

Leading doctors warn that sepsis deaths will not be curbed without radical rethink of research strategy

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Leading doctors today [Monday 20 April, 2015] warn that medical and public recognition of sepsis—thought to contribute to between a third and a half of all hospital deaths—must improve if the number of deaths from this common and potentially life-threatening condition are to fall.

In a new Commission, published in *The Lancet Infectious Diseases*, Professor Jonathan Cohen and colleagues outline the current state of research into this little-understood condition, and highlight priority areas for future investigation.

Sepsis—sometimes misleadingly called "blood poisoning"—is a common condition whereby an infection triggers an extreme immune response, resulting in widespread inflammation, [blood clotting](#), and swelling. Among the early (but not universal) symptoms of sepsis are high temperature and fast breathing; if left untreated, it frequently leads to organ failure and death. Although no specific cure for the condition exists, it can often be treated effectively with intensive medical care including antibiotics and [intravenous fluid](#), if identified early enough.

According to Professor Cohen, lead author of the Commission and Emeritus Professor of Infectious Diseases at the Brighton & Sussex Medical School, "Sepsis is both one of the best known yet most poorly understood medical disorders, and one of the most challenging medical conditions in routine clinical practice."

In the UK, sepsis is thought to kill 37000 people every year—more than three times the number killed by breast cancer or prostate cancer.

Although mortality rates from sepsis in the UK and other high-income countries appear to be falling in recent decades, the Commission authors point out that the paucity of accurate estimates of the incidence of sepsis means that the true extent of the condition is poorly understood, and apparently reduced mortality rates may be an artefact of improvements in hospital reporting of milder cases.

"The number of people dying from sepsis every year—perhaps as many as six million worldwide—is shocking, yet research into new treatments for the condition seems to have stalled," says Professor Cohen.

"Researchers, clinicians, and policymakers need to radically rethink the way we are researching and diagnosing this devastating condition."

In low-income and middle-income countries, where most sepsis cases occur outside hospital, there are virtually no data on the condition's incidence, and the number of people killed by sepsis is likely to far exceed the already high rates in more wealthy countries. Moreover, rising rates of antibiotic resistance globally mean that even if mortality rates from sepsis are improving in some high-income countries, there is no room for complacency.

In addition to the high fatality rate from sepsis, survivors are at an increased risk of long-term chronic illness and mental or physical impairment, although research into the long-term consequences of surviving sepsis is relatively scarce, so doctors have little evidence available on which to base long-term care plans for these patients.

The Commission outlines a roadmap for future research into sepsis, highlighting a number of critical factors that need to change in the field if treatment and diagnosis of sepsis is to improve. Recommendations include prioritising research into biomarkers for sepsis, which would

allow quicker diagnosis; better education of medical staff and improving public awareness to ensure earlier recognition; rethinking clinical trial design; recognising that [sepsis](#) affects different patients differently and using the power of modern genetics to develop targeted treatments ("personalised medicine"); and, after dozens of failed trials in recent decades, ensuring that universities and drug companies do not abandon research into new drug treatments.

More information: *The Lancet Infectious Diseases*, Volume 15, No. 5, p581–614, May 2015 [DOI: 10.1016/S1473-3099\(15\)70112-X](https://doi.org/10.1016/S1473-3099(15)70112-X)

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