

# Study finds that infections are common in ICUs worldwide

December 1 2009

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An international study that examined the extent of infections in nearly 1,300 intensive care units (ICUs) in 75 countries found that about 50 percent of the patients were considered infected, with infection associated with an increased risk of death in the hospital, according to a study in the December 2 issue of *JAMA*.

"[Infection](#) and related [sepsis](#) are the leading cause of death in noncardiac ICUs, with [mortality rates](#) that reach 60 percent and account for approximately 40 percent of total ICU expenditures," the authors write. International data related to the prevalence, risk factors, [microorganisms](#) causing the infections and outcomes of infection are necessary to increase awareness of the impact of infection, and to help in the development of local and international guidelines for diagnosis and treatment and guide resource allocation, according to background information in the article. However, little information is available about the global epidemiology of infections in ICUs.

Jean-Louis Vincent, M.D., Ph.D., of Erasme Hospital, Université libre de Bruxelles, Belgium, and colleagues conducted a study to provide an indication of the extent and patterns of infection in ICUs around the world. The Extended Prevalence of Infection in Intensive Care (EPIC II) study was a 1-day study (May 8, 2007), in which data including demographic, physiologic, bacteriologic, therapeutic, and outcomes were collected on this day for 14,414 patients in 1,265 participating ICUs from 75 countries. Analyses focused on the data from 13,796 adult (18 years or older) patients.

The researchers found that on the day of the study, 51 percent of the patients (7,087) were classified as infected and 71 percent were receiving antibiotics (as prophylaxis or treatment). The lungs were the most common site of infection, accounting for 64 percent of infections, followed by the abdomen and bloodstream. "Seventy percent of infected patients had positive microbial isolates: 47 percent of the positive isolates were gram-positive, 62 percent gram-negative, and 19 percent fungal."

The authors also found a relationship between the number of days spent in the ICU before the study day and the rate of infection: the infection rate increased from 32 percent for patients with an ICU stay of 0 or 1 day before the day of the study to more than 70 percent for patients with an ICU stay of more than 7 days before the day of the study. Infected patients had longer ICU and hospital lengths of stay than those not infected. The ICU mortality rate of infected patients was more than twice that of noninfected patients (25 percent vs. 11 percent), as was the hospital mortality rate (33 percent vs. 15 percent).

In examining infection rates in different areas of the world, Central and South America had the highest infection rate (60 percent) and Africa had the lowest (46 percent). Also, infection rates were related to health care expenditure, with higher rates of infection reported in countries that had a lower proportion of gross domestic product devoted to health care.

"The EPIC II study demonstrates that infections remain a common problem in ICU patients," the authors write. "These important data provide a picture of patterns of infection around the world, which can enhance understanding of global and regional differences and provide pointers to help optimize infection prophylaxis and management."

More information: *JAMA*. 2009;302[21]:2323-2329

Source: JAMA and Archives Journals ([news](#) : [web](#))

Citation: Study finds that infections are common in ICUs worldwide (2009, December 1)  
retrieved 4 May 2024 from  
<https://medicalxpress.com/news/2009-12-infections-common-icus-worldwide.html>

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