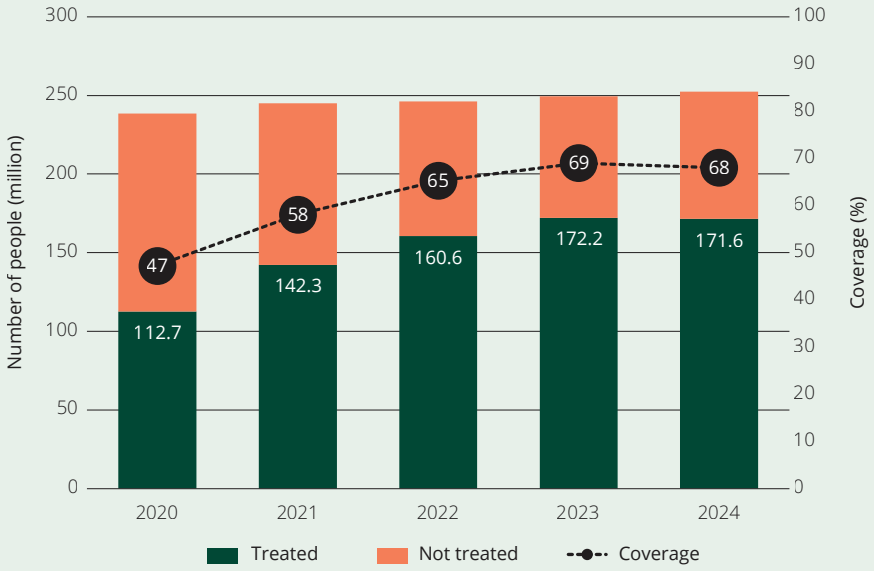
171.6 million
people living in areas at risk of onchocerciasis received treatment in 2024

252.3 million
people required preventive chemotherapy in 2024

1.3 million
DALYs in 2021[a]

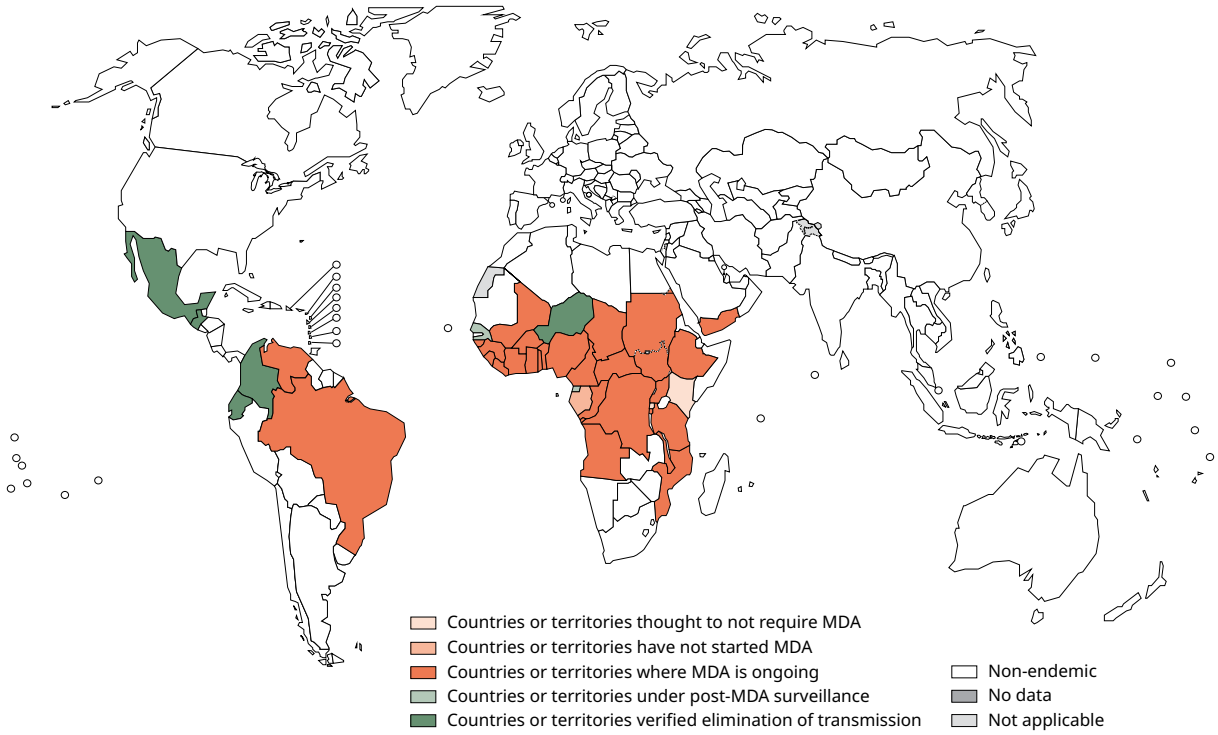
[a] *Source:* GHE 2021.

Number of people requiring and receiving treatment for onchocerciasis and coverage achieved worldwide, 2020–2024



Geographical distribution and status

Status of preventive chemotherapy for onchocerciasis in endemic countries and territories, 2025



Progress at mid-term

In 2024, 171.6 million people living in areas at risk of onchocerciasis received treatment, compared with 112.7 million in 2020. By the end of 2024, 25.5 million people no longer required treatment, of whom more than 16.6 million were in Nigeria. Global treatment coverage in 2024 was 68%. A total of 252.3 million people required preventive chemotherapy in 2024. In 2021, onchocerciasis resulted in 1.3 million DALYs. Verification of interruption of transmission in the Niger was acknowledged by WHO on 13 January 2025, making it the fifth country to achieve this.

Summary of critical actions to achieve targets

Start MDA in all endemic areas after mapping, improve delivery of current MDA programmes, and implement alternative strategies where appropriate.

Develop a macrofilaricide and diagnostic or other elimination strategies to accelerate interruption of transmission; design a case management strategy; and develop and implement elimination strategies for areas where loaiasis is co-endemic but onchocerciasis is hypoendemic.

Develop improved diagnostics to facilitate mapping and decisions to eliminate transmission; develop improved diagnostic strategy for loaiasis; and increase programme capacity to perform entomological and laboratory diagnostics.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Knowledge of onchocerciasis epidemiology and pathology is generally sufficient to support current elimination strategies. • Interruption of transmission thresholds based on serological and entomological indicators are established, but uncertainty remains regarding sampling strategies, diagnostic interpretation, operational feasibility and their appropriateness across diverse eco-epidemiological settings and vector populations. • Recent studies have revealed greater diversity among vector populations and considerable genetic diversity within *O. volvulus*. Further research is needed to understand the implications for transmission dynamics and elimination strategies. • Geographical distribution is known in many endemic areas, but onchocerciasis elimination mapping remains incomplete in many hypoendemic and epidemiologically uncertain areas, with funding constraints slowing implementation. • The effects of climate change on vector ecology and onchocerciasis transmission dynamics remain incompletely understood. • Ivermectin distribution may have ancillary benefits for other NTDs, such as strongyloidiasis and scabies, and entomology capacity-building can strengthen other vector-borne disease programmes, but these benefits are yet to be systematically quantified. • The broader effects of stopping onchocerciasis MDA on co-endemic diseases and health system operations are yet to be assessed.	• Support technical reviews of sampling strategies, diagnostic performance, and serological and entomological data integration approaches to evaluate and refine transmission interruption thresholds across different transmission settings. • Expand research on vector and parasite diversity to improve understanding of transmission dynamics and implications for onchocerciasis elimination strategies. • Mobilize resources and accelerate onchocerciasis elimination mapping implementation to complete mapping required for elimination planning and verification. • Assess the broader health and programmatic impacts of onchocerciasis interventions and MDA cessation, including ancillary benefits for co-endemic NTDs and vector control capacity.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• Serological and molecular tests are available but could be improved. • There are no standardized quality control and assurance systems for diagnostic tools used by programmes in the field. • TPPs have been developed and published. • Ensuring in-country supply of diagnostics is challenging and often results in significant delays.	• Improve existing diagnostics (e.g. OV-16 enzyme-linked immunosorbent assay) and evaluate diagnostics in development. • Develop confirmatory diagnostics for low-prevalence settings to aid mapping and surveillance. • Establish clear procurement systems and quality control mechanisms for new and existing diagnostics. • Develop standard operating procedures (SOPs) and standardized training materials for the use of diagnostics in the field. • Develop a strategy for identifying *L. loa* infection intensity.
Effective interventions 2026 2020	• Annual ivermectin MDA is effective for interrupting transmission, but achieving elimination often requires a decade or more of sustained high coverage. • Co-endemicity with loiasis can limit safe implementation of ivermectin MDA in some settings, slowing progress towards onchocerciasis elimination. • Vector control is recommended where MDA alone is unlikely to achieve elimination; however, further evidence is needed to optimize targeting, timing, methods and scalability across diverse eco-epidemiological settings. • Criteria and operational guidance for adopting biannual ivermectin MDA in support of elimination require further refinement to enable consistent application across programmes. • Gaps remain concerning the operational design of post-treatment surveillance to effectively detect recrudescence and transmission re-establishment, while ensuring cost–effective implementation. • LoaScope-based screening can enable safer implementation of interventions in co-endemic settings; however, its cost–effectiveness, operational feasibility, and scalability remain important constraints. • The efficacy of moxidectin and its safety in children have been evaluated, but there is no WHO recommendation for its use, and its operational feasibility and cost–effectiveness in MDA settings are still being examined.	• Develop and evaluate new treatment options and implementation strategies to accelerate transmission interruption, particularly in *L. loa* co-endemic settings (e.g. new macrofilaricides or LoaScope-based screening). • Define and evaluate the epidemiological and programmatic conditions under which quarterly MDA could accelerate transmission interruption. • Strengthen guidance on the criteria and prerequisites for implementing biannual ivermectin MDA to support consistent application across programmes. • Generate evidence to optimize targeting, timing, implementation methods and scalability of vector control across diverse eco-epidemiological settings. • Evaluate the operational feasibility and cost–effectiveness of moxidectin-based MDA. • Publish guidelines on the use of alternative treatment strategies, such as twice-yearly ivermectin MDA or moxidectin MDA. • Develop and evaluate post-treatment and post-validation surveillance models to enable timely detection of recrudescence or transmission re-establishment and support long-term sustainability.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• Guidelines for stopping MDA and verifying elimination are available (2016), with additional programmatic guidance on elimination mapping (2024) and integrated post-validation and post-verification surveillance planning (2025). • The appropriateness of current serological thresholds for stopping MDA remains under review. • Since 2017, the WHO Onchocerciasis Technical Advisory Subgroup has regularly reviewed and provided technical guidance on elimination and post-elimination strategies, while identifying key research priorities. • The WHO framework for integrated control and management of skin NTDs (2022) provides guidance on case and morbidity management, but these interventions are not a core focus for interruption of transmission. • The WHO *Entomological manual for onchocerciasis elimination programmes* (2023) provides operational guidance for entomological evaluations, surveillance and transmission assessment. • Operational guidance is needed on vector control, to standardize context-specific decision-making regarding initiation, method selection and implementation scale. • Guidance for elimination has expanded since 2020, but adaptation into national elimination plans and SOPs remains uneven across countries.	• Consolidate existing guidance into an operational manual for programme managers, harmonizing procedures, tools and evidence requirements for assessing interruption of transmission and verification of elimination. • Review and refine current serological thresholds for stopping MDA and informing transmission interruption decisions. • Provide detailed operational guidance for implementing onchocerciasis elimination interventions in *L. loa* co-endemic settings. • Develop operational guidance for programme managers to support context-specific decisions on vector control initiation, method selection, and implementation scale and frequency. • Support national programmes to adapt global technical guidelines into national elimination plans and country-specific operational procedures. • Develop operational guidance to inform the potential use of moxidectin for preventive chemotherapy, including pharmacovigilance, implementation procedures, and monitoring and evaluation systems.
Planning, governance and programme implementation 2026 2020	• National onchocerciasis elimination committees (NOECs) have been established in most endemic countries, but their functionality and level of engagement are variable. • Most endemic countries implementing ivermectin MDA have reported improvements in treatment coverage, but coverage and implementation performance remain uneven across settings. • Implementation of elimination interventions is often constrained by incomplete onchocerciasis elimination mapping in hypoendemic and epidemiologically uncertain settings, as well as insufficient surveillance across transmission settings. • Operational transmission zones are inconsistently delineated, with limited operational guidance on their definition, size and integration of epidemiological, ecological and entomological evidence. • There is limited cross-border coordination for implementation of onchocerciasis elimination activities between neighbouring countries. • Pharmacovigilance remains inconsistently integrated into onchocerciasis programmes and is not yet routinely embedded within programme implementation.	• Establish NOECs, or their equivalent, where absent and strengthen them to ensure engagement, technical oversight and functionality. • Integrate essential onchocerciasis elimination and post-elimination services into national UHC benefit packages to enhance equitable access to services and support long-term sustainability. • Strengthen MDA delivery systems to achieve consistently high coverage and implementation quality across all endemic settings. • Complete onchocerciasis elimination mapping and strengthen surveillance systems to guide evidence-based selection of interventions and strategies across diverse transmission settings. • Develop operational guidance to standardize delineation of operational transmission zones and outline adaptable microplanning frameworks for implementation of activities within them. • Enhance integration of pharmacovigilance into onchocerciasis programmes through routine collaboration and proactive safety monitoring. • Strengthen cross-border coordination mechanisms to support harmonized implementation of elimination activities across shared transmission zones.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Monitoring and evaluation 2024 2020	• Mapping of hypoendemic areas in Africa is incomplete. • Lack of funding hampers countries' ability to implement monitoring and evaluation activities according to guidelines. • A strategy for post-elimination surveillance and verification is being developed. • Onchocerciasis elimination mapping guidelines have been developed and are under review for publication. • Efforts are ongoing towards an integrated monitoring and evaluation strategy for onchocerciasis and lymphatic filariasis (integrated Transmission Assessment Survey).	• Complete the review of the onchocerciasis elimination mapping strategy. • Develop and disseminate protocols for standardization of mapping to ensure consistency of data. • Improve mapping and sampling in *L. loa* co-endemic areas to enable granular treatment approaches. • Close data gaps in hypoendemic areas through development of tools that are easier to use. • Ensure that monitoring and evaluation guidance reflects new tools and revised thresholds.
Access and logistics 2024 2020	• There is a strong supply of medicines donated by Merck through the Mectizan Donation Program. • Supply of treatment is adequate for MDA activities, but access is limited at the health facility level.	• Ensure countries have systems to access and distribute new medicines as they are developed. • Develop plans to add new medicines to the supply chain when available. • Strengthen digital systems to improve planning and monitoring, especially at the last mile. • Improve planning, procurement and logistics for current and future diagnostic access.
Health care infrastructure and workforce 2026 2020	• As countries progress towards elimination, the burden of severe onchocerciasis has declined. • Interruption of transmission relies primarily on MDA, surveillance and diagnostics, whereas clinical management and morbidity management and disability prevention play a less central role. • Routine access to timely, quality-assured specialized diagnostics remains limited, with some programmes continuing to rely on regional reference laboratories and external quality assurance systems. • Health care workers and programme staff are generally familiar with MDA implementation but less prepared for post-treatment surveillance, case detection and specialized diagnostics.	• Advocate for the provision of comprehensive onchocerciasis services at primary level within UHC frameworks in countries yet to achieve elimination, including clinical diagnosis, case management and ophthalmological care, while recognizing these services support morbidity management rather than transmission elimination. • Strengthen links between onchocerciasis programmes and national laboratory systems, including logistical coordination, to ensure routine and timely access to specialized diagnostics for decision-making. • Where needed, establish or strengthen national laboratories able to meet quality assurance standards for onchocerciasis diagnostics and entomological testing. • Strengthen in-country quality assurance systems for specialized diagnostics, including proficiency testing, standardized procedures and laboratory oversight. • Expand access to regional laboratory networks to strengthen specialized diagnostic capacity, quality assurance and technical support. • Strengthen workforce capacity for post-treatment activities, including case detection, diagnostics, post-treatment surveillance and vector surveillance.

Category: Enablers

Dimension and assessment	Current status	Actions required
Advocacy and funding 2024 2020	• Most programmes are dependent on external donor support. • Country leadership of programmes and mobilization of investment remains challenging. • Efforts to institute sustainability plans are ongoing. • The establishment of the Global Onchocerciasis Network for Elimination (GONE) is enabling additional support for programme activities.	• Develop an advocacy plan and continue advocacy to ensure donor support. • Increase domestic financing to ensure sustainability. • Ensure and maintain support for GONE to accelerate advocacy and funding. • Develop alternative advocacy and funding strategies to ensure a wide portfolio of interventions to accelerate progress towards elimination.
Collaboration and multisectoral action 2026 2020	• International coordination platforms for elimination include the Non-Governmental Development Organisation Coordination Group for the Elimination of Onchocerciasis, GONE, the Onchocerciasis Elimination Program for the Americas (OEPA), and WHO ESPEN, with broader policy support from regional bodies such as the African Union. • Networks of nongovernmental organizations, academic institutions, donors and multilateral partners, such as OEPA, ESPEN and the Mectizan Donation Program, support technical collaboration, innovation and operational learning for onchocerciasis elimination. • Collaboration within the health sector, particularly with other preventive chemotherapy NTD and skin NTD programmes, is common, but multisectoral engagement for vector control and resource mobilization remains limited. • Community engagement was sustained during MDA activities; however, local involvement in post-treatment and entomological surveillance following treatment cessation is not yet fully established. • Cross-border collaboration remains challenging, with limited formal mechanisms for coordinating interventions between neighbouring countries.	• Develop mechanisms and guidance to strengthen donor and partner coordination and harmonize planning, funding, implementation and reporting processes for cross-border activities. • Strengthen integrated management of skin NTDs through shared service delivery, surveillance and programmatic indicators. • Strengthen collaboration with ecological and vector control stakeholders to support surveillance, transmission mapping and elimination activities. • Develop and sustain community engagement approaches that support local participation in planning and implementation of post-treatment, post-validation and entomological surveillance activities. • Strengthen health diplomacy to establish formal cross-border collaboration mechanisms that support coordinated planning, surveillance and implementation across cross-border operational transmission zones.
Capacity and awareness building 2026 2020	• WHO training materials are available, including an online course for frontline workers (WHO Academy) and an entomological manual (2023). • Standardized field-oriented operational manuals remain limited for key elimination and post-elimination activities, including case detection, post-treatment surveillance and specialized diagnostic procedures. • Shortages of trained entomology personnel persist across endemic countries, limiting capacity for entomological surveillance and targeted vector-related interventions where appropriate. • Many endemic countries require additional capacity in specialized diagnostic assays and laboratory procedures needed for confirmatory diagnosis, surveillance and elimination decision-making. • Sensitization and communication activities are usually centred on MDA campaigns, and approaches for sustaining community awareness and engagement after treatment cessation remain underdeveloped.	• Adapt existing entomological guidance into practical, field-oriented manuals and job aids for frontline workers involved in surveillance and vector control. • Develop SOPs for the collection, processing and management of entomological and diagnostic samples to ensure consistent implementation across settings. • Support development of tailored short courses in diagnostics, laboratory procedures and surveillance systems for laboratory personnel and programme managers. • Design and evaluate community engagement strategies to sustain awareness and participation in post-treatment and post-validation surveillance following MDA cessation.

Rabies

Rabies is a viral disease causing progressive inflammation of the brain and spinal cord. It is fully vaccine-preventable but fatal once clinical symptoms develop. About 40% of people with rabies are children aged under 15 years.

Disease and epidemiology

- Rabies is caused by infection with the rabies virus or other lyssaviruses.
- Rabies is fully vaccine-preventable but fatal once clinical symptoms start to develop.
- Infection causes progressive and fatal inflammation of the brain and spinal cord; there are two clinical presentations of rabies:
  - furious rabies (80% of cases), in which hyperactivity and excitable behaviour are exhibited, and death occurs within a few days; and
  - paralytic rabies (20% of cases, often misdiagnosed), in which the muscles gradually become paralysed, and coma and death eventually result.
- The rabies virus is mainly transmitted to humans through the bites of domestic dogs (about 99% of cases) but also by various other mammals, such as bats.
- About 40% of people with rabies are children aged under 15 years.

Risks that require mitigation

- Underreporting and weak surveillance leading to underestimation of burden and insufficient sustainable funding
- Insufficient scale-up of dog vaccination
- Inadequate access to timely PEP, particularly in rural and underserved areas
- Limited community awareness of how to prevent bites and the need to perform wound washing and seek immediate care after possible exposure
- Weak coordination within and between (One Health) human and animal health sectors

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Access to water and soap for wound washing after exposure to significantly decrease the viral load in the wound • Stronger environmental sanitation, including effective solid waste management, as part of humane dog population management
Vector control	• N/A
Veterinary public health	• Mass vaccination of dogs (vaccinating 70% of dog populations in high-risk areas) to break the rabies transmission cycle • Dog population management
Case management	• Thorough wound washing • Timely risk assessment of wound and bite circumstances • PEP with the rabies vaccine, as well as rabies immunoglobulin for category III exposures, immediately after exposure to a potentially rabid animal • Palliative care if symptoms of rabies are present, as death is imminent
Other	• Community engagement and education, especially for children (e.g. how to avoid being bitten and what to do in the event of a bite) • Pre-exposure vaccination for people at high risk of exposure to the rabies virus (e.g. laboratory staff working with the rabies virus, veterinarians and animal handlers)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries having achieved zero human deaths from rabies	80/169 (47%)	89/169 (53%)	95/169 (56%)	113/169 (67%)	**155/169 (92%)**
Number of countries having reduced mortality due to dog-transmitted human rabies by 50%	100/169 (59%)	134/169 (79%)	No data	160/169 (95%)	**169/169 (100%)**
Number of countries having reached 70% vaccination coverage of dogs in high-risk areas	63/169 (37%)	96/169 (57%)	No data	116/169 (69%)	**154/169 (91%)**

Burden of disease

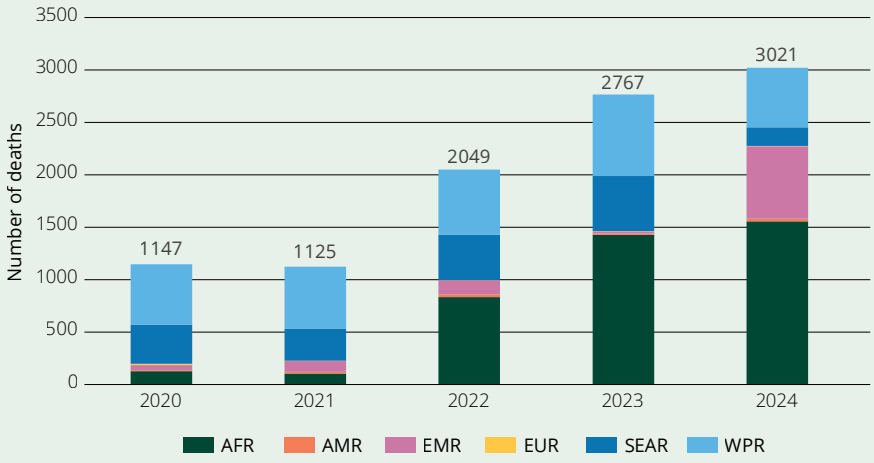
78 countries
still have dog-transmitted human rabies, mostly in Africa and Asia

2.6 million
estimated DALYs in 2021[a]

44 203
estimated deaths in 2021[a]

[a] *Source:* GHE 2021.

Number of reported human rabies deaths, by WHO region, 2020–2024[a]

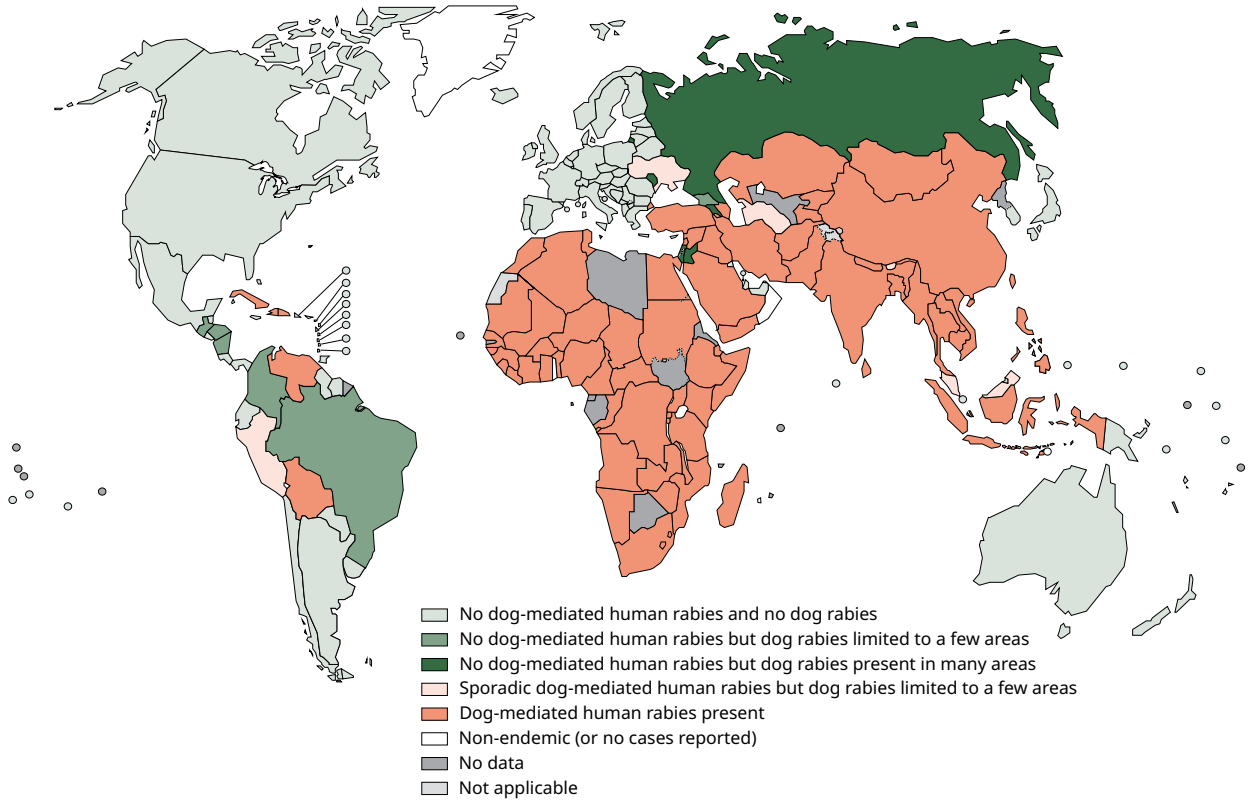


AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

[a] Reported deaths substantially underestimate the true burden of rabies because of misdiagnosis and underreporting.

Geographical distribution and status

Presence of rabies in humans and dogs, 2022



Progress at mid-term

Since the launch of the NTD road map, countries have continued to strengthen national rabies programmes. Progress has been made, with an increasing number of countries designating rabies as a notifiable disease, establishing national rabies control strategies and focal points, strengthening One Health coordination mechanisms, and progressively implementing Integrated Bite Case Management, improving collaboration between the human and animal health sectors.

WHO, FAO, WOAH and other United Against Rabies Forum partners have expanded resources to support countries in strengthening training, education and awareness among health professionals, veterinary personnel, communities and school-aged children, including through new online learning resources and standardized educational materials.

Nevertheless, substantial challenges remain. Diagnostic, surveillance and reporting capacities remain limited in many endemic countries, and reported deaths continue to substantially underestimate the true burden of rabies. The increase in deaths reported here partly reflects improved surveillance and reporting in several endemic countries, rather than a confirmed increase in disease burden.

Dog vaccination coverage remains below the level required to interrupt transmission in many endemic countries, and equitable access to timely PEP is not yet assured. Under a revised investment strategy of Gavi, rabies PEP is still supported through the discretionary vaccine budget, enabling eligible countries to apply.

Accelerated implementation of proven interventions at scale, sustained domestic investment and strengthened multisectoral collaboration will be essential to achieve the rabies targets of the road map.

Summary of critical actions to achieve targets

Improve forecasting of demand for rabies vaccine and immunoglobulin to ensure adequate supply in facilities, and develop innovative approaches for delivery to ensure timely access to PEP and dog vaccination.

Strengthen and institutionalize multisectoral surveillance and risk mapping for rabies, and improve country compliance with reporting to ensure data availability.

Continue improving community engagement and awareness of rabies prevention.

Build national capacity of health and veterinary workers (in, for example, rabies exposure assessment, diagnosis, administration of PEP) and capacity for dog management (such as mass dog vaccination).

Improve domestic financing and country ownership of rabies programmes.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Strong understanding of rabies epidemiology and pathology provides a robust evidence base to guide interventions for elimination of rabies as a public health problem. • There is increasing emphasis on operational and implementation research, particularly related to surveillance and programme delivery. • Knowledge of rabies geographical distribution remains limited in many endemic countries because of underreporting, limited surveillance coverage and poor-quality data. • Endemic countries face workforce, surveillance and laboratory capacity constraints, limiting the effective application of available tools and technical knowledge. • Gavi supports improved understanding of disease burden and programme implementation, but progress is constrained by gaps in country reporting, data quality and field-based mapping.	• Strengthen integrated One Health surveillance systems by linking human, animal and bite case data. • Strengthen country capacity for rabies data collection and mapping, including the use of modelling tools alongside field-based approaches. • Support operational research to improve the efficiency and equity of rabies surveillance, dog vaccination, bite case management and PEP across settings. • Support adoption and integration of improved surveillance and mapping methods into programme planning and implementation.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• There are ongoing efforts to use the Settlement Type and Road Connectivity (STARC) model to reassess and map the global rabies disease burden. • There is some understanding of the possible nontarget or indirect benefits of rabies interventions, but these are yet to be systematically assessed.	• Generate evidence on the indirect, nontarget and broader One Health effects of rabies interventions, which remain insufficiently evaluated at scale.
Diagnostics 2024 2020	• Well-established diagnostic protocols are available. • Comparative assessments of various diagnostics are ongoing.	• Validate the postmortem diagnosis of rabies in animals (e.g. RDT) to improve post-bite treatment. • Prioritize developing RDTs for humans to detect more cases after exposure.
Effective interventions 2026 2020	• Dog vaccination is a well understood and effective preventive intervention. • Post-exposure management in humans primarily consists of PEP, including wound care, vaccination and rabies immunoglobulin where indicated; there is no curative treatment once symptoms develop. • PEP is well established and effective if administered promptly, although affordability and access remain a constraint in some settings. • One Health, multisectoral and community-based approaches are increasingly being adopted but remain inconsistently implemented across settings. • Technical knowledge and effective tools for rabies elimination are available, but implementation and uptake remain uneven across countries.	• Expand availability and equitable access to rabies immunoglobulin (RIG) and to rabies monoclonal antibody products as an alternative. • Address affordability barriers to PEP and the costs associated with implementing large-scale dog vaccination programmes. • Adapt and optimize dog vaccination delivery strategies to local contexts, including community-based approaches, to improve coverage in hard-to-reach settings. • Strengthen country-level prioritization, planning and financing to support implementation at scale. • Optimize and scale delivery of proven interventions, including dog vaccination and PEP, ensuring equitable access across populations and geographical areas.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• Several normative and operational guidelines are available for rabies interventions, covering prevention and case management. • The third report of the WHO Expert Consultation on Rabies (technical report series no. 1012; 2018) provides guidance on rabies prevention, vaccines, laboratory diagnostics and case management. • The WOAH *Terrestrial Animal Health Code* was updated in 2025. • The WOAH *Manual of diagnostic tests and vaccines for terrestrial animals* was published in 2023. • A protocol for rabies PEP delivery was released in 2024. • *Zero by 30: the global strategic plan to end human deaths from dog-mediated rabies by 2030* was jointly published by WHO, FAO and WOAH in 2018. • Global guidance has been established to support countries in designing and implementing elimination strategies, although application varies across settings. • Guidance is developed through collaborative mechanisms, such as the United Against Rabies Forum, led by WHO, WOAH and FAO, reflecting the One Health multisectoral approach required for rabies control. • Operational guidance supports programme delivery, including surveillance, monitoring and implementation processes for interventions such as dog vaccination and PEP. • Gaps remain in context-specific guidance, particularly for countries with a low or historically low rabies burden, including guidance on surveillance and prevention or re-emergence.	• Strengthen dissemination and uptake of global guidance across countries, including contextual adaptation into national standard operating procedures. • Generate and apply operational evidence to improve access to PEP and scale up dog vaccination in all endemic settings. • Clarify and optimize delivery models for human rabies interventions, including defining suitable service delivery platforms for implementation at scale.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• The United Against Rabies Forum's "Zero by 30" strategy provides a global framework and operational road map to achieve zero human deaths from dog-mediated rabies by 2030. • Rabies is included in national coordination mechanisms and NTD structures in many endemic countries, but their operational functionality varies across countries. • Integration with other NTD programmes is limited and not widely implemented, with only some countries implementing integrated activities. • Weak surveillance and reporting systems, including underreporting and poor-quality data, limit accurate assessment of disease burden and constrain effective programme planning. • Pharmacovigilance systems for rabies vaccines remain limited in many settings, although vaccines are considered safe and widely used. • Regulatory challenges, including the presence of falsified or substandard vaccines in some settings, highlight gaps in quality assurance and regulatory oversight.	• Strengthen functionality and accountability of national coordination mechanisms, including clear roles, responsibilities and financing for implementation of rabies interventions. • Strengthen implementation of One Health approaches at country level, improving coordination among human, animal and other relevant sectors. • Improve coverage of rabies control activities across endemic areas to address gaps in programme delivery. • Enhance integration of rabies activities within national NTD and other relevant health programmes, leveraging existing coordination platforms and plans for other diseases. • Improve surveillance, reporting and data quality systems to better monitor programme performance and support planning and integration. • Strengthen regulatory oversight and quality assurance systems for rabies vaccines, including measures to address the risk of falsified or substandard products.
Monitoring and evaluation 2024 2020	• A WHO Integrated Data Platform module on rabies has been finalized. • The WOAH World Animal Health Information System for animal rabies reporting is in place and has been updated but is not used for monitoring and evaluation. • It is unclear who is responsible for rabies monitoring and evaluation and data collection at country level, as a designated focal point is often lacking, and rabies is not well integrated into NTD reporting systems. • Global guidance and data systems are available.	• Improve WHO guidance rollout and data quality for national reporting compliance. • Strengthen surveillance with suspicious death indicators and sample collection processes. • Ensure adequate investment to meet all monitoring and evaluation requirements. • Support countries in finalizing strategic plans and applying for WOAH programmes. • Support digitization of data collection and monitoring and evaluation systems at country level.
Access and logistics 2024 2020	• There is adequate global production capacity for rabies vaccines. • Demand forecasting and management of vaccines are weak, leading to stock-outs. • The WOAH Rabies Vaccine Bank is operational, although capacity and supply are dependent on demand. • Donation of vaccines is pledged, but operational costs and technical support are not covered, which prevents country programmes from implementing effective rollout.	• Ensure availability of quality-assured vaccines, and collect data to forecast demand and inform procurement. • Integrate PEP into Expanded Programme on Immunization systems to strengthen the supply chain. • Develop innovative approaches to improve delivery systems for timely PEP and dog vaccinations. • Improve systems to identify patients with rabies to aid the prioritization of vaccine application.
Health care infrastructure and workforce 2026 2020	• Health system capacity for rabies remains insufficient in many endemic countries, with persistent gaps in workforce capacity, laboratory services and service delivery. • PHC services do not consistently provide rabies case management, including timely wound care, PEP and referral. • Workforce shortages and training gaps persist, particularly for frontline staff operating at primary care and community levels. • Access to rabies prevention, diagnosis and case management services remains uneven across endemic areas. • Centralized laboratory systems create bottlenecks that delay diagnosis and constrain effective surveillance.	• Ensure availability of essential equipment for wound care and vaccine storage at health facilities, principally at the primary care level. • Strengthen and decentralize laboratory diagnostic capacity for rabies through accessible, well-equipped laboratories and trained personnel, to improve timely and accurate diagnosis. • Increase use of existing training materials to build workforce capacity, particularly at primary care and community levels. • Expand access to anti-rabies services with trained staff for intradermal vaccine administration and wound infiltration of rabies immunoglobulin.

Category: Enablers

Dimension and assessment	Current status	Actions required
Advocacy and funding 2024 2020	• There is strong investment by Gavi in rabies vaccine for PEP for humans through the discretionary vaccine budget. • Advocacy through the multi-stakeholder platform of the United Against Rabies Forum continues to increase the profile of rabies. • World Rabies Day remains a good initiative for rabies education.	• Secure investment for mass dog vaccinations. • Strengthen country-level commitment and political will to eliminate rabies. • Advocate to international development partners to address the demands from countries, rather than applying top-down funding. • Integrate rabies into other NTD programmes to effectively use available funding. • Showcase rabies as an initiative and proof of concept for operationalizing One Health approaches.
Collaboration and multisectoral action 2026 2020	• The United Against Rabies Forum provides a One Health collaboration framework to support global rabies elimination efforts, bringing together more than 90 members, led by WHO, WOAH and FAO. • Cross-sectoral collaboration has improved through the adoption of One Health approaches but remains insufficient to support effective implementation at scale in many endemic countries. • The WOAH Rabies Vaccine Bank supports the implementation of dog vaccination campaigns. • Integrated approaches, such as Integrated Bite Case Management, which links human and animal health sectors for surveillance and decision-making, are implemented in only a limited number of countries. • Engagement with at-risk or affected communities is often limited to specific campaigns rather than routine programme delivery, reducing programme effectiveness, ownership and uptake.	• Strengthen multisectoral planning and coordination across ministries, stakeholders and partners to reduce fragmentation and support coherent implementation of elimination activities. • Strengthen integration of rabies activities within existing national health and NTD platforms, where applicable and feasible. • Support implementation of One Health approaches by improving data sharing and reporting across human, animal and other relevant sectors at subnational, national and global levels. • Strengthen country reporting of rabies surveillance data to improve data completeness, data quality and programme monitoring. • Improve routine and sustained engagement with communities, civil society and the private sector to support awareness and uptake of rabies prevention and control services.
Capacity and awareness building 2026 2020	• Effective interventions are available, but additional in-country capacity is needed to support health care delivery, dog population management and dog vaccination. • Although global rabies training materials are widely available, uneven implementation of training programmes contributes to workforce gaps, missed case detection and weak referral, particularly at primary care level. • Communication and awareness materials are generally available across countries, but their use is often inconsistent and not sustained, limiting their impact. • Community engagement and social mobilization activities are commonly implemented during campaigns (e.g. World Rabies Day) rather than sustained routinely, limiting their impact.	• Strengthen training of health workers, particularly in regard to exposure assessment, diagnosis and correct PEP administration. • Strengthen dissemination and routine use of existing training materials through health worker training and other programme activities. • Expand and strengthen veterinary workforce training to support large-scale dog vaccination programmes. • Enhance information, education and communication activities, including routine adaptation and dissemination of existing materials, to raise awareness and foster preventive and timely care-seeking behaviour. • Enhance community engagement and behaviour change interventions, ensuring they are routinely implemented and embedded within health systems. • Expand engagement with schools and ministries of education to provide sustained, school-based rabies education for children.

Scabies and other ectoparasitoses (scabies)

Scabies is a parasitic skin disease caused by infection with a microscopic mite. It causes intense itching and rash and is a major cause of disability and secondary bacterial skin infection, which can lead to serious complications.

Disease and epidemiology

- Scabies is caused by infestation of the skin with the microscopic mite *Sarcoptes scabiei* var. *hominis*.
- Scabies is transmitted primarily through prolonged, close skin-to-skin contact with an infested person; the female mite burrows into the skin and lays eggs, triggering an immune response that causes intense itching and rash.
- Scabies is one of the most common skin diseases worldwide, with about 200 million people infested at any given time.
- The disease is a major cause of disability and secondary bacterial skin infection, which can lead to serious complications, such as severe soft tissue infections, septicaemia, kidney disease and, potentially, rheumatic heart disease.
- Complete mapping by countries is needed to better understand the epidemiology and distribution of scabies and to identify areas that require preventive chemotherapy to control the disease as a public health problem.
- Ivermectin MDA delivered for onchocerciasis and lymphatic filariasis may have a collateral effect on scabies, but the evidence is mixed, and any benefit from single annual dosing is often short-lived.

Risks that require mitigation

- Possibility of scabies resurgence as programmes that use ivermectin are discontinued
- Possible reduced treatment efficacy as MDA against scabies becomes more commonly used

Core strategic interventions

Preventive chemotherapy	• MDA using oral ivermectin and topical scabicides
WASH	• Hygiene measures may be helpful as part of the response to institutional outbreaks and reduce the risk of secondary infection in infested individuals
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Topical scabicides, such as permethrin, benzyl benzoate, malathion and sulfur ointment • Oral ivermectin • Treatment of all household contacts • Specialist case management of crusted scabies cases
Other	• N/A

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries having incorporated scabies management in the UHC package of care	0	25/194 (13%)	16/194 (8%)	50/194 (26%)	**194/194 (100%)**
Number of countries using MDA intervention in all endemic districts	0	3	No data	6	**25**

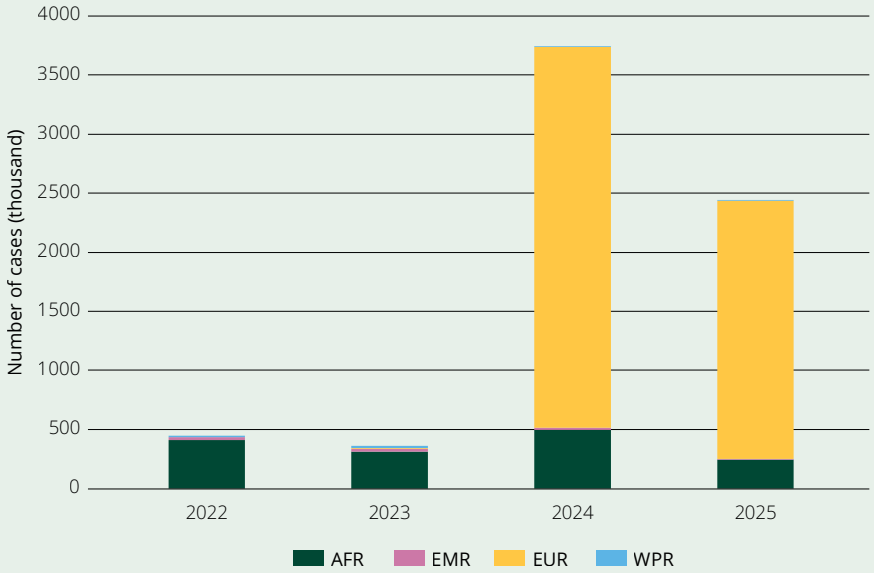
Burden of disease

About
124 million
prevalent cases in 2023

About
3.2 million
DALYs in 2023

3.7 million
cases reported to WHO in 2024

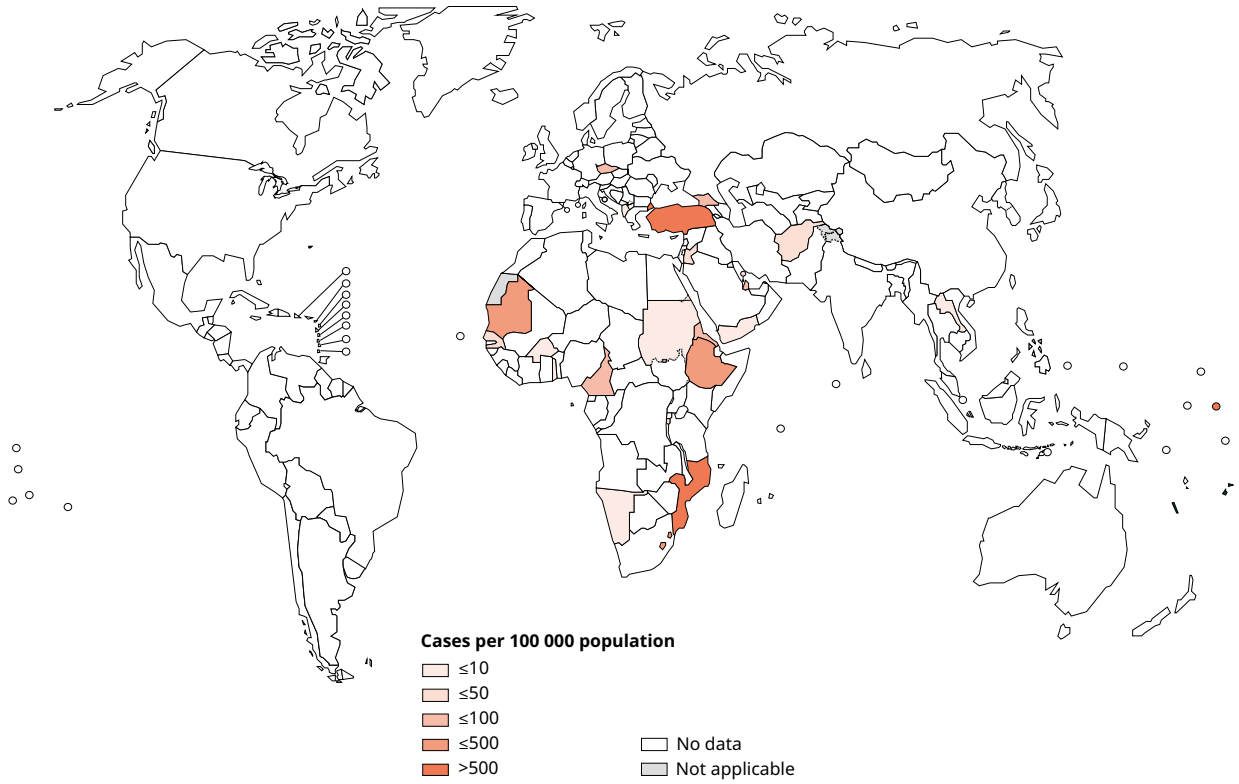
Number of scabies cases reported, by WHO region, 2022–2025



AFR: WHO African Region; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Reported clinical scabies cases per 100 000 population, 2024



Progress at mid-term

Compared with the 2020 road map baseline, the burden of scabies is now better characterized through complementary evidence from GBD estimates and strengthened routine surveillance. According to GBD 2023 data, scabies was responsible for an estimated 3.19 million DALYs globally, compared with 3.12 million DALYs in 2020, representing a 2.3% increase. However, the DALY rate remained essentially stable, decreasing slightly from 39.9 to 39.7 DALYs per 100 000 population, indicating that the modest increase in absolute DALYs largely reflects global population growth rather than an increase in the population-adjusted burden. Similarly, the estimated number of people living with scabies increased from 120.7 million in 2020 to 123.5 million in 2023, while the modelled prevalence rate remained relatively stable, declining slightly from 1545.2 to 1538.8 per 100 000 population.

Routine surveillance has also improved substantially since 2020, through the WHO GNARF platform, enabling standardized reporting of annual clinical scabies cases. In the 2024 reporting cycle, 27 countries reported a total of 3 738 399 clinical scabies cases. Using UN World Population Prospects 2024 population estimates as the denominator, reported clinical scabies case rates varied widely across reporting countries, with the highest rates in Türkiye (3667.3 per 100 000 population), Kiribati (2982.5), Mozambique (686.5), Eswatini (405.0), Mauritania (172.8) and Lesotho (170.9). These findings demonstrate substantial heterogeneity in disease occurrence across reporting countries.

The GNARF surveillance data should not be interpreted as estimates of disease prevalence or incidence and are not directly comparable with GBD modelled prevalence estimates. Rather, they represent reported clinical cases captured through routine health information systems and are influenced by surveillance sensitivity, care-seeking behaviour, diagnostic practices, reporting completeness and programme implementation. Nevertheless, compared with the 2020 baseline, the expansion of standardized routine surveillance represents a significant advance in monitoring scabies and provides an increasingly robust evidence base for programme planning, monitoring and evaluation. Continued strengthening of surveillance quality, standardized case definitions, reporting completeness and integration with epidemiological studies will further improve burden estimation and assessment of progress towards the road map targets.

In addition to scabies, a review of literature on the epidemiological characteristics of ectoparasitic diseases in the Region of the Americas, carried out by PAHO's Regional Program on Neglected Infectious Diseases, informed the inclusion of tungiasis, hookworm-related cutaneous larva migrans, pediculosis capitis and myiasis among ectoparasitoses of public health significance (*1*). This disease summary focuses on scabies only; a complementary disease summary has been developed for tungiasis. Further information on progress of interventions to combat other ectoparasitoses is not yet available.

Summary of critical actions to achieve targets

Strengthen mapping to improve epidemiological understanding, so that MDA can be initiated where prevalence is high.

Create a scabies advocacy and funding plan, secure financing for ivermectin and topical treatments, and advocate for inclusion in UHC.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Understanding of scabies epidemiology and pathology is sufficient to inform current prevention and control strategies. • Epidemiological mapping remains limited in many endemic settings; most data come from a small number of subnational surveys, hindering the accurate estimation of disease burden. • Evidence on the safety of large-scale ivermectin administration for scabies control remains limited, but experience from other NTD programmes supports its safety and feasibility in MDA.	• Scale up national and subnational epidemiological mapping to inform targeted programmatic decision-making. • Ensure the availability, standardization and use of validated survey protocols at country level, informed by the recently released scabies programme manager's guide as a reference for development. • Integrate scabies mapping within existing NTD programme activities (e.g. impact assessment surveys for onchocerciasis, schistosomiasis, soil-transmitted helminthiases and lymphatic filariasis), to reduce fragmentation of monitoring and evaluation in co-endemic settings, particularly where resources are constrained. • Strengthen understanding of the morbidity burden of scabies through quantification of quality-of-life impacts and associated complications, including through the use of standardized metrics, such as DALYs and quality-adjusted life-years.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• Methods exist for screening and individual diagnosis, but point-of-care confirmatory diagnostics are lacking. • The 2020 international consensus criteria standardized scabies diagnosis, informing surveillance and control activities. • TPPs have been established and published. • Discussions about revising and simplifying the criteria for clinical algorithms to be used in the field are ongoing.	• Validate clinical diagnostic algorithms for programmatic use in the field. • Develop population-level diagnostics for programme activities, including epidemiological assessments, and facilitate integration with other NTD programmes.
Effective interventions 2026 2020	• Strong evidence supports the effectiveness of ivermectin-based MDA, including when coadministered with other preventive chemotherapy NTD interventions, but guidance on alternative treatment strategies in areas co-endemic with *Loa loa* infection remains limited. • Scale-up of ivermectin-based MDA is constrained by procurement costs and operational and logistical challenges; many existing initiatives are small scale, research-focused or at the pilot stage. • Clinical management of scabies and secondary infections is well established, and WHO technical guidance is available, but implementation remains limited by drug availability and health workforce capacity, particularly within PHC services in remote areas.	• Determine if ivermectin-based single-dose MDA is effective for programmatic use, compared with two doses administered 7 days apart. • Identify and evaluate alternative MDA strategies, including safe and effective approaches for loiasis co-endemic settings. • Strengthen the evidence base on optimal paediatric dosing of ivermectin, including the development and adoption of appropriate dosing strategies and formulations, aligned with WHO paediatric drug optimization priorities. • Strengthen the evidence base for moxidectin as a potential single-dose treatment option for scabies. • Integrate scabies case and contact management into PHC services, supported by clear technical guidance, training and operational tools, within the context of UHC frameworks.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• The 2019 WHO informal consultation established a scabies control framework, defining recommendations on mapping, intervention delivery, monitoring and evaluation, and operational research priorities. • A WHO guide for national programme managers was released in 2025, providing technical and operational guidance for the implementation of scabies control programmes.	• Adapt and operationalize WHO technical guidance within national and subnational health systems, aligned with existing programme structures and delivery platforms. • Institutionalize training to support implementation of technical guidance across the health system, with routine monitoring of coverage, quality and adherence. • Expand country-level operational guidance to support integration of scabies into NTD and community-based platforms, including routine surveys, reporting systems, and monitoring and evaluation activities. • Prioritize development and implementation of country-level operational guidance for diagnosis, prevention, treatment and case management within PHC services, integrated with broader skin NTD services where feasible. • Strengthen global technical coordination to support periodic review and updating of the scabies control framework, based on emerging evidence and programmatic experience.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• Global organisations, such as the World Scabies Program, the International Alliance for the Control of Scabies and the International League of Dermatological Societies, support scientific collaboration, advocacy and technical coordination for scabies control. • Scabies remains a low public health priority in many endemic settings, with limited evidence of formal governance structures, programme leadership, and coordinated planning and implementation alongside other NTD programmes.	• Include scabies and associated bacterial skin infections within national UHC frameworks and Integrated Management of Childhood Illness guidelines, where feasible. • Designate a focal point for scabies within national NTD programmes, or skin NTD structures, to support coordination, surveillance and integration into national planning processes. • Integrate scabies treatment within NTD and community-based delivery platforms, where feasible, to deliver interventions without establishing parallel implementation systems. • Develop simple, costed treatment implementation plans aligned with programme priorities and available resources. • Include scabies control within annual NTD workplans and budgets to support sustainable implementation.
Monitoring and evaluation 2024 2020	• Accurate country-level prevalence data needed to guide programmatic actions are lacking. • The World Scabies Program has produced a monitoring and evaluation framework.	• Ensure robust validation and dissemination of protocols and field manuals for standardization of mapping, to ensure consistency of data. • Develop systems for tracking scabies outbreaks and monitoring areas of migration and displacement camps. • Consider integrating monitoring and evaluation strategies with those for other skin diseases and with NTDs using ivermectin for MDA (onchocerciasis and lymphatic filariasis).
Access and logistics 2024 2020	• Ivermectin was added to the WHO Model List of Essential Medicines for ectoparasites in 2019. • The number of manufacturers producing generic ivermectin has increased since 2019. • WHO-prequalified ivermectin is now available in the WHO catalogue and can be procured.	• Secure supply of low-cost ivermectin and topical and systemic scabicides. • Identify further potential generic manufacturers of ivermectin that could obtain WHO prequalification. • Ensure availability of topical and systemic scabicides and treatment at all health care levels.
Health care infrastructure and workforce 2026 2020	• Diagnosis of scabies is primarily clinical and does not require laboratory confirmation, enabling effective case detection and management in peripheral settings. • Many endemic settings have basic clinical capacity for scabies management at PHC level, but gaps in context-adapted training, standardized protocols, and case and contact management guidance limit consistent and effective implementation. • Integrated patient care is embedded within PHC services in many endemic settings, but implementation capacity and service readiness remain variable, affected by limited medicines, trained personnel and operational support. • Access to PHC services is often constrained by geographical and financial barriers, limited treatment availability and low prioritization of scabies and other skin conditions. • PHC services alone are insufficient to ensure equitable access or to achieve targets in high-burden settings, but integration of scabies within UHC frameworks remains limited in most settings.	• Integrate standardized scabies diagnosis and early case management into pre-service and in-service PHC training, supported by supervision and practical job aids tailored to frontline delivery contexts. • Expand delivery of integrated skin NTD training, including for scabies, through existing platforms for frontline health workers, taking into account co-endemicity, workload constraints and competing priorities. • Support training for community health workers, volunteers and other providers (e.g. traditional healers) to strengthen early detection, referral and community awareness. • Include scabies within national UHC plans and essential health service packages to improve treatment availability, affordability and continuity at the primary level.

Category: Enablers

Dimension and assessment	Current status	Actions required
Advocacy and funding 2024 2020	• There is currently minimal donor support for scabies. • The World Scabies Program supports scabies control programmes in two countries. • There is limited domestic prioritization of scabies in many countries, but some progress has been made.	• Secure financing and ensure political commitment to support programmatic action, including the procurement of ivermectin and other scabicides. • Advocate for inclusion of scabies in UHC. • Generate data on the extent and burden of scabies and the need for scale-up to underpin the advocacy and funding activities.
Collaboration and multisectoral action 2026 2020	• Available evidence supports integration of scabies control within NTD programmes, through shared delivery platforms and intervention approaches, but cross-programme and multisectoral coordination remains limited in many settings. • Global coordination and advocacy initiatives exist, supported by organizations such as the International Alliance for the Control of Scabies, the International League of Dermatological Societies and the WHO-led World Scabies Program. • Coordinated advocacy and implementation at regional and country levels remain limited. • Community engagement in the design and implementation of control activities remains limited, with few examples of meaningful involvement in planning and decision-making.	• Strengthen integrated management of skin conditions within PHC systems to support scabies control and broader UHC objectives. • Coordinate scabies activities with existing NTD programmes and community-based health services, where feasible, including mapping, intervention delivery, and monitoring and evaluation, to improve efficiency, sustainability and impact. • Strengthen engagement of civil society organizations, local authorities and community structures, including schools or faith-based organizations, to support awareness raising and delivery of interventions in high-risk settings. • Develop guidance and mechanisms for meaningful participation of affected communities in programme design, implementation and evaluation.
Capacity and awareness building 2026 2020	• Normative guidance and training resources for scabies management are available at global level, but translation into systematic capacity-building initiatives remains inconsistent. • Training on scabies, including diagnosis, prevention, and case and contact management, remains limited, particularly among frontline health workers in remote and underserved settings. • Community engagement and awareness-raising activities remain limited and are largely restricted to MDA-associated interventions in a few countries. • Evidence supporting effective programmatic advocacy approaches and multisectoral communication strategies for scabies control remains limited.	• Strengthen coordination across existing global networks and partnerships (e.g. World Scabies Program) to enhance cross-partner collaboration, advocacy and alignment of technical and programmatic approaches. • Strengthen engagement with dermatology and infectious disease platforms, alongside relevant non-health sectors (e.g. humanitarian and climate-related initiatives), to advance multisectoral approaches in endemic and high-risk settings. • Support dissemination and adaptation of standardized training, behaviour change and communication materials for primary and community levels, including messaging on stigma and discrimination. • Strengthen engagement with community and patient networks to improve awareness of scabies prevention and complications, particularly in high-burden settings. • Engage affected populations in designing and implementing communication and behaviour change interventions, ensuring lived experience informs messaging, delivery and evaluation. • Expand training and awareness raising in high-risk areas (e.g. humanitarian settings), where overcrowding and limited access to care often amplify transmission. • Promote cross-country learning from high-burden and outbreak settings, including high-income contexts, to inform programme design, implementation, communication strategies and outbreak response.

Reference

1. Ectoparasitic diseases in the Region of the Americas: developing a roadmap to determine the regional epidemiological situation and identify actions to reduce the impact. Meeting report (Belo Horizonte, 29–30 July 2019). Washington: Pan American Health Organization; 2020 (https://iris.paho.org/handle/10665.2/52428). Licence: CC BY-NC-SA 3.0 IGO.

Scabies and other ectoparasitoses (tungiasis)

Tungiasis is caused by a sand flea burrowing into the skin, most commonly on the feet. It leads to severe itching and pain, as well as difficulty walking, sleeping and concentrating on school or work, and can lead to abscesses from secondary bacterial infections. Tungiasis affects marginalized, resource-poor populations.

Disease and epidemiology

- Tungiasis is caused by the adult female sand flea (*Tunga penetrans*) burrowing into the skin. The feet are the most common point of infection, but infestation can occur in all parts of the body.
- *T. penetrans* is commonly known as *pulga de areia*, *niguá*, *pique, bicho do pé*, jigger, sand flea or chigoe, depending on geographical location.
- Tungiasis causes immense pain and itching, as well as difficulty walking, sleeping and concentrating on school or work, and can be associated with abscesses caused by secondary bacterial infections.
- It occurs in marginalized, resource-poor populations in the tropics of the Caribbean (Haiti and Trinidad and Tobago), South America and sub-Saharan Africa.
- Elderly people and children aged 5–14 years, particularly boys, are at highest risk. People with disabilities are also highly vulnerable to infection.
- Tungiasis thrives where living conditions are precarious, such as villages located near remote beaches, communities in the rural hinterland and shanty towns of big cities. In these settings, the poorest of the poor carry the highest burden of the disease.
- Both animals and humans are susceptible to infection.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• Frequent sweeping and removal of organic waste • Washing of house floors to eliminate flea larvae habitats
Vector control	• Application of insecticides or natural larvicides (e.g. diatomaceous earth) to infested dusty and sandy peridomestic areas to help kill developing sand fleas before they attack humans or animals
Veterinary public health	• Treatment of primary animal reservoirs (e.g. dogs, cats, pigs, peridomiciliary rodents) with appropriate parasiticides, such as topical imidacloprid–permethrin, to reduce parasite load in a community • One Health approach
Case management	• Topical suffocation using dimeticones • Topical application of coconut oil, neem oil or petroleum jelly as an alternative to dimeticone in resource-limited settings • Surgical removal of the embedded sand flea(s) • Local wound care • Management of bacterial superinfections (including vaccinations for tetanus and hepatitis) • Case management focuses on rapid pain relief, removing the parasite and preventing serious acute complications, such as tetanus, gangrene and septicaemia • Without treatment, a single flea dies in 2–5 weeks
Other	• Environmental management to prevent breeding of fleas • Hardening non-solid earthen floors with cement, or locally available traditional alternatives, to reduce breeding sites

WHO road map indicators with interim milestones and 2030 targets[a]

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries that adopt and implement integrated skin NTD strategies based on local endemicity and report on tungiasis (cases, treatments and public health response)[b]	4	15	1	20	**40**

[a] No targets, milestones and indicators for tungiasis are included in the road map.

[b] Adapted from the road map indicator: Number of countries that adopt and implement integrated skin NTD strategies based on local endemicity.

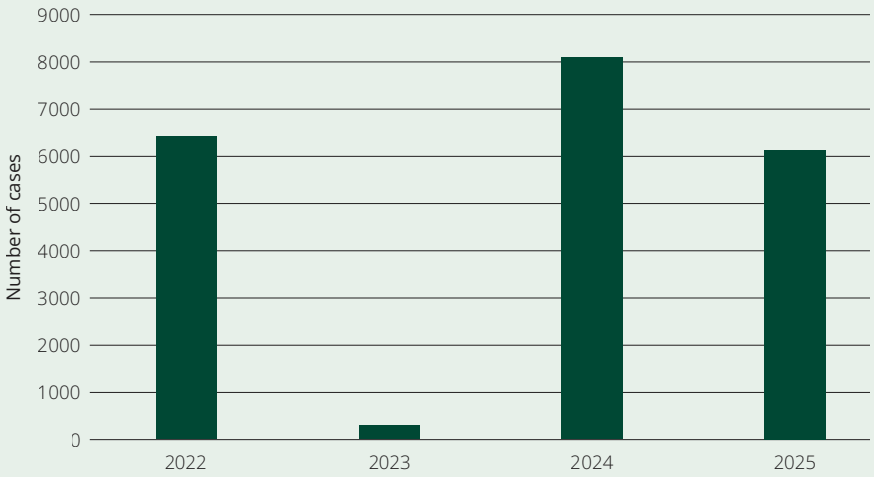
Burden of disease

More than 1 billion
people live in areas suitable for transmission of tungiasis

7–63%
prevalence reported in endemic communities

1
country conducts routine surveillance

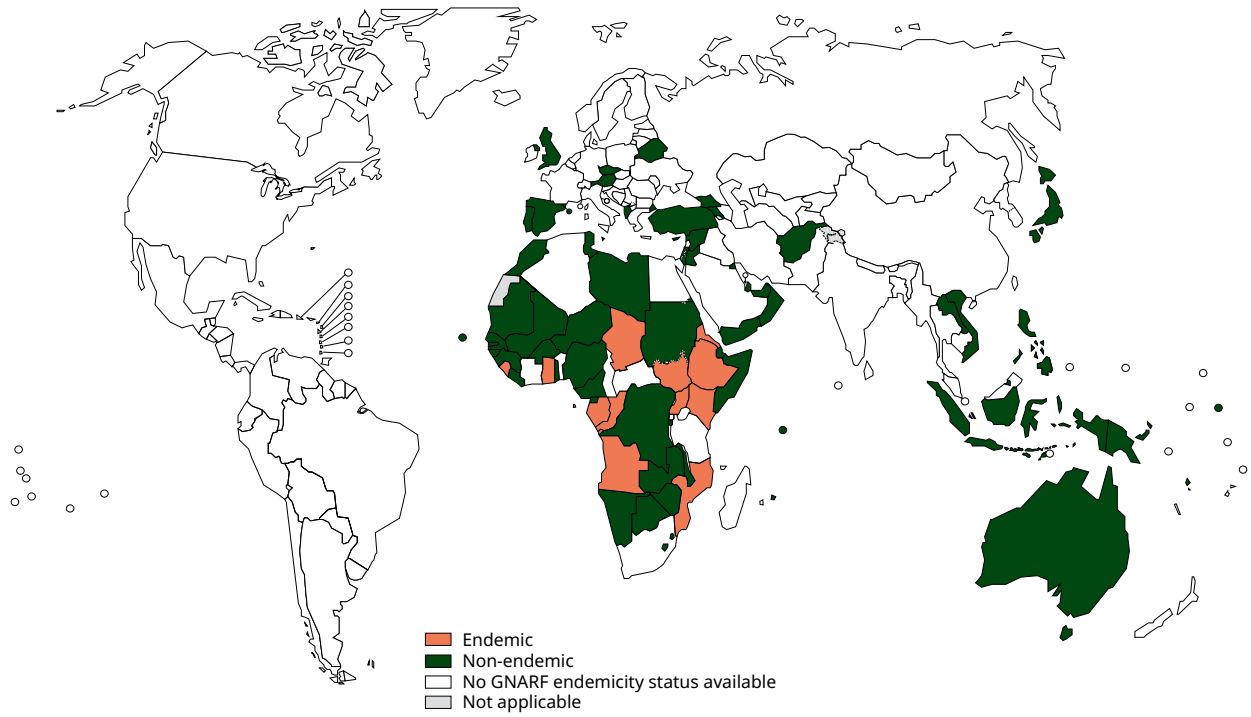
Number of tungiasis cases reported, WHO African Region, 2022–2025



Note: Only data from the WHO African Region were available.

Geographical distribution and status

Tungiasis endemicity status based on the latest available country reports, 2024–2025



Note: Endemicity status reflects the latest available country-reported Global Neglected Tropical Disease Annual Reporting Form (GNARF) submission data (2025 where available; otherwise 2024). The "no GNARF endemicity status available" category should not be interpreted as absence of tungiasis. More information on the current knowledge concerning the epidemiology of tungiasis in the Americas can be found in Saboyá-Díaz et al *(1)*.

Source: WHO GNARF, reporting years 2024–2025.

Progress at mid-term

T. penetrans is found in tropical and subtropical regions of the Caribbean, South America and sub-Saharan Africa. More than 1 billion people live in areas suitable for transmission of tungiasis, but countries rarely conduct routine surveillance, so the actual disease burden is not known. However, within endemic communities, surveys have reported prevalences ranging from 7% to 63%. This illustrates that distribution is heterogeneous and mainly localized in poor, rural and periurban settings.

The major risk factor for tungiasis is extreme poverty, which drives behaviour that puts people at risk of infection. This includes living in housing with an unsealed earthen floor, not washing feet regularly and not using soap when washing. In some communities, infection is also linked to ownership of dogs or pigs and poor waste management that allows infested rodents (rats) easy access to domestic dwellings.

In endemic areas, mechanical extraction of burrowed sand fleas is common. This is usually done as an act of despair by the patient or a caregiver. Embedded parasites are removed under non-sterile conditions using instruments such as sticks, hair pins, thorns, safety pins, sewing needles or scissors. The procedure is painful and traumatizes children. Removing the fleas can cause local inflammation if the parasite ruptures and introduces pathogenic bacteria, leading to further superinfection of the sore. The extraction instrument is often subsequently used on several other people, which risks transmission of diseases such as hepatitis B virus, hepatitis C virus or even HIV.

Long-lasting reduction of incidence and tungiasis-associated morbidity can only be achieved through a One Health approach that integrates behaviour change (increasing use of soap in daily foot washing), spraying floors with insecticide or sealing them, treating infected animal reservoirs and treating humans (safe flea extraction using sterile means).

The regular application of a repellent based on coconut oil effectively prevents the fleas from penetrating the skin. When the repellent is applied twice daily on the feet, tungiasis-associated morbidity rapidly decreases and approaches zero after 8–10 weeks. Even if applied intermittently, the reduction of morbidity is significant.

Risks that require mitigation

- Largely unknown burden of tungiasis and epidemiological distribution of affected populations due to limited surveillance and systematic data collection in most endemic countries
- Transmission associated with inadequate housing, poor sanitation, and close contact with infested environments and animals in impoverished rural, periurban and marginalized communities in sub-Saharan Africa and Latin America
- Lack of epidemiological data, risk mapping of disease burden and distribution, and standard mapping protocol
- Limited understanding of the transmission dynamics of tungiasis
- Inadequate interventions, with a need for sustainable control approaches, improved funding and integrated interventions at PHC level
- Poor understanding of the role of animal reservoirs (domestic and wild) in disease transmission
- Lack of access to tungiasis treatment services
- Low levels of awareness of prevention interventions that require strong community engagement

Summary of critical actions to achieve targets

Integrate tungiasis into PHC and skin NTD programmes.

Improve surveillance and mapping in endemic areas by strengthening mapping of endemic communities, integrating tungiasis indicators into routine health information systems, and monitoring trends in disease burden, complications and detection of unusual increases in tungiasis cases to trigger timely outbreak responses.

Address environmental risk factors through housing and sanitation improvements.

Conduct operational research to identify the most effective and scalable interventions.

Expand community-based prevention and early treatment of tungiasis.

Promote consistent footwear use and hygiene.

Coordinate One Health approaches to managing animal reservoirs.

Facilitate access to topical treatment with a formulation of two dimeticone oils with low viscosity (NYDA®), which is highly effective and safe.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026	• The epidemiology, clinical manifestations and morbidity associated with tungiasis are sufficiently understood to support implementation of control interventions. • Disease mapping remains incomplete, and many countries where tungiasis is suspected or known to occur lack reliable epidemiological data, making it difficult to accurately estimate the global burden of disease. • No standardized disease-specific mapping protocol currently exists. • The role of domestic and wild animal reservoirs in maintaining transmission remains poorly understood and is likely to vary between epidemiological settings. • The contribution of non-*T. penetrans* species to human infection, transmission and disease remains poorly understood. • Knowledge of the off-host stages of the *T. penetrans* life cycle and their contribution to transmission remains limited, constraining development of effective environmental control interventions. • Nontarget effects of interventions, including ancillary health benefits and environmental and socioeconomic effects, have not been systematically assessed.	• Develop a standardized, disease-specific mapping protocol to define the geographical distribution of tungiasis and quantify populations at risk. • Conduct comprehensive mapping and burden assessments in areas of known and suspected transmission to confirm endemicity and define subnational distribution. • Clarify the role of domestic and wild animal reservoirs in maintaining transmission. • Determine the contribution of *Tunga* species other than *T. penetrans* to human infection, transmission and disease, to inform surveillance and control strategies. • Strengthen research on the off-host stages of the *T. penetrans* life cycle to identify opportunities for environmental interventions that can interrupt transmission. • Promote multidisciplinary research integrating human, animal and environmental health to improve understanding of transmission dynamics and identify sustainable control approaches. • Evaluate the broader health, environmental and socioeconomic impacts of tungiasis interventions.
Diagnostics 2024	• There are currently no defined programmatic use cases for diagnostics. • Methods exist for screening and individual diagnosis of tungiasis.	• Establish the accuracy of current diagnostic methods, including clinical examination. • Develop programmatic use cases to inform the development of WHO TPPs and guidelines for diagnostics.
Effective interventions 2026	• Dimeticone remains the only treatment supported by consistent evidence of efficacy and safety, but access and affordability remain major barriers. • Manual extraction of embedded fleas remains widely practised, despite the associated risk of secondary bacterial infection and transmission of bloodborne pathogens. • Cement-stabilized flooring has demonstrated sustained reductions in tungiasis prevalence but remains prohibitively expensive for most affected communities. • Evidence supporting repellents, plant-based products, environmental spraying and treatment of animal reservoirs remains insufficient for implementation of these interventions at scale. • Few interventions have been evaluated through robust comparative studies, limiting the available evidence on their relative effectiveness, cost–effectiveness and suitability for programme implementation. • Most evidence for tungiasis interventions has been generated through small-scale research studies, with limited evidence from routine programme implementation or delivery at scale. • Innovation in tungiasis prevention and treatment has been limited, with few new interventions progressing beyond small-scale evaluation.	• Assess the effectiveness and cost–effectiveness of cement-stabilized flooring and other housing improvements for sustainable tungiasis control. • Evaluate integrated intervention packages combining human treatment, animal reservoir management, environmental control and housing improvements under routine programme conditions. • Generate evidence on the effectiveness of interventions targeting animal reservoirs in different epidemiological settings. • Conduct implementation research to identify sustainable approaches for delivering tungiasis interventions through routine health services and integrated skin NTD programmes. • Promote development and evaluation of new prevention and treatment tools suitable for large-scale programme implementation.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026	• PAHO has developed guidelines for the treatment of tungiasis (2025) and for its surveillance and control (2025), providing the first formal normative guidance. • Global-level WHO normative and operational guidance for tungiasis remains limited, including for prevention, diagnosis, treatment and control. • Operational guidance to support prevention, case management, surveillance and integrated control remains limited, particularly outside the Region of the Americas. • Publication of WHO fact sheets and the inclusion of tungiasis in the scabies and other ectoparasitoses framework constitute important progress but do not provide comprehensive normative or operational guidance for programme implementation.	• Develop WHO normative guidelines for the prevention, diagnosis, treatment and control of tungiasis. • Develop operational guidance to support implementation of tungiasis interventions through national programmes and integrated skin NTD platforms. • Build on existing PAHO treatment and surveillance guidelines to develop globally applicable WHO guidance. • Develop standardized guidance for surveillance, case definitions, reporting and mapping to support programme implementation and monitoring. • Develop operational guidance for integrated control approaches, including case management, prevention, environmental management and animal health interventions where appropriate. • Establish a process to regularly review and update WHO guidance as new evidence and interventions become available.
Planning, governance and programme implementation 2026	• Some endemic countries have incorporated tungiasis into national NTD strategies or skin NTD activities, but implementation remains inconsistent. • Tungiasis control activities are largely driven by academic institutions, research projects and nongovernmental organizations (NGOs), rather than sustained national programmes. • Very few endemic countries have dedicated national strategies or operational plans specifically for tungiasis control. • No global technical advisory group exists to coordinate research priorities, programme implementation or development of normative guidance. • Coordination between endemic countries remains limited, reducing opportunities for knowledge exchange, technical collaboration and sharing of best practices.	• Support endemic countries to incorporate tungiasis into national NTD strategies, operational plans and existing skin NTD programmes. • Strengthen integration of tungiasis prevention, diagnosis and case management within routine PHC services and existing skin NTD programmes. • Support expansion of tungiasis control activities to endemic communities through integrated, community-based approaches. • Establish a global technical advisory group to coordinate research priorities, development of normative guidance and programme implementation. • Strengthen collaboration between endemic countries to facilitate knowledge exchange, collaborative research and sharing of best practices. • Support endemic countries to develop national implementation plans with monitoring and evaluation frameworks to guide implementation and measure progress in tungiasis control.
Monitoring and evaluation 2024	• No monitoring and evaluation framework or data systems have been established for tungiasis. • Burden of disease and risk factors are poorly understood. • The transmission dynamics and role of zoonotic reservoirs in the disease are insufficiently understood to inform monitoring and evaluation frameworks.	• Design operationally feasible mapping and tracking strategies. • Develop and disseminate protocols for standardization of mapping to ensure consistency of data. • Consider integrating monitoring and evaluation strategies with those for other skin diseases, using a One Health approach. • Promote inclusion of tungiasis in national health management information systems for reporting and monitoring.
Access and logistics 2024	• Access to essential tungiasis products remains limited, with no reliable supply chains for human treatment, management of secondary infections and complications, or animal treatment where relevant in endemic areas.	• Ensure availability of dimeticone (NYDA®) in all endemic countries. • Ensure the availability of treatment for animals, where relevant. • Secure access to treatment for secondary infections and treatment of complications.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026	• Tungiasis prevention, diagnosis and management are not routinely integrated into PHC services in most endemic countries and continue to rely heavily on community-based activities and informal care. • Diagnosis of tungiasis is primarily based on clinical examination, but knowledge and experience among frontline health care workers are limited. • Dimeticone-based treatment is not routinely available through PHC services in many endemic countries. • Referral pathways for patients with severe tungiasis, secondary bacterial infection or disability remain poorly defined. • Training on tungiasis is rarely incorporated into pre-service or in-service training programmes for health care workers. • Integration of tungiasis into skin NTD services has begun in some countries but remains inconsistent and largely dependent on local initiatives.	• Integrate tungiasis prevention, diagnosis, case management and morbidity management into routine PHC services and existing skin NTD programmes. • Improve routine access to dimeticone-based treatment through PHC services in endemic communities. • Develop standardized referral pathways for patients with severe tungiasis, secondary bacterial infection or complex morbidity requiring higher levels of care. • Strengthen community-based case detection and referral through community health workers and PHC services. • Integrate tungiasis into undergraduate medical, nursing and allied health curricula in endemic countries.

Category: Enablers

Advocacy and funding 2024	• There is minimal donor support and limited domestic prioritization in almost all endemic countries. • Tungiasis has very limited visibility in the current public health and research agenda.	• Develop an advocacy and funding plan for tungiasis control efforts. • Advocate for operational research to generate evidence and attract donor support. • Secure financing for effective topical treatments for tungiasis. • Promote inclusion of tungiasis in UHC and One Health approaches.
Collaboration and multisectoral action 2026	• Multisectoral collaboration for tungiasis remains limited, reflecting limited prioritization in national public health programmes. • Collaboration has largely been driven by researchers, NGOs and individual partners, rather than coordinated national or global programmes. • Engagement beyond the health sector remains limited, despite the importance of WASH, housing, education, environment and animal health sectors for sustainable tungiasis control. • Community perspectives are rarely incorporated into programme design, resulting in interventions that may not reflect local priorities or living conditions. • Many affected communities experience multiple competing health priorities, requiring integrated approaches rather than single-disease interventions.	• Strengthen advocacy to increase the visibility and prioritization of tungiasis at global, national and community levels. • Strengthen collaboration between health, WASH, education, housing, environment, social welfare, local government, finance and animal health sectors to support sustainable tungiasis control. • Engage NGOs and community-based organizations as partners in planning and implementation, where they are already supporting tungiasis activities. • Systematically involve affected communities in programme design, implementation and evaluation to ensure interventions are acceptable, feasible and responsive to local priorities. • Promote integrated delivery of tungiasis interventions alongside programmes addressing other endemic diseases and broader community health needs. • Strengthen collaboration with local government authorities to support improvements in housing, flooring and other environmental determinants of tungiasis.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Capacity and awareness building 2026	• WHO Academy training materials and other standardized resources are available but have not been widely adopted within national health systems. • Training on tungiasis is not routinely incorporated into undergraduate medical, nursing and allied health curricula or routine in-service training programmes. • Awareness of tungiasis among health care workers remains low, contributing to underrecognition of the disease, delayed diagnosis and inconsistent case management. • Awareness of tungiasis among policy-makers remains limited, limiting political prioritization and support for investment in control activities. • Health education and behaviour change materials have been developed in some endemic settings but are not routinely disseminated through national health services. • Social mobilization activities are largely implemented through research projects, NGOs and local initiatives, rather than sustained government programmes. • Persistent stigma and the perception of tungiasis as a disease associated with poverty continue to discourage care seeking and reduce the visibility of the disease.	• Integrate tungiasis into undergraduate medical, nursing and allied health curricula in endemic countries. • Promote uptake of existing WHO Academy training materials in pre-service, in-service and continuous professional development programmes. • Establish national training programmes to maintain competency in tungiasis prevention, diagnosis, case management and morbidity management. • Strengthen capacity of community health workers to deliver health education, identify cases and support appropriate referral. • Develop culturally appropriate health education and behaviour change materials that can be adapted for different endemic settings. • Strengthen social mobilization through schools, community organizations and existing skin NTD programmes. • Raise awareness of tungiasis among policy-makers to increase political commitment and investment in control programmes. • Address stigma associated with tungiasis through community engagement, health promotion and behaviour change initiatives.

Reference

1. Saboyá-Díaz MI, Nicholls RS, Castellanos LG, Feldmeier H. Current status of the knowledge on the epidemiology of tungiasis in the Americas. Rev Panam Salud Publica. 2022;46:e124 (https://doi.org/10.26633/RPSP.2022.124).

Schistosomiasis

Schistosomiasis is a parasitic disease affecting either the intestines or the urinary and genital tracts. It can cause symptoms including abdominal pain, diarrhoea, blood in the stool, bloody urine or pain during intercourse; in advanced stages, it causes organ damage, ectopic pregnancies and infertility. The disease affects poor rural communities but has spread to urban areas.

Disease and epidemiology

- Schistosomiasis is a parasitic disease caused by infection with *Schistosoma* trematodes, including *S. mansoni, S. japonicum, S. mekongi, S. guineensis, S. intercalatum* and *S. haematobium.*
- There are two main types of the disease: intestinal and urogenital schistosomiasis.
- Intestinal schistosomiasis results in abdominal pain, diarrhoea, blood in the stool, Katayama fever (mostly with *S. japonicum*) and, in advanced stages, enlargement of the liver and spleen, fibrosis, portal hypertension and accumulation of fluid in the peritoneal cavity.
- Urogenital schistosomiasis (*S. haematobium* only) results in bloody urine, fibrosis of the bladder and damage to the ureter and kidneys; genital forms manifest as testicular pain and blood in the sperm in men, abdominal and pelvic pain and vaginal discharge in women, pain during intercourse, ectopic pregnancies and infertility.
- An association of urogenital schistosomiasis with HIV transmission has been demonstrated in co-endemic areas.
- Human transmission occurs through contact with water (e.g. bathing, swimming, washing clothes) infested with larval forms (cercariae) that develop in freshwater snails, the intermediate host; inadequate sanitation increases the risk of transmission.
- The disease affects poor rural communities but has spread to urban areas and to tourists visiting endemic areas.

Core strategic interventions

Preventive chemotherapy	• Regular treatment through praziquantel MDA of at-risk groups (school-aged children, preschool-aged children, communities in highly endemic areas, and adults in occupations involving contact with infested water)
WASH	• Access to safe water • Improved sanitation and management of excreta (including animal waste) across communities • Individual hygiene education (e.g. use of toilets, personal hygiene)
Vector control	• Snail control with molluscicides, physical removal and environmental modification
Veterinary public health	• Keeping animals away from transmission sites (for zoonotic transmission), especially in areas endemic for *S. japonicum* • Treatment of animals with praziquantel
Case management	• Treatment with praziquantel on case-by-case basis and individualized disease management (e.g. surgery and self-care) where appropriate
Other	• Behavioural change, self-care and environmental management interventions

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries validated for elimination as a public health problem (defined as <1% proportion of heavy-intensity schistosomiasis infections)	0	49/78 (63%)	0	69/78 (88%)	**78/78 (100%)**
Number of countries where absence of infection in humans has been achieved	1/78 (1%)	10/78 (13%)	1/78 (1%)	19/78 (24%)	**25/78 (32%)**

Burden of disease

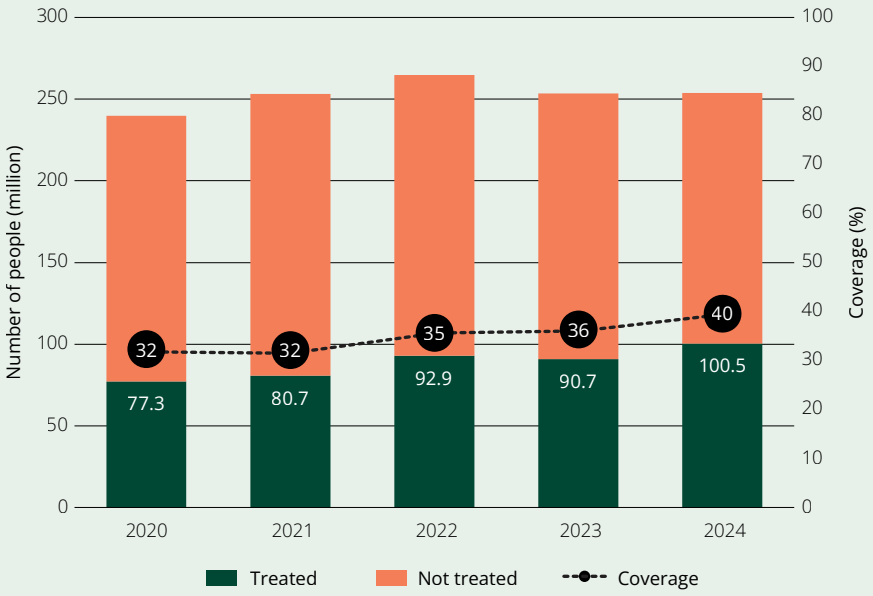
About 253.7 million
people required MDA in 2024

14 353
deaths in 2021[a]

About 1.9 million
DALYs in 2021[a]

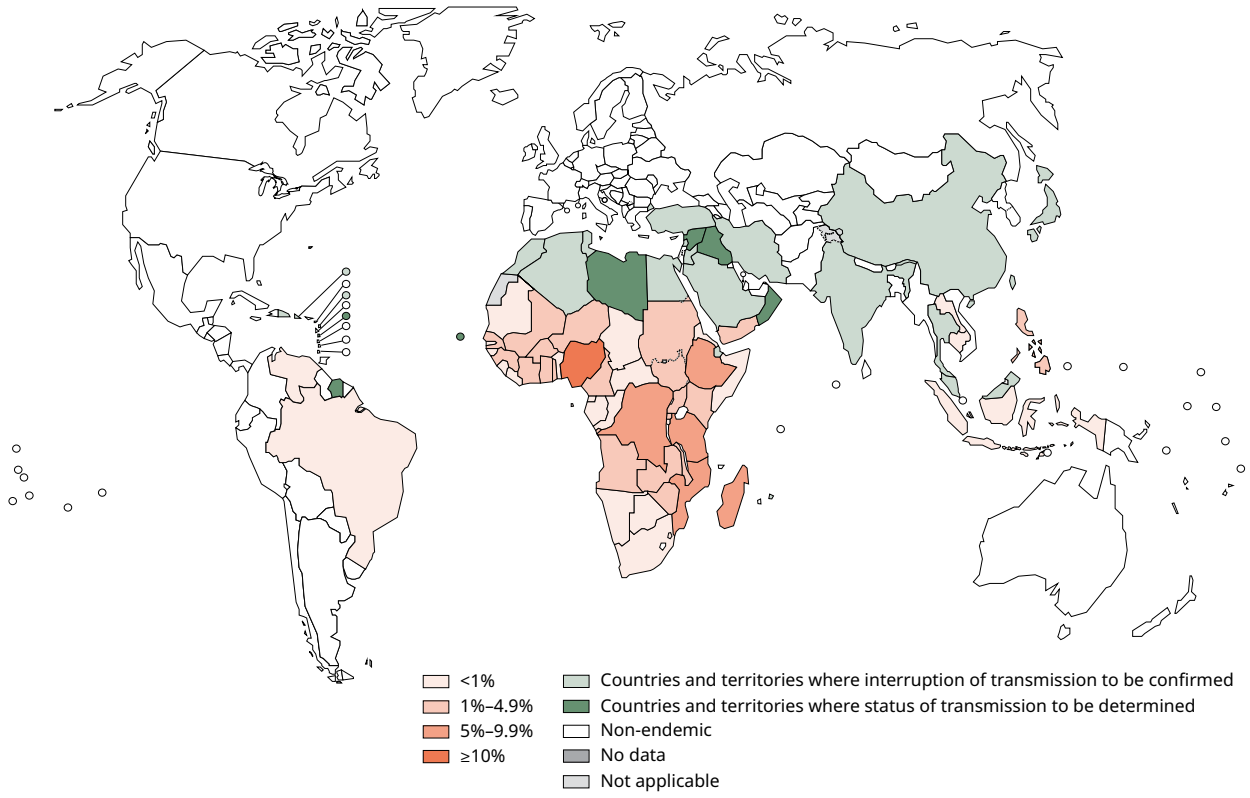
[a] *Source:* GHE 2021.

Number of people requiring and receiving treatment for schistosomiasis and coverage achieved, worldwide, 2020–2024



Geographical distribution and status

Proportion of global population requiring preventive chemotherapy against schistosomiasis, 2024



Progress at mid-term

In 2025, schistosomiasis was endemic in 79 countries, of which 50 require preventive chemotherapy; more than 90% of people requiring treatment live in Africa. Data reported in 2024 from 35 countries for treatment of school-aged children and from 21 countries for treatment of adults show that more than 100 million people received preventive chemotherapy for schistosomiasis globally.

Risks that require mitigation

- Zoonotic reservoirs that could continue transmission
- Possible introduction of the disease in non-endemic countries through migration
- Possible resurgence if regular treatment through MDA is stopped without sustainability interventions in place (e.g. WASH and surveillance)

Summary of critical actions to achieve targets

Implement effective interventions, including extending preventive chemotherapy to all populations in need and ensuring access to the necessary medicines; implement targeted snail control with updated guidelines; and continue micromapping and targeting.

Create effective cross-sectoral governance mechanisms to coordinate with WASH, vector control, animal health, environment and other key sectors.

Develop diagnostic tests, including a standardized point-of-care diagnostic, and develop new interventions, including alternatives to praziquantel and methods of snail control.

Ensure sufficient resources, including domestic financing, for access to interventions (including medicine for MDA for preschool-aged children and adults, genital schistosomiasis management and snail control), development of new tools and strengthening of health care capacity.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Transmission pathways, parasite biology and the schistosome lifecycle are well characterized and underpin current approaches to schistosomiasis prevention, control and elimination. • National epidemiological mapping and remapping have been conducted across most endemic areas, with increasing use of subnational analyses and geospatial modelling. • Evidence on the burden and distribution of historically neglected manifestations, including female genital schistosomiasis (FGS) and male genital schistosomiasis (MGS), has expanded, improving understanding of the broader morbidity associated with infection. • Evidence supporting ancillary benefits of schistosomiasis interventions is increasing, including potential effects of preventive chemotherapy on co-endemic helminth infections and child development outcomes. • Understanding of the role of animal reservoirs, zoonotic transmission and hybrid parasite systems has advanced, although their epidemiological importance appears highly context specific.	• Expand subdistrict and local mapping to better characterize transmission heterogeneity and target interventions. • Improve understanding of the burden, diagnosis and management of FGS, MGS and other severe morbidity. • Determine the biological, behavioural and environmental factors that influence treatment response to praziquantel and contribute to reinfection after treatment. • Strengthen surveillance and monitoring of potential praziquantel resistance. • Quantify the contribution of residual human reservoirs, including adults, preschool-aged children and systematically untreated populations, to ongoing transmission. • Identify the epidemiological drivers of persistent hotspots, resurgence and areas showing limited response to recommended interventions. • Improve understanding of the role of animal reservoirs, zoonotic transmission and hybrid parasite systems in sustaining transmission.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Scientific understanding *(cont.)*	• Important knowledge gaps remain regarding the relative contribution of parasite, host and environmental factors to treatment response, reinfection dynamics and programme outcomes. • The emergence, distribution and public health significance of praziquantel resistance remain poorly characterized, with limited routine surveillance in endemic settings. • Understanding of the relative contribution of residual human reservoirs, animal reservoirs, ecological factors and exposure patterns to persistent transmission, resurgence and hotspot persistence remains limited. • Understanding of how snail ecology, habitat suitability and seasonal transmission dynamics influence transmission persistence and reinfection remains limited. • There is limited evidence regarding the effects of climate change on snail ecology, parasite development, transmission dynamics and reinfection patterns. • There is little evidence available related to the effects of climate- and environment-driven human and animal movement on transmission patterns, including zoonotic risks and the emergence of new transmission foci.	• Strengthen understanding of snail ecology, habitat suitability and seasonal transmission dynamics that influence transmission persistence and reinfection. • Assess the implications of climate and environmental change for transmission dynamics, reinfection patterns and the emergence of new transmission foci. • Strengthen geostatistical and spatial modelling to improve risk mapping, identify residual hotspots and support targeted surveillance and intervention planning. • Strengthen understanding of the occurrence, prevalence and transmission dynamics of schistosomiasis in urban and periurban settings. • Define both the economic and health impacts of clinical and subtle morbidity.
Diagnostics 2024 2020	• The Kato–Katz technique and urine filtration are suboptimal in low-prevalence areas. • Sensitive, specific RDTs are in use, and published diagnostic TPPs guide new tests being developed for schistosomiasis. • Development of RDTs by FIND and research groups is ongoing, and well-characterized biobanks are expanding. • There is a need to develop diagnostics for FGS and MGS.	• Develop sensitive, point-of-care diagnostics for mapping and transmission assessment in all settings. • Create a biorepository of samples for diagnostic development, evaluation and validation. • Develop tests for praziquantel resistance, xenomonitoring, confirmation of interruption of transmission, and point-of-care diagnosis of FGS. • Support development of schistosomiasis automated detection through AI.
Effective interventions 2026 2020	• Effective interventions for schistosomiasis control and elimination are available and well defined, including preventive chemotherapy, WASH, health education and snail control as part of an integrated intervention package. • Arpraziquantel for the treatment of preschool-aged children was added to the WHO prequalification list in 2024, with implementation studies underway in endemic countries to support its introduction and scale-up. • Tailored snail control interventions are being implemented in some endemic settings as part of integrated control strategies, with attention to environmental impacts. • Additional evidence is needed to strengthen the design, implementation and evaluation of effective WASH and behaviour change interventions for sustained schistosomiasis control and elimination.	• Expand access to preventive chemotherapy for all at-risk populations, in line with the 2022 WHO guidelines, including preschool-aged children, adults and other underserved groups. • Strengthen the praziquantel supply chain to ensure health centres and clinics have reliable access to sufficient supplies for treatment outside MDA campaigns. • Support country readiness and implementation of arpraziquantel to enable treatment of preschool-aged children at scale; WHO has recently issued an expression of interest for the development of generic arpraziquantel formulations to support this effort. • Develop evidence to optimize the implementation, targeting and cost–effectiveness of snail control across different epidemiological settings, informed by successful experiences of integrating snail control into broader schistosomiasis control programmes. • Integrate the diagnosis and management of FGS and MGS into routine health services, including sexual and reproductive health programmes where appropriate. • Support research and development of new tools, including vaccines, improved diagnostics and alternative medicines to complement praziquantel in case of resistance.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Effective interventions *(cont.)*	• Several vaccine candidates continue to be evaluated, although no vaccine is currently available for programmatic use.	• Develop evidence on the effectiveness, feasibility and cost–effectiveness of integrated intervention packages across different transmission settings. • Conduct operational research to strengthen the evidence base for effective WASH and behaviour interventions for infection prevention.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• Revised WHO recommendations issued in 2022 support expanded preventive chemotherapy coverage through updated treatment thresholds and inclusion of all at-risk populations in endemic areas, including preschool-aged children, adults, pregnant women after the first trimester, and lactating women. • WHO guidelines updated in 2022 reinforced the role of integrated approaches for schistosomiasis control and elimination, including WASH, snail control, and strengthened surveillance for humans, animal reservoirs and snail hosts. • A revised monitoring and evaluation framework released in 2024 supports improved targeting and adaptation of interventions through revised epidemiological indicators, impact assessment methodologies and approaches to data analysis. • WHO operational guidance was released in 2025 to support the collection, reporting and integration of routine schistosomiasis data into national health information systems. • WHO normative guidance for validation of elimination of schistosomiasis as a public health problem and verification of interruption of transmission was released in 2026. • A policy brief on FGS was developed in 2025 to support financing, stakeholder engagement and integration of FGS services into routine health systems. • Updated WHO normative guidance on integrated vector control approaches for malaria and NTDs, including schistosomiasis, is under development. • Normative and operational guidance for advanced schistosomiasis case management, morbidity management, rehabilitation, and FGS and MGS care remains limited. • An advisory group has been established to support the work on genital schistosomiasis in Africa, and to support the review of dossiers for elimination submitted by countries.	• Develop guidance for advanced schistosomiasis case management, morbidity management, rehabilitation and long-term care. • Expand operational guidance for the diagnosis, treatment and follow-up of FGS and MGS. • Expand guidance for monitoring transmission sites and implementing snail control interventions, including opportunities for integration with other disease control programmes. • Continue updating guidance on arpraziquantel provision and implementation, dosing strategies and delivery approaches for preschool-aged children. • Strengthen country uptake, adaptation and implementation of updated WHO guidance across recommended schistosomiasis interventions. • Incorporate mental health, stigma and patient-centred care considerations into future normative and operational guidance.
Planning, governance and programme implementation 2026 2020	• Many endemic countries have national NTD coordination mechanisms and strategic plans that include schistosomiasis. • Updated mapping data are increasingly available to inform preventive chemotherapy implementation, although delivery of interventions to all endemic areas remains constrained by funding limitations, insecurity and conflict, workforce shortages and global drug supply challenges. • Pharmacovigilance systems for preventive chemotherapy programmes remain inconsistently implemented, despite the availability of WHO operational guidance.	• Strengthen national coordination mechanisms, technical advisory capacity and programme governance to support evidence-based planning and implementation. • Develop cross-sectoral governance structures that engage health, WASH, education, environmental, agricultural and veterinary sectors to support integrated schistosomiasis control and elimination efforts. • Use updated mapping data and subnational epidemiological analyses to target interventions, identify transmission hotspots and allocate resources more effectively.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation *(cont.)*	• Integration of schistosomiasis interventions is common in settings co-endemic for other preventive chemotherapy-based NTDs (e.g. soil-transmitted helminthiases and lymphatic filariasis), but integration with broader disease control programmes and health system initiatives remains limited. • Implementation of multisectoral interventions, including snail control, WASH and behaviour change activities, remains limited, with national programmes at varying stages of development and scale-up.	• Expand preventive chemotherapy treatment to ensure all at-risk populations are treated in line with WHO recommendations, particularly in underserved areas and persistent hotspots. • Expand delivery strategies and partnerships to improve coverage in hard-to-reach, underserved and conflict-affected populations. • Implement routine pharmacovigilance systems, including standardized reporting, analysis and use of safety data from preventive chemotherapy programmes. • Strengthen national capacity for programme monitoring, data use and adaptive decision-making at national and subnational levels. • Promote integration of schistosomiasis activities with other NTD, school health, PHC and community-based programmes, where appropriate. • Strengthen integration of schistosomiasis services within UHC and broader health system-strengthening initiatives.
Monitoring and evaluation 2024 2020	• A new manual, *Assessing schistosomiasis and soil-transmitted helminthiases control programmes: monitoring and evaluation framework*, was released in 2024. • A manual on collection of health facility data for schistosomiasis, *Routine health information system and health facility data for neglected tropical diseases: schistosomiasis*, was published in 2025. • There is ongoing research on granular mapping, through the Schistosomiasis Oversampling Study, and improving impact assessment surveys.	• Improve data quality, reporting and granular mapping for targeted MDA and community-level interventions. • Promote integrated and decentralized surveys by district teams. • Develop new tools and collect monitoring and evaluation data from all age groups to inform treatment strategies. • Increase funding for impact assessments and strategy adjustments. • Monitor efficacy of, and resistance to, praziquantel. • Use endemicity data to prioritize WASH investment and track elimination progress. • Develop guidance for post-elimination surveillance and verification of transmission interruption.
Access and logistics 2024 2020	• Merck has donated about 200 million praziquantel tablets each year for school-aged children and community delivery, mainly in the African Region. • Demand for praziquantel is growing because of the updated 2022 treatment guidelines. • WHO-prequalified companies provide alternative praziquantel sources, to complement donations. • A lack of funding for community-based distribution risks missing non-school-aged children and adults.	• Coordinate donor resources to ensure access to quality-assured praziquantel for all populations. • Strengthen logistics to ensure access and delivery of treatment to at-risk populations, including adults. • Ensure access to paediatric praziquantel, molluscicides, RDTs and zoonotic interventions as needed. • Prioritize access to diagnostics, sanitation investments and FGS treatment in transmission areas. • Ensure availability of paediatric praziquantel for procurement.
Health care infrastructure and workforce 2026 2020	• Access to diagnosis, treatment and case management for severe schistosomiasis and associated morbidity remains limited at PHC facilities in many endemic settings. • Diagnostic capacity for schistosomiasis remains concentrated at district level, with limited availability of microscopy infrastructure and trained personnel at PHC facilities and community hospitals.	• Improve access to schistosomiasis diagnostic and case management services at PHC facilities in endemic areas. • Build health system capacity for schistosomiasis morbidity management, rehabilitation and follow-up within routine PHC services. • Expand access to and operational use of sensitive diagnostic tools for schistosomiasis across different levels of the health system.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce *(cont.)*	• Implementation and routine use of more sensitive diagnostic tools for schistosomiasis remain limited across most endemic settings. • Health worker training remains heavily focused on preventive chemotherapy delivery, with less emphasis on diagnosis, clinical management and morbidity care. • Capacity for the diagnosis and management of FGS and MGS remains limited due to gaps in training, clinical guidance and service provision. • Access to specialist care, surgical services and referral pathways for advanced schistosomiasis remains inadequate in many endemic settings. • Development of digital tools to support snail surveillance and transmission monitoring is underway through WHO and partner initiatives.	• Strengthen laboratory capacity, including microscopy infrastructure and workforce development, at peripheral health facilities. • Integrate the diagnosis and management of FGS and MGS into sexual and reproductive health services where appropriate. • Strengthen referral pathways, specialist services and surgical capacity for advanced schistosomiasis and severe morbidity. • Strengthen pharmacovigilance and post-treatment monitoring systems associated with preventive chemotherapy programmes. • Strengthen malacology capacity, snail surveillance, environmental monitoring and, where appropriate, integrated snail control through training, technical workforce development and community participation. • Support the development and implementation of digital tools to strengthen schistosomiasis surveillance, case management and programme monitoring, including human, snail and environmental surveillance. • Improve health system capacity and delivery platforms to support sustained implementation of recommended interventions, including strengthening capacity among frontline health workers and specialized technical cadres, such as vector biologists.

Category: Enablers

Advocacy and funding 2024 2020	• Treatment programmes rely heavily on declining external funding, which can be short-term in many countries. • Advocacy and fundraising capacity at the country level are limited. • There is limited funding available for nontreatment components of the elimination framework, including One Health and vector control, behaviour change, health education and urogenital schistosomiasis.	• Advocate for integration of schistosomiasis control into UHC and stronger country ownership. • Mobilize resources to facilitate community-based MDA to reach all age groups and activities targeting the interruption of transmission. • Promote integration of control activities, the WASH sector and community engagement. • Secure funding for integration into public health systems, including diagnostics, treatment, and monitoring and evaluation. • Develop domestic and other new funding mechanisms.
Collaboration and multisectoral action 2026 2020	• International partnerships, including the Neglected Tropical Disease NGO Network, Global Schistosomiasis Alliance and WHO ESPEN, continue to support technical exchange, operational learning, and coordination among country programmes, technical partners, donors and WHO. • Collaboration with the education sector supports school-based preventive chemotherapy and awareness activities, often serving as an entry point for wider community engagement. • Integration within broader health platforms is occurring in some settings, including through child health services, vaccination programmes and under-5 health initiatives.	• Integrate schistosomiasis interventions with other NTD, child health and community-based health programmes to improve efficiency and sustainability. • Strengthen collaboration between schistosomiasis programmes and education, WASH, environmental, agricultural and veterinary sectors to support integrated control and elimination efforts. • Promote One Health approaches to improve understanding and management of human, animal and environmental drivers of transmission. • Strengthen collaboration with reproductive health, PHC and specialist services to improve diagnosis and management of FGS, MGS, coinfections and severe schistosomiasis morbidity.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action *(cont.)*	• Multisectoral collaboration with WASH, environmental and agricultural sectors is recognized as important for control and elimination, but implementation remains inconsistently documented across countries. • National NTD advisory mechanisms support cross-sectoral and multidisciplinary coordination in some endemic countries. • Affected communities play a central role in programme design and delivery through community drug distributors, social mobilizers, community leadership structures and other local engagement mechanisms.	• Expand community engagement and community-led approaches to support behaviour change, sanitation improvements, prevention and programme ownership. • Strengthen mechanisms for community participation, feedback and co-design to improve programme acceptability, coverage and sustainability. • Encourage the use of snail control, where appropriate, as part of integrated schistosomiasis control and elimination strategies, including alignment with the *Global vector control response 2017–2030*. • Strengthen documentation and evaluation of the broader health, social and cross-sectoral benefits of schistosomiasis interventions to support investment and policy engagement.
Capacity and awareness building 2026 2020	• Most endemic countries implement vertical or integrated MDA programmes targeting school-aged children, often alongside soil-transmitted helminthiases or lymphatic filariasis programmes, with community health workers trained in preventive chemotherapy delivery, adverse event management, and reporting. • Health education and communication materials are often disseminated before MDA campaigns, but sustained community engagement beyond campaign periods remains limited. • Awareness of schistosomiasis, its chronic complications and referral pathways remains insufficient in many endemic settings, contributing to delays in diagnosis and care seeking. • Knowledge and awareness of FGS and MGS remain limited among health workers and at-risk communities, as these conditions are largely absent from pre-service and in-service training curricula in most endemic countries. • Some countries have begun developing FGS policies, training materials and case management approaches, with support from international initiatives, such as the FGS Integration Group, COUNTDOWN and WINGS-4-FGS.	• Expand training for nurses, clinicians, laboratory personnel, community health workers and programme staff on schistosomiasis diagnosis, treatment, morbidity management and surveillance. • Integrate FGS and MGS into pre-service and in-service training curricula, clinical guidelines and continuing professional development programmes. • Translate WHO normative and operational guidance into practical training packages, job aids and implementation tools tailored to endemic country contexts. • Expand regional and national workshops, peer-learning networks and technical exchanges on elimination planning, validation processes, updated treatment recommendations and programme implementation. • Strengthen awareness of schistosomiasis, chronic complications, stigma, referral pathways, and the importance of timely diagnosis and treatment among health workers and at-risk communities. • Prioritize awareness and advocacy for FGS and MGS, their health consequences, stigma and links to sexual and reproductive health services. • Strengthen country ownership and institutional capacity to support sustainable schistosomiasis programme planning, financing, implementation and monitoring. • Increase engagement with WASH, irrigation, hydropower and other water-resource development sectors to incorporate schistosomiasis considerations into project planning and environmental management. • Strengthen awareness of the potential impacts of environmental and climate change on schistosomiasis transmission to support long-term planning and cross-sectoral action.

Soil-transmitted helminthiases

Soil-transmitted helminthiases are intestinal worm infections that cause anaemia, malnutrition, impaired physical and cognitive development, abdominal pain and diarrhoea. One form can cause a severe syndrome that leads to death.

Disease and epidemiology

- Soil-transmitted helminthiases (STH) are caused by infection with intestinal parasites (*Ascaris lumbricoides* and *Trichuris trichiura*), hookworms (*Necator americanus* and *Ancylostoma duodenale*) and roundworms (*Strongyloides stercoralis*).
- Infection results in anaemia, malnutrition, impaired physical and cognitive development, abdominal pain and diarrhoea.
- Human transmission occurs through eggs or larvae in faeces, which contaminate soil in areas with poor sanitation.
- *S. stercoralis* infection is transmitted similarly to other STH but requires a different diagnostic method and a different drug for treatment; the disease can cause hyperinfection syndrome leading to death.

Core strategic interventions

Preventive chemotherapy	• For preschool- and school-aged children, albendazole or mebendazole against *A. lumbricoides*, *T. trichiura* and hookworms: – twice per year where STH prevalence is ≥50% – once per year where STH prevalence is ≥20% and <50% • Annual MDA with a single dose of ivermectin in settings where the prevalence of *S. stercoralis* is ≥5%, targeting all people aged 5 years or older • Combination ivermectin and albendazole in areas with a high prevalence of *T. trichiura* • For women of reproductive age, treatment with the same medicines through antenatal care
WASH	• Provision of adequate sanitation and waste management facilities • Improved hygiene practices (e.g. prevention of open defecation, hand washing) and access to safe water at the household level and beyond (e.g. in schools)
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Provision of treatment to individuals living in areas endemic for STH to increase UHC
Other	• Behaviour change education targeted to population group at risk

WHO road map indicators with interim milestones and 2030 targets

Indicator[a]	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries validated for elimination as a public health problem (defined as <2% proportion of soil-transmitted helminth infections of moderate and heavy intensity due to *A. lumbricoides*, *T. trichiura*, *N. americanus* and *A. duodenale*)[b]	0	60/101 (60%)	0	70/101 (70%)	**96/101 (96%)**
Number of countries including ivermectin in preventive chemotherapy in all areas endemic for *S. stercoralis*	0	10/101 (10%)	No data	15/101 (15%)	**96/101 (96%)**

[a] Additional details and sub-indicators are defined in *2030 targets for soil-transmitted helminthiases control programmes (1)*.

[b] Using the Kato–Katz technique.

Burden of disease

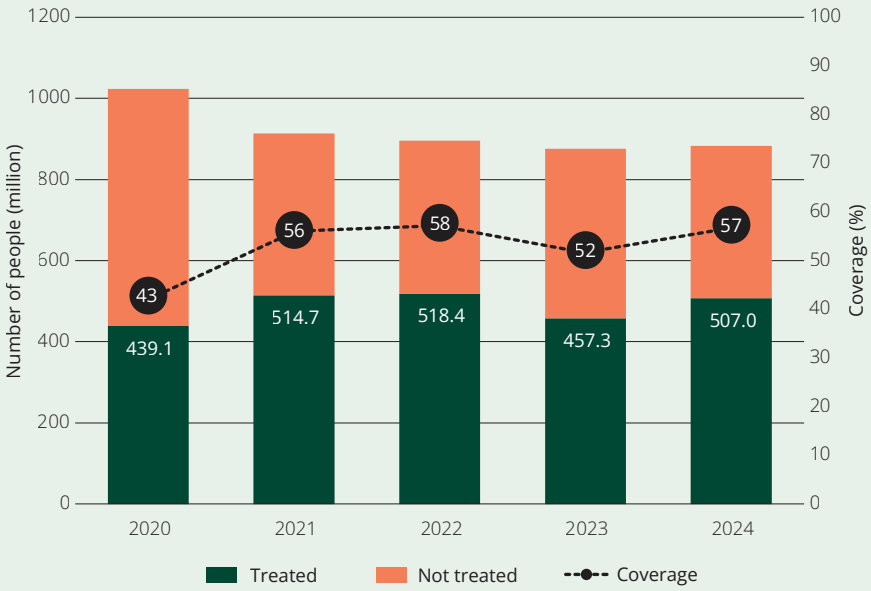
883 million
children required MDA for STH in 2024

3757
estimated deaths in 2021[a]

About 1.4 million
DALYs in 2021[a]

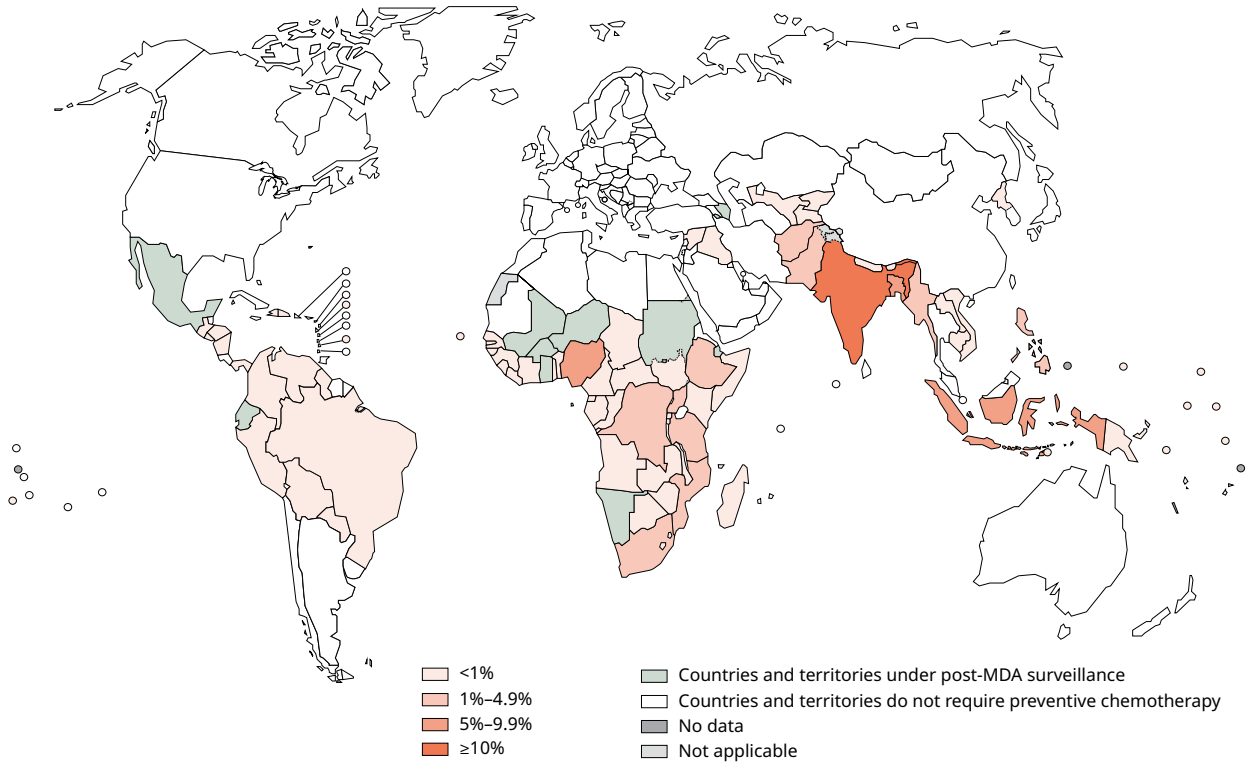
[a] *Source:* GHE 2021.

Number of people requiring and receiving treatment for STH and coverage achieved worldwide, 2020–2024



Geographical distribution and status

Proportion of global population requiring preventive chemotherapy against STH, 2024



Progress at mid-term

In 2024, preventive chemotherapy for STH was required in 84 countries, mostly in tropical and subtropical areas across sub-Saharan Africa, Latin America and Asia. The burden of *S. stercoralis* is estimated as 300–600 million people infected across Africa, Asia, South and Central America, and the Pacific.

Global progress in control of STH has been substantial, but acceleration is needed to achieve the 2030 targets. The global burden, measured in DALYs, declined by more than 50% between 2010 and 2021, from 2.9 million to 1.4 million, whereas prevalence of infection with *A. lumbricoides*, *T. trichiura* and hookworm fell by 76%, 60% and 83%, respectively, between 1990 and 2020. Five countries have reached elimination levels, and more than 853 implementation units in 12 countries have reduced or suspended preventive chemotherapy after impact assessments. In the African Region, 11 of 37 countries requiring MDA reached 75% treatment coverage in school-aged children in 2024. Some countries are reducing treatment frequency based on impact data. Model-based analysis for sub-Saharan Africa has estimated that overall STH prevalence declined by 67.4% between 2000 and 2025 but also highlighted a few countries with a persistent high burden and concentration of treatment needs, particularly the Democratic Republic of the Congo, Ethiopia and Nigeria.

Despite this progress, major gaps remain. Access to preventive chemotherapy is still far from universal, and progress in achieving the 2030 SDG WASH targets is too slow to sustain transmission reduction. Declining official development assistance and uncertainty regarding drug donations after 2030 pose major risks to programme continuity, especially in countries with large populations requiring treatment. Several critical actions are needed to achieve the 2030 target. First, endemic countries should accelerate implementation before 2030, using impact assessments to target treatment more efficiently, reduce unnecessary preventive chemotherapy and identify districts ready for prevalidation. Second, countries should institutionalize preventive chemotherapy within routine school and community health services and integrate STH activities into national health information systems, supply chains and budgets. Third, stronger domestic financing, procurement readiness and use of pooled procurement mechanisms will be essential as countries transition towards self-procurement. Fourth, programmes must strengthen surveillance, monitoring and adaptive management, including routine impact assessments, improved reporting and preparation of elimination dossiers early in the process. Fifth, progress will depend on stronger multisectoral action, particularly with the education and WASH sectors, to reduce reinfection and sustain gains. Finally, WHO and partners should intensify advocacy, support dossier preparation, document successful integration models and ensure a gradual transition from external support. In summary, the programme is on a positive trajectory, but achieving the 2030 target of eliminating STH as a public health problem in 96 endemic countries will require faster implementation, stronger country ownership and better integration of control efforts into sustainable health systems.

Risks that require mitigation

- Declining external financing and lack of sufficient domestic financing, which are threatening the continuity of preventive chemotherapy and transition plans to sustain programme operations
- Persistent treatment implementation gaps in hard-to-reach, fragile and conflict-affected settings, which risk leaving high-transmission populations untreated
- Inadequate access to WASH, which is continuing to drive reinfection and limiting the long-term impact of preventive chemotherapy when multisectoral action is weak
- Limited diagnostic sensitivity, incomplete surveillance and weak integration of STH indicators into national information systems, which are reducing the ability to target treatment efficiently, verify progress and detect persistent hotspots or emerging reduced drug efficacy
- Insufficient integration of strongyloidiasis into national helminth control efforts because of limited access to ivermectin, regulatory and procurement barriers, and lack of sensitive diagnostics, despite new WHO guidance
- Uneven country ownership, pharmacovigilance, workforce capacity and adaptation of recent WHO normative guidance across endemic settings, risking programme sustainability

Summary of critical actions to achieve targets

Increase political commitment to ensure sustainable domestic financing.

Develop more effective medicines, as well as medicines to improve patient outcomes and in case of drug resistance.

Develop comprehensive surveillance and mapping systems to target treatment and monitor drug resistance.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• A strong understanding of STH epidemiology and pathology supports effective intervention design and implementation, but important gaps remain regarding species-specific epidemiology and variation in treatment response, particularly for *T. trichiura*. • Mapping for strongyloidiasis remains incomplete across many endemic areas, limiting accurate burden estimation and programme planning. • Limited access to sensitive and standardized diagnostics further constrains surveillance and monitoring. • There is good knowledge of broader, positive downstream health effects of preventive chemotherapy provision, including improved nutritional and physical health outcomes. • Potential environmental impacts of large-scale anthelminthic use remain insufficiently assessed. • Existing evidence indicates that interruption of STH transmission may be feasible in some settings but remains difficult to achieve at scale using current intervention strategies alone, particularly in high-transmission settings.	• Complete the development of technical guidelines for the use of ivermectin–albendazole treatment in areas with high prevalence of *Trichuris* spp. • Expand species-specific reporting and analysis to better capture differences in transmission patterns and drug efficacy across STH species. • Improve understanding of contextual drivers of transmission, including WASH and environmental and climate-related factors, to better inform intervention design. • Improve access to sensitive, standardized diagnostics for strongyloidiasis to support mapping, surveillance and programme evaluation. • Strengthen the evidence base to better understand where interruption of transmission may be feasible across endemic settings. • Conduct impact surveys to identify and determine areas of persistent high transmission that require continued treatment.
Diagnostics 2024 2020	• TPPs have been released; the Kato–Katz diagnostic method meets WHO quality standards and programmatic needs. • Research on novel diagnostics is progressing, but the Kato–Katz method remains the best current option. • Future research actions may include new diagnostic tools beyond current programmatic targets. • Diagnostic methods for *S. stercoralis* were discussed at an expert meeting, with a report released in 2021.	• Develop rapid, sensitive diagnostics for mapping, surveillance and STH elimination assessment. • Develop specific biomarkers for field use. • Develop field tests to detect any emergence of resistance. • Standardize diagnostic procedures to ensure comparability and reduce measurement error. • Ensure materials required for the Kato–Katz method are available at community and facility levels and in field settings. • Promote quality assurance activities to ensure data quality.
Effective interventions 2026 2020	• Preventive chemotherapy interventions are well established and effective in reducing overall STH prevalence and associated morbidity. • The evidence base on the operational feasibility, cost–effectiveness and scalability of combination therapies in routine programme settings is limited. • Sustained STH control programmes remain heavily dependent on global donation mechanisms to support large-scale MDA activities. • Access to ivermectin for strongyloidiasis control remains limited in many endemic countries because of procurement costs, regulatory barriers and restricted availability; however, a WHO guideline (2024) has facilitated access by supporting procurement of WHO-prequalified generic ivermectin at preferential public health pricing. • Future scale-up of ivermectin for strongyloidiasis control will depend on national policy adoption, sustainable procurement mechanisms and integration within existing NTD platforms. • Limited availability of highly sensitive diagnostic tools for STH, particularly strongyloidiasis, limits effective case management, surveillance and programme monitoring.	• Accelerate access to effective combination therapies where sufficient evidence supports programmatic use. • Assess the long-term affordability, sustainability and operational feasibility of combination therapies at scale. • Strengthen access to ivermectin and support integration of strongyloidiasis interventions within routine health services and existing NTD platforms. • Finalize, disseminate and support implementation of WHO guidance on albendazole–ivermectin combination therapy for high-prevalence trichuriasis settings. • Support regulatory approval, prequalification and country uptake of coformulations to improve delivery efficiency and operational feasibility. • Assess the effectiveness of treatment combinations for different STH and develop guidance on their suitability across different epidemiological settings. • Address operational, regulatory and financial barriers limiting ivermectin access, particularly in settings without established donation mechanisms. • Strengthen alignment of intervention strategies for STH and strongyloidiasis where treatment approaches overlap.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• A recently published WHO monitoring and evaluation framework manual for STH programme managers (2024) provides updated technical guidance on treatment thresholds, programmatic monitoring and evaluation, and surveillance strategies to accelerate progress towards elimination as a public health problem. • WHO technical guidance for public health control of strongyloidiasis has been published (2024). • Technical guidance for validation of elimination of STH as a public health problem in children has recently been published (2026). • Country-level implementation and adaptation of WHO guidance remain variable due to operational, financial, regulatory and health system constraints. • Limited availability of sensitive diagnostics and species-specific surveillance approaches continues to constrain implementation of guidance for strongyloidiasis and species-targeted STH control.	• Strengthen and harmonize operational guidance for strongyloidiasis control, including integration with existing helminth and broader NTD platforms and consideration of co-endemicity. • Ensure implementation guidance addresses special populations, operational constraints and delivery challenges across diverse programme settings. • Develop clear policy and operational recommendations for procurement and programmatic use of recommended drug combinations and coformulations. • Promote integrated delivery approaches that strengthen existing treatment platforms and programme infrastructure. • Strengthen guidance on species-specific surveillance and treatment approaches for *Trichuris* spp. and strongyloidiasis. • Expand access to sensitive standardized diagnostics to support mapping, surveillance and programme monitoring.
Planning, governance and programme implementation 2026 2020	• Most endemic countries have established national coordination bodies and implementation structures for STH control programmes. • Large-scale preventive chemotherapy programmes for STH are implemented in most endemic countries through school- and community-based delivery platforms. • Functional pharmacovigilance systems for preventive chemotherapy programmes remain limited across many endemic settings. • Strongyloidiasis control remains inconsistently integrated within national STH and NTD programme implementation approaches. • Programme implementation in conflict-affected, insecure and hard-to-reach areas continues to face operational and logistical challenges.	• Strengthen integration of STH control within broader health system and existing NTD delivery platforms, including improved integration of mapping, treatment provision and surveillance activities across programmes. • Sustain and expand programme coverage in conflict-affected, insecure and hard-to-reach areas through adapted delivery approaches and strengthened operational support. • Ensure national NTD coordination bodies and strategic plans more explicitly address strongyloidiasis control and integration opportunities, particularly in settings where ivermectin is already provided for other diseases (lymphatic filariasis, onchocerciasis). • Strengthen cross-sectoral coordination, collaboration and alignment between community-based delivery platforms, school-based programmes and routine health services, to support sustainable implementation. • Adopt and implement policies for effective quality control of diagnostics and medicines used by countries, based on WHO global guidance, including appropriate control procedures.
Monitoring and evaluation 2024 2020	• Only some countries implement monitoring and evaluation activities in accordance with WHO guidelines. • Some countries report additional health status indicators beyond WHO requirements. • Most countries report adequately on road map indicators. • Few countries integrate STH data into their health management information system. • Additional global guidance on post-elimination surveillance is forthcoming. • Global guidance on disease-specific indicators is available but not widely integrated into health management information systems.	• Use new cost–effective technologies to reduce mapping and surveillance costs. • Simplify and standardize methods for impact assessment surveys. • Monitor drug efficacy as part of monitoring and evaluation activities. • Encourage countries to integrate monitoring and evaluation data into health management information systems for better reporting. • Encourage uptake of new guidelines. • Mobilize funding specifically allocated to monitoring and evaluation activities.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Access and logistics 2024 2020	• Access to mebendazole has improved for preschool-aged children and women of reproductive age as target groups. • WHO provides free Kato–Katz diagnostic kits when requested. • Medicines for STH are available for individual patient care. • Most health ministries manage supply chains efficiently, although digital systems lack local-level coverage. • Ivermectin is now available as a prequalified generic medicine, although donations have not yet been secured.	• Continue to improve access to medicines for women of reproductive age and preschool-aged children. • Increase the availability of ivermectin in *T. trichiura*-endemic areas, when indicated. • Ensure in-country distribution and supply chains are such that products are able to reach all health care levels, including peripheral facilities. • Disseminate knowledge about products available through WHO.
Health care infrastructure and workforce 2026 2020	• Teachers and community distributors are trained to deliver albendazole or mebendazole, but training for delivery of ivermectin or combination therapies remains limited, particularly in settings without existing lymphatic filariasis or onchocerciasis platforms. • Laboratory capacity for STH diagnosis is generally adequate for programmatic decision-making, as current WHO-recommended diagnostic methods are inexpensive, allow assessment of multiple diseases simultaneously and are relatively easy to implement, despite limitations in sensitivity and specificity. • Health facilities often lack appropriate diagnostic tools for strongyloidiasis, and staff may require additional training in diagnosis, treatment and case management. • Capacity constraints in PHC facilities across many endemic settings – including limitations in both human resources (e.g. trained health care workers) and physical resources (e.g. diagnostic equipment, medicines and infrastructure) – continue to restrict access to appropriate diagnosis, treatment and case management pathways.	• Train community-based distributors and frontline health workers in the diagnosis, referral, treatment and clinical management of strongyloidiasis, especially delivery of ivermectin and combination therapies. • Strengthen diagnostic and laboratory capacity, particularly for strongyloidiasis, to support programmatic decision-making and case management. • Promote integration of STH and strongyloidiasis activities within existing health service delivery platforms and routine clinical services, such as maternal health and nutrition programmes where relevant. • Align implementation planning with broader initiatives to improve access to medicines and diagnostics, particularly for ivermectin procurement and availability.

Category: Enablers

Advocacy and funding 2024 2020	• Most countries include STH in integrated NTD master plans or equivalents. • Countries rely on international funding, and most effective advocacy is done by international organizations. • Only some endemic countries have dedicated NTD budget lines and sustainability plans. • No dedicated global funding or donation programmes are currently available for the control of strongyloidiasis. • Medicine donations are expected to decrease as countries become self-sufficient and the frequency of preventive chemotherapy declines after successful interventions.	• Increase domestic financing to ensure sustainability in a changing international funding landscape. • Secure drug donations for women of reproductive age and preschool-aged children. • Advocate for expanded water access and sanitation and waste management in endemic areas.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Collaboration with ministries of education through school-based STH programmes is well established and may provide opportunities to support strongyloidiasis control activities. • Collaboration and integration with other health sectors for preventive chemotherapy programmes are established across many endemic settings, including through child health platforms, vaccination programmes and under-5 interventions; however, further strengthening and institutionalization are needed to ensure sustained high coverage. • In the absence of dedicated strongyloidiasis control programmes, reductions in infection are often achieved indirectly through lymphatic filariasis and onchocerciasis programmes in co-endemic areas where ivermectin is distributed. • Important gaps remain in coordination and collaboration beyond the health sector, particularly with WASH, education, environmental health and related sectors that influence transmission and reinfection. • Affected communities continue to play an important role in programme delivery and design, including through community drug distributors, social mobilizers and community leadership structures.	• Promote and strengthen integration of STH control activities within existing PHC, community health and NTD delivery platforms. • Strengthen integration of surveillance, mapping and monitoring activities across co-endemic diseases and established programme platforms (e.g. lymphatic filariasis, schistosomiasis, onchocerciasis, polio and scabies). • Strengthen multisectoral collaboration with WASH, education, environmental health and related sectors to support sustainable transmission reduction and reduce reliance on preventive chemotherapy alone. • Strengthen community engagement and behaviour change interventions to support sustained programme impact in settings with persistent transmission and high reinfection risk. • Identify, document and disseminate successful country models, programme champions and integrated delivery approaches to support domestic ownership, multisectoral coordination and cross-country learning. • Strengthen mechanisms for operational learning, evidence translation and exchange of implementation experience across endemic countries and programmes.
Capacity and awareness building 2026 2020	• Teachers and community health workers are generally well trained in recommended STH prevention and control measures, although operational capacity remains insufficient in many endemic settings. • Health education materials for helminth infections are commonly delivered during MDA campaigns, although their effectiveness for sustained prevention and behaviour change remains unclear. • In the absence of dedicated strongyloidiasis programmes, awareness and understanding of diagnosis and management of the disease remain limited, particularly outside co-endemic settings where ivermectin is distributed through lymphatic filariasis or onchocerciasis programmes. • Gaps remain in awareness and implementation of appropriate and emerging diagnostic approaches, particularly for strongyloidiasis and low-intensity infections. • Capacity to manage complex STH and strongyloidiasis cases remains limited, particularly in settings where laboratory capacity, diagnostic access and trained personnel are constrained.	• Integrate STH and related NTD content within broader health workforce training for teachers, community health workers, nurses, clinicians and other cadres. • Expand training and awareness of diagnosis, referral, treatment and case management for strongyloidiasis, particularly at PHC and facility levels. • Strengthen laboratory and frontline health worker capacity for strongyloidiasis diagnosis and management. • Support adaptation of global guidance to local epidemiological, programmatic and health system contexts. • Ensure training materials, operational manuals and implementation tools are embedded within routine systems to support long-term sustainability.

References

1. 2030 targets for soil-transmitted helminthiases control programmes. Geneva: World Health Organization; 2020 (https://iris.who.int/handle/10665/330611). Licence: CC BY-NC-SA 3.0 IGO.

Snakebite envenoming

Snakebite envenoming results from the injection of venom following the bite of a venomous snake or from venom sprayed into the eyes by certain species. The toxins in the venom can cause shock, paralysis that may arrest breathing, and bleeding disorders that can lead to fatal haemorrhage or tissue damage that causes permanent disability, limb amputation and psychological sequelae.

Disease and epidemiology

- Snakebite envenoming results from the injection of a complex mixture of different toxins ("venom") following the bite of a venomous snake or from venom sprayed into the eyes by certain species of snakes.
- The toxins can cause shock (fall in blood pressure), paralysis that may arrest breathing, and bleeding disorders that can lead to fatal haemorrhage or cause other effects, such as acute kidney injury and tissue damage leading to permanent disability, limb amputation and other physical and psychological sequelae.
- Risk factors include working in agricultural occupations, walking barefoot at any time, sleeping inside or outside on the ground without a tucked-in mosquito net, and walking outside at night without a light.

Core strategic interventions

Preventive chemotherapy	• N/A
WASH	• N/A
Vector control	• N/A
Veterinary public health	• N/A
Case management	• High-quality, safe and effective snake antivenoms that are available in rural health posts and can be delivered by qualified health care workers • Ancillary treatments, such as mechanical ventilation, wound care, infection control, surgery and treatment of shock
Other	• Housing improvements, including beds with bed nets to prevent sleeping on the floor, and improved sealing of gaps in walls, roofs and around doors • Behavioural changes, such as use of footwear and use of lights outdoors from dusk to dawn • Community education to reduce risky behaviour and, in the event of a snakebite, to seek proper health care and avoid unproven, potentially harmful first aid interventions (e.g. traditional treatment methods)

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries having achieved reduction of mortality by 50%	Not applicable	39/132 (30%)	0	61/132 (46%)	**132/132 (100%)**
Percentage of new antivenom producers joining market by 2030	Not applicable	5%	No data	15%	**25%**
Number of effective treatments for snakebite envenoming available worldwide	50 000	300 000	No data	500 000	**3 million**
Minimum number of WHO-recommended polyspecific antivenom products in each region	Not applicable	2	3	3	**6**

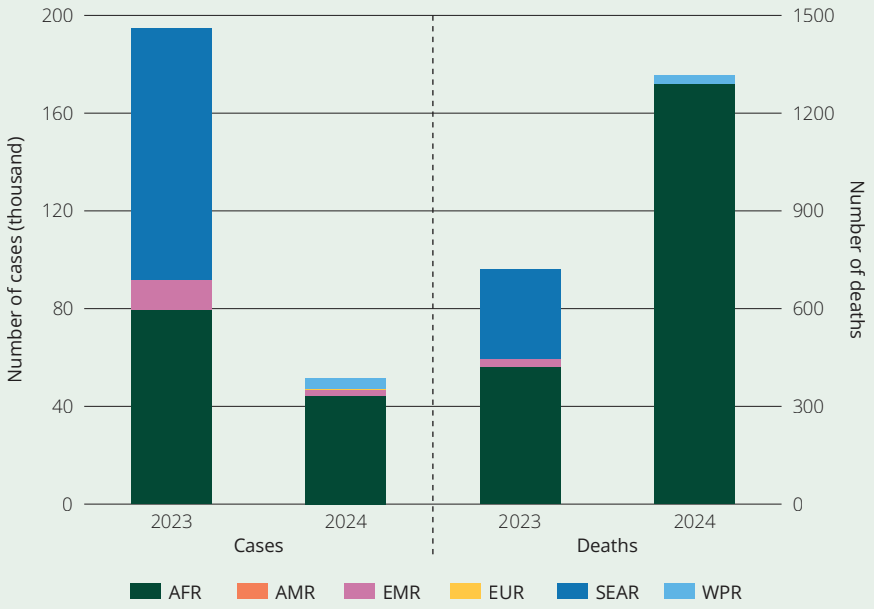
Burden of disease

About 2.7 million
people with snakebite envenoming annually

About 81 000–138 000
deaths annually

About 400 000
people disabled by snakebite envenoming annually

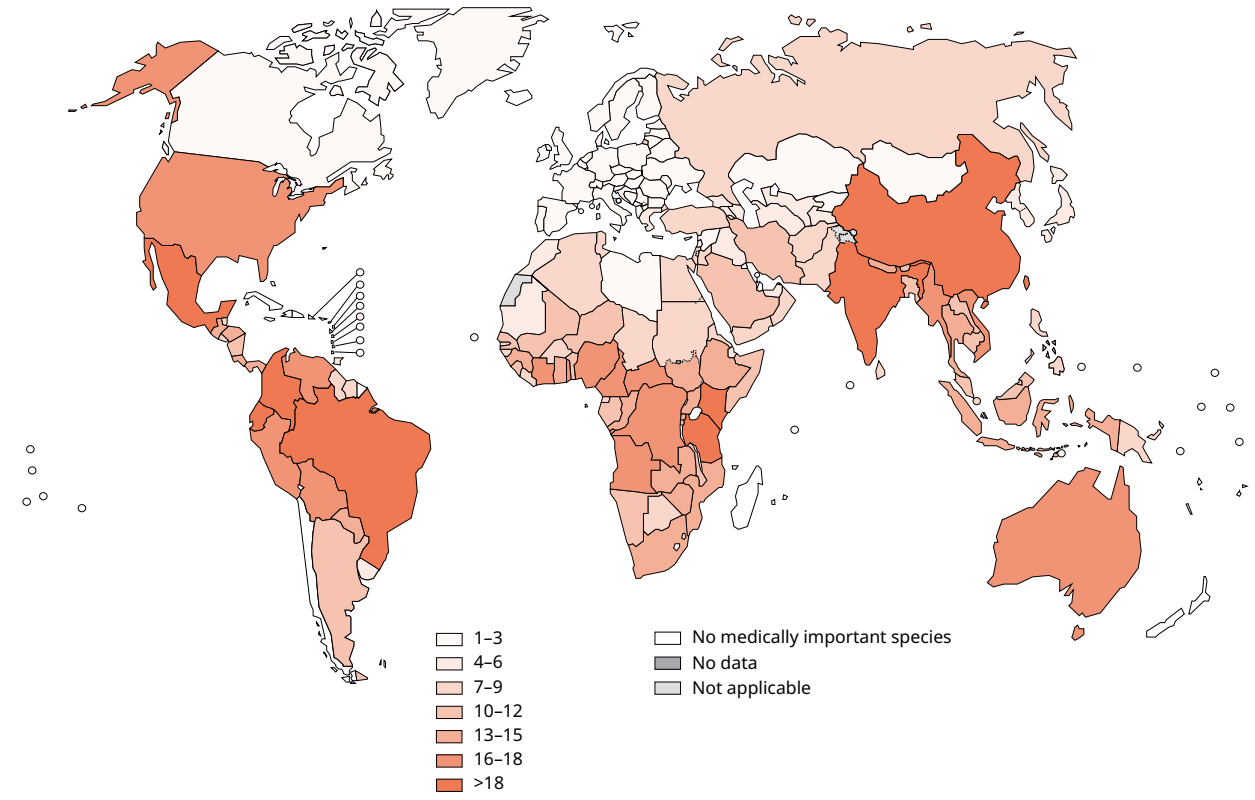
Number of snakebite envenoming cases and deaths reported, by WHO region, 2023–2024



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Number of venomous snake species per country



Source: WHO (*1*).

Progress at mid-term

Snakebite envenoming remains a significant but neglected public health challenge, particularly affecting rural and impoverished communities in tropical and subtropical regions. There are an estimated 132 countries with incidence of snakebite, although global, regional and national data can be incomplete or of variable quality and completeness. Global surveillance efforts have shown mixed progress towards the road map targets for snakebite control.

In 2023, 33 countries reported snakebite data to WHO, documenting 195 021 cases and 722 deaths. The African Region accounted for the majority of reporting countries, followed by the Eastern Mediterranean and South-East Asia regions. Notably, in 2024, reporting patterns shifted, with 25 countries submitting data: 17 from the African Region, five from the Eastern Mediterranean Region, two from the Western Pacific Region, and one country from the European Region. The 2024 data captured in the graph on page 217) shows 51 559 cases and 1317 deaths, although this represents incomplete global coverage rather than a true decline in burden, as data from the South-East Asia Region and the Region of the Americas are not included.

Several programmatic advances have been achieved. Countries are increasingly adding snakebite envenoming to their lists of notifiable diseases, and national treatment guidelines are being developed or updated. WHO has assessed more than 30 antivenoms for quality and efficacy across Africa, south Asia and the Middle East. Additionally, 26 countries have incorporated snakebite management into their national NTD action plans, and a DHIS2 surveillance module has been piloted in sub-Saharan Africa to improve data collection.

However, significant challenges persist. Funding for programme implementation remains critically scarce, and many affected populations continue to seek care from traditional medicine practitioners rather than health facilities. Routine reporting is not yet universal, limiting the ability to accurately assess the true disease burden. With more than 500 venomous snake species distributed across 168 countries, the complexity of developing region-specific antivenoms and treatment protocols remains substantial.

Progress toward the 2030 target of all endemic countries achieving a 50% mortality reduction currently stands at zero, underscoring the urgent need for accelerated investment and coordinated global action.

Summary of critical actions to achieve targets

Improve training of physicians in managing snakebite, and build awareness in communities of best practices in prevention and care seeking for snakebite envenoming.

Enhance overall production capacity for quality-assured products and ensure their availability and accessibility in rural areas.

Improve the quality of antivenoms and invest in research and development of new products.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Global information on the presence of snake species is available through WHO's Snakebite Information and Data Platform. • Modelling studies have provided global-level estimates of habitat suitability for venomous species and distribution of populations at risk. • Data on the geographical distribution of snakebite cases are limited because of the lack of large-scale mapping and effective surveillance and reporting systems. • Clinical manifestations of snakebite envenoming are well recognized, but the underlying disease pathophysiology remains incompletely understood. • Knowledge of venom composition and the immunological properties of venoms is substantial. • There is a lack of clinical and preclinical evidence for the safety and effectiveness of specific antivenoms, hampered by cost, logistics and lack of available expertise in countries.	• Invest in robust surveillance and reporting systems in affected countries for adequate case identification and burden estimation. • Generate baseline data on epidemiology, ecology and disease burden. • Encourage investment in research aligned with WHO strategic priorities and key operational needs of snakebite control programmes. • Develop pragmatic and cost–effective approaches to generate evidence on the safety, effectiveness and cost–effectiveness of antivenoms, while accounting for financial, logistical and technical constraints. • Develop rapid and pragmatic approaches to generate robust clinical and preclinical evidence on the safety, effectiveness and cost–effectiveness of antivenoms that are implementable in resource-constrained settings.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• Recognition of specific syndromes aids diagnosis of snakebite envenoming. • No TPPs exist for snakebite envenoming diagnostic tools. • Diagnostic tools for snakebite envenoming are scarce, with only one tool used in Australia. • Species-specific immunodiagnostics are valuable for research but not essential for treatment programmes.	• Standardize and validate clinically relevant bedside diagnostic tests that confirm specific clinical syndromes (e.g. the 20-minute whole blood clotting test for coagulopathy) in specific populations. • Develop simple, low-cost "yes/no" diagnostics (immunoassay or other diagnostic methods for identification of biting species for disease ecology) to reduce delays in administration of antivenom.
Effective interventions 2026 2020	• Preventive measures for snakebite envenoming are well understood, but implementation at scale remains constrained by insufficient sustained funding. • Measures required for treatment, case management and rehabilitation are well understood, but scale-up remains limited by funding constraints. • Evidence on the cost–effectiveness and effectiveness of implementing these interventions at scale remains limited. • The circulation of substandard antivenoms (particularly in Africa and Asia), together with limited clinical efficacy data for some products, has often undermined confidence among users, affected procurement, constrained production and increased costs. • The evidence base on the safety and effectiveness of antivenoms has strengthened in recent years, with WHO's risk-assessment process contributing to its systematic evaluation.	• Review the design of antivenoms and the selection of geographically appropriate sources of venoms for production. • Invest in the research and development of next-generation antivenoms and other therapeutic products. • Strengthen national preclinical and clinical testing pathways to support timely market deployment, while ensuring postmarketing surveillance. • Update existing guidelines for production, quality control and regulation of antivenoms to integrate emerging technologies and new evidence from preclinical and clinical assessments.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• WHO published a global strategy for the prevention and control of snakebite envenoming in 2019. • WHO has published guidelines for the production, control and regulation of snake antivenom (2017), as well as regional guidelines for the clinical management of snakebites in the South-East Asia Region (2016) and African Region (2010), but these are now out of date. • TPPs have been produced for conventional plasma-derived antivenoms for sub-Saharan Africa (2022) and south Asia (2023), as well as for small-molecule or engineered antibody therapeutics (2025). • WHO operational guidelines for implementing preventive interventions are not yet available. • WHO conducts risk–benefit assessments for antivenoms (in Africa, south Asia and the Eastern Mediterranean), and products with favourable evaluations are included in the WHO List of Recommended Antivenoms to support procurement decisions.	• Review and update the current global strategy for the prevention and control of snakebite envenoming. • Update WHO guidelines for the production, control and regulation of snake antivenom and regional guidelines for snakebite management in the African and South-East Asia regions. • Develop additional regional guidelines for the treatment and management of snakebites. • Support implementation of the global strategy through integration of snakebite prevention, treatment and management into national health systems and the development of country-specific guidance on antivenom selection. • Develop additional regulatory guidance and controls for antivenoms, undertake additional regional assessments, and strengthen relevant norms and standards. • Develop training programmes for national regulatory authorities to strengthen their capacity to evaluate and regulate antivenom products.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• Snakebite is not routinely integrated into national coordination bodies and master plans for NTDs, often because of limited prioritization within national health agendas and resource constraints. • National implementation workplans with measurable outcomes and monitoring frameworks are lacking in many settings. • There is no global technical advisory group for snakebite currently in operation. • Pharmacovigilance of antivenoms is very limited among affected countries and often confined to operational or clinical research projects.	• Establish a global technical working group of experts to support WHO, with adequate resources to ensure sustained operation. • Establish and implement a coordination framework spanning multiple levels of engagement, from WHO regional offices to national counterparts. • Develop and implement national snakebite envenoming control plans with clearly defined objectives, measurable indicators, and monitoring and evaluation mechanisms, particularly in high-burden countries. • Promote the inclusion of snakebite envenoming in countries' NTD master plans and coordination mechanisms. • Engage local stakeholders, including civil society and community leaders, to support domestic resource mobilization through bottom-up advocacy initiatives.
Monitoring and evaluation 2024 2020	• Monitoring and evaluation activities in endemic countries focus mainly on DHIS2 case and mortality data. • Reporting to WHO varies, with some surveillance systems failing to report data. • Work is underway to develop a routine health information system for disaggregated data collection (e.g. by sex). • Baseline epidemiological data are incomplete, fragmented and lacking in global burden validation. • There are more epidemiological data, but their quality varies; more research is needed to validate the global burden of the disease.	• Implement mandatory reporting to enhance accuracy of data on disease burden. • Improve epidemiological surveillance with clear, standardized definitions for accurate measurements. • Develop a framework to measure outcomes and outputs of disease control programmes. • Conduct baseline resource mapping to assess local capacity for surveillance and case management. • Increase awareness of the importance of monitoring and evaluation and secure adequate funding for related activities.
Access and logistics 2024 2020	• Prevention activities are rare; there is no formalized supply of protective clothing or products. • Antivenom provision is insufficient in volume, quality and availability, especially in remote areas. • There are challenges in the cold supply chain for antivenom; integration with vaccine chains is not established. • There is limited use of digital inventory management systems for antivenom, with a focus on epidemiological data. • International donations of antivenom are limited.	• Invest in the modernization of production capacity and the expansion of overall manufacturing capacity for antivenoms and hyperimmune plasma. • Create a virtuous cycle through quality-assured products, market stimulus, monitoring and surveillance. • Ensure effective national and regional regulation to stop the spread of ineffective, inferior or counterfeit products. • Establish a revolving stockpile of effective antivenoms.
Health care infrastructure and workforce 2026 2020	• Most endemic areas have substandard infrastructure and lack basic medical equipment, consumables and other essential medicines. • Case management, and morbidity management and disability prevention services for snakebite envenoming, where available, are typically provided at secondary and tertiary levels of care. • Provision of training in core clinical skills and competencies remains limited among health care workers operating at the primary and community levels.	• Identify and create national sentinel sites for clinical research. • Develop equipment, medicines and consumables lists, as well as treatment flowcharts and antivenom selection charts, by level of care, to support health system strengthening. • Develop standardized training programmes on diagnosis, treatment and management of snakebites, tailored to the roles of health professionals across all levels of care. • Build core competencies among health care workers operating at the primary and community levels, including formative activities with traditional practitioners.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Advocacy and funding 2024 2020	• Limited programmatic and national funding hampers effective snakebite envenoming activities. • International funding prioritizes research over programmatic activities, with uneven access. • Some countries have not yet developed dedicated snakebite envenoming control programmes. • Countries rely on domestic funding but lack resources to support all activities. • Snakebite envenoming competes with other NTDs for funding, and the lack of burden data limits its prioritization.	• Conduct donor mapping and develop a resource mobilization strategy based on a business plan (e.g. for envenoming management) for WHO. • Mobilize domestic financing for undertaking country-level projects.
Collaboration and multisectoral action 2026 2020	• Collaboration with health sector stakeholders has improved in some countries, where national programmes have developed detection, treatment and management systems. • Intersectoral collaboration with non-health stakeholders (e.g. agriculture, environment and education) remains limited. • Community engagement in the design and implementation of control activities is often limited to small-scale interventions or operational research studies.	• Convene multi-stakeholder engagement meetings in Africa and Asia to initiate implementation of pilot projects in selected countries. • Strengthen interdisciplinary One Health approaches, including research on the effects of climate change and ecological factors on snakebite risk, and the impacts of snakebite on livestock and livelihoods. • Strengthen and scale up community engagement initiatives to ensure the involvement of local stakeholders as central actors in the planning and implementation of control activities for snakebite envenoming.
Capacity and awareness building 2026 2020	• There is no global guidance for training on snakebite envenoming or standardized training materials to support training or education programmes. • Significant capacity gaps remain in basic and specialized clinical skills among health workers, as well as among community partners. • Countries require strengthened capacity among national regulatory authorities, ministries of health, the health workforce and antivenom producers. • Social mobilization, awareness raising, and behaviour change initiatives are largely absent from routine programme activities.	• Develop, standardize and disseminate capacity-building packages, implementation guidance and training resources for health care workers, manufacturers and regulators. • Integrate snakebite envenoming into pre-service education and continuing professional development programmes for health care staff. • Devise a best-practice model of community-level interventions, including prevention, first aid, case seeking and community-led advocacy. • Strengthen health systems and support effective regulatory frameworks to ensure local capacity for the safe and effective management and provision of antivenoms.

Reference

1. Annex 5: Guidelines for the production, control and regulation of snake venom immunoglobulins. In: WHO Expert Committee on Biological Standardization, sixty-seventh report. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/255657).

Taeniasis and cysticercosis

Taeniasis and cysticercosis are caused by infection with the tapeworm *Taenia solium* and its larval stages. Taeniasis is usually asymptomatic, whereas neurocysticercosis, which can cause chronic headaches, seizures, epilepsy, intracranial hypertension and other neurological symptoms, can be fatal.

Disease and epidemiology

- Taeniasis and cysticercosis are caused by infection with the tapeworm *Taenia solium*.
- Whereas taeniasis is usually asymptomatic (although it may cause abdominal pain, nausea, diarrhoea or constipation), neurocysticercosis, which can cause chronic headaches, seizures, epilepsy, intracranial hypertension and other neurological symptoms, can be fatal.
- The tapeworm is acquired by ingesting contaminated undercooked pork; neurocysticercosis occurs after ingestion of the parasite's eggs through the faecal–oral route, hand contamination or contaminated food or water.

Risks that require mitigation

- Tenuous long-term sustainability of interventions due to lack of financing, political will and lack of collaboration with other sectors at national level
- Lack of praziquantel donation for taeniasis MDA
- Lack of data, which are necessary for programme planning and forecasting, due to challenges in diagnosis of taeniasis and cysticercosis

Core strategic interventions

Preventive chemotherapy	• MDA with single-dose praziquantel or niclosamide, or with albendazole for 3 consecutive days
WASH	• Sanitation for safe disposal of faeces • Hygiene and food safety (e.g. preparation of food in hygienic environment to avoid hand-to-food contamination, and thorough cooking)
Vector control	• N/A
Veterinary public health	• Improved pig husbandry (e.g. to prevent pigs from accessing human faeces) • Pig vaccination • Anthelminthic treatment of pigs with oxfendazole
Case management	• Taeniasis: single dose of praziquantel or niclosamide, or 3-day albendazole • Neurocysticercosis: high doses and long courses of praziquantel or albendazole under specialized medical supervision, and supporting therapy with corticosteroids or antiepileptic medicines, or both (and, in some cases, surgery)
Other	• Community health education on WASH, veterinary public health and infection prevention

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries with intensified control in hyperendemic areas[a]	2/64 (3%)	4/64 (6%)	4/64 (6%)	9/64 (14%)	**17/64 (27%)**

[a] Definition of hyperendemic area and intensified control was published in Mapping protocol for *Taenia solium (1)*.

Burden of disease

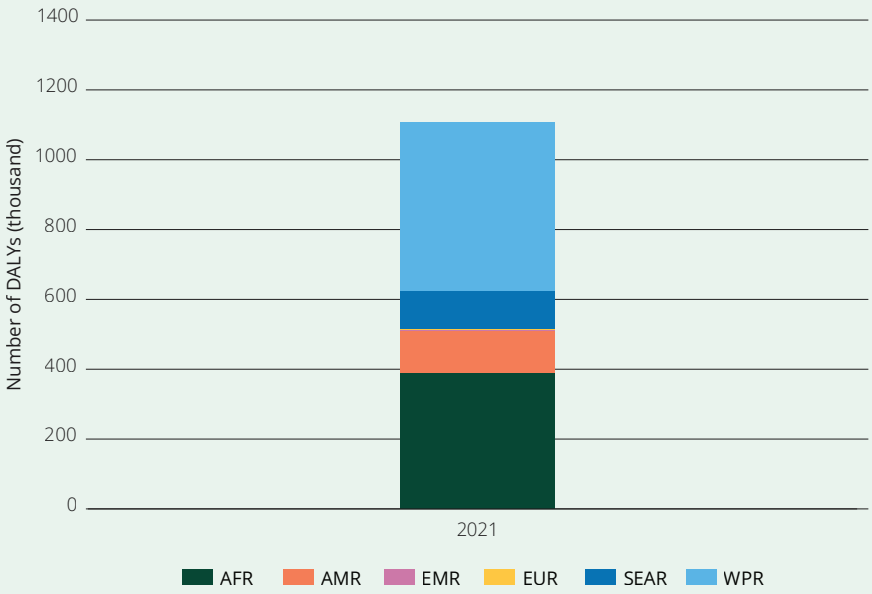
51 countries
endemic

About 7000
estimated deaths from cysticercosis in 2021[a]

About 1.1 million
DALYs from cysticercosis in 2021[a]

[a] *Source:* GHE 2021.

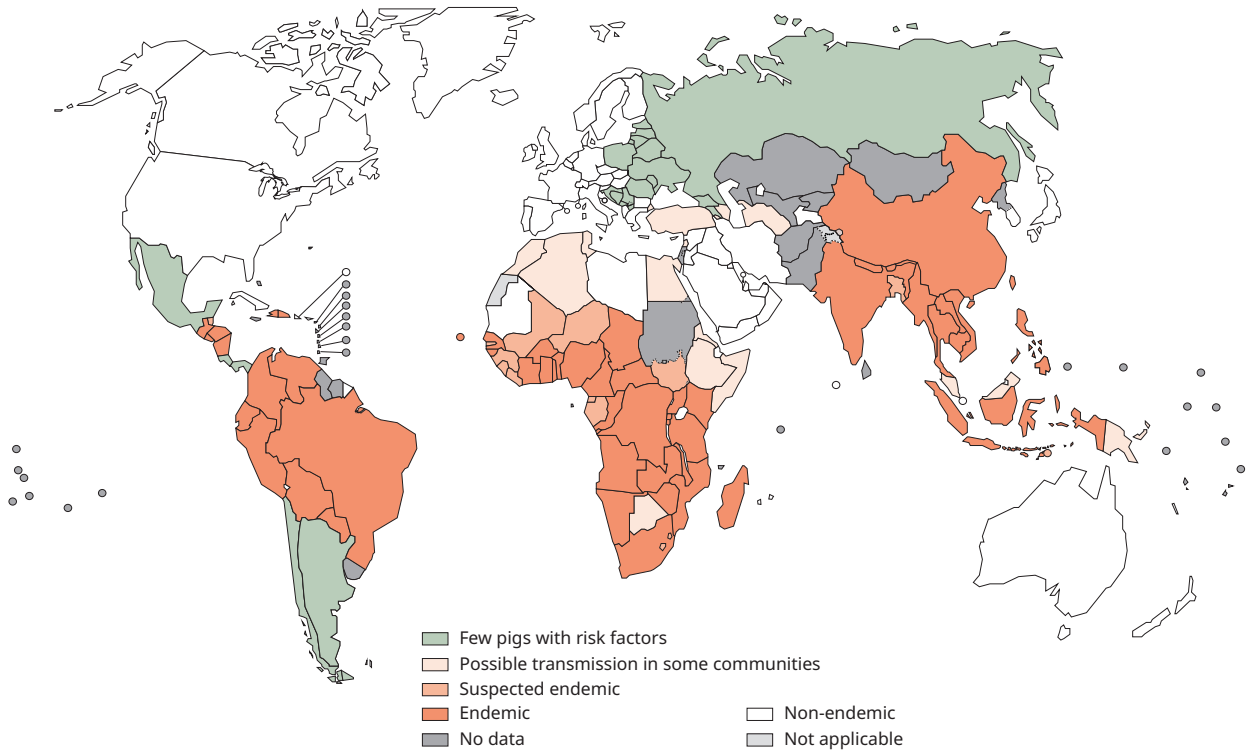
DALYs from cysticercosis, by WHO region, 2021



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Endemicity status of *T. solium*, latest data available as of 2025



Progress at mid-term

T. solium taeniasis and cysticercosis are endemic in 51 countries, and 14 countries are suspected to be endemic; the heaviest burden is in Africa, Latin America and Asia. Progress in mapping endemicity at subnational level is being made, which is slowly starting to translate into control programmes.

Integration with other programmes, such as those for schistosomiasis and opisthorchiasis, is starting to be implemented. One Health control programmes need engagement, financing and political will, especially from the animal sector.

TPPs for the diagnosis of taeniasis and cysticercosis have been developed but not yet taken forward. Access to neuroimaging for neurocysticercosis diagnosis is a challenge in endemic areas.

Summary of critical actions to achieve targets

Complete mapping at national and subnational levels.

Integrate taeniasis control and neurocysticercosis management into existing health programmes and systems.

Increase prioritization of taeniasis and cysticercosis and their inclusion in national NTD master plans.

Operationalize One Health collaborations for the control of *T. solium*.

Existing guidelines for case management of neurocysticercosis need to be expanded, as well as cascaded and adapted to local settings.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• There is a good understanding of the biology, epidemiology and pathology of *T. solium* taeniasis and cysticercosis. • Understanding of geographical distribution has improved, but important gaps remain. • Endemicity remains unconfirmed in some countries with suspected active transmission, and limited subnational mapping restricts identification of transmission hotspots and targeted intervention planning. • Local epidemiological patterns remain poorly characterized in many endemic settings. • Gaps remain in the understanding of transmission dynamics, particularly context-specific drivers and pathways. • Co-endemicity mapping with other NTDs, such as schistosomiasis, is needed to support integration of control efforts. • Interventions may generate synergies with other NTD programmes and broad socioeconomic benefits, but these effects are not systematically evaluated.	• Prioritize strengthening subnational surveillance and mapping to better characterize transmission patterns, confirm endemicity and develop co-endemicity maps. • Estimate health and economic burdens, which are currently likely to be underestimated. • Assess indirect benefits of interventions, including health impacts in co-endemic settings and improvements in livestock productivity and livelihoods. • Conduct a systematic assessment of the barriers and facilitators affecting the effective and efficient implementation of interventions. • Study the lifespan of adult *T. solium* tapeworms and the environmental viability of eggs. • Study factors influencing parasite acquisition in humans and pigs, including impact of maternal immunity in pigs. • Study the influence of climatic factors on parasite transmission dynamics.
Diagnostics 2024 2020	• Faecal exams for taeniasis are not sufficiently sensitive, but sensitive tools are costly. • Diagnostic tools for porcine cysticercosis lack specificity and sensitivity. • Molecular tests for *Taeniasis* species identification are being validated. • A point-of-care test prototype for neurocysticercosis may support *T. solium* control programmes in the future.	• Develop and validate specific and sensitive diagnostic tools that are practical and affordable for porcine cysticercosis. • Devise a sensitive and specific test that is practical and affordable for taeniasis. • Improve and validate the point-of-care test prototype for active neurocysticercosis.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Effective interventions 2026 2020	• Single preventive interventions alone (e.g. MDA) are insufficient for sustained control. • Integrated approaches combining human and animal interventions (e.g. preventive chemotherapy for human taeniasis, and pig vaccination) can reduce *T. solium* transmission but are resource-intensive and costly. • Porcine TSOL18 vaccine and deworming can substantially reduce transmission, but the costs borne by pig farmers limit uptake. • Effective treatments exist, but access to affordable diagnosis and comprehensive care, particularly for neurocysticercosis, remains a major challenge in most endemic areas. • Preventive chemotherapy for taeniasis is generally safe, but serious neurological events in individuals with undiagnosed neurocysticercosis may occur, requiring prevention, monitoring and mitigation.	• Strengthen and expand evaluation of the efficacy of neurocysticercosis treatment strategies. • Develop and validate simple, effective and affordable disease control models that take into account identified barriers and facilitators for implementation of interventions. • Scale up integrated human–animal interventions, including preventive chemotherapy combined with pig vaccination and treatment, through coordinated delivery across sectors and NTD programmes. • Coordinate the rollout of pig vaccination and treatment with authorities and manufacturers to expedite regulatory approval, reduce costs and improve uptake. • Test long-term intervention approaches (e.g. minimum maintenance of interventions in pigs) to assess long-term epidemiological impact. • Promote latrine building and use, to reduce open defecation, through cross-sectoral collaboration, capacity-building and community engagement. • Integrate programmatic components and activities across sectors and NTDs, including logistics, surveillance and awareness raising to enhance efficiency and effectiveness. • Strengthen pharmacovigilance and serious adverse event reporting during MDA activities, and support relevant operational research, to better characterize and monitor adverse events and inform safety guidance.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• *WHO guidelines on management of* Taenia solium *neurocysticercosis*, with its companion documents, and the PAHO/WHO *Guideline for preventive chemotherapy for the control of* Taenia solium *taeniasis* were released in 2021. • Additional technical guidance on detection and management of neurological serious adverse events was released in 2023, and on monitoring and evaluation for control programmes in 2024. • Operational and training documents to accompany the guidelines are available online (WHO Academy). • Adoption and adaptation of global guidance into national guidelines and standard operating procedures remain uneven across endemic areas.	• Build on existing guideline documents and ensure technical guidance is updated and expanded, including the following topics: – strategies to enhance access to diagnostics in resource-poor areas; – programmatic integration of novel diagnostic approaches (e.g. point-of-care tests), once they become commercially available; – strategies to ensure patient identification, management and follow-up; – treatment approaches for extraparenchymal neurocysticercosis; – long-term management of chronic neurocysticercosis; and – treatment and management of HIV coinfection. • Support the consistent adaptation of global guidance into national guidelines and standard operating procedures and their adoption in routine practice through capacity-building initiatives. • Collaborate with institutional partners (e.g. WOAH) to develop dedicated evidence-based guidelines for the diagnosis and management of cysticercosis in animals. • Initiate technical discussions to develop a standardized definition of elimination.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• Inclusion of *T. solium* taeniasis and cysticercosis in national NTD coordination bodies or master plans remains limited. • Most endemic countries lack an active national control programme for *T. solium* taeniasis and cysticercosis. • There is no dedicated global technical advisory group for *T. solium* taeniasis and cysticercosis; technical guidance is provided through expert groups and WHO-coordinated networks. • Integration of control activities with other NTD programmes remains limited, mostly confined to pilot interventions or research projects.	• Enhance collection of baseline epidemiological data to support prioritization and integration into national planning and coordination. • Make the disease notifiable in endemic countries. • Engage with public health stakeholders to integrate *T. solium* taeniasis and cysticercosis into national NTD master plans and coordination platforms. • Support the implementation of targeted interventions in high-endemicity settings, adapted to local conditions. • Support operational research to guide adaptation of control strategies to local contexts, including integration strategies for interventions with co-endemic NTDs. • Scale up integrated One Health interventions, including community-wide MDA alongside pig vaccination and treatment, to sustainably reduce transmission. • Strengthen pharmacovigilance and serious adverse event reporting and management during MDA activities.
Monitoring and evaluation 2024 2020	• A WHO monitoring and evaluation framework for *T. solium* control programmes was published in 2024. • Monitoring and evaluation systems do not exist in most endemic countries.	• Conduct subnational-level mapping to assess disease burden and integrate with other NTD programmes. • Develop diagnostic tools to accurately map endemicity to inform taeniasis and asymptomatic neurocysticercosis programmes. • Integrate monitoring and evaluation strategies across sectors, including animal, human and environmental health. • Harmonize data collection and reporting to coordinating authorities, including WOAH and WHO. • Improve surveillance, data quality and digital data management at country level.
Access and logistics 2024 2020	• Availability of praziquantel is limited. • Bayer donates praziquantel and niclosamide, with discussions ongoing to increase donations. • Efforts are underway to improve access to antiepileptic medicines and anthelminthics for neurocysticercosis care, in collaboration with the mental health sector. • Pig vaccination is included in WOAH training manuals, but low prioritization and demand limit vaccine production. • There are no donations of oxfendazole or pig vaccines; farmers must purchase pig treatment and vaccines privately.	• Register TSOL18 vaccine and oxfendazole for porcine cysticercosis in endemic countries. • Increase access in all areas to antiseizure medicines required for patients with neurocysticercosis or other causes of epilepsy. • Increase availability and accessibility of neurocysticercosis diagnostics, including computed tomography scans and neural magnetic resonance imaging. • Improve knowledge of PHC workers on neurocysticercosis treatment and referral pathways to hospital. • Advocate for the inclusion of neurocysticercosis treatment in governments' essential medicines lists and a One Health approach.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026 2020	• Diagnostic and treatment capacity at the primary care level remains limited in many highly endemic areas due to constraints in infrastructure, equipment and trained staff. • Large-scale availability of neuroimaging for neurocysticercosis diagnosis remains limited across endemic settings due to infrastructure requirements and costs.	• Develop and implement programmes to strengthen the capacity of primary and community levels of the health care system, including training the health workforce, improving capacity for diagnosis of taeniasis, strengthening recognition and initial management of suspected neurocysticercosis, and ensuring appropriate referral pathways to specialized care. • Establish neurocysticercosis diagnosis, case management and referral systems in highly endemic settings. • Expand access to neuroimaging for neurocysticercosis diagnosis. • Integrate case management of neurocysticercosis in the context of UHC, linking with mental health services and diagnosis and surveillance for epilepsy.

Category: Enablers

Advocacy and funding 2024 2020	• Advocacy from countries and stakeholders is increasing, but the response from governments and philanthropic agencies to invest in control is lacking. • Control activities for animals lack prioritization, as the impact lies primarily with non-commercial, small-scale, backyard pig farmers, who do not understand the disease and cannot afford control measures.	• Encourage advocacy from WHO, FAO, WOAH and the UN Environment Programme through a One Health lens for disease management and control activities. • Dedicate a One Health budget line in endemic countries to fund and support animal health and related control activities. • Increase commitment of governments and partners to prioritize taeniasis and cysticercosis through evidence collection on disease burden and economic impacts.
Collaboration and multisectoral action 2026 2020	• Several One Health frameworks outlining integrated human, animal and environmental interventions for *T. solium* control have been developed by WHO and regional offices. • Operational implementation of One Health initiatives at scale alongside other sectors, such as agriculture or veterinary health, remains very limited. • Engagement with affected communities and producers is limited, often confined to pilot interventions or operational research projects.	• Strengthen multisectoral coordination with agriculture, veterinary and environment sectors to operationalize One Health frameworks into context-adapted interventions. • Foster coordination with schistosomiasis, soil-transmitted helminthiases, epilepsy and other programmes to integrate programmatic activities, including awareness raising, treatment delivery and surveillance. • Coordinate pig interventions with animal programmes (e.g. use cold chain for rabies, vaccinate for porcine cysticercosis at the same time as for classic swine fever). • Identify and engage associations of pig farmers and pork producers to coordinate the implementation of programmatic activities.
Capacity and awareness building 2026 2020	• The implementation of systematic large-scale training and communication activities for health practitioners, including at the primary and community levels, is limited across endemic countries. • Training materials on diagnosis, treatment and case management are available (e.g. WHO Academy Toolbox for the control and management of *Taenia solium*), but local dissemination and adaptation remain limited. • Engagement with at-risk populations and pig farmers is mostly limited to pilot interventions or operational research initiatives. • There is a lack of capacity in neurocysticercosis diagnosis and management in most endemic settings. • Health system capacity constraints are compounded by limited veterinary service coverage and lack of animal health programmes for diagnosing and treating porcine cysticercosis.	• Update and expand training and communication programmes, including online platforms, to strengthen diagnosis, treatment and case management capacity across all health system levels. • Coordinate with national programmes to ensure training curricula incorporate and adapt latest WHO guidelines and technical recommendations. • Implement education and awareness activities adapted to the local epidemiological and cultural context to enhance health-seeking and preventive behaviours. • Build capacity for disease triaging at secondary level. • Build surveillance capacity. • Develop targeted communication strategies for smallholder and commercial pig farmers to improve uptake of pig treatment and vaccination. • Support training provision in the veterinary and agricultural sectors, to strengthen diagnostic and treatment capacity for porcine cysticercosis.

Reference

1. Mapping protocol for *Taenia solium*: identification of endemic and high-risk areas. Geneva: World Health Organization, 2023 (https://iris.who.int/handle/10665/372868). License: CC BY-NC-SA 3.0 IGO

Trachoma

Trachoma is a bacterial eye disease that causes pain and can permanently damage the cornea, resulting in irreversible visual impairment or blindness. The disease also causes a considerable economic burden for individuals and communities in terms of lost productivity.

Disease and epidemiology

- Trachoma is an eye disease caused by infection with the bacterium *Chlamydia trachomatis*.
- Repeated episodes of infection can scar the eyelids and cause eyelashes to turn inwards and rub the surface of the eye (trichiasis). This causes pain and may permanently damage the cornea, resulting in irreversible visual impairment or blindness.
- Infection is spread through personal contact (e.g. from hands, clothes or bedding) or by flies, through contact with ocular or nasal discharge of infected individuals.
- Risk factors for transmission include inadequate hygiene, crowded households, inadequate access to water and lack of sanitation.
- Trachoma causes a considerable economic burden for individuals and communities in terms of lost productivity.

Risks that require mitigation

- Emergence of persistent and recrudescent active trachoma
- Possibility of recrudescence of infection in populations considered to have eliminated trachoma as a public health problem
- Postoperative trachomatous trichiasis cases

Core strategic interventions

Preventive chemotherapy	• MDA of azithromycin and tetracycline eye ointment to reduce the reservoir of ocular *C. trachomatis* infection (the A of the WHO-recommended SAFE strategy[a])
WASH	• Facial cleanliness and environmental improvement (the F and E of the SAFE strategy), including access to water, improved sanitation and behavioural change measures
Vector control	• Removal of human faeces from the environment through improved access to and use of sanitation to reduce breeding sites for muscid flies, which are vectors of ocular *C. trachomatis*
Veterinary public health	• N/A
Case management	• Surgery to treat trachomatous trichiasis (the S of the SAFE strategy)
Other	• N/A

[a] Surgery for individuals with trichiasis, MDA with antibiotics to reduce the reservoir of ocular chlamydial infection, and facial cleanliness and environmental improvement to reduce transmission.

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2025)	Milestone (2025)	Target (2030)
Number of countries validated for elimination as a public health problem (defined as (i) a prevalence of trachomatous trichiasis "unknown to the health system" of <0.2% in ≥15-year-olds in each formerly endemic district; (ii) a prevalence of trachomatous inflammation—follicular in children aged 1–9 years of <5% in each formerly endemic district; and (iii) written evidence that the health system is able to identify and manage incident cases of trachomatous trichiasis, using defined strategies, with evidence of appropriate financial resources to implement those strategies)	10/66 (15%)	28/66 (42%)	27/66 (41%)	43/66 (65%)	**66/66 (100%)**

Burden of disease

About 101.5 million

people lived in areas requiring the A, F and E components of the SAFE strategy in 2025

About 1.2 million

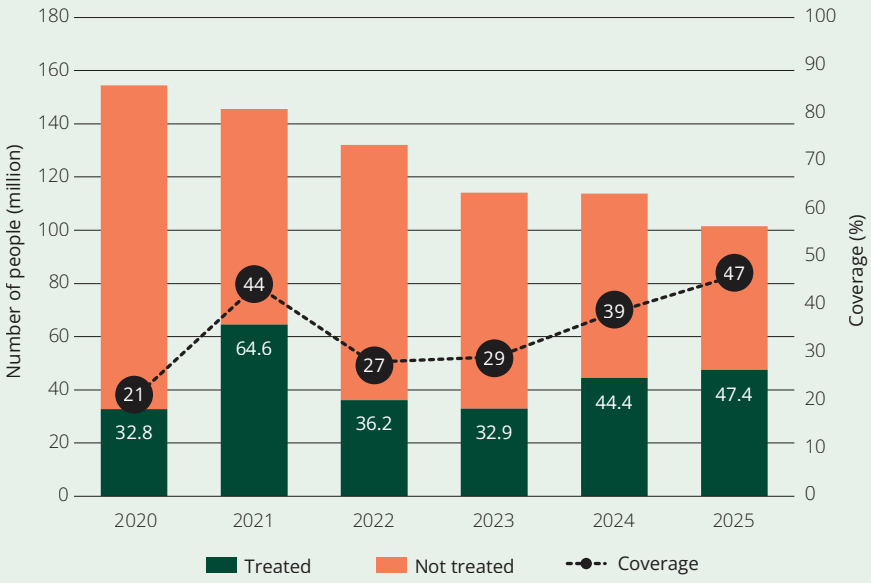
people required surgery for trachomatous trichiasis in 2025

134 212

DALYs in 2021[a]

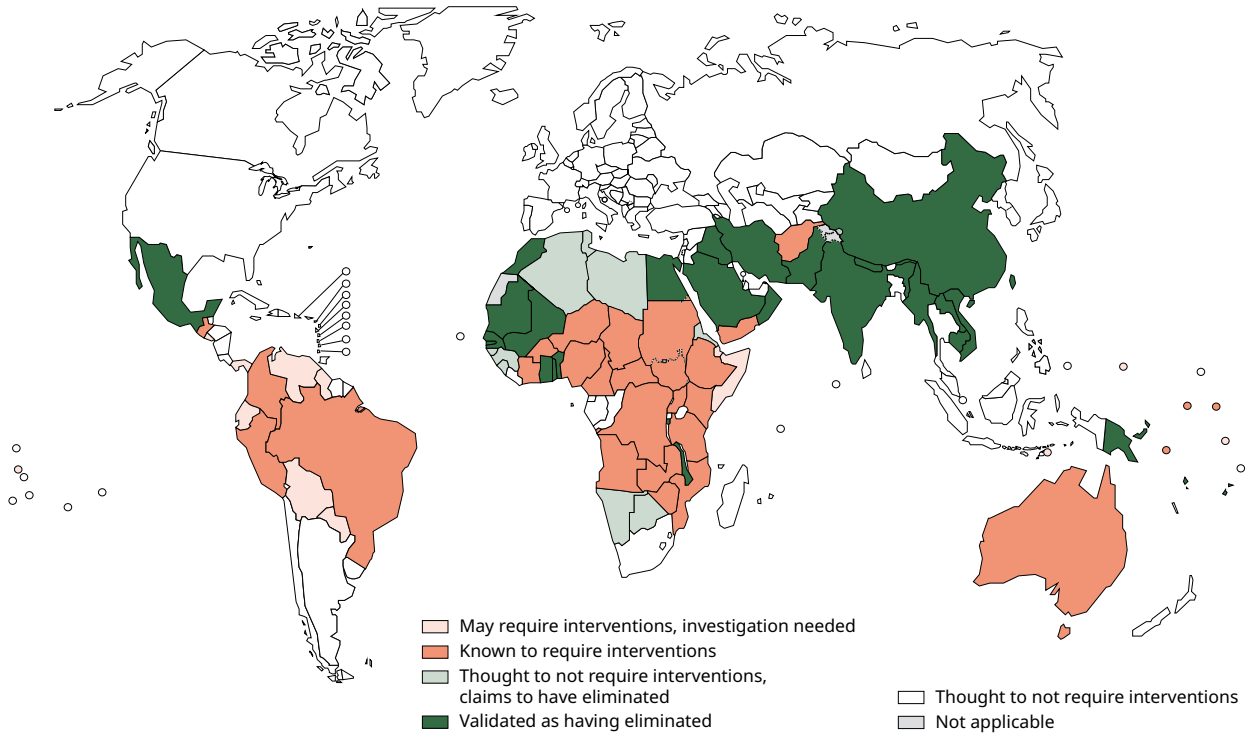
[a] *Source:* GHE 2021.

Number of people requiring and receiving the A, F and E interventions to eliminate trachoma as a public health problem, and antibiotic coverage achieved, worldwide, 2020–2025



Geographical distribution and status

Status of elimination of trachoma as a public health problem, worldwide, December 2025



Progress at mid-term

In 2025, trachoma was a public health problem in 41 countries. The estimated number of people living in endemic districts and at risk of trachoma blindness has declined from 325 million in 2011 to 101.5 million in 2025.

About 1.2 million people required surgery for trachomatous trichiasis in 2025; of these, only about 99 000 people underwent this surgery. According to the GHE 2021, there were 134 212 DALYs due to trachoma in 2021.

Summary of critical actions to achieve targets

Improve access to high-quality trachomatous trichiasis surgery, and tracking of outcomes and management of postoperative trachomatous trichiasis; and initiate management of people with trachomatous trichiasis (about 1.2 million in 2025) as soon as possible.

Develop an efficient, cost–effective way to detect and monitor recrudescence of infection, which could be important for post-validation.

Mobilize additional funding, including, importantly, domestic funding; and coordinate efforts with other NTDs on advocacy and funding, surveillance and WASH.

Increase knowledge through research and extend partnerships to increase work, specifically on evidence-based facial cleanliness and environmental improvement interventions to reduce transmission.

Accelerate research to understand why progress in high-transmission settings has been weaker than in low-transmission settings and whether different strategies may be needed in these settings.

Gap assessment, by category and dimension



Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Understanding of transmission pathways, vectors and infection reservoirs has improved, but gaps remain regarding persistent and recrudescent transmission, particularly in hyperendemic settings and in areas that fail to reach elimination thresholds despite repeated rounds of MDA. • Mapping is largely complete in most endemic countries, but gaps remain in a few suspected endemic, remote, cross-border and conflict-affected areas, as well as among mobile populations. • Trachoma epidemiology and pathology are sufficiently understood to design SAFE strategy interventions. • Interpretation of trachomatous inflammation—follicular, polymerase chain reaction (PCR) tests, serology, and discordant or mixed results for the purposes of programmatic decision-making requires guidance in persistent, recrudescent and peri- and post-elimination settings. • Nontarget effects of interventions are partly understood but are not systematically assessed or documented.	• Conduct scientific and operational research in high-transmission settings to improve understanding of the contribution of the A, F and E components of the SAFE strategy to achieving and sustaining elimination. • Improve understanding of where and why trachoma persists or recrudesces despite implementation of the SAFE strategy, particularly in hyperendemic settings, including the role of contextual factors such as climate, drought and insecurity. • Develop clear guidance on interpreting trachomatous inflammation—follicular, PCR, serology, and discordant or mixed results for programmatic decision-making. • Strengthen the evidence base regarding the use of complementary indicators, including PCR and serology, for programme monitoring, impact assessment, post-validation surveillance and early detection of recrudescence. • Assess and document nontarget effects of interventions, including impacts on child survival, WASH-related outcomes, socioeconomic effects and broader health system benefits. • Continue research on preoperative and postoperative management of trachomatous trichiasis and F and E interventions

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• Diagnosis is based on eye examination by a trained clinical grader. • Research has been undertaken to understand whether tests for current or previous ocular *C. trachomatis* infection would help programmes determine the need for interventions or monitoring of populations, after interventions are discontinued (i.e. between impact and surveillance surveys).	• Continue developing serological RDTs to support elimination and post-elimination surveillance.
Effective interventions 2026 2020	• The SAFE strategy is established; the S and A components are effective for trachoma elimination, but evidence for F and E remains limited, and implementation outcomes vary by context. • Effectiveness, efficiency and affordability of SAFE strategy interventions vary by setting, depending on coverage, financing, health system capacity and implementation quality. • MDA benefits from donated antibiotics, but the cost of delivery to hard-to-reach communities is high, with affordability remaining a concern for both MDA and trachomatous trichiasis surgery. • Gaps in technical capacity and training for trachomatous trichiasis services remain at subdistrict level across many endemic settings, including case detection, surgical quality, case-finding and postoperative follow-up. • Innovation and adaptation of interventions occur periodically, including digital case management tools, enhanced survey designs, complementary monitoring indicators, child-targeted MDA, and approaches to extend services in conflict-affected or hard-to-reach settings.	• Conduct research to determine how best to manage postoperative trachomatous trichiasis. • Conduct research to identify effective and affordable F and E interventions for reducing transmission of *C. trachomatis*, including behaviour change and WASH components. • Adapt intervention strategies to ensure effective coverage among hard-to-reach populations, including refugees and migrants. • Strengthen measurement of the quality and effective coverage of MDA and evidence-based F and E interventions, including directly observed treatment, sustained coverage across target populations, and appropriate indicators and thresholds for F and E, and WASH. • Adapt delivery of the SAFE strategy for hard-to-reach, insecure, pastoralist, refugee, migrant and cross-border populations. • Strengthen health system capacity for trachomatous trichiasis case detection, surgery, surgical quality, case-finding and postoperative follow-up, particularly at subdistrict level. • Support continued adaptation and innovation of recommended interventions and tools, including digital tools, survey designs, complementary monitoring indicators, child-targeted MDA and approaches to reach insecure areas. • Address the affordability and sustainability of programme delivery, particularly for hard-to-reach populations and trachomatous trichiasis surgery services.

Category: Strategy and service delivery

Operational and normative guidance 2026 2020	• WHO guidance clearly defines the SAFE strategy, but operational guidance remains insufficient in relation to implementation quality, effective coverage, WASH integration, behaviour change communication and post-validation surveillance. • Operational guidance for implementing trachoma interventions in hard-to-reach settings, including conflict-affected and remote communities, cross-border and pastoralist populations, and migrants and refugees, remains limited. • WHO global normative guidance exists for validation of elimination of trachoma as a public health problem, but additional operational guidance is needed for post-validation surveillance. • Operational guidance on the interpretation and use of complementary indicators, including PCR and serology, for programmatic decision-making remains limited. • Guidance updates can require time and may lag behind innovation or emerging evidence.	• Provide practical, country-level, evidence-based operational guidance on implementation quality, effective coverage, F and E integration with WASH, behaviour change communication, the use of complementary indicators, and post-validation surveillance. • Develop detailed guidance on post-validation surveillance, including the use of complementary indicators for post-validation monitoring. • Strengthen operational guidance on the interpretation and use of complementary indicators, including PCR and serology, to support programmatic decision-making and MDA stopping decisions where relevant. • Strengthen operational guidance for persistent, recrudescent, high-transmission and elimination settings, where standard decision-making is more difficult. • Formalize service quality standards for patient outreach services, referral and follow-up. • Ensure timely updating of WHO guidance to reflect innovations, adaptations and emerging evidence.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Planning, governance and programme implementation 2026 2020	• Implementation of the SAFE strategy is coordinated by the WHO Alliance for the Global Elimination of Trachoma by 2020 (GET2020), with support from multiple stakeholders. • Implementation is well established in most countries, but some countries require further investment to reduce surgical backlogs; coordinate A, F and E components; and support programme integration. • Most endemic countries have strategic plans in place, supported by national coordination bodies; however, their functionality is sometimes affected by weak authority, irregular meetings, limited multisectoral collaboration and dependence on external financing. • A majority of endemic countries have implemented elimination programmes in all geographical areas requiring intervention, but gaps in geographical coverage remain. • Pharmacovigilance and adverse event monitoring are present in many settings but remain variably integrated into national health systems.	• Improve programme implementation and coverage in endemic areas, including hard-to-reach, insecure, cross-border, refugee and pastoralist populations. • Reduce the trachomatous trichiasis surgical backlog through active case-finding, referral, quality-assured surgery and postoperative follow-up. • Strengthen coordination of evidence-based F and E interventions with WASH and other sectors to support sustained behaviour change and environmental improvement. • Expand access to quality-assured, patient-centred and equitable care, including early case detection, referral, surgery and follow-up, while considering stigma, mental well-being and rehabilitation needs. • Increase domestic ownership, financing and accountability for implementation, reducing reliance on donor-supported or project-based activities. • Strengthen the capacity and functionality of national coordination mechanisms, through clear mandates, regular meetings, multisectoral engagement and sustainable financing. • Strengthen integration of adverse event monitoring with national pharmacovigilance systems where MDA is implemented. • Improve implementation of integrated NTD interventions, where feasible, including guidance on the planning, delivery and reporting of integrated intervention packages.
Monitoring and evaluation 2024 2020	• The Global Trachoma Mapping Project was successfully completed in 2016, with limited areas remaining unmapped; the Tropical Data initiative has since made significant progress in identifying and mapping remaining areas and in supporting impact, prevalidation surveillance and trachomatous trichiasis-only surveys. • The WHO Global Health Observatory and the GET2020 database provide a global data repository.	• Complete remaining baseline mapping. • Develop systems to track patients with trachomatous trichiasis and their outcomes. • Devise methods for sustainable post-validation surveillance. • Design joint (intersectoral) monitoring and evaluation indicators as appropriate (e.g. WASH).
Access and logistics 2024 2020	• Since 1999, Pfizer has donated more than 1 billion doses of azithromycin to national health ministries through the International Trachoma Initiative, and continues to support the donation programme. • National systems manage supply chains with help from partners.	• Continue to maintain, review and improve systems as needed. • Maintain support for prevention and management of serious adverse events.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Health care infrastructure and workforce 2026 2020	• Many countries continue to face trachomatous trichiasis surgery backlogs, although some are addressing these through targeted initiatives, including workforce training and, in some settings, increased domestic funding. • Health workforce capacity is being strengthened to support safe and effective implementation, including adverse event monitoring and quality assurance during programme scale-up. • A majority of endemic countries have health systems that support integrated care through primary care services, including case detection, trachomatous trichiasis management, and referral. • Many settings have sufficient workforce capacity, but gaps persist in case detection, trachomatous trichiasis management, surgical quality and postoperative follow-up, particularly at subdistrict level. • Laboratory capacity for PCR and serology remains limited and is often concentrated in a few centres, limiting use of these tests in programme monitoring and surveillance.	• Optimize trachomatous trichiasis case detection and reduce surgical backlog through active case-finding, referral and improved geographical coverage, including full geographical coverage (involving house-to-house case searches) where appropriate. • Strengthen quality-assured, patient-centred trachomatous trichiasis care, including surgery, postoperative follow-up, outcome tracking and postoperative management. • Ensure efficient deployment of trained trachomatous trichiasis surgeons and eye-care health personnel to areas where cases remain and services are needed. • Advocate for health care facilities to have reliable access to safe WASH services to support treatment and care, including trachomatous trichiasis surgery. • Strengthen laboratory capacity for complementary indicators, particularly PCR and serology, where needed for programmatic decision-making in persistent, recrudescent or atypical settings. • Develop or strengthen regional and reference laboratory networks to support countries without full in-country laboratory capacity. • Leverage existing global and national laboratory platforms and networks, including those strengthened through COVID-19, tuberculosis (GeneXpert), Ebola virus and skin NTD programmes. • Improve coordination between trachoma programmes and laboratory sectors to support sample storage, testing, interpretation and use of complementary indicators.

Category: Enablers

Advocacy and funding 2024 2020	• Countries are providing critical core funding, usually covering staff costs for trachoma initiatives. • Interventions against trachoma have been identified as a so-called best buy, and donors include both bilateral and private donors. • Programmes are largely reliant on international financing, but efforts are being made to seek additional domestic financing.	• Mobilize domestic and other financial resources and political will to implement the SAFE strategy at scale, to achieve and sustain elimination. • Develop an investment case for evidence-based F and E and WASH interventions as evidence is generated. • Work on increasing domestic funding for programmes.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Global platforms, including the WHO Alliance for GET2020, International Coalition for Trachoma Control (ICTC) and NTD NGO Network (NNN), support information exchange, research prioritization and partner alignment. • Collaboration is central to trachoma elimination, with partnerships across WASH, education, government, nongovernmental organizations (NGOs), academia, donors and communities in many endemic countries; however, multisectoral engagement is not consistently documented or reported. • Collaboration is often project-based, donor-supported or campaign-specific rather than institutionalized through joint planning, financing, coordination, supervision and reporting. • Community involvement is common during implementation but remains limited in programme design, priority-setting, and monitoring and evaluation.	• Strengthen structured multisectoral coordination through defined mechanisms across government, WASH and education sectors, local authorities, NGOs, academia, laboratories and communities. • Institutionalize collaboration through joint planning, shared budgets, regular coordination, joint supervision, and integrated implementation and reporting. • Strengthen documentation of multisectoral collaboration and community involvement, including partner roles, joint activities and participation in programme processes. • Strengthen F and E activities through coordination with WASH and other relevant stakeholders, ensuring evidence-based facial cleanliness, behaviour change and environmental improvement interventions remain explicit priorities. • Coordinate routine and post-elimination surveillance with other NTDs and relevant agencies to support monitoring, response and sustained elimination activities. • Promote community co-design, particularly in remote or underserved communities, by involving communities in programme design, priority-setting, and monitoring and evaluation. • Engage wider NTD collaboration platforms, including the NNN, to support partner alignment, joint action and cross-disease learning.
Capacity and awareness building 2026 2020	• Human resource training capacity is available in most endemic countries, including training for clinical grading, trachomatous trichiasis detection and surgery, and programme implementation. • Standardized guidance, training materials and communication resources are widely available, supported by WHO, ICTC, NNN, Tropical Data and other partners. • Tropical Data supports training beyond clinical grading, including on collection of conjunctival swabs and dried blood spots for complementary indicator testing. • Tools such as the HEAD START (Human Eyelid Analogue Device for Surgical Training And skill Reinforcement in Trachoma) mannequin-based surgery training system for trachomatous trichiasis support surgeon training and quality improvement. • Social mobilization and behaviour change materials are generally available, but gaps remain in how they are accessed, adapted to local contexts and sustained over time. • Facial cleanliness and environmental improvement are not consistently emphasized in WASH-related messaging, which often focuses more on infrastructure than behaviour change and health education.	• Continue strengthening human resource capacity for trachoma elimination, particularly for clinical grading, trachomatous trichiasis detection, surgery, follow-up, surveillance and programme implementation. • Ensure training reaches all endemic communities, including hard-to-reach and underserved areas, while maintaining safe, high-quality and consistent service delivery. • Continue using and updating standardized guidance and training resources from WHO, ICTC, NNN, Tropical Data and other partners. • Expand Tropical Data-supported training where relevant, including clinical grading and collection of conjunctival swabs and dried blood spots for complementary indicator testing. • Maintain and update evidence-based behaviour change materials, while strengthening their acceptance, local relevance and uptake. • Promote co-construction of evidence-based behaviour change and mobilization activities with communities to strengthen local ownership and sustained action, especially where transmission persists or service uptake is low. • Build WASH capacity among health workers, caregivers and communities, emphasizing evidence-based interventions for facial cleanliness, hygiene practices, behaviour change and environmental improvement.

Yaws

Yaws is a chronic bacterial disease affecting the skin, bones and cartilage. It causes disfigurement and debilitation.

Disease and epidemiology

- Yaws is a chronic disease caused by infection with *Treponema pallidum* subspecies *pertenue*.
- It affects the skin, bones and cartilage and causes disfigurement and debilitation.
- Human transmission is believed to occur by skin-to-skin contact through scrapes or cuts.
- In the 1950s, yaws became one of the first diseases targeted for eradication; renewed eradication efforts started in 2012.

Risks that require mitigation

- Total targeted treatment (TTT) may not be effective, as latent and active infections are often in different households
- The remaining epidemiological, surveillance and operational challenges to overcome before achieving eradication are incompletely defined
- The eradication target is likely to demand resources on a scale that will be difficult to mobilize
- *T. pallidum* subsp. *pertenue* has been found in multiple non-human primate species

Core strategic interventions

Preventive chemotherapy	• Single-dose oral azithromycin total community treatment (TCT)
WASH	• Personal hygiene
Vector control	• N/A
Veterinary public health	• N/A
Case management	• Oral azithromycin as first-line treatment • Intramuscular benzathine benzylpenicillin for second-line treatment and for patients with *T. pallidum* subsp. *pertenue* with proven resistance to azithromycin • Patients should be examined 4 weeks after treatment; complete skin lesion healing occurs in more than 95% of cases
Other	• N/A

WHO road map indicators with interim milestones and 2030 targets

Indicator	Baseline (2020)	Milestone (2023)	Achieved (2024)	Milestone (2025)	Target (2030)
Number of countries certified free of transmission[a]	1/194 (0.5%)	97 (50%)	1/194 (0.5%)	136/194 (70%)	**194/194 (100%)**

[a] For yaws, there will be a supplementary milestone for 2027, given that transmission should be interrupted in all countries by 2027 in order for the 2030 goal of eradication to be met.

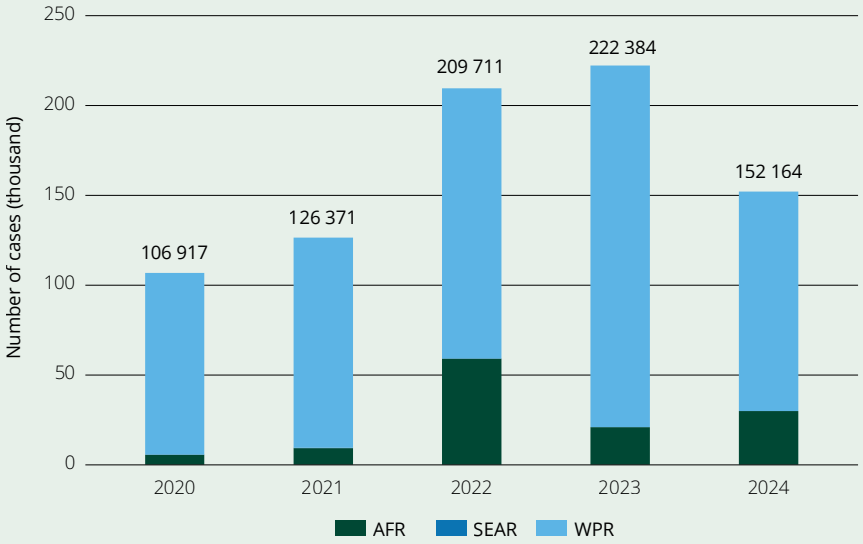
Burden of disease

152 164
suspected yaws cases reported in 2024

996
confirmed cases reported in 2024

1
country certified free of transmission as of 2024

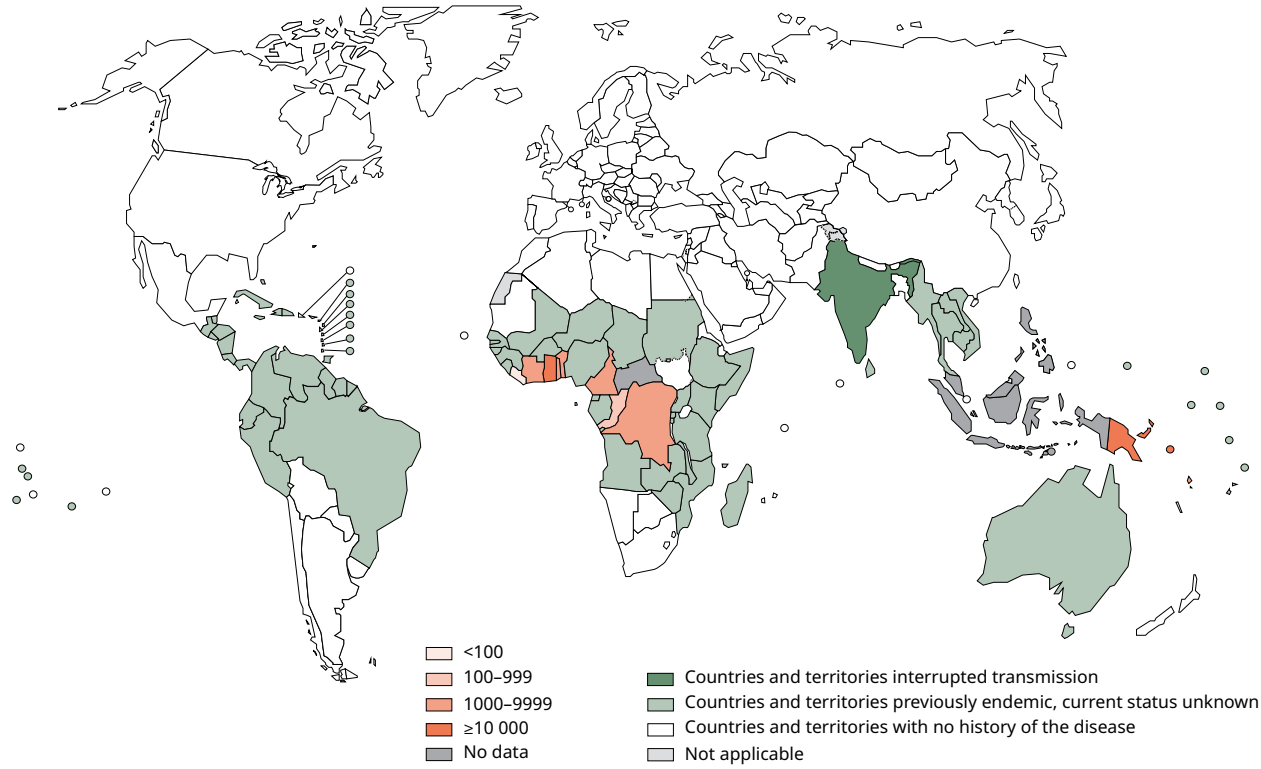
Number of reported yaws cases, by WHO region, 2020–2024



AFR: WHO African Region; SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region.

Geographical distribution and status

Number of suspected yaws cases reported by countries and territories, 2024



Progress at mid-term

In 2024, 16 countries were considered to be endemic, while 82 countries, areas and territories were considered previously endemic, with their current status unknown.

In 2024, there were 152 164 suspected cases reported from 10 countries, and 996 cases confirmed in seven countries.

Summary of critical actions to achieve targets

Define endemic population through epidemiological assessment, including empirical mapping where necessary.

Start antibiotic MDA in all endemic areas after mapping.

Strengthen active and passive surveillance, including in countries with unknown status.

Ensure effective, efficient integration or co-implementation with other programmes and sectors (such as integrated management of skin NTDs).

Increase funding and advocacy for yaws eradication.

Gap assessment, by category and dimension

No hindrance towards target — Critical action required to reach target

Category: Technical progress

Dimension and assessment	Current status	Actions required
Scientific understanding 2026 2020	• Understanding of yaws transmission, clinical manifestations, pathology and treatment is generally sufficient to support eradication efforts. • Global mapping and verification of endemicity remain incomplete, particularly in previously endemic and unknown-status countries and territories, where fragmented historical case records, limited surveillance and a lack of recent investigations limit accurate assessment of the current burden and distribution of infection. • Existing serological diagnostics, including *T. pallidum* particle agglutination and rapid plasma reagin tests, can identify likely active treponemal infection and support treatment decisions in field settings but cannot distinguish yaws from syphilis, complicating investigation of residual transmission and verification of interruption of transmission in formerly endemic settings. • In some settings, potential overlap of exposure to yaws and syphilis among children in vulnerable populations, from previously endemic countries and territories, may complicate interpretation of serological findings. • Single-dose azithromycin is highly effective for treatment of active and latent yaws and underpins the WHO-recommended strategy of TCT and TTT to interrupt transmission. • Potential ancillary health benefits of mass azithromycin administration have been demonstrated in trachoma programmes and child survival studies.	• Strengthen endemicity mapping in suspected, historically endemic and unknown-status countries and territories through clinical screening, serological testing, and reviews of historical records and surveillance and PHC data. • Strengthen evidence generation to support post-TCT surveillance, including active and passive case-finding, serological assessment of children, and investigation of suspected imported and residual cases. • Develop and evaluate approaches for interpreting serological findings among children in vulnerable populations, particularly in previously endemic countries and territories, where potential exposure to both yaws and syphilis may complicate post-TCT surveillance and verification activities. • Expand access to subspecies-specific molecular diagnostics, where feasible, to support investigation of residual transmission, detection of macrolide resistance and verification of interruption of transmission. • Strengthen the evidence base for the role of non-human primates as potential reservoirs or contributors to transmission in suspected endemic areas. • Continue to monitor the broader population-level effects of azithromycin MDA, including antimicrobial resistance and impacts on co-endemic infections, to inform optimization of eradication strategies.

Category: Technical progress *(cont.)*

Dimension and assessment	Current status	Actions required
Diagnostics 2024 2020	• Point-of-care serological assays can be used for screening and confirmation. • Molecular diagnostics are available for confirmatory testing and drug resistance monitoring. • Loop-mediated isothermal amplification is being investigated for field-based point-of-care application. • Access to diagnostics remains a challenge. • WHO TPPs were published in 2022: for a diagnostic to confirm yaws in suspected cases, and for a diagnostic to detect azithromycin resistance in *T. pallidum* subsp. *pertenue*.	• Develop a sensitive and specific point-of-care test, such as polymerase chain reaction (PCR), to distinguish yaws from other skin ulcers and lesions. • Develop a point-of-care test to distinguish asymptomatic yaws infection from asymptomatic infection with other treponemes (e.g. syphilis).
Effective interventions 2026 2020	• No established preventive intervention exists other than interruption of transmission through WHO-recommended TCT, followed by TTT of residual cases and contacts identified through post-TCT surveillance. • Single-dose oral azithromycin and injectable benzathine penicillin are highly effective treatments for active or latent yaws, although treatment cannot reverse established tissue damage associated with tertiary disease. • No evidence exists that specific WASH interventions alone are sufficient to interrupt yaws transmission, despite potential benefits associated with improved hygiene and improved living conditions. • Implementation and scale-up of TCT and post-TCT surveillance remain constrained by financing gaps and operational challenges related to drug distribution, community mobilization, case detection, serological testing and service delivery in remote populations. • Access to rehabilitation, reconstructive surgery and disability support services for individuals with tertiary yaws remains limited in many endemic settings, due to highly constrained specialist, surgical and rehabilitation capacity. • The potential emergence of azithromycin-resistant *T. pallidum* subsp. *pertenue* strains remains a concern and highlights the importance of antimicrobial susceptibility surveillance, particularly in settings requiring repeated rounds of TCT or prolonged post-TCT surveillance.	• Implement TCT in confirmed endemic areas and ensure transition to post-TCT surveillance and TTT of residual cases and contacts. • Strengthen active and passive surveillance systems to support early case detection, investigation of imported and suspected cases, and monitoring of progress towards interruption of transmission. • Establish and maintain post-verification surveillance systems to detect, investigate and respond to imported, suspected and confirmed cases. • Strengthen sustainable financing mechanisms for TCT, post-TCT surveillance and programme implementation, particularly for community mobilization, drug distribution, diagnostics and service delivery in hard-to-reach populations. • Integrate yaws case detection, treatment and follow-up into existing skin NTD, PHC and community health programmes, particularly in historically endemic and unknown-status settings. • Strengthen access to rehabilitation, reconstructive surgery and disability support services for individuals affected by tertiary yaws. • Strengthen antimicrobial resistance surveillance and establish protocols for investigating suspected azithromycin treatment failures and managing confirmed resistance.

Category: Strategy and service delivery

Dimension and assessment	Current status	Actions required
Operational and normative guidance 2026 2020	• WHO technical guidance on surveillance, monitoring and evaluation was released in 2021 and provides a framework for programme implementation and progress monitoring. • WHO normative guidance on the design of serological surveys to demonstrate interruption of transmission was released in 2025 to support countries to generate evidence required for verification. • WHO guidance for yaws treatment, case management and integrated skin NTD management is available, supporting the delivery of diagnosis and treatment within PHC systems. • Additional operational guidance may be needed to support implementation according to the epidemiological context of yaws, including settings in which overlapping exposure to yaws and syphilis among vulnerable children could complicate interpretation of serological findings used for endemicity assessments, post-TCT surveillance and verification activities. • Guidance related to rehabilitation and management of disability associated with tertiary yaws remains limited, reflecting broader gaps in access to rehabilitation and reconstructive services in endemic settings.	• Provide technical guidance on establishing country committees on yaws eradication. • Continue to update WHO normative and operational guidance and tools to reflect evolving approaches for surveillance, case management, post-TCT and post-verification activities, and implementation experience from endemic, historically endemic and unknown-status settings. • Develop supplementary operational guidance, according to the epidemiological context, and case studies to support application of existing WHO guidance, including in settings where interpretation of serological findings among children used as sentinel populations may be complicated by overlapping of potential exposure to yaws and syphilis. • Develop additional guidance on management of tertiary yaws, including rehabilitation, reconstructive surgery and disability support services. • Support establishment and functioning of the International Commission for the Certification of Yaws Eradication to provide independent technical review of country submissions and advise WHO on matters relating to yaws eradication.
Planning, governance and programme implementation 2026 2020	• A global technical advisory group for yaws eradication is being established, and a regional technical advisory mechanism is under development in the Region of the Americas, to provide strategic and technical guidance for endemicity assessments, programme implementation, verification and eradication planning. • Yaws is incorporated within some integrated NTD master plans and skin NTD strategies, although few endemic countries have functional national coordination mechanisms that explicitly include yaws, limiting prioritization, resource mobilization, accountability and implementation of eradication activities.	• Ensure yaws eradication objectives, activities and indicators are explicitly incorporated within integrated NTD master plans and national health planning processes. • Establish or strengthen national mechanisms to coordinate endemicity mapping, implementation of TCT, post-TCT surveillance, verification activities and preparation of eradication dossiers. • Provide targeted technical assistance to historically endemic and unknown-status countries and territories to support endemicity assessments, evidence generation and progression towards verification. • Define processes to support accountability for the eradication target for all countries and territories with a history of transmission or uncertain endemicity status. • Leverage existing NTD and PHC platforms to deliver yaws activities, while ensuring dedicated resources and oversight for surveillance, verification and eradication-specific activities. • Support establishment and effective functioning of global and regional technical advisory mechanisms to facilitate exchange of implementation experience, review progress and provide technical advice to countries pursuing eradication.
Monitoring and evaluation 2024 2020	• Surveillance systems are well established in some endemic countries but not at all in others, and often not to scale. • A WHO monitoring and evaluation framework for yaws has been published, and a strategic framework for skin NTDs released. • Implementation of monitoring and evaluation activities is weak due to a lack of diagnostic tests and funding for implementation.	• Establish integrated surveillance in all yaws-endemic and formerly endemic countries. • Increase country reporting on monitoring and evaluation indicators to a monthly frequency. • Support formerly endemic countries in assessing current yaws status. • Expand access to PCR testing for disease confirmation and resistance monitoring. • Include disabilities due to yaws as additional health status indicators for morbidity.

Category: Strategy and service delivery *(cont.)*

Dimension and assessment	Current status	Actions required
Access and logistics 2024 2020	• Availability of azithromycin is covered by a donation programme, but funds for implementation of community-based treatments are very limited. • Availability of antibiotics and diagnostics to diagnose and treat cases and contacts is limited in PHC facilities. • There is limited access to medicines and diagnostic tools (e.g. RDTs and the Chembio Diagnostics Dual Path Platform Syphilis Screen and Confirm assay). • Some countries have azithromycin in their national essential medicines lists, but not for the treatment of yaws.	• Improve access to diagnostic tests and medication in all endemic locations, including isolated foci (as part of UHC). • Ensure access to point-of-care tests and antibiotics of assured quality for MDA, TTT, and diagnosis and treatment of passively detected cases and their contacts. • Ensure that yaws is included as an indication for azithromycin on national essential medicines lists.
Health care infrastructure and workforce 2026 2020	• Interruption of yaws transmission in endemic settings is primarily conducted through vertical TCT and post-TCT surveillance activities, although opportunities for integration with other community-based interventions and NTD programmes are increasingly being explored. • Integrated patient care pathways for yaws case detection, treatment and referral have been incorporated within skin NTD initiatives in some endemic countries, although their implementation and sustainability in historically endemic and unknown-status countries and territories, including in the Region of the Americas, remain unclear. • Rapid treponemal and dual treponemal–non-treponemal serological tests are available in some endemic settings, although access is variable. • PCR capacity for confirmation of infection and detection of macrolide resistance remains limited and is particularly important in settings approaching interruption of transmission and verification.	• Strengthen integration of yaws case detection, treatment and referral within skin NTD, PHC and community health programmes, where feasible, including in historically endemic and unknown-status countries and territories. • Expand subnational laboratory capacity in endemic areas to support investigation of suspected residual transmission, antimicrobial resistance surveillance and verification activities, including access to PCR testing for confirmation of infection and detection of macrolide resistance. • Strengthen capacity to interpret serological findings and investigate suspected yaws cases in settings approaching interruption of transmission and verification, particularly where overlapping exposure to yaws and syphilis may occur. • Expand training for health workers, programme focal points and laboratory personnel to support diagnosis, treatment, surveillance, implementation of TCT and post-TCT surveillance, and verification activities. • Strengthen subnational and community-level capacity to support active case-finding, treatment delivery, surveillance and follow-up, reducing reliance on vertical programme structures.

Category: Enablers

Advocacy and funding 2024 2020	• There is limited political and donor or partner support for implementation. • There is buy-in of communities to community-based treatments, and awareness among endemic populations is improving. • There is some advocacy support from the research community.	• Increase funding and advocacy for yaws eradication, emphasizing preventive chemotherapy. • Sustain community engagement to support ongoing yaws programme implementation. • Maintain research community engagement for knowledge generation and resource mobilization. • Mobilize funds for programme activities, including medicines, diagnostics and personnel support.

Category: Enablers *(cont.)*

Dimension and assessment	Current status	Actions required
Collaboration and multisectoral action 2026 2020	• Involvement of affected communities in the design, planning and implementation of yaws eradication activities remains limited, potentially reflecting the low visibility of yaws, stigma associated with skin conditions and reliance on largely vertical programme approaches. • Community engagement is primarily conducted through community health workers integrated within skin NTD, PHC and community health programmes, with few documented examples of broader community participation, social mobilization or engagement of community-based organizations. • Collaboration with other NTD programmes has been demonstrated through integrated training and service delivery initiatives in some countries; however, sustained collaboration with sectors beyond health, including education, WASH and local government, remains limited.	• Strengthen community participation in yaws eradication activities, including programme planning, social mobilization, implementation and communication, to improve awareness, acceptability and local ownership. • Document and disseminate examples of successful integration of yaws activities within skin NTD, PHC and community health programmes to support adaptation and scale-up in other settings. • Expand integration of yaws surveillance, case detection and referral within existing health programmes, including immunization, maternal and child health, school health and skin NTD initiatives, particularly in historically endemic and unknown-status settings. • Strengthen collaboration with ministries of education, school health programmes and community-based organizations to support awareness raising, case-finding, screening and treatment activities. • Identify opportunities to align yaws activities, including TCT and surveillance, with other NTD programmes and community-based interventions where epidemiologically and operationally appropriate. • Strengthen collaboration with sectors beyond health, including education, WASH, local government and community organizations, to support social mobilization, service delivery and sustainability of eradication efforts.
Capacity and awareness building 2026 2020	• WHO training materials and guidance for health workers, including printed and online resources, are available; however, adaptation, dissemination and uptake are inconsistent across endemic settings, and the extent to which materials are routinely used and refreshed is unclear. • Training on yaws has been partially incorporated within broader NTD and skin NTD programmes in some endemic countries, although the scale, coverage and sustainability of training activities are insufficient to support eradication efforts, particularly at subnational and peripheral levels of the health system. • The availability and implementation of yaws-specific training, awareness raising and social mobilization activities in historically endemic and unknown-status countries and territories, including in the Region of the Americas, remain poorly documented. • Communication materials and activities to support behaviour change, case recognition, treatment seeking and participation in eradication efforts remain limited in many settings, particularly at peripheral levels of the health system and within affected communities. • Limited and unpredictable financing constrains the expansion and sustainability of training, social mobilization and programme implementation activities, despite the availability of technical guidance, training materials and donated azithromycin.	• Develop context-appropriate training programmes for health workers, nurses and community health workers at all levels of the health system to strengthen diagnosis, treatment, referral and integrated case management of yaws and other skin NTDs. • Strengthen training and adapted operational guidance for programme focal points, surveillance officers and laboratory personnel at subnational level to support implementation of TCT, post-TCT surveillance, investigation of suspected residual transmission, verification activities and preparation of eradication dossiers. • Strengthen community awareness, social mobilization and health promotion activities through dissemination of context-appropriate communication materials at peripheral levels of the health system and within affected communities to improve case recognition, care seeking and participation in eradication activities. • Engage traditional healers, teachers and other trusted community actors, where appropriate, to support awareness raising, suspected case identification, referral pathways and community-based surveillance. • Collaborate with WASH programmes and providers to promote skin health and hygiene messages that support early detection and treatment of yaws and other skin NTDs. • Strengthen advocacy and resource mobilization efforts to secure sustainable financing for training, social mobilization and implementation activities.

4. Risks to achievement of 2030 targets and mitigations

This chapter identifies the risks that could slow or reverse progress towards the 2030 targets during the remainder of the road map period. The most immediate risk is financial: global financing for NTDs has reduced, is concentrated among a small number of donors, leaving programmes exposed as external support declines. It is foreseeable that the second half of the decade will be shaped by converging risks that could slow or reverse the gains made since 2021 and before.

Assessment of progress against the road map targets to 2030 illustrates the scale of the challenge. Relative to the baseline, the number of people requiring interventions against NTDs has declined substantially, although the rate of reduction remains insufficient to meet the 2030 target. Progress is uneven: a small number of high-burden countries account for most of the population requiring interventions, so trends in those countries drive the global figure, while aggregate results conceal variation between countries and between diseases. Reported burden has increased for certain diseases at regional level, where continued transmission and delayed diagnosis are noted, although the available data cannot establish how far this reflects a true increase rather than improved case ascertainment. Formal WHO acknowledgement processes also remain incomplete or have not been published yet for several diseases (yaws, schistosomiasis and Chagas disease) targeted for eradication, elimination (interruption of transmission) or elimination as a public health problem under the road map (for Chagas disease, the process remains incomplete and regional rather than global).

Uneven progress reflects differences between countries – in coverage, fragility, donor dependence and integration into national health systems – as well as between diseases, in financing and political visibility. These differences matter for the remaining period, since they suggest that acceleration will depend less on uniform intensification than on tailored responses to the constraints that differ by country and by disease. The risks are also interdependent: financing shortfalls compound fragility, weak surveillance obscures widening equity gaps, and slow innovation leaves programmes without the tools needed for the final stage towards elimination.

4.1 Financing, sustainability, partnerships and country leadership

The most immediate risk is financial. Global financing for NTDs remains well below pre-pandemic levels, despite a modest recovery in 2024, and the funding landscape is structurally fragile.

Over the past few years, financing was concentrated in the hands of a few large donors – the United States, the United Kingdom and the Gates Foundation – which together provided the majority of all NTD financing between 2018 and 2024. This concentration has become an acute vulnerability now that two of the three largest donors have withdrawn much of their support, with the United Kingdom reducing its funding by 91% after

the closure of the ASCEND programme in 2021 and the United States introducing significant reductions to development assistance in 2025; this has led to the termination of several major programmes, such as Act to End NTDs|West.

NTD financing is volatile and poorly aligned with road map priorities: eradication targets are especially exposed, with funding for Guinea worm becoming increasingly vulnerable, and dedicated funding for yaws having all but ceased since 2022. Donor fatigue, competing priorities and the approaching termination or downscaling of some medicine donations heighten this exposure for diseases close to elimination, where continued investment is essential if hard-won gains are not to be lost. The sustainability of programme gains is at risk.

Most national programmes remain significantly dependent on external donors, and the recent decline in financing has exposed the vulnerability of this model. Domestic financing is structurally limited: programmes frequently lack a dedicated budget line, are nested within broader disease portfolios, and are supported by governments largely to cover staff costs, while implementation remains donor funded. Budget coordination across NTD programmes remains limited in many countries, resulting in fragmented financing, duplication of planning and implementation costs, and missed opportunities to optimize the use of available resources through integrated delivery.

Country progression towards sustainability is difficult to verify because comparable data are limited, and the economic and efficiency evidence needed to guide resource allocation and demonstrate value for money remains scarce. Diseases for which burden data are limited, or which have low political visibility, attract minimal donor support and are often absent from national budgets. Country ownership remains incomplete. Policy formulation is largely aligned with WHO guidance but is often supported by external technical assistance rather than led nationally, and implementation continues to depend on external financing. Decision-making is not consistently community-informed, and frequent changes in political leadership and administrative authority can interrupt programme continuity. Countries reaching elimination face a further risk of declining political attention and premature downscaling before gains are secured.

Nevertheless, several mitigation measures are strengthening financing, sustainability, partnerships and country leadership. Global advocacy and political commitment have been reinforced through dedicated awareness platforms and the explicit inclusion of NTDs in major international and intergovernmental declarations, such as the recognition of World NTD Day as an official WHO global health day, the Kigali Declaration and its online commitment tracker, and the incorporation of NTDs in UN General Assembly political declarations in 2023 and in the G7 and G20 leaders' communiqués in 2024.

A growing number of endemic countries have integrated NTDs into national health sector strategic plans, indicating a shift from donor-driven towards country-led programming. Emerging domestic financing commitments and new co-financing partnerships are beginning to broaden and diversify the funding base, while established alliances, networks and constituencies continue to support advocacy, technical coordination, and mobilization of financial and in-kind resources for key programmatic components.

4.2 Fragile settings and environmental risks

NTD burden is increasingly concentrated in fragile settings, and conflict, insecurity and humanitarian crises are now a defining barrier to attainment of 2030 targets. Access constraints and population movement undermine coverage – particularly in the WHO African Region, the Region of the Americas and the Eastern Mediterranean Region – and heighten risk among migrants, cross-border and displaced populations, miners, incarcerated people and Indigenous communities. Guinea-worm disease eradication is especially vulnerable to insecurity, the movement of people, and new routes of transmission via animal hosts. In May 2025, the Seventy-eighth World Health Assembly adopted resolution WHA78.14 on accelerating the eradication of dracunculiasis, which highlighted infections in animals, humanitarian emergencies and cross-border movement as specific risks *(93)*. Climate pressures compound these risks, yet how climate and environmental change alter vector behaviour and transmission remains poorly understood for onchocerciasis, schistosomiasis, visceral leishmaniasis, foodborne trematodiases and trachoma *(170)*. The contribution of environmental risk factors, animal reservoirs and zoonotic spread is only partly understood for several NTDs. Access to WASH in endemic areas remains well below the target.

The increase in the burden of dengue and other arboviral diseases poses a significant risk to the entire NTD portfolio. Mortality from vector-borne NTDs has

risen substantially, driven overwhelmingly by dengue, reflecting rising case numbers rather than deteriorating clinical outcomes, and the influence of climatic variability and urbanization on vector transmission dynamics. Continued expansion of arbovirus risks diverting financing, workforce and health system capacity from other NTD programmes. Mitigation requires integrated vector management, strengthened surveillance and early warning, outbreak preparedness, timely clinical care, urban resilience planning, community and cross-sectoral engagement, evidence-based introduction of vaccines and innovative vector control tools, along with political commitment and cross-border coordination.

4.3 Health system integration, surveillance and information systems, programmatic risks and health workforce capacity

4.3.1 Health system integration

Integration remains structurally incomplete for health systems. NTD services are not yet systematically included in UHC benefit packages in most endemic countries, and persistent challenges include heavier frontline workloads, insufficient digital tools and logistics, and health information systems that lack key indicators for decision-making. Vertical delivery persists, in part because health system capacity in many high-burden countries is not yet sufficient to absorb NTD services, while integration into national master plans, coordination and support supervision mechanisms is inconsistent for many diseases, several of which lack a technical advisory group or coordination platform. Integration is a means of delivery rather than an endpoint, and its contribution should be assessed by whether it improves access, quality, equity and sustainability, while maintaining disease-specific surveillance, indicators, referral pathways and specialist expertise for the case-management NTDs that depend on them.

Translation of policy into practice is progressing too slowly to meet the 2030 targets. An increasing number of endemic countries have integrated NTDs into national health strategies or sector plans and have included and funded them within essential health service packages, but the proportion remains far below the level required. Inclusion in a plan or a package does not in itself demonstrate implementation, funding, supervision or monitoring. Integration across cross-cutting programmes is equally uneven. A few countries have shown that closer collaboration between the WASH sector and NTD programmes is achievable, translating joint planning into tangible programme outcomes. However, the mutual benefits of collaboration, an important enabling condition for prevention and for sustaining elimination, remain largely untapped. The two operate through separate administrative structures and funding streams, even though the joint WASH–NTD strategy sets out shared objectives; because of this, the shift to joint operational planning at subnational level is incomplete. Collaboration with the education, agriculture, veterinary and environmental sectors, which is essential for zoonoses and environmentally driven diseases, likewise remains fragmented.

Progress has nonetheless been made. The adoption of resolution WHA78.15 on skin diseases as a global public health priority *(93)*, and the accompanying skin NTD framework, provides a platform for embedding skin health and NTD services within PHC. Integration through shared delivery platforms and cross-sectoral collaboration has advanced in several settings, including agriculture for vector control, WASH and housing for prevention, and education for school-based screening. Uptake of integrated skin NTD strategies has been rapid, although implementation is partial in some cases, and it remains unverified whether integration, some of which is donor dependent, is sustained at national scale.

4.3.2 Surveillance and information systems

Data collection, reporting and analysis remain fragmented. The GNARF, WHO's mechanism for annual aggregated reporting, is not yet used by all eligible countries, and reporting completeness is below target. At country level, monitoring and evaluation readiness is uneven, subnational data are often inaccessible for programme planning, NTD reporting is only partly integrated into national health information systems, and data quality is often poor. Many PHC facilities lack the connectivity and equipment needed to record and transmit data. In many settings, national surveillance systems are entirely absent, so weak reporting stems from missing surveillance rather than from non-compliance alone. Post-elimination surveillance is generally weak, which is a growing concern for diseases nearing their targets, and many diseases still lack surveillance protocols, while the monitoring of drug efficacy and insecticide resistance remains limited.

4.3.3 Programmatic and supply chain risks

In many countries, preventive chemotherapy treatment coverage targets have not been attained for one or more endemic diseases. Coverage also differs markedly between regions, and between urban and rural areas, and remains uneven in remote, migrant and marginalized communities. These coverage gaps are compounded by structural supply chain challenges, which include inaccurate forecasting and quantification, misalignment with programme demand, import restrictions, delayed customs clearance, limited warehousing, weak distribution capacity and poor stock management. Weakness in information systems, especially population data, treatment coverage, consumption and stock information, together with delayed or incomplete country requests, sometimes results in significant mismatches between medicines supplied and actual needs. The consequences include stock-outs, expiry, overstocks and rising costs of medicines, diagnostics and other commodities, compounded by limited operational funding, while reliance on a single supplier or a few suppliers adds further vulnerability, and pharmacovigilance is inconsistently implemented.

In response, WHO, in collaboration with key stakeholders, facilitated the establishment of the Supply Chain Technical Support Mechanism and the GCSC; these initiatives have improved coordination through updated Joint Application Package mechanisms and better forecasting, minimizing wastages and stock-outs. Several countries are strengthening local production of medicines, and supply chains are progressively being integrated into national logistics systems.

4.3.4 Health workforce and capacity

Capacity constraints are pervasive: the capacity for early detection, diagnosis and case management is frequently inadequate at primary and community levels; laboratory capacity is centralized, with weak specimen referral pathways; and specialized expertise for individual diseases erodes as programmes scale down towards elimination, meaning skills such as microscopy and case management for lymphatic filariasis, post-kala-azar dermal leishmaniasis, onchocerciasis and gambiense human African trypanosomiasis may be lost. Rehabilitation, surgical and specialist care is limited for morbidity-heavy conditions, such as noma, trachomatous trichiasis and trachoma-related vision impairment and blindness, leprosy disabilities, snakebite envenoming, and advanced lymphatic filariasis and schistosomiasis. Entomological capacity is a specific gap for the vector-borne NTDs, and infrastructure at subnational level is often inadequate. These shortages are aggravated by high turnover and by reliance on community volunteers who are overburdened and inadequately incentivized, with participation falling once incentives are withdrawn; health workers also face irregular supervision and low motivation.

Capacity-building for technical staff has been scaled up, notably through expanded online and blended learning delivered through the WHO Academy, which covers programmatic delivery (such as MDA or vector control intervention) as well as clinical content, alongside in-person training, mobile applications, strengthened laboratory networks, and leadership and mentorship initiatives. The reach of online training delivery can be uneven. In-person training should be considered where internet access is limited, courses are not available in the working language, or frontline workers have limited formal education.

4.4 Innovation and research risks

Achieving the 2030 targets also depends on use of and access to tools that, in several cases, do not yet exist at the required standard of performance, price or scale. As NTD prevalence falls, current diagnostics for some diseases may lack the sensitivity needed to confirm the interruption of transmission. Development of new rapid and multiplex diagnostic platforms has faced technical and funding obstacles.

Many diseases still rely on microscopy, the sensitivity of which is limited at low infection intensity; confirmatory point-of-care tests are, for the most part, unavailable or not quality assured; and cross-reactivity and differentiation problems constrain programmatic use. For example, *L. loa* produces false positives on the lymphatic filariasis antigen test *(171)*, the clinical presentation of chikungunya is difficult to distinguish from dengue and Zika virus without confirmatory testing, and yaws serology fails to distinguish yaws from syphilis. For onchocerciasis, no short-course macrofilaricide is yet available – it is arguably the most important tool still lacking, since ivermectin cannot be safely used at scale in *L. loa* co-endemic areas; candidate compounds are in clinical or preclinical development, but none has yet reached country programmes; and current rapid tests meet mapping but not stop-decision thresholds. For scabies, oral ivermectin is unregistered in most endemic countries, no donation mechanism exists and no diagnostic test meets field requirements; for chikungunya, affordable RDTs remain unavailable. Current deworming regimens are of limited efficacy against trichuriasis and strongyloidiasis, and validated point-of-care diagnostics are unavailable at scale for taeniasis and cysticercosis.

Drug resistance presents a further risk; resistance to melarsoprol for human African trypanosomiasis and to medicines used in leprosy has been reported. Mapping and burden estimation are incomplete for many diseases with a control target; etiology and case definitions remain unsettled for the least-studied diseases, such as noma; and specific therapies are limited or absent for cutaneous leishmaniasis and snakebite envenoming, for which antivenom quality and confidence are particular concerns.

Research and development covers only a small fraction of the broader NTD-inclusive portfolio and remains volatile. A research and development blueprint setting out priorities is being developed but is not yet published, which limits the ability to direct investment towards the gaps that most constrain the elimination pathway.

These gaps are being addressed through an expanding innovation and product-development pipeline. As of June 2026, 29 TPPs covered 15 diseases, and a series of new diagnostics, medicines and vaccines reached programmes or regulatory milestones, including:

- the WHO-prequalified TAK-003 (Qdenga) dengue vaccine;
- the newly approved VLA1553 vaccine for chikungunya;
- for onchocerciasis, the extension of moxidectin to children aged 4 years or older and its addition to the WHO Model List of Essential Medicines;
- the child-friendly arpraziquantel formulation for schistosomiasis;
- the simplified oral treatments fexinidazole and acoziborole for human African trypanosomiasis;
- the WHO-prequalified generic miltefosine for the leishmaniases;
- new lymphatic filariasis RDTs; and
- dengue tests.

4.5 Equity

Persistent transmission and unmet need are increasingly concentrated among the populations least served by current delivery models, which is both an equity concern and a direct risk to achievement of the targets. For example, onchocerciasis persists in nomadic and pastoralist, cross-border, conflict-affected and *L. loa* co-endemic forest communities, and the scabies burden falls disproportionately on children, displaced people, informal urban settlements, institutions and rural communities that lack reliable water, yet precision targeting for these groups is absent from most national plans. Access to WASH in endemic areas remains well below target and functions as an equity measure, with less access to WASH in rural than in urban areas. Equity monitoring is weak: gender-disaggregated reporting remains low, and disability inclusion is recognized in policy but is underdeveloped. In the African Region, adults, especially women of reproductive age, are underserved by praziquantel donations for schistosomiasis.

The terms of supply constrain access further: several donation programmes have fixed end dates and last-mile delivery is often weak. Where no donation

exists – such as antifungals for chromoblastomycosis and mycetoma, and dimeticone for tungiasis – availability and affordability are low. Diagnostics and preventive products are often scarce at community level, and registration and essential medicines listings are incomplete. Access is also shaped by factors beyond supply. Community engagement is weaker in design than in delivery, and awareness among frontline workers is limited for rare, stigmatizing conditions.

Mitigation requires strengthening the portfolio's equity focus. Digitalized tools are now designed to collect gender- and age-disaggregated data for all NTDs; a defined package of care covering mental health, psychosocial support and stigma has been introduced; and amendments to the International Code of Conduct on Pesticide Management and a UN General Assembly resolution on the health of Indigenous Peoples have advanced the rights of affected communities. The human rights dimensions of NTDs were further highlighted by a resolution adopted by the UN Human Rights Council on 7 July 2026 (HRC62/21), which called for strengthened documentation and enhanced action to address these concerns.

Some countries are leading efforts to expand equitable access to NTD interventions at national level. Malawi has revised its treatment algorithms for sexually transmitted infection services to include female genital schistosomiasis. In Nepal, community self-help groups for people affected by leprosy have supported self-care and reduced social stigma, with some groups transitioning into cooperatives that provide legal recognition and financial stability *(172)*. Similarly, progress has been made in addressing discrimination against persons affected by leprosy and their family members, including through the work of the dedicated UN Special Rapporteur on this issue. Screening for HIV and visceral leishmaniasis coinfection and for Chagas disease has expanded, and school-based skin screening has widened early detection in some countries.

In conclusion, these risks are neither uniform across diseases nor independent of one another. The financing contraction of 2025 magnifies every other risk, tightening the space for integration, surveillance, workforce retention, innovation and equity-focused delivery just when the final stage towards elimination demands more of each. The measures already in place, from stronger supply chain governance and cross-border coordination to a substantial pipeline of new tools and a widening equity agenda, provide a foundation to build on. The geographical overlap of multiple NTDs and vector-borne diseases offers a further opportunity, allowing programmes to share platforms and leverage existing resources.

5. Strategic adjustments and priorities for 2026–2030

This chapter sets out the strategic adjustments and priorities for the remainder of the road map period. The contraction in external financing since 2021, including significant reductions in 2025, have made the transition to nationally financed and nationally directed programmes the defining challenge of the next stage of the road map. The evidence produced by this evaluation indicates that the principal constraints on achieving the 2030 targets are not only technical but concern financing, ownership, the mainstreaming of services into national health systems, and the capacity to maintain gains that have been made. Rather than a continuation of current effort at greater intensity, the second half of the period therefore requires a change of approach, including a shift from vertical, donor-financed delivery towards integrated and nationally directed models. This also means treating conflict, displacement and environmental change as structural features of the operating environment; institutionalizing surveillance, even after NTD elimination; and funding an innovation agenda that is directed towards the tools that are still missing.

Financing and country ownership strongly influence what is achievable in other domains (Table 5.1). Integration should be demonstrated through its public health value and cost savings, rather than its adoption alone. Additionally, equity-based approaches should be explicitly incorporated into service delivery, so that programmes reach all who need them.

The distribution of effort matters. Where interventions are well established and a disease is nearing elimination, the priority is to complete and sustain what has been achieved. Where progress has been limited, an effective response will require identifying the reasons why, which may include interventions not yet being established, areas remaining unmapped, insecurity, population movement or interruptions in supply. The potential gain from addressing these drivers is substantial. Progress in the second half of the period depends on making advances in all areas, regardless of progress to date.

5.1 Financing, country ownership and sustainability

The central strategic adjustment for the remainder of the period is a shift away from vertical, donor-financed delivery towards funding models that allow for integrated delivery of interventions within national health systems and directed by countries themselves. The priority is to raise domestic financing and strengthen ownership and political commitment while donor support is being maintained, so that funding is predictable through and beyond NTD elimination. Sustainability should also be understood more broadly than as financing alone,

extending to the resilience and capability of health systems to keep services running and to adjust as the epidemiological picture changes; this requires parallel investment in surveillance, human and institutional capacity, and closer alignment with PHC.

Nevertheless, it is clear that domestic financing is the key determining factor in this transition. National financing analyses and budget-tracking mechanisms should be developed, building on the domestic budget commitments now emerging, so that dependence on external financing falls and programmes can foresee the resources available to them. Countries should incorporate NTD priorities into national budgets, and test and implement co-financing arrangements, while regional donors should be engaged to invest in sustainable financing for priority countries. Where NTD interventions appear in national plans and essential service packages, their inclusion should be tied explicitly to delivery, linking strategies to domestic budgets, PHC, UHC, supervision and supply. Countries yet to reach the benchmark for this indicator should receive targeted technical support and be involved in policy dialogue, so that interventions for their relevant endemic diseases are included, costed and funded. Countries that have met this benchmark should be reverified periodically, rather than assumed to be sustaining their commitments.

On their own, domestic financing and the efficiency gains available from integration are unlikely to replace the external financing that has been withdrawn. The scale of the reduction, and the fiscal constraints facing many endemic countries, mean that more transformative financing arrangements also warrant consideration. In many countries, debt servicing absorbs a substantial

Table 5.1. Ten key priorities for 2026–2030

Domain	Priority
Financing, country ownership and sustainability	Increase and institutionalize domestic financing while diversifying and sustaining external financing, supported by national budget lines, co-financing arrangements, costed strategic plans, investment cases and efficiency evidence, so that programmes can plan and sustain resources through to and beyond 2030.
Fragile settings and environmental change	Adapt delivery to treat conflict, displacement and insecurity as structural features of the operating environment, through delivery models suited to insecure settings, including community-based delivery and specific approaches for mobile or displaced populations; institutionalize cross-border coordination for diseases approaching elimination; and systematically include NTD interventions in humanitarian responses.
	Prioritize action on mortality from vector-borne NTDs, which can be affected by climate change, by strengthening the response through integrated vector management, surveillance and early warning, outbreak preparedness and timely clinical care, and by building the evidence base required to issue formal guidance on new tools.
Health systems, surveillance and delivery	Where it improves access, quality, equity, efficiency and sustainability, make mainstreaming and integration the default model of delivery, embedding NTD services within PHC and UHC packages and NTD data within national health information systems, while retaining disease-specific surveillance, indicators, referral pathways and specialist competencies, particularly as programmes approach elimination.
	Institutionalize post-elimination surveillance within PHC, with defined thresholds for detecting resurgence, and complete the global acknowledgement pathways that are still missing.
	Extend geographical reach to all areas where need persists, targeting both high-burden countries and the settings where need is greatest relative to capacity, including small island developing states and remote populations, as well as the subnational areas where coverage is weakest, with delivery differentiated to context and equity built into programme design.
	Plan for changes in the donation landscape; this requires early preparation because some commitments have defined end dates or are under review by the manufacturers. Affordable access should be secured through pooled procurement and defined pathways for products coming to market outside donation arrangements.
Health workforce and capacity	Embed specialist competencies within national institutions through pre-service and in-service training, workforce retention and laboratory networks. Specialist expertise is being lost as programmes near elimination and scale down, and it is slow to rebuild yet is a precondition for the growing elimination dossier pipeline.

Table 5.1. Ten key priorities for 2026–2030

Domain	Priority
Innovation and research	Support and advance the research and development blueprint *(173)*. A funded NTD research agenda is needed, especially for carrying target product profiles through to prequalification so that products reach country NTD programmes before 2030. Several diseases cannot reach their targets with the tools currently available.
Equity	Expand rehabilitation, surgical, mental health and long-term care for the conditions carrying the greatest burden of morbidity and stigma, moving services closer to community level and linking them to PHC, UHC and social protection.

NTD: neglected tropical disease; PHC: primary health care; UHC: universal health coverage.

proportion of government revenue, so the fiscal space available for health is constrained regardless of how highly governments choose to prioritize it. Country ownership of priorities does not by itself provide the resources needed to act on them *(174)*. External financing is therefore likely to remain necessary, alongside domestic resources, particularly for the diseases that attract little or no dedicated support, and identifying donors for these diseases is a continuing requirement. NTD programmes also compete for resources within a global health financing environment that is itself contracting. Two areas warrant consideration during the second half of the road map period. The first is pooled financing for NTDs; the absence of such an arrangement, comparable to those available for other disease areas, is identified as a structural weakness, as it leaves financing concentrated among a small number of donors and volatile from year to year. The second is engagement beyond the health sector, including with international financial institutions, on the wider fiscal constraints that limit the capacity of endemic countries to increase domestic health investment.

Advocacy and resource mobilization require both intensification and diversification. NTDs should be embedded in investment cases prepared for UHC, climate adaptation, One Health and pandemic preparedness. Those cases depend on accurate, high-quality data on disease burden, mortality, cost and cost–effectiveness, which need to be strengthened, especially for the least visible diseases. Advocacy groups, alliances and champions must be created or reinforced to give the most neglected conditions political visibility.

Although evaluations have focused on coverage and epidemiological impact, there has been little attention to how efficiently resources are converted into outcomes. As external financing declines and countries assume greater financial responsibility, evidence of this kind is needed to detect inefficiency, direct investment and secure the greatest health gains in the most at-risk places from constrained budgets.

Multisectoral and One Health coordination should rely on established mechanisms, joint plans, shared budgets and defined accountability, rather than informal collaboration. Global and regional commitments provide a platform for this; for example, the African Union's *Common African position on neglected tropical diseases in Africa (156)*, the *Regional plan for the elimination of canine rabies (2024–2030) (158)* in the Region of the Americas and the *Regional strategic framework for sustaining, accelerating and innovating to end neglected tropical diseases in the South-East Asia Region, 2024–2030 (163)*. Regions should broaden resource mobilization and strategic partnerships while strengthening national ownership through policy alignment. Financing for the cross-sectoral areas on which several NTDs depend, particularly vector control and One Health, remains a small proportion of NTD-related funding. Expanding work in these areas therefore depends on a corresponding shift in where funding is directed, including arrangements held jointly across the human, animal and environmental health sectors, rather than resting on health budgets alone.

South–South cooperation offers significant opportunities that should be harnessed to expand technical collaboration and facilitate the exchange of context-specific solutions. Documentation of the policy foundations underpinning country ownership should be strengthened in parallel, covering how policy is developed and adopted, how programmes are evaluated and funded domestically, and how political commitment and multisectoral collaboration are sustained. Reform at system level will not by itself secure an end to the diseases that depend on other sectors. Financing and governance arrangements are also required at disease level.

5.2 Fragile settings and environmental change

The strategic adjustment required in this domain is to address conflict, displacement and environmental change as structural features of the operating environment, rather than exceptional disruptions, and to design programme delivery accordingly. Protecting progress towards the 2030 targets, and maintaining elimination gains once they are secured, will depend on whether programmes can continue to function under conditions of insecurity, population movement and climatic pressure, particularly in high-burden countries.

Deliberate humanitarian–development collaboration is essential to ensure equitable access to services for affected populations. Countries and partners should deliberately include NTD interventions in their humanitarian and conflict responses through coordinated, context-specific strategies. Preparedness and continuity planning should identify a minimum package of essential NTD services to be maintained during humanitarian emergencies, including surveillance, diagnosis and treatment of life-threatening conditions, morbidity care and continuity of supply. Delivery should first be adapted to the settings in which transmission persists, with models suited to insecure and conflict-affected areas, and specific approaches for hotspots of continuing transmission and for populations that are mobile, hard to reach or have never been treated. Geographical targeting should be strengthened so that interventions are concentrated in the most highly endemic areas, community-based and geographically targeted delivery is scaled up, and tailored support is extended to countries approaching interruption of disease transmission. Delivery for the zoonotic diseases should be organized on a One Health basis, with planning conducted jointly and surveillance shared, rather than run in parallel by each sector. Intersectoral collaboration should be strengthened, particularly for rabies and Guinea-worm disease, while biological obstacles to elimination, including zoonotic brugian filariasis, should receive explicit attention.

Cross-border coordination should be institutionalized for the diseases targeted for elimination. Data should be shared and activities synchronized where foci cross borders and populations move, as is the case for human African trypanosomiasis, onchocerciasis, trachoma and yaws, among others. Preventive efforts should be intensified across borders in persistent hotspots, and surveillance maintained after disease elimination, with continued vigilance wherever transmission could re-establish.

Climate change should be systematically built into strategic planning and into monitoring and evaluation frameworks. This is a near-term technical requirement rather than a longer-term ambition, and the evidence must be assembled alongside it, as it remains poorly understood how climatic and environmental change acts on vectors and transmission. Operational research into transmission dynamics, reservoirs and drivers should be pursued within a One Health framework, including the part played by wildlife and livestock.

For the arboviral diseases, prevention and control should be reinforced through integrated vector management, surveillance, early warning, outbreak preparedness and prompt clinical care, especially in places where outbreaks and deaths are increasing. Vector control integration, supported by the Global Arbovirus Initiative, should be consolidated, and the evidence for *Wolbachia*-based interventions and spatial repellents against arboviral vectors advanced towards formal WHO guidance.

Strategic approaches should be differentiated according to the settings in which the disease burden is now concentrated. For example, small Pacific Island developing countries require tailored, equity-focused models that address their structural constraints through integrated approaches that are adapted to geography and resilient to climate, whereas large, diverse and high-burden settings require interventions designed for scale. Where burden is low or transmission absent, preparedness for emerging risks should be improved through a workforce ready to recognize them, integrated vector surveillance and early detection of imported and locally acquired cases. Population movement across borders drives the importation of cases, and preparedness should draw on cross-border lessons from recent outbreak responses, such as those for COVID-19.

5.3 Health systems, surveillance and delivery

5.3.1 Health system integration

This strategic adjustment aims to amplify integration as the default model of delivery rather than an opportunistic efficiency measure, while retaining disease-specific precision when nearing elimination or eradication. Multi-disease approaches should be built on the health system platforms that already exist, lowering operating costs and extending reach, particularly to underserved and hard-to-reach populations.

National coordination mechanisms should be created or reinforced, and the lower-priority diseases named explicitly in master plans, budgets and coordinating bodies, so that the most neglected diseases are not entirely excluded from programme structures. Vertical delivery should be progressively replaced by models embedded in routine services and UHC, as health system capacity allows, with the aim of providing packages of services that address multiple health needs simultaneously, while disease-specific capability should be retained when nearing elimination. NTD priorities belong within PHC and UHC frameworks, supported by periodic programme review and impact assessment. Integrated multi-disease platforms, such as those for preventive chemotherapy, skin NTD approaches and vector control, should be scaled up and adapted to co-endemic settings. Regional policy foundations that predate the current road map require refreshing. For example, the *Regional action framework for control and elimination of neglected tropical diseases in the Western Pacific (169)*, which established a multisectoral approach reaching beyond preventive chemotherapy alone, remains an important basis for action but should be updated to reflect epidemiological and programmatic changes that have occurred since its publication.

Cross-sectoral integration requires the same institutional treatment. Joint work planning between health and other sectors, and the geographical targeting of agreed subnational areas, must be made operational so that strategic alignment yields real efficiency. Priority communities should be identified from the information that NTD programmes already have about disease burden, surveillance and treatment, and links with WASH, vector control and One Health should be strengthened to support more comprehensive approaches.

5.3.2 Surveillance and information systems

Surveillance should shift from being a reporting obligation towards being the instrument that informs strategy and operational planning, directs resources and protects elimination gains.

NTD data should be integrated into national health information systems, so that data fragmentation and the burden of reporting are both reduced. Case definitions should be standardized across countries, and core indicators harmonized across diseases. Data disaggregated by age and gender for the most common indicators (for countries that have this disaggregation) and disease-specific data should be folded into national health information systems, so that reporting becomes routine and harmonized across disease-specific platforms and regional data collection mechanisms. Extending WHO's Global Dengue Surveillance Dashboard to include chikungunya and Zika virus data would demonstrate the same principle of harmonization across platforms. Targeted support should go to countries that lack any surveillance system for a given endemic disease, and countries already reporting on part of their portfolio should receive focused follow-up. The aim should be to ensure that data on a minimum set of core indicators are routinely collected across all NTDs and in all relevant countries, thus providing a robust basis for monitoring progress and guiding planning efforts.

Post-elimination surveillance requires institutionalization within PHC, underwritten by reliable financing, connected to laboratories and governed by explicit accountability, with defined thresholds and protocols for detecting resurgence or residual transmission among all NTDs targeted for eradication, elimination (interruption of transmission) or elimination as a public health problem. Drug efficacy and resistance should continue to be monitored, and animal and vector indicators brought in under a One Health approach. Surveillance methods should be strengthened in parallel, including through multiplex platforms and combined surveys. Country programme data should be used more strategically, with regional action plans, such as those for leprosy elimination, made operational through stronger surveillance, and with progress tracked systematically against the road map's monitoring and evaluation indicators.

The absence of formal acknowledgement pathways for some diseases needs to be resolved. Global processes should be established for the diseases that currently lack them, and those processes carried through to their first validation, verification or certification. Monitoring should follow disease-specific trends alongside the aggregate, and mortality reporting made more consistent, including in case definitions and the attribution of deaths.

5.3.3 Programmatic delivery and supply

This strategic adjustment is twofold: a shift from simply expanding coverage towards extending geographical reach to all areas where need persists, while improving the quality of delivery; and a transition from supply that is dependent on centralized donation towards supply arrangements that countries can themselves sustain. Support should be directed to countries with low or uneven coverage across the relevant diseases and aimed at the particular gaps that result in low intervention coverage. Efforts should be concentrated on the few countries that account for most of the population requiring interventions and, within those countries, on the subnational areas where coverage remains weakest. Priority should be given to the quality and effective coverage of MDA, to closing the remaining mapping gaps and to high-quality microplanning. The last mile should be approached through models fitted to context, MDA delivered on an integrated basis and surveillance rooted in communities, with technical support concentrated in high-burden and high-risk countries.

Supply chain architecture requires further reform beyond the foundations already laid. The GCSC and the Supply Chain Technical Support Mechanism for NTD programmes need resources, and forecasting tools spanning several years should be made available to preventive chemotherapy programmes worldwide. Supply should be reinforced through better forecasting, storage and last-mile distribution. Continued access to quality-assured medicines, diagnostics and commodities needs to be secured through prequalification, registration, procurement (including aggregated or pooled arrangements that preserve pricing leverage) and measures to make products affordable. Donation programmes with fixed end dates require an explicit transition plan, and supply should be folded into existing distribution platforms, with the supply and data systems supporting integrated campaigns aligned accordingly, and pharmacovigilance and safety monitoring strengthened. With donation of albendazole for soil-transmitted helminthiases pledged only to 2030, planning for alternative sourcing should begin now, informed by a landscape analysis of current and expiring commitments. Products coming to market outside donation arrangements will need defined procurement pathways, either governmental or partner-led, to keep them affordable and ensure quality. Several disease-specific access questions must be settled before 2030. For example, continuity of diagnostic supply and a shift towards local or regional procurement are required for lymphatic filariasis, among other diseases, so that post-elimination surveillance can continue once centralized donor financing ends. A dependable access model and supply of the paediatric praziquantel formulation is required for schistosomiasis, along with a wider dossier submission pipeline across all endemic regions. For treating scabies, oral ivermectin needs to be registered and supplied or procured across endemic countries. Appropriate guidelines, donation architecture and regulatory approval within countries are required for use of moxidectin for onchocerciasis and lymphatic filariasis.

5.4 Health workforce and capacity

Capacity-building should move from discrete activities towards capacity being institutionalized within national structures, so that expertise is retained. Specialist competencies, including medical entomology, parasitology and the preparation of elimination dossiers, should be nested within national institutions. Rather than depending on isolated activities, training should be built into pre-service and in-service programmes and into continuing professional development, reinforced by refresher courses, supervision and mentorship, so that capability endures. Disease-specific training should be delivered through broader NTD and primary care platforms, with particular competencies safeguarded when elimination is drawing near, and standardized materials and curricula developed for the conditions that lack them. Diagnosis, treatment and case management should be strengthened and moved closer to PHC and the community level. A trained workforce must be retained, as well as built, through supportive supervision and measures that reduce turnover. Laboratory capacity, quality assurance and specimen referral pathways should be reinforced, including through regional and reference laboratory networks. Building capacity at national and subnational levels is a regional priority,

and cooperation between countries of the Global South should be pursued where regional platforms already exist.

Additionally, more expansive efforts are needed to strengthen community awareness and engagement with their respective NTD programmes through partnerships with affected individuals, community leaders, schools and local organizations. Such efforts are essential for countering misinformation and promoting early care seeking and treatment adherence in local contexts, and can improve equitable programme coverage and performance towards the road map targets.

5.5 Innovation and research

This strategic adjustment has two aims: to move away from research that is driven by scientific opportunity towards a funded research agenda that is explicitly aligned with what the elimination pathway requires; and to shift from product development that ends at proof of concept towards development that ends in a prequalified product that is available to country NTD programmes.

The research and development blueprint *(173)* must become a funded agenda, with priority given to single-dose regimens, diagnostics that are sufficiently sensitive for the elimination pathway, and operational research on delivering services in an integrated way.

TPPs for both therapeutics and diagnostics must be carried through to WHO prequalification, so that development results in products that programmes can actually obtain. Mapping at subnational level should be expanded, and surveillance strengthened to close the gaps in disease distribution and burden, using standardized protocols and geospatial modelling.

Point-of-care diagnostics that are affordable, sensitive and usable in the field are needed both for early detection and for mapping and surveillance, alongside tests that resolve cross-reactivity and so permit programmatic decisions to be made. Quality assurance, standardization, procurement and supply must be established along with these, together with operating procedures and training for field use.

New and improved products should be advanced with the evidence their programmatic use requires; among these are vaccines, macrofilaricides, shorter and safer treatment courses, formulations suitable for children, and antivenoms that are both better and more affordable. Diagnostics for animals should also be developed where transmission is zoonotic.

Normative guidance must keep pace with the development pipeline. Guidance should be written where it is absent, as for the deep mycoses, and revised where it is out of date. Operational guidance should be extended across diagnosis, clinical and morbidity management, disability and rehabilitation, and mental health counselling, as well as surveillance before and after elimination; this would ensure the whole programmatic pathway is covered, from first detection through long-term care and up to the post-transmission phase. Guidance on zoonotic transmission and integrated One Health collaboration should also be strengthened.

5.6 Equity

Equity should shift from being an aspiration to a conceptual and design requirement, which is expressed through where NTD programmes direct their effort, which populations they reach and how affected communities take part in decisions.

Equity requirements should rely on mandatory programme guidance, with equity and behavioural insights measures included in every national programme plan. Rights-based practice should be extended across the whole portfolio, and grassroots and patient associations given a greater voice in programme governance. Equity and sustainability should be reinforced through approaches that are centred on communities and attentive to culture, which can meaningfully engage vulnerable populations. Regional experience offers a model in the knowledge dialogues developed for trachoma elimination in the Region of the Americas *(175)*, which build trust and widen access to services that are culturally appropriate. Stigma should be tackled and community engagement strengthened alongside case detection and clinical management, with community involvement moving from mobilization towards genuine co-design and ownership across the programme cycle. Reporting of gender-disaggregated data should be treated as an instrument of equity rather than an exercise in compliance. Countries that collect such data without submitting them should receive

support to rectify this aspect while maintaining workflows for timely transmission, validation and reporting.

Access to care must also be secured where the disease prevalence is low but established morbidity persists for affected individuals. In non-endemic and low-burden settings, access to diagnostics and treatment for imported and focal NTDs should be ensured, addressing the regulatory and market limitations that constrain their availability, and awareness raised among frontline clinicians so that cases presenting outside endemic areas are recognized. Investment in WASH should be concentrated in endemic and high-risk communities, especially where poor access coincides with continuing transmission, reinfection, morbidity or weak surveillance. All three components of WASH require attention, and each calls for a different response: sanitation remains the largest gap and the first call on investment; hygiene depends on household supply and practice, alongside infrastructure; and the reported decline in access to water should be examined against validated country data, to establish whether it reflects a real change or reporting and denominator effects. Monitoring should be strengthened subnationally so that remedial actions can be effected in a timely manner in local areas where the risk is greatest.

Countries that have not met the benchmark for including NTD guidelines in their national health systems should be supported to develop and apply guidelines covering early detection, morbidity management, self-care, referral, mental health and stigma reduction, as well as physical, social and professional rehabilitation linked to PHC, UHC, social protection and national health information systems. Services for rehabilitation, surgery and long-term care should be expanded and prioritized for the conditions with the greatest burden of morbidity, with access moved closer to community level and the necessary products included in national essential medicines and diagnostics lists.

5.7 Towards a post-2030 agenda

Several themes emerging from this evaluation extend beyond the current road map period and will inform the development of a successor framework, including donation commitments with fixed end dates, post-elimination surveillance, financing and integration into national systems. The most fundamental theme concerns the strategy itself. Progress against most targets is below the pace required, and the drivers of this will need to be identified to inform the next road map. These drivers may relate to the theory of change in the framework for monitoring and evaluating progress against the road map targets or the calibration of the targets, or to the external shocks of the period, including the COVID-19 pandemic, the contraction in financing and protracted conflict in many areas *(3)*. Distinguishing between them was beyond the scope of this evaluation, but trajectory analysis should be built into planning for the next road map, so that the pace of change required for each target is established when the target is set. The criteria for including diseases within the NTD portfolio is under review.

Other themes follow from the findings of this evaluation. In terms of supply chain, several models for sustained access to NTD medicines are under consideration. First, integrated delivery would embed MDA in existing platforms, aligning procurement, financing and logistics management with other campaign commodities so that supply chain costs are spread across more products. Second, pooled procurement – regional, global or through national aggregation of subnational demand – would secure the volume pricing and reliable quality that small buyers cannot obtain on their own. Third, support for local manufacturing would depend on multiyear demand commitments made alongside, rather than after, investment in capacity, and on alignment with WHO prequalification, which supports quality recognition and market access beyond the country of production. No single model suits every country or every medicine, and countries are encouraged to plan early and adopt phased approaches matched to their capacities and readiness. Local production could reduce long-term dependence on donation, strengthen regional supply security and contribute to greater country ownership. However, manufacturing capacity, product quality, regulatory aspects, and national programme procurement or financing capacity should be assessed and considered before imposing any restriction on donated medicines, to avoid programme disruptions.

Future indicators could extend beyond policy adoption to measure implementation, health outcomes and country ownership, with equity incorporated into their definitions, rather than treated as a separate metric. Increases in domestic financing may depend on accompanying practical mechanisms, including engagement beyond the health sector and greater flexibility in how funds may be used. In countries reaching elimination, post-elimination surveillance, referral and rapid response, together with specialist expertise for complex case management, are relevant to preventing resurgence. Routine data systems, climate resilience and the participation of affected communities and people with lived experience are further considerations for the design of a successor framework.

6. Conclusion

The year 2025 marked the midpoint of the NTD road map for 2021–2030. The mid-term evaluation presented in this report was undertaken to review what has been and what remains to be achieved, and to recalibrate priorities for the second half of the decade. Its purpose was to assess the implementation and impact of the road map across its three strategic pillars, covering all 21 current NTDs and disease groups, and to identify the strategic adjustments needed to accelerate progress towards the 2030 targets. The evaluation followed a mixed methods approach, coordinated by WHO, combining quantitative analysis of 71 indicators reported by Member States with qualitative assessment using the GAT, which showed that progress depends on institutional capacity as much as on measurable health outcomes.

The successes that have been achieved demonstrate where the road map is catalysing important improvements in expanding access to interventions against NTDs. Areas of slow or no progress often reflect the impacts of significant unexpected crises that could not have been predicted at the start of the road map, including COVID-19, conflicts and unprecedented financing cuts in 2025, and which have severely constrained its implementation

Among the successes, the evaluation confirms substantial progress and real public health gains. The number of people requiring interventions against NTDs fell to 1.41 billion in 2024, down from 1.734 billion in 2020. By June 2026, 63 countries had eliminated at least one NTD, with Togo the first country to eliminate four diseases. In 2024, the integrated preventive chemotherapy index reached its highest value since 2020, and the number of countries adopting integrated skin NTD strategies surpassed the 2030 target of 40, 6 years ahead of schedule. An expanding innovation pipeline has seen medicines, vaccines and diagnostics reach programmes or important regulatory milestones. Among these are a prequalified dengue vaccine, a newly approved chikungunya vaccine, the child-friendly arpraziquantel formulation for schistosomiasis and simplified oral treatments for human African trypanosomiasis. In addition, the United States Food and Drug Administration approved moxidectin for children aged 4 years or older for onchocerciasis treatment, and moxidectin was added to the WHO Model List of Essential Medicines for onchocerciasis and lymphatic filariasis.

Political commitment has been reinforced through World NTD Day, the Kigali Declaration, dedicated World Health Assembly resolutions and the formal recognition of NTDs as a human rights concern, while a growing number of endemic countries have integrated NTDs into national health plans, signalling the beginning of a shift from donor-driven to country-led programming.

In contrast, lack of progress can be linked to challenges that have made gains limited, uneven and fragile. Current estimates for most indicators remain below the 2030 targets. For example, deaths from vector-borne NTDs have increased, access to WASH remains below universal coverage, and a minority of endemic countries have included NTD interventions in their national health service packages, report on all their relevant endemic NTDs or report data disaggregated by gender. The most immediate risk is financial: global financing remains well below pre-pandemic levels, is concentrated among a few donors, with the reduction in financing seen in 2025 magnifying every other risk. In several regions, the remaining burden is concentrated in fragile and conflict-affected settings, where insecurity and population movement disrupt service delivery and surveillance. Climate change is contributing to the

expansion of vector-borne diseases, as illustrated by the rise in dengue, while extreme events can damage WASH infrastructure and disrupt service delivery. The systems and tools required for the final push towards NTD elimination are not yet ready: integration and mainstreaming into national systems remains incomplete, surveillance and supply chains are fragile, specialized expertise erodes as programmes approach their targets, and key diagnostics and treatments are still lacking. Progress has also been uneven across geographical areas and diseases, and, for some diseases targeted for eradication or elimination, countries still have no clear global pathway to have their progress formally acknowledged.

The evaluation therefore points to the urgent need to focus efforts on addressing key barriers, as well as continuing current efforts at greater intensity. The principal constraints on reaching the 2030 targets are not only technical; they concern financing, ownership, the mainstreaming of services into national health systems, and the capacity to preserve public health gains. The priorities identified are mutually reinforcing; for instance, domestic financing and country ownership determine whether progress can be sustained, while external financing and global solidarity also remain necessary, particularly for the diseases that attract little or no dedicated support. Integration determines whether interventions can be co-delivered through shared platforms, rather than parallel disease-specific programmes, and how efficiently they reach affected populations; and surveillance determines which interventions are prioritized, where they are deployed and which populations are protected. Innovation determines whether new tools can be developed to address the limitations of those already in use; and equity determines whether the gains achieved extend to every affected population. Other priorities identified include planning now for potential changes in the medicine donation landscape, as some commitments have defined end dates or are under review; and retaining specialist expertise within national institutions as programmes scale down towards elimination.

In practice, this means:

- raising domestic financing while diversifying and sustaining external financing, embedding NTDs in the investment cases for UHC, climate adaptation and pandemic preparedness, and building the evidence of efficiency and effectiveness needed to direct investment;
- treating conflict, displacement and environmental change as structural features of the operating environment, and organizing intervention delivery for the zoonotic diseases on a One Health basis;
- making integration the default model of delivery where it improves access, quality, equity, efficiency and sustainability, while retaining disease-specific precision when elimination is drawing near;
- using surveillance as an instrument of strategy, institutionalizing post-elimination surveillance and resolving the outstanding acknowledgement pathways;
- carrying the research and development agenda through to prequalified products that are accessible to country NTD programmes; and
- treating equity as a design requirement, rather than an aspiration.

Concerted action over more than 2 decades has established the NTD response as a powerful movement for equity in health, and the progress recorded at the road map midpoint shows what sustained commitment and coordinated action can achieve. Protecting and extending these gains will require keeping NTDs visible on the global agenda and amplifying the political commitment expressed in the road map. The second half of the road map presents a critical opportunity to consolidate gains and address implementation gaps with greater intentionality and accountability.

As the road map enters its final years, attention must also turn to what comes after it. The findings of this evaluation should inform not only the acceleration of progress to 2030 but also the early thinking on a successor framework. Early development of that framework should consider the drivers of progress towards the current targets, the composition of the disease portfolio, the transition from medicine donations, and an indicator set that extends beyond policy adoption to implementation, health outcomes and country ownership, with equity incorporated into its design. Ultimately, it should carry forward the shift towards integrated, country-led and sustainable programming and hold fast to the ambition of ending the neglect of those affected by these diseases, leaving no one behind.

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Annexes

Annex 1. Status of donated medicines and health products by disease and donor commitments as of June 2026

Annex 2. Target product profiles for neglected tropical diseases published by the World Health Organization as of June 2026

Annex 3. Further reading: monitoring and evaluation innovations and emerging tools for neglected tropical diseases

Annex 4. Creditor Reporting System data notes

Annex 5. Illustrative policy and practice analysis: evidence on the development and implementation of neglected tropical disease policies in sub-Saharan Africa during the first half of the road map (2021–2025)

Annex 6. WHO road map disease-specific indicators: status in 2024–2025 against the 2025 milestones

Annex 1. Status of donated medicines and health products by disease and donor commitments as of June 2026

NTD	Manufacturer	Product name	MOU period	Current donation commitments	Remarks
Medicines donations managed by WHO					
Chagas disease	Bayer AG (Germany)	Nifurtimox (120 mg tablets)	2026–2030	Up to a total of 14 million tablets	Financial support for programme coordination, implementation and medicines donation management
	Chemo Ibérica S.A./ Fundacion Mundo Sano (Spain)	Benznidazole (100 mg tablets, 12.5 mg tablets)	2020–2023 2026–2028	3000 tablets (12.5 mg) and 105 000 tablets (100 mg) for treatment of paediatric patients (aged <19 years)	Renewal of agreement for the 2-year period 2026–2028 is in progress for medicines donation and financial support for programme implementation
Foodborne trematode infections (fascioliasis and paragonimiasis)	Novartis (Switzerland)	Triclabendazole (Egaten) (250 mg tablets)	2026–2030	Up to 600 000 tablets for the treatment of fascioliasis and paragonimiasis	No financial contribution for foodborne trematode infections from Novartis
Foodborne trematode infections (clonorchiasis and opisthorchiasis)	Bayer AG (Germany)	N/A	2026–2030	Within the limits of the taeniasis and cysticercosis programme support	Financial support for procurement of praziquantel for taeniasis and cysticercosis control programme
Human African trypanosomiasis	Bayer AG (Germany)	Nifurtimox (120 mg tablets)	2026–2030	Up to 110 000 tablets for 5 years, adjustable to needs	Financial support for programme coordination, implementation and medicines donation management
		Suramin (1 g in vial)	2026–2030	Up to 1000 vials for 5 years, adjustable to needs	
	Sanofi (France)	– Eflornithine (200 mg/mL in 100 mL bottle) – Melarsoprol (3.6% in 5 mL ampoule solution [180 mg of active compound]) – Pentamidine (300 mg vials)	2026–2030	– Eflornithine: 2000 vials – Melarsoprol: No new production planned (shelf-life extension of last batch) – Pentamidine: 800 vials	
		Fexinidazole (600 mg tablets)	2026–2030	700 wallets (24 tablets) for adults and 240 wallets (12 tablets) for children	
		Acoziborole (blister box of 3 tablets)	2026–2030	4400 blister boxes (13 200 tablets)	New single-dose oral medicine

NTD	Manufacturer	Product name	MOU period	Current donation commitments	Remarks
Leprosy	Novartis (Switzerland)	Clofazimine (100 mg capsule)	2026–2030	Up to 1.65 million capsules for the treatment of severe erythema nodosum leprosum reactions	Funding for medicines supply management
		Clofazimine (50 mg capsule)			
		MDT[a] MB Adult & Child		Up to 2.478 million blisters annually for the treatment of leprosy and its complications	
		MDT PB Adult & Child			
		Rifampicin (150 mg, 300 mg, syrup)	2026–2030	Funding procurement of single-dose rifampicin for leprosy chemoprophylaxis for contacts of active leprosy patients	Funding for procurement of rifampicin
Lymphatic filariasis	Eisai (Japan)	Diethylcarbamazine citrate (100 mg tablets)	2026–2030	400 million tablets per year and a total of 1.6 billion tablets for the period of agreement	Funding support for the programme coordination, management of medicines donation and procurement of lymphatic filariasis diagnostic tests
	GSK (United Kingdom)	Albendazole (400 mg tablets)	2026–2030	Up to 500 million tablets annually for use in the preventive chemotherapy of lymphatic filariasis	Funding support for the programme coordination, management of medicines donation and procurement of lymphatic filariasis diagnostic tests
Schistosomiasis	Merck KGaA (Germany)	Praziquantel (600 mg tablets)	Since 2007 for an unlimited period	Since 2017, donation scaled up to 250 million tablets annually for the treatment of schistosomiasis in school-aged children and adults (in specific epidemiological context)	Some financial support for programme management, selected interventions and medicines donation management
Soil-transmitted helminthiases	GSK (United Kingdom)	Albendazole (400 mg tablets)	2026–2030	Up to 100 million tablets per year for the control of soil-transmitted helminthiases and echinococcosis	Some financial support for programme and medicines donation management
	Janssen Pharmaceuticals, Inc. (United States)	Mebendazole (500 mg tablets)	2026–2030	Up to 200 million tablets annually for the treatment of soil-transmitted helminthiases in school-aged children and women of reproductive age	Some financial support for programme management, selected interventions, capacity-building and medicines donation management
Visceral leishmaniasis	Gilead Sciences, Inc. (United States)	Liposomal amphotericin B (lyophilized 50 mg formulation in vials) (AmBisome®)	2026–2030	Up to 402 941 vials for the treatment of visceral leishmaniasis in east Africa and South-East Asia	Financial support for programme coordination, implementation of interventions, capacity-building, surveillance, monitoring and management of medicines donation

NTD	Manufacturer	Product name	MOU period	Current donation commitments	Remarks
Yaws	EMS SA Pharma (Brazil)	Azithromycin (500 mg tablets)	2025–2030	143 million tablets to support the global eradication of yaws	Availability of funds to support distribution of donated medicines and other programmatic requirements is extremely limited
Taeniasis and cysticercosis	Bayer AG (Germany)	Niclosamide (400 mg tablets)	2026–2030	Up to a total of 4.23 million tablets	No more in-kind donation of praziquantel as Bayer no longer manufactures the product
Cystic echinococcosis	GSK (United Kingdom)	Albendazole (400 mg tablets)	2026–2030	Up to 5 million tablets, as long as it is within the limit of the overall donation of albendazole from GSK	In-kind donation included in the visceral leishmaniasis and soil-transmitted helminthiases agreement with GSK
Medicines donations managed by partners					
Onchocerciasis	Merck, Sharp and Dohme (United States)	Ivermectin (Mectizan®) (3 mg tablets)	Since 1987 for control and elimination of onchocerciasis	Unlimited supply for the treatment of onchocerciasis until elimination	In-kind donation directly to countries and managed by MDP; financial support to the WHO onchocerciasis elimination programme and the GONE secretariat
Lymphatic filariasis			Since 1998 until elimination of lymphatic filariasis	Unlimited supply for the treatment of lymphatic filariasis in onchocerciasis co-endemic countries	In-kind donation directly to countries and managed by MDP; some WHO country offices serve as consignees and facilitate the logistics, customs clearing and warehouse services
			2017–2025 for IDA strategy	Up to 100 million tablets per year for use in WHO-recommended triple-therapy (IDA) MDA regimen to eliminate lymphatic filariasis in countries not co-endemic for onchocerciasis	
Trachoma	Pfizer Inc. (United States)	Azithromycin (250 mg tablets or 1200 mg in 30 mL [200 mg/5 mL] powder for oral suspension)	1998–2030	Unlimited quantity for the elimination of trachoma as a public health problem	Medicines donation managed by the International Trachoma Initiative

GONE: Global Onchocerciasis Network for Elimination; IDA: ivermectin, diethylcarbamazine and albendazole; MB: multibacillary; MDA: mass drug administration; MDP: Mectizan Donation Program; MDT: multidrug therapy; MOU: memorandum of understanding; N/A: not applicable; NTD: neglected tropical disease; PB: paucibacillary; United Kingdom: United Kingdom of Great Britain and Northern Ireland; United States: United States of America: WHO: World Health Organization.

[a] MDT: rifampicin (150 mg and 300 mg tablets), clofazimine (300 mg and 50 mg tablets) and dapsone (100 mg tablets) in blister packs depending on age and type of leprosy; loose clofazimine in capsules.

Annex 2. Target product profiles for neglected tropical diseases published by the World Health Organization as of June 2026

No.	Disease	Subject	Web link to publication
1	Buruli ulcer	TPP for a rapid test for diagnosis of Buruli ulcer at primary health-care level	https://iris.who.int/handle/10665/353982
2	Dengue	TPPs for treatments for dengue	https://iris.who.int/handle/10665/385690
3	Dracunculiasis (Guinea-worm disease)	TPP to detect prepatent *Dracunculus medinensis* infections in animals	https://iris.who.int/handle/10665/376398
4	Dracunculiasis (Guinea-worm disease)	TPP to detect *Dracunculus medinensis* presence in environmental samples	https://iris.who.int/handle/10665/376399
5	Human African trypanosomiasis	TPP for a gambiense human African trypanosomiasis test to identify individuals to receive widened treatment	https://iris.who.int/handle/10665/352579
6	Human African trypanosomiasis	TPP for a test for rhodesiense human African trypanosomiasis diagnosis usable in peripheral health facilities	https://iris.who.int/handle/10665/344165
7	Human African trypanosomiasis	TPP for a gambiense human African trypanosomiasis individual test to assess infection in low-prevalence settings	https://iris.who.int/handle/10665/365383
8	Human African trypanosomiasis	TPP for a human African trypanosomiasis high-throughput test for verification of elimination	https://iris.who.int/handle/10665/365384
9	Leishmaniases (dermal)	TPP for a point-of-care diagnostic test for dermal leishmaniases	https://iris.who.int/handle/10665/353980
10	Leishmaniasis (visceral)	TPP for a diagnostic test to confirm cure of visceral leishmaniasis	https://iris.who.int/handle/10665/378031
11	Leishmaniasis (visceral)	TPP for a diagnostic test to confirm visceral leishmaniasis	https://iris.who.int/handle/10665/378703
12	Leprosy	TPP for a diagnostic test to confirm leprosy in individuals with clinical signs and symptoms	https://iris.who.int/handle/10665/371647
13	Leprosy	TPP for a diagnostic test to detect *Mycobacterium leprae* infection among asymptomatic household and familial contacts of leprosy patients	https://iris.who.int/handle/10665/371646
14	Lymphatic filariasis	TPP for a diagnostic test for lymphatic filariasis to support decisions for stopping triple-therapy mass drug administration	https://iris.who.int/handle/10665/340080
15	Lymphatic filariasis	TPP for a diagnostic test for surveillance of lymphatic filariasis	https://iris.who.int/handle/10665/340081
16	Mycetoma	TPP for a rapid test for diagnosis of mycetoma at primary health-care level	https://iris.who.int/handle/10665/353979
17	Onchocerciasis	TPP for mapping onchocerciasis	https://iris.who.int/handle/10665/341719
18	Onchocerciasis	TPP for stopping mass drug administration	https://iris.who.int/handle/10665/341719
19	Scabies	TPP for starting mass drug administration	https://iris.who.int/handle/10665/353981
20	Scabies	TPP for stopping mass drug administration	https://iris.who.int/handle/10665/353981

No.	Disease	Subject	Web link to publication
21	Schistosomiasis	Diagnostic TPPs for monitoring, evaluation and surveillance of schistosomiasis control programmes	https://iris.who.int/handle/10665/344813
22	Schistosomiasis	TPP for transmission interruption and subsequent surveillance	https://iris.who.int/handle/10665/344813
23	Snakebite envenoming	TPPs for animal plasma-derived antivenoms: antivenoms for treatment of snakebite envenoming in sub-Saharan Africa	https://iris.who.int/handle/10665/369786
24	Snakebite envenoming	TPPs for animal plasma-derived antivenoms: antivenoms for treatment of snakebite envenoming in south Asia	https://iris.who.int/handle/10665/378302
25	Snakebite envenoming	TPPs for small molecule or engineered antibody therapeutics for treatment of snakebite envenoming	https://iris.who.int/handle/10665/384905
26	Soil-transmitted helminthiases	Diagnostic TPP for monitoring and evaluation of soil-transmitted helminth control programmes	https://iris.who.int/handle/10665/342539
27	Trachoma	Diagnostic TPPs for trachoma surveillance	https://iris.who.int/handle/10665/380046
28	Yaws	TPP for the detection of a case of yaws	https://iris.who.int/handle/10665/353978
29	Yaws	TPP for the detection of azithromycin resistance	https://iris.who.int/handle/10665/353978

TPP: target product profile.

Annex 3. Further reading: monitoring and evaluation innovations and emerging tools for neglected tropical diseases

Subgroups 3 and 4 of the Working Group on Monitoring, Evaluation and Research (WG-MER) developed and prioritized monitoring and evaluation innovations for neglected tropical diseases (NTDs) using a three-step methodology.

1. The subgroups developed a questionnaire to gather opinions from WG-MER members on the most important innovations for monitoring and evaluation of NTDs. Respondents identified integrated serological surveillance and spatial tools as two of the leading innovations.
2. The subgroups expanded this list by incorporating innovations called for in the NTD road map's monitoring and evaluation framework, as well as drawing on the diverse expertise of subgroup members.
3. The subgroups selected published examples of each innovation to demonstrate its practical application, together with related tools and resources. The resulting selection is summarized in Table 2.1 in section 2.2.2 *(1)*; the full references are provided in this annex, grouped under the same headings as the table.

Laboratory and diagnostic innovations

Serosurveillance

Examples: Samoa and Guyana

Lawford HLS, Mayfield HJ, Sam FA, Viali S, Kamu T, Thomsen R et al. Integrated serological surveillance for neglected tropical diseases, vaccine-preventable diseases, and arboviruses in Samoa, 2018. Sci Rep. 2025;15(1):12667 (https://doi.org/10.1038/s41598-025-96769-y).

Niles-Robin RA, Sampson A, Valz O, Scott O, Dickson KE, Escalada R et al. Integrated serosurveillance of multiple communicable diseases in the hinterland of Guyana. Rev Panam Salud Publica. 2026;50:e16 (https://doi.org/10.26633/RPSP.2026.16).

Tools and resources: PAHO toolkit (Latin America and Caribbean); SERO-PAC (Pacific)

Toolkit for integrated serosurveillance of communicable diseases in the Americas. Washington: Pan American Health Organization; 2022 (https://doi.org/10.37774/9789275125656). Licence: CC BY-NC-SA 3.0 IGO.

Serosurveillance partnership for the Pacific region (SERO–PAC) [website]. Macfarlane Burnet Institute for Medical Research and Public Health Ltd; 2026 (https://www.burnet.edu.au/our-work/projects/serosurveillance-partnership-for-the-pacific-region-sero-pac/).

Artificial intelligence diagnostics

Tools and resources: Enaiblers AI-DP platform (soil-transmitted helminthiases, schistosomiasis); NTDscope (lymphatic filariasis, *Loa loa*); WHO Skin NTDs App (12 skin NTDs, 24 conditions)

Ward PK, Mohammed MA, Ayana Heda M, Broadfield LA, Dahlberg P, Dana D et al. An artificial intelligence-powered digital pathology platform to support large-scale deworming programs against soil-transmitted helminthiasis and intestinal schistosomiasis in resource-limited settings. PLoS Negl Trop Dis. 2026;20(3):e0013432 (https://doi.org/10.1371/journal.pntd.0013432).

Diaz de Leon Derby M, Moussa ZL, Ng CF, Bhuiya AM, Cabrera JP, Banik D et al. NTDscope: a multi-contrast portable microscope for disease diagnosis. PLOS Glob Public Health. 2026;6(2):e0005937 (https://doi.org/10.1371/journal.pgph.0005937).

Skin-related neglected tropical diseases: WHO launches new version of the WHO Skin NTDs mobile application

[news release]. World Health Organization; 9 October 2023: (https://www.who.int/news/item/09-10-2023-skin-related-neglected-tropical-diseases--who-launches-new-version-of-the-who-skin-ntds-mobile-application).

Analytical tool innovations

Geospatial tools

Tools and resources: ESPEN country portals; WHO data platforms and tools

ESPEN Portal [website]. Expanded Special Project for Elimination of Neglected Tropical Diseases; 2025 (https://espen.afro.who.int/).

Data platforms and tools. In: Control of Neglected Tropical Diseases [website]. World Health Organization; 2025 (https://www.who.int/teams/control-of-neglected-tropical-diseases/data-platforms-and-tools).

Geostatistical tools

Examples: United Republic of Tanzania (schistosomiasis); Ethiopia (trachoma); Kenya (soil-transmitted helminthiases) survey design; American Samoa lymphatic filariasis mapping

Mathewson JD, van der Spek L, Mazigo HD, Kabona G, de Vlas SJ, Nshala A et al. Enabling targeted mass drug administration for schistosomiasis in north-western Tanzania: exploring the use of geostatistical modeling to inform planning at sub-district level. PLoS Negl Trop Dis. 2024;18(1):e0011896 (https://doi.org/10.1371/journal.pntd.0011896).

Amoah B, Fronterre C, Johnson O, Dejene M, Seife F, Negussu N et al. Model-based geostatistics enables more precise estimates of neglected tropical-disease prevalence in elimination settings: mapping trachoma prevalence in Ethiopia. Int J Epidemiol. 2022;51(2):468-78 (https://doi.org/10.1093/ije/dyab227).

Minnery M, Okoyo C, Morgan G, Wang A, Johnson O, Fronterre C et al. Cost-effectiveness of comparative survey designs for helminth control programs: post-hoc cost analysis and modelling of the Kenyan national school-based deworming program. PLoS Negl Trop Dis. 2024;18(12):e0011583 (https://doi.org/10.1371/journal.pntd.0011583).

Cadavid Restrepo AM, Martin BM, Fuimaono S, Clements ACA, Graves PM, Lau CL. Spatial predictive risk mapping of lymphatic filariasis residual hotspots in American Samoa using demographic and environmental factors. PLoS Negl Trop Dis. 2023;17(7):e0010840 (https://doi.org/10.1371/journal.pntd.0010840).

Decision-support tools

Example: Democratic Republic of the Congo HAT MEPP (elimination modelling)

Democratic Republic of the Congo. In: Human African Trypanosomiasis Modelling and Economic Predictions for Policy (HAT MEPP) Project [website]. Warwick University; 2026 (https://hatmepp.warwick.ac.uk/5HZCEA/v2/).

Tools and resources: Schisto Mapper/Precision Assessment tool; Leprosy Elimination Mapping Tool (DHIS2)

Schistosomiasis Mapper Tool [website]. Expanded Special Project for Elimination of Neglected Tropical Diseases; 2025 (https://espen.afro.who.int/tools-resources/advanced-analytical-tools/schistosomiasis-mapper-tool).

DHIS2-based leprosy/Hansen disease Elimination Monitoring Tool (LEMT) – Standard operating procedures. New Delhi: World Health Organization Regional Office for South-East Asia; 2025 (https://iris.who.int/handle/10665/380706). Licence: CC BY-NC-SA 3.0 IGO.

AI-supported data integration, analysis and interpretation

Tools and resources: ESPEN GenAI Assistant (conversational access to WHO guidance and ESPEN data)

ESPEN GenAI Assistant [website]. Expanded Special Project for Elimination of Neglected Tropical Diseases; 2025 (https://espen.afro.who.int/tools-resources/advanced-analytical-tools/espen-genai-assistant).

Monitoring and evaluation integration innovations

Monitoring and evaluation integration: case studies and tools

Examples: Niue; Haiti

Craig AT, Lawford H, Mokoia G, Ikimau M, Fetaui P, Marqardt T et al. Integrating post-validation surveillance of lymphatic filariasis with the WHO STEPwise approach to non-communicable disease risk factor surveillance in Niue, a study protocol. PLoS One. 2025;20(1):e0315625 (https://doi.org/10.1371/journal.pone.0315625).

Desir L, Hamre KES, Beau De Rochars VM, Lemoine JF, Telfort MA, Noland GS. Results of integrated transmission assessment surveys for lymphatic filariasis and malaria in Haiti, 2017–2022. Am J Trop Med Hyg. 2024;111(3 Suppl):81-8 (https://doi.org/10.4269/ajtmh.23-0765).

Tools and resources: WHO post-validation surveillance toolkit; WHO guidance on integrated transmission assessment surveys

Integrated post-validation and post-verification surveillance planning toolkit for neglected tropical diseases: a planning toolkit. Geneva: World Health Organization; 2025 (https://iris.who.int/handle/10665/385149). Licence: CC BY-NC-SA 3.0 IGO.

Integrating the assessment of onchocerciasis into a lymphatic filariasis transmission assessment survey: a manual for national elimination programmes. Geneva: World Health Organization; 2025 (https://iris.who.int/handle/10665/384525). Licence: CC BY-NC-SA 3.0 IGO.

Multi-disease elimination initiatives

Tools and resources: PAHO Elimination Initiative dashboard

Progress toward elimination indicators and targets [website]. Pan American Health Organization; 2026 (https://www.paho.org/en/progress-toward-elimination-indicators-and-targets).

Mainstreaming NTD data into the national health system

Tools and resources: WHO NTD RHIS guidance

Routine health information system and health facility data for neglected tropical diseases: general guidance for national programme managers and data clerks. Geneva: World Health Organization; 2025 (https://iris.who.int/handle/10665/381960). Licence: CC BY-NC-SA 3.0 IGO.

Social science innovations

Addressing populations who are never treated

Example: Ghana

de Souza DK, Sumboh JG, Laryea NA, Asiedu O, Alomatu B, Mensah SK et al. Beyond business as usual for lymphatic filariasis mass drug administration in hotspot districts. Int Health. 2025;17(6):960-7 (https://doi.org/10.1093/inthealth/ihaf039).

Tools and resources: WHO toolkit for never-treated populations

World Health Organization, Pan American Health Organization. Reaching never-treated people to eliminate neglected tropical diseases: a toolkit for national programmes. Geneva: World Health Organization; 2025 (https://iris.who.int/handle/10665/384075). Licence: CC BY-NC-SA 3.0 IGO.

Monitoring behavioural sciences and interventions

Example: Malaysia

National blueprint for behavioural insights in health: mainstreaming behavioural sciences for better health. Shah Alam: Institute for Health Behavioural Research, National Institutes of Health, Ministry of Health Malaysia; 2025 (https://infosihat.moh.gov.my/penerbitan-multimedia/buku-kecil/item/nasional-blueprint-for-behavioural-insights-in-health.html).

Tools and resources: WHO behavioural science guidance; UNAIDS community-led monitoring report

Mainstreaming behavioural sciences into institutions responsible for public health: monitoring framework and indicators. Geneva: World Health Organization; 2026 (https://iris.who.int/handle/10665/385608). Licence: CC BY-NC-SA 3.0 IGO.

Community-led monitoring in action: emerging evidence and good practice. Geneva: Joint United Nations Programme on HIV/AIDS; 2023 (https://www.unaids.org/en/resources/documents/2023/community-led-monitoring-in-action).

Cross-sectoral innovations

Integrating WASH and NTDs

Example: Case study (Ethiopia, Kenya, Nigeria)

WASH and NTD data to improve targeting and equity of services. Geneva: World Health Organization; 2025 (https://www.who.int/publications/m/item/wash-and-ntd-data-to-improve-targeting-and-equity-of-services).

Tools and resources: WHO WASH and health toolkit

WASH and health working together: a 'how-to' guide for neglected tropical disease programmes, 2nd ed. Geneva: World Health Organization; 2023 (https://iris.who.int/handle/10665/366037). Licence: CC BY-NC-SA 3.0 IGO.

Reference

1. Furuya-Kanamori L, Lawford H, Vernal S, Mbabazi PS, Taruc A, Horstick O et al. Integrated approaches for surveillance and monitoring and evaluation of neglected tropical diseases in the Pacific Islands: a scoping review [preprint]. SSRN. 2026;16 July:1-61 (https://doi.org/10.2139/ssrn.7078718).

Annex 4. Creditor Reporting System data notes

The financing mapping for neglected tropical diseases (NTDs) is based on the data from the Organisation for Economic Co-operation and Development (OECD), collected through its Creditor Reporting System (CRS). It covers various domains of development aid, including in the health sector.

To assess financing trends for NTDs in recent years, data were extracted from 2018 to 2024, because 2024 was the latest year for which data were available. Table A4.1 lists the variables that were extracted from the CRS database for this purpose.

Table A4.1. CRS database variables and description

Variable name	Variable description
DonorName	Reporting country or multilateral organization providing the aid
AgencyName	The extending agency: the government entity (central, state or local government agency or department) financing the activity from its own budget The extending agency is the budget holder, controlling the activity on its own account.
ProjectNumber	Number, or combination of letters and numbers, used by the extending agency to identify the activity
RecipientName	The country or territory benefiting from the aid activity All recipients must be on the DAC list of ODA recipients.
USD_Commitment	New or additional amounts committed during the reporting year; the face value of the activity in millions of units and in USD A commitment is a firm written obligation by a government or official agency, backed by the appropriation or availability of the necessary funds, to provide resources of a specified amount under specified financial terms and conditions and for specified purposes for the benefit of a recipient country or a multilateral agency.
USD_Disbursement	Amount disbursed during the reporting year, in millions of units and in USD A disbursement is the placement of resources at the disposal of a recipient country or agency, or, in the case of internal development-related expenditures, the outlay of funds by the official sector.
USD_Received	Amount received during the reporting year, in millions of units and in USD
ProjectTitle	A brief description (150 characters or less) of the aid activity, which can be the official project title
LongDescription	A longer description of the activity, providing additional detail beyond the short description; may also contain overflow information from other fields with shorter character limits (e.g. geographical target area, SDG focus)
SDGfocus	SDG(s) or target(s) the activity aims to contribute to directly The reporting on the SDG focus is optional. The field can contain up to 10 values (goals or targets or a mixture of the two) separated by semicolons. A zero value implies that the activity has been screened but does not aim to directly contribute to any of the SDGs. A blank value implies that the activity has not been screened against the SDGs.

CRS: Creditor Reporting System; DAC: Development Assistance Committee; ODA: official development assistance; SDG: Sustainable Development Goal; USD: United States dollars.

Process for building the NTD financing analysis database

1. Identify projects that are relevant to NTDs

To identify projects that have activities addressing NTD-related issues, a list of NTD keywords was built based on established classifications and terminologies used in World Health Organization (WHO) documents, global health literature and disease burden assessments. The following search terms were applied: Buruli ulcer, Chagas disease, dengue, chikungunya, dracunculiasis, Guinea-worm disease, echinococcosis, foodborne trematodiases, human African trypanosomiasis, sleeping sickness, leishmaniasis, leprosy (Hansen disease), trypanosomiasis, lymphatic filariasis, mycetoma, chromoblastomycosis, deep mycoses, onchocerciasis (river blindness), rabies, scabies and other ectoparasitic infections, schistosomiasis, soil-transmitted helminthiases, snakebite envenoming, taeniasis, cysticercosis, trachoma, yaws, endemic treponematoses, neglected tropical diseases and NTDs.

This list of search terms was subsequently cross-referenced with project descriptions in the CRS database, specifically the LongDescription field. The matching process involved systematically screening the long-form project descriptions for the presence of the specified NTD-related terms. This approach ensured the inclusion of projects explicitly mentioning NTDs in their project description.

2. Group NTD-related projects from different angles

To be able to analyse the data from different angles, a list of additional variables was created to capture the NTD-related parameters of the project based on the information provided in the long project description in the CRS database (Table A4.2).

Table A4.2. Variables and grouping criteria

Variable name	Variable description and grouping criteria
Funding_scope	Distinguishes if NTD-related issues are the primary targets of the project, with two values: • targeting NTD, for projects in which NTDs are the main diseases targeted; and • including NTD, for projects with broader objectives, in which one or several NTDs are among the diseases addressed
NTD	Which NTD is targeted by the project Projects that include more than one NTD are grouped under the category of "neglected tropical diseases".
Area	The main working area that the project is proposing Table A4.3 shows the categories of areas and their grouping criteria.
Funding amount	Funding is distinguished by being committed, disbursed or received; to avoid double counting, the maximum of the three columns is taken as the funding for the project
Year	The year for which the project is listed

NTD: neglected tropical disease.

3. Assign an area to each project

To ensure consistent and accurate attribution of project areas, a dual review approach was implemented that combines artificial intelligence-assisted analysis with human evaluation. Initially, Microsoft Copilot was used to group projects based on their detailed descriptions. Copilot analysed each project using the following prompt:

Based on Table A4.3, analyse the project description that I will send to you one by one. In combination with the information available online about these projects, determine the project area, provide a one-sentence justification, and list the diseases covered.

In parallel, a programme expert independently reviewed the project descriptions to assess the appropriate area attribution. The conclusions from both the Copilot and the human review were then compared to ensure consistency and accuracy before finalizing the area assignment.

Project grouping consistency was verified by comparing project areas with the same number from 2018 to 2024, to ensure projects with identical numbers in the same country maintained the same grouping.

Table A4.3. Area and grouping criteria

Strategic focus	Area	Criteria for grouping projects based on project description
Global network	Advocacy	Any actions, including communication, at national and international levels aimed at promoting greater efforts to combat any disease(s) included in the WHO NTD list
Global network	International network	Project aimed at building, maintaining or improving partnership beyond one country
Global network	External technical support	Technical support provided by an external partner, organization, institution or experts
Global network	WHO country	Funding managed by a WHO regional office
Global network	WHO region	Funding managed by a WHO regional office
Global network	WHO NTD programme	Funding managed by the WHO Malaria and Neglected Tropical Diseases Department
Health sector interventions	Capacity-building	Activities on training or activities aimed at improving the quality of services, data, monitoring and evaluation, etc.
Health sector interventions	Community health	Activities targeting patients, aimed at reducing stigma, improving patients' living conditions, raising awareness and providing health education
Health sector interventions	HSS	Actions aimed at strengthening health systems, including human resources, technology, infrastructure and supply chain
Health sector interventions	Programme	Projects that aim to achieve specific goals or improve governance, planning and strategy development for NTD interventions (projects may also cover multiple aspects of an NTD intervention strategy, including monitoring and evaluation, surveillance and sustainability)
Health sector interventions	Intervention	Implementation of one or more concrete activities or health services in one or multiple locations in a country
Health sector interventions	Outbreak prevention	Actions aimed at reducing the risk of outbreak of a disease
Health sector interventions	Outbreak response	Actions aimed at responding to an outbreak
R&D, including innovation	Innovation	Piloting or implementing a new method, tool or strategy in the field
R&D, including innovation	R&D	R&D projects that are not at implementing phase; these projects are often proposed by a research institution or a scientific or academic group
Interventions beyond health sector	Vector control	Interventions aimed at reducing the population of the disease vectors at country level
Interventions beyond health sector	WASH	Projects with the main target of improving access to water and sanitation
Interventions beyond health sector	One Health	Projects addressing animal health or other interventions beyond the health sector that benefit NTDs as a consequence

HSS: health system strengthening; NTD: neglected tropical disease; R&D: research and development; WASH: water, sanitation and hygiene; WHO: World Health Organization.

Annex 5. Illustrative policy and practice analysis: evidence on the development and implementation of neglected tropical disease policies in sub-Saharan Africa during the first half of the road map (2021–2025)

Although considerable evidence exists on the epidemiology and biomedical management of neglected tropical diseases (NTDs), there is limited synthesis of how policies governing NTD prevention, control, financing and implementation are developed, operationalized and evaluated. Understanding the governance structures, stakeholder dynamics, financing mechanisms and implementation challenges shaping NTD policies is essential for strengthening programme performance and informing future policy reforms.

Cameroon and Uganda, where the WickedSchisto project is being conducted by the University of Glasgow, provide highly relevant case studies for broader policy agenda. Schistosomiasis remains endemic in several districts despite decades of mass drug administration (MDA), illustrating both the progress and limitations of current NTD control approaches. Many endemic countries have extensive experience implementing MDA and community-based interventions, yet major challenges remain regarding sustainable water, sanitation and hygiene (WASH) infrastructure, domestic financing, behavioural change, intersectoral coordination and policy implementation fidelity. It is within this context that a scoping review assessed how NTD policies in sub-Saharan Africa were developed and implemented before and during the first half of *Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030* (the road map). The review includes a particular focus on the MDA- and WASH-based interventions that are crucial for schistosomiasis control and have implications for several other NTDs.

Methods

The review followed Joanna Briggs Institute and PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) guidelines on conducting scoping reviews *(1, 2)*. Six databases (PubMed, Embase, Scopus, Centre for Agriculture and Bioscience International, Web of Science and Global Index Medicus) and the Expanded Special Project for Elimination of Neglected Tropical Diseases (ESPEN) website were searched. The review adopted a broad definition of "policy", encompassing formal policy documents, strategic plans, guidelines, programmes, intervention frameworks and implementation structures related to NTDs.

The summary synthesized evidence from 55 publications from 2021 to 2025 out of a broader corpus of 135 publications (between January 2000 and March 2025). Studies and documents published between January 2021 and March 2025 were included if they examined NTD policy development and implementation in sub-Saharan Africa, particularly in relation to interventions such as MDA, WASH or integrated NTD strategies. Studies were excluded if they:

- focused exclusively on biomedical or laboratory outcomes without policy relevance;
- were conducted outside sub-Saharan Africa, unless the region was an explicit geographical focus (such as supranational documents about NTD policy implementation in sub-Saharan Africa but authored globally);
- did not address NTD-related policies or interventions;
- focused solely on vector control without broader programme implementation considerations; or
- lacked sufficient information on governance, implementation or policy processes.

Data extraction included disease focus, intervention type, governance structures, financing mechanisms, implementation approaches, and barriers and facilitators to policy implementation. Particular attention was given

to Pillar 3 of the road map, which emphasizes changing operating models and strengthening country ownership. Core findings are presented under Pillar 3 of this report (see section 2.3.3), with inference of their broader implications for NTD programmes.

References

1. Peters MDJ, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L et al. Updated methodological guidance for the conduct of scoping reviews. JBI Evid Synth. 2020;18(10):2119-26 (https://doi.org/10.11124/JBIES-20-00167).
2. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71 (https://doi.org/10.1136/bmj.n71).

Annex 6. WHO road map disease-specific indicators: status in 2024–2025 against the 2025 milestones

*Status compares the latest available data (2024, or 2025 where marked *) with the interim milestone for 2025. Milestone met: the 2025 milestone has been reached. Milestone not met: the milestone has not been reached, although there may have been progress since baseline. No data: no recent data available.*

Milestone met: 3 | Milestone not met: 46 | No data: 9

Disease	Indicator	Baseline (2020)	Achieved (2024)	Milestone (2025)	Status
Buruli ulcer	Proportion of cases in category III (late stage) at diagnosis	30%	21%	<18%	Milestone not met
	Proportion of laboratory-confirmed[a] cases	65%	43%	>95%	Milestone not met
	Proportion of confirmed cases who have completed a full course of antibiotic treatment	90%	53%	>98%	Milestone not met
Chagas disease	Number of countries achieving interruption of transmission through the four transmission routes (vectoral, transfusion, transplantation and congenital), with 75% antiparasitic treatment coverage of the eligible population	0/41	0/41	10/41	Milestone not met
	Number of countries achieving verification of interruption of domiciliary vectoral transmission	7/21	8/21	14/21	Milestone not met
	Number of countries achieving verification of interruption of transfusional transmission	0/41	0/41	20/41	Milestone not met
	Number of countries achieving verification of interruption of transplantation transmission	0/41	0/41	20/41	Milestone not met
	Number of countries achieving verification of interruption of congenital transmission	0/41	0/41	10/41	Milestone not met
Chikungunya	Vaccine development for one or more vaccine candidates	Phase I	Two vaccines available	Phase III	Milestone met
	Number of endemic countries identified and mapped for chikungunya	10%	73%	100%	Milestone not met
	Develop optimized and prioritized integrated strategies for case management and estimate the potential public health benefits by 2025	5	25	40	Milestone not met

Disease	Indicator	Baseline (2020)	Achieved (2024)	Milestone (2025)	Status
Chromoblastomycosis	Number of countries in which mycetoma, chromoblastomycosis, sporotrichosis and/or paracoccidioidomycosis are included in national control programmes and surveillance systems	1/30	5/30	8/30	Milestone not met
Cutaneous leishmaniasis	Number of countries in which: 85% of all cases are detected[b] and reported and 95% of reported cases are treated	N/A	No data	66/87	No data
Dengue	Case fatality rate due to dengue	0.80%	0.08%	0.50%	Milestone met
	Number of countries able to detect and respond to dengue outbreaks	10/128	43/128	64/128	Milestone not met
	To reduce the burden of the disease and its incidence by 25% (2010–2020 as baseline)	3.1 million cases	15.1 million cases	2.75 million cases	Milestone not met
Dracunculiasis	Number of countries certified free of transmission	187/194	188/194*	191/194	Milestone not met
Echinococcosis (alveolar and cystic)	Number of countries with intensified control[c] of cystic echinococcosis in hyperendemic areas[d]	1	5	9	Milestone not met
Foodborne trematodiases	Number of countries with intensified control[e] in hyperendemic areas[f]	N/A	5/92	6/92	Milestone not met
Human African trypanosomiasis (gambiense)	Number of countries verified for interruption of transmission	0	0*	5/24	Milestone not met
	Number of gambiense HAT cases reported	<1000	430*	200	Milestone not met
Human African trypanosomiasis (rhodesiense)	Number of countries validated for elimination as a public health problem (defined as <1 case/10 000 people per year, in each health district of the country averaged over the previous 5-year period)	0	2/13*	4/13	Milestone not met
	Area with ≥1 HAT case per 10 000 people per year (average of 5 years)	10 000 km^2	No data	2000 km^2	No data
Leprosy	Number of countries with zero new autochthonous leprosy cases	50/194	55/194	95/194	Milestone not met
	Annual number of new leprosy cases detected	184 000	172 717	123 500	Milestone not met
	Rate (per million population) of new cases with grade 2 disability	1.30	1.10	0.68	Milestone not met
	Rate (per million children) of new paediatric cases with leprosy	7.81	4.70	4.24	Milestone not met
Lymphatic filariasis	Number of countries validated for elimination as a public health problem (defined as: – infection sustained below transmission assessment survey thresholds for at least 4 years after stopping MDA; and – availability of essential package of care in all areas of known patients)	19/74	23/74*	36/74	Milestone not met
	Number of countries implementing post-MDA or post-validation surveillance	28/74	40/74*	42/74	Milestone not met
	Population requiring MDA	863 million	362 million*[g]	180 million	Milestone not met

Disease	Indicator	Baseline (2020)	Achieved (2024)	Milestone (2025)	Status
Mycetoma	Number of countries in which mycetoma, chromoblastomycosis, sporotrichosis and/or paracoccidioidomycosis are included in national control programmes and surveillance systems	1/30	5/30	8/30	Milestone not met
Noma	Number of countries having integrated noma into their national health policies, strategies or action plans (including disease-specific, NTD or oral health plans)	9 (in 2023)	9*	22	Milestone not met
	Proportion of confirmed noma cases that are diagnosed at an early stage of the disease (stages 1–2)	70% (in 2023)	63%	80%	Milestone not met
	Number of countries that collect noma data routinely through national information systems	10 (in 2023)	12	22	Milestone not met
Onchocerciasis	Number of countries verified for interruption of transmission	4/38	5/38[h]*	8/38	Milestone not met
	Number of countries that stopped MDA for ≥1 focus	9	17*	24	Milestone not met
	Number of countries that stopped MDA for ≥50% of population	6	9*	25	Milestone not met
	Number of countries that stopped MDA for 100% of population	4	6*	10	Milestone not met
Rabies	Number of countries having achieved zero human deaths from rabies	80/169	95/169	113/169	Milestone not met
	Number of countries having reduced mortality due to dog-transmitted human rabies by 50%	100/169	No data	160/169	No data
	Number of countries having reached 70% vaccination coverage of dogs in high-risk areas	63/169	No data	116/169	No data
Scabies	Number of countries having incorporated scabies management in the UHC package of care	0	16/194	50/194	Milestone not met
	Number of countries using MDA intervention in all endemic districts	0	No data	6	No data
Schistosomiasis	Number of countries validated for elimination as a public health problem (defined as <1% proportion of heavy-intensity schistosomiasis infections)	0	0	69/78	Milestone not met
	Number of countries where absence of infection in humans has been achieved	1/78	1/78	19/78	Milestone not met
Snakebite envenoming	Number of countries having achieved reduction of mortality by 50%	Not applicable	0	61/132	Milestone not met
	Percentage of new antivenom producers joining market by 2030	Not applicable	No data	15%	No data
	Number of effective treatments for snakebite envenoming available worldwide	50 000	No data	500 000	No data
	Minimum number of WHO-recommended polyspecific antivenom products in each region	Not applicable	3	3	Milestone met

Disease	Indicator	Baseline (2020)	Achieved (2024)	Milestone (2025)	Status
Soil-transmitted helminthiases	Number of countries validated for elimination as a public health problem (defined as <2% proportion of soil-transmitted helminth infections of moderate and heavy intensity due to *A. lumbricoides*, *T. trichiura*, *N. americanus* and *A. duodenale*)[i]	0	0	70/101	Milestone not met
	Number of countries including ivermectin in preventive chemotherapy in all areas endemic for *S. stercoralis*	0	No data	15/101	No data
Taeniasis and cysticercosis	Number of countries with intensified control in hyperendemic areas[j]	2/64	4/64	9/64	Milestone not met
Trachoma	Number of countries validated for elimination as a public health problem (defined as (i) a prevalence of trachomatous trichiasis "unknown to the health system" of <0.2% in ≥15-year-olds in each formerly endemic district; (ii) a prevalence of trachomatous inflammation—follicular in children aged 1–9 years of <5% in each formerly endemic district; and (iii) written evidence that the health system is able to identify and manage incident cases of trachomatous trichiasis, using defined strategies, with evidence of appropriate financial resources to implement those strategies)	10/66	27/66*	43/66	Milestone not met
Tungiasis	Number of countries that adopt and implement integrated skin NTD strategies based on local endemicity and report on tungiasis (cases, treatments and public health response)[k]	4	1	20	Milestone not met
Visceral leishmaniasis	Number of countries validated for elimination as a public health problem (defined as <1% case-fatality rate due to primary visceral leishmaniasis)[l]	0/75	0/75	56/75	Milestone not met
	Number of countries in South-East Asia Region validated for elimination as a public health problem (defined as <1 case (new and relapses) per 10 000 population at district level in Nepal and at subdistrict level in Bangladesh and India)	0/3	1/3	3/3	Milestone not met
	In South-East Asia Region, PKDL cases detected (visceral leishmaniasis post-treatment follow-up of 3 years) and treated	Unknown	No data	95%	No data
Yaws	Number of countries certified free of transmission	1/194	1/194	136/194[m]	Milestone not met

A. duodenale: Ancylostoma duodenale; *A. lumbricoides: Ascaris lumbricoides*; HAT: human African trypanosomiasis; MDA: mass drug administration; *N. americanus: Necator americanus*; PCR: polymerase chain reaction; PKDL: post-kala-azar dermal leishmaniasis; *S. stercoralis: Strongyloides stercoralis; T. trichiura: Trichuris trichiura*; UHC: universal health coverage; WHO: World Health Organization.

* Denotes data reported in 2025 rather than 2024.

[a] Currently PCR confirmation, but other laboratory tests may be recommended for confirmation by WHO before 2030.

[b] Detected through active case search and/or strengthened passive surveillance.

[c] Periodic deworming of dogs, >80% vaccination coverage of sheep and access to ultrasound diagnosis available in the area.

[d] Provisionally defined as an estimated 5 cases/100 000 people.

[e] MDA administered according to recommended schedule to both humans and animals, safe faecal waste management, regular community education.

[f] To be defined in global guidance on control of foodborne trematodiases.

[g] Preliminary data as of August 2026.

[h] The Niger was acknowledged for verification of interruption of transmission in January 2025.

[i] Using the Kato–Katz technique.

[j] Definition of hyperendemic area and intensified control was published in Mapping protocol for *Taenia solium*.

[k] Adapted from the road map indicator: Number of countries that adopt and implement integrated skin NTD strategies based on local endemicity.

[l] Defined as an immunocompetent patient with no other concomitant condition that does not result from visceral leishmaniasis (e.g. transplantation, HIV, cancer, immunosuppressive medicines, diabetes, renal failure).

[m] For yaws, there will be a supplementary milestone for 2027, given that transmission should be interrupted in all countries by 2027 in order for the 2030 goal of eradication to be met.

For further information, contact:
Malaria and Neglected Tropical Diseases
World Health Organization
20 avenue Appia
1211 Geneva 27
Switzerland
https://www.who.int/