



COLUMBIA UNIVERSITY

School of Nursing



APIC

Spreading knowledge.  
Preventing infection.®

Contact: Lisa Rapaport  
Columbia University School of Nursing  
[lr2692@cumc.columbia.edu](mailto:lr2692@cumc.columbia.edu)  
212-342-3795

## **Infections Increase Death Risk by 35% for ICU Patients, Study Finds**

*Prevention Efforts Reduce Costs by More Than \$150,000 per Patient*

(NEW YORK, NY, Jan. 5, 2015) – Elderly patients admitted to intensive care units (ICUs) are about 35 percent more likely to die within five years of leaving the hospital if they develop an infection during their stay, a new study finds. Preventing two of the most common health care-associated infections – bloodstream infections caused by central lines and pneumonia caused by ventilators – can increase the odds that these patients survive and reduce the cost of their care by more than \$150,000, according to a [study](#) published in the January 2015 issue of the [American Journal of Infection Control](#).

“Any death from preventable infections is one too many,” says senior study author [Patricia Stone](#), PhD, RN, FAAN, director of the Center for Health Policy at [Columbia University School of Nursing](#). “We’ve known for decades what works to prevent infections and save lives. Now, our study shows just how much money can be saved by investing in prevention.”

The study looked at outcomes for 17,537 elderly Medicare patients admitted to 31 hospitals in 2002 to assess the cost and effectiveness of infection prevention efforts. Then, the researchers used an additional five years of Medicare claims data to assess the long-term outcomes and health costs attributed to health care-associated infections.

While 57 percent of all the elderly ICU patients died within five years, the researchers found that infections made death more likely. For those who developed central line-associated bloodstream infections, or CLABSI, 75 percent died within five years, as did 77 percent of those who developed ventilator-associated pneumonia, or VAP.

Effective prevention programs for [CLABSI](#) resulted in an estimated gain of 15.55 years of life on average for all patients treated in the ICU, the study found. Central line catheters deliver life-saving medicines and nutrition. Without proper insertion, utilization, and maintenance, catheters can also transmit deadly infections to the bloodstream. Simple infection prevention measures include hand washing before handling the catheter and immediately changing the dressing around the central line if it gets wet or dirty.



COLUMBIA UNIVERSITY

School of Nursing



APIC

Spreading knowledge.  
Preventing infection.®

Efforts to prevent [VAP](#) resulted in an estimated gain of 10.84 years of life on average for all patients treated in the ICU. Ventilators, machines that force air into the lungs when patients can't breathe on their own, can cause infections when patients lie flat in bed for long periods of time. Keeping patients elevated in bed, with the head higher than the feet, is one simple precaution that can help prevent pneumonia.

On average, the ongoing cost of running an infection prevention program in the ICU is about \$145,000, the study found. Prevention efforts reduced ICU costs by \$174,713 per patient for each instance of CLABSI, and by \$163,090 for VAP.

“This evidence points definitively to the value of investing in infection prevention,” says lead study author [Andrew Dick](#), PhD, senior economist at RAND Corporation.

Health care-associated infections [kill](#) an estimated 75,000 Americans a year and create approximately \$33 billion in excess medical costs. The [U.S. Centers for Disease Control and Prevention](#) first linked infection rates to prevention programs in the 1970s. Research since then has shown that checklists and other targeted infection control practices can make a significant dent in infection rates.

The paper is titled: “A decade of investment in infection prevention: A cost-effectiveness analysis,” and it was published in the official journal of the Association for Professionals in Infection Control and Epidemiology (APIC). Elaine Larson, PhD, RN, FAAN, CIC, associate dean for research at Columbia Nursing and professor of epidemiology in nursing at Columbia University Mailman School of Public Health, is a co-author. Other co-authors are Eli N. Perencevich, MD, MS, Divisions of General Internal Medicine and Infectious Diseases, Department of Internal Medicine University of Iowa, Carver College of Medicine and Iowa City VA Medical Center; Monika Pogorzelska-Maziarz PhD, MPH, Jefferson School of Nursing, Thomas Jefferson University; and Jack Zwanziger, PhD, Health Policy and Administration, School of Public Health, University of Illinois at Chicago.

The research was funded by the National Institute of Nursing Research (R01NR010107). The authors declare no financial or other conflicts of interest.



COLUMBIA UNIVERSITY

School of Nursing



APIC

Spreading knowledge.  
Preventing infection.®

-30-

**Columbia University School of Nursing is part of the Columbia University Medical Center, which also includes** the College of Physicians & Surgeons, the Mailman School of Public Health, and the College of Dental Medicine. With close to 100 full-time faculty and 600 students, the School of Nursing is dedicated to educating the next generation of nurse leaders in education, research, and clinical care. The School has pioneered advanced practice nursing curricula and continues to define the role of nursing and nursing research through its PhD program which prepares nurse scientists, and its Doctor of Nursing Practice (DNP), the first clinical practice doctorate in the nation. Among the clinical practice areas shaped by the School's research are the reduction of infectious disease and the use of health care informatics to improve health and health care. For more information, please visit: [www.nursing.columbia.edu](http://www.nursing.columbia.edu).

#### **ABOUT AJIC: AMERICAN JOURNAL OF INFECTION CONTROL**

*AJIC: American Journal of Infection Control* ([www.ajicjournal.org](http://www.ajicjournal.org)) covers key topics and issues in infection control and epidemiology. Infection preventionists, including physicians, nurses, and epidemiologists, rely on *AJIC* for peer-reviewed articles covering clinical topics as well as original research. As the official publication of APIC, *AJIC* is the foremost resource on infection control, epidemiology, infectious diseases, quality management, occupational health, and disease prevention. *AJIC* also publishes infection control guidelines from APIC and the CDC. Published by [Elsevier](http://www.elsevier.com), *AJIC* is included in MEDLINE and CINAHL.

#### **ABOUT APIC**

[APIC](http://www.apic.org)'s mission is to create a safer world through prevention of infection. The association's more than 15,000 members direct infection prevention programs that save lives and improve the bottom line for hospitals and other healthcare facilities. APIC advances its mission through patient safety, implementation science, competencies and certification, advocacy, and data standardization. Visit APIC online at [www.apic.org](http://www.apic.org). Follow APIC on Twitter: <http://twitter.com/apic>