

Top ten research priorities for sepsis research: UK James Lind Alliance priority setting partnership

Sepsis is defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection.¹ Sepsis is a substantial global health problem due to its high incidence and associated mortality and morbidity.² In the UK, an estimated 45 000 people die due to sepsis each year, with estimated annual UK National Health Service costs of £1.1 billion, alongside societal costs of up to £10 billion per year.³ The impact of sepsis on people, society, and health-care systems highlights the need to prioritise research related to the causes, diagnosis, and treatment of sepsis to reduce mortality and improve functional and psychosocial outcomes.

A mismatch often occurs between research questions considered to be important among investigators and those considered to be important to patients, carers, and those who deliver health care.⁴ Establishing a hierarchy of importance for research questions offers the opportunity to achieve equity among all stakeholders and a clear mandate on where research resources should be focused. The James Lind Alliance, a not-for profit initiative funded by the UK National Institute of Health and Social Care Research, brings patients, carers, and clinicians together to prioritise unanswered questions or uncertainties in the evidence base, so that policy makers and health research funders are aware of the issues that matter most to people who are affected by research and to people who use the research.⁵

The Sepsis Research Priority Setting Partnership was established in 2023 by Sepsis Research (FEAT) and the James Lind Alliance to identify key priorities for future sepsis research

in the UK. We used the modified nominal group method established by the James Lind Alliance as our approach.⁵ This process was led by a steering group representing sepsis survivors, their carers, and multi-disciplinary health-care professionals. Given the complexity of the sepsis care pathway, our steering group included community and secondary care professionals. Priority setting was conducted using pre-tested online surveys, online voting, and a workshop with patients, carers, and health-care professionals.

The first online survey, which was distributed between September, 2023, and January, 2024, aimed to identify uncertainties or unanswered questions by asking "what questions about sepsis would you like to see answered by research?" In total, 718 individual respondents provided 950 questions. 447 (62%) of 718 respondents were survivors of sepsis or their friends and family members, 218 (30%) were health-care professionals, and 53 (7%) had multiple or other roles; 344 respondents provided self-reported sex data (250 [73%] were female and 94 [27%] were male) and 374 did not provide sex data; and 338 (47%) provided self-reported ethnicity data (316 [93%] were White and 22 [7%] were Black, Asian, mixed, or other ethnicity) and 380 (53%) did not provide ethnicity data. Following this survey, data management and processing steps were undertaken, including categorising responses, removing out of scope and duplicate questions, and checking all of the questions posed against the existing research evidence, to establish those that remained unanswered. This evidence review took place between January and March, 2024, and was led by an experienced information scientist and resulted in 53 indicative questions that had not been answered within the current evidence base.

These indicative questions formed a subsequent survey distributed between March and June 2024,

in which 941 people ranked their top ten questions. 429 (46%) of 941 respondents were survivors of sepsis or their friends and family members, 431 (46%) were health-care professionals, 77 (8%) had multiple or other roles, and four (<1%) did not provide their role; 624 (66%) respondents provided self-reported sex data (407 [65%] were female and 217 [35%] were male) and 317 (34%) did not provide sex data; and 616 (65%) provided self-reported ethnicity data (584 [95%] were White and 32 [5%] were Black, Asian, mixed, or other ethnicity) and 325 (35%) did not provide ethnicity data. The top ten questions ranked by people were combined with equal weighting between public and professional priorities into a shortlist of 25 questions.

Additional representatives of people who had survived sepsis, their carers, and health-care professionals attended a final in-person workshop in Cambridge, UK on Sept 3, 2024. This workshop was independently facilitated by trained facilitators from the James Lind Alliance. Using



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For more on **Sepsis Research (FEAT)** see <https://sepsisresearch.org.uk/>

Panel: Top ten research priorities for sepsis research

- 1 How can the diagnosis of sepsis become faster and more accurate and reliable?
- 2 What are the long-term effects on the body from sepsis (sometimes called post-sepsis syndrome)? And how are these long-term effects best treated and managed?
- 3 What is the role of treatments other than antibiotics in the care and management of sepsis?
- 4 Can diagnostic tests be developed for sepsis that can be used wherever the person is receiving care (eg, in a general practitioner surgery, hospital, ambulance, or at home)?
- 5 Why and how do some people with sepsis become seriously ill very quickly?
- 6 Would specialist sepsis services improve outcomes for people with sepsis during hospital treatment and for follow-up care?
- 7 Are there ways to tailor treatment of sepsis to the individual (eg, based on blood markers or other indicators)?
- 8 How does an infection lead to sepsis?
- 9 Would treatment before admission to hospital (eg, provided by general practitioners or ambulance crews) improve outcomes for people with sepsis?
- 10 What are the safest and most effective ways to treat sepsis using antibiotics?

the nominal group technique, three rounds of discussions and decision making were undertaken to create the final top ten research questions,⁵ and these were set as priorities for sepsis research.

In this research prioritisation partnership, we have identified the top ten research priorities for sepsis (panel), incorporating the views of those with lived experience of sepsis and health-care professionals. To our knowledge, this process is one of the largest research prioritisation exercises done to date in the field of sepsis.

The research priorities identified encompass the range of outstanding challenges in the field, including diagnosis, risk factors, treatment and management, and long-term outcomes. Addressing the top ten questions we identified will require collaborative efforts from researchers from a range of backgrounds. These research priorities should aim to ensure that future research and funding activities are aligned with the questions that are important to patients, carers, and health-care professionals. We anticipate that our findings will encourage researchers to

address priorities that are important to those with lived experience of sepsis and health-care professionals, to ultimately save lives and improve outcomes.

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**Joanne McPeake, Mark Oakes, Colin Graham, Nahid Ahmad, Nazir Lone, Bronwen Connolly, on behalf of James Lind Alliance Sepsis*

PSP Steering Group

Jm2565@medschl.cam.ac.uk

The Healthcare Improvement Studies Institute, University of Cambridge, Cambridge, CB1 8RN UK (JM); Essex, UK (MO); Sepsis Research (FEAT), Glasgow, UK (CG); The James Lind Alliance, University of Southampton, Southampton, UK (NA); The Usher Institute, University of Edinburgh, Edinburgh, UK (NL); Wellcome-Wolfson Institute for Experimental Medicine, Queen's University Belfast, UK (BC)

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