



## How preventable are in-hospital sepsis-associated deaths?



In a cohort study reviewing the medical records of 568 patients who were admitted to six U.S. hospitals, sepsis was found to be the most common immediate cause of death. However, most underlying causes of death were related to severe chronic comorbidities and most sepsis-associated deaths were unlikely to be preventable through better hospital-based care. In this cohort, metastatic or progressive cancer was the leading underlying cause of death in patients who died with sepsis.

Sepsis is present in many hospitalisations that culminate in death. The high burden of sepsis and the perception that most sepsis-related deaths are preventable with better care has catalysed numerous sepsis performance improvement initiatives in hospitals around the world.

The extent to which sepsis-associated deaths in adults might be preventable, however, is unknown. The prevalence and preventability of sepsis-associated deaths is difficult to discern from administrative data and death certificates because hospital discharge codes do not indicate whether sepsis caused death, and death certificates are often completed incorrectly. Sepsis may be particularly susceptible to undercoding the cause of death because some clinicians may document infection alone, rather than sepsis, as the cause.

The aim of the current study was to estimate the prevalence, underlying causes, and preventability of sepsis-associated mortality in acute care hospitals. A retrospective medical record review was conducted of 568 randomly selected adults admitted to six U.S. academic and community hospitals from January 2014 to December 2015, who died in the hospital or were discharged to hospice and not readmitted. Medical records were reviewed from 1 January 2017 to 31 March 2018.

In this study, clinicians reviewed cases for sepsis during hospitalisation using Sepsis-3 criteria, hospice-qualifying criteria on admission, immediate and underlying causes of death, and suboptimal sepsis-related care such as inappropriate or delayed antibiotics, inadequate source control, or other medical errors. The preventability of each sepsis-associated death was rated on a 6-point Likert scale.

Reviewers found that sepsis was present in 300 adult hospitalisations (52.8%) ending in death or discharge to hospice. In two-thirds of these cases, sepsis was the immediate cause of death. The next most common immediate causes of death were progressive cancer and heart failure. Approximately 40% of patients with sepsis who died met hospice-qualifying criteria on admission, most commonly terminal cancer.

One in eight sepsis-associated deaths were judged potentially preventable with better hospital-based care, including 1.3% that were considered definitely preventable, 2.3% considered moderately preventable, and 8.3% considered possibly preventable. Suboptimal sepsis care, such as delays in

antibiotic administration or source control, were identified in 22.7% of patients with sepsis who died, but death was still thought to be unpreventable in more than half of those patients.

These findings do not diminish the importance of trying to prevent as many sepsis-associated deaths as possible, but rather underscore that most fatalities occur in medically complex patients with severe comorbid conditions. Further innovations in the prevention and care of underlying conditions may be necessary before a major reduction in sepsis-associated deaths can be achieved.

Source: [JAMA Network Open](#)

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