

Probe finds central-line infections still problematic in US hospitals

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Earlier this year, the Centers for Disease Control and Prevention (CDC) released data showing that US hospitals had met national targets by reducing central-line bloodstream infections by 50% between 2008 and 2014. The drop in these infections, which make up roughly 5% of all healthcare-associated infections (HAIs), was hailed as a success story.

But according to a new investigation from *Consumer Reports*, central-line infections remain a substantial problem for many US hospitals.

While the investigation does not dispute the CDC data, it indicates that progress across the country has not been even. Using data from the Centers for Medicare and Medicaid Services (CMS), *Consumer Reports* investigated nearly 2,000 US teaching hospitals to see which ones have successfully reduced central-line infections, and which haven't. Thirty-two hospitals made the top performer list, while 31 were identified on the magazine's "lowest-performer" list.

Among the top performing hospitals is Mount Auburn Hospital in Cambridge, Mass., which from 2014 to 2015 reported only 1 infection in intensive care unit (ICU) patients with central lines. Among the lowest performers is UF Health Jacksonville in Jacksonville, Fla., which reported more than 100 central-line infections in ICU patients from 2014 to 2015.

The report also showed substantial differences between states, with more than 75% of teaching hospitals in Minnesota and Wisconsin meeting the national target for central-line infections, while only a third of hospitals in Louisiana met the target.

"Because teaching hospitals are teaching our next generation of physicians, we think it's critical to monitor them closely," Doris Peter, PhD, director of the Consumer Reports



agency /

Health Ratings Center, said in a *Consumer Report* news release. "Our review of their performance on controlling central-line infections is very sobering."

Central-line infections struck more than 27,000 people in 2015, according to *Consumer Reports*, are fatal in up to a quarter of cases, and cost \$46,000 to treat on average.

Central-line infections and resistance

A central venous catheter, also known as a central line, is a tube that providers place in a large vein in the neck, chest, groin or arm to quickly give fluid, blood, or medication to a patient. They are important in treating conditions in a variety of healthcare settings, but are often used in ICU patients and can remain in place for weeks or months.

But when central lines aren't inserted correctly, or aren't adequately cleaned, they provide an access point for bacteria to enter the bloodstream and spread to the heart and other organs. When the bacteria are drug-resistant, deadly infections can ensue.

According to the CDC, one in six central-line infections can be caused by antibiotic-resistant bacteria the agency considers a serious or urgent threat, such as methicillin-resistant *Staphylococcus aureus* (MRSA) or carbapenem-resistant Enterobacteriaceae (CRE). When these infections occur, physicians have limited options for treatment.

"Many hospital-acquired infections are going to be of a drug-resistant variety," Amesh Adalja, MD, an infectious disease and emergency medicine specialist at the University of Pittsburgh Medical Center and member of the Infectious Disease Society of America, told CIDRAP News. "Organisms like MRSA, for example, represent a high burden of central-line infections."

As a result, cutting down on central-line infections is a critical element in the CDC's efforts to combat antibiotic resistance.

"To get a handle on multidrug-resistant infections, you have to drill down and see which infections they are causing, and central-line infections are one major component of that burden," Adalja says. "So by minimizing central-line infections, you will have some effect on drug-resistant infections in general."

Furthermore, cutting down on central-line infections will aid antibiotic stewardship by decreasing the use of antibiotics like vancomycin, which is commonly used to treat MRSA infections. "It will reduce the need for these antibiotics if you have less of these infections," Adalja says.

Safety protocols play a critical role

The effort to reduce central-line infections and other types of HAIs in US hospitals stems back to 2008, when the Department of Health and Human Services determined that eliminating HAIs was a top safety priority. The Affordable Care Act, with its provisions

that lower Medicare payments for hospitals with high infection rates, has also fostered improvements.

Hospitals across the country have had far more success in reducing central-line infections than they've had with other types of HAIs. According to the *Consumer Reports* investigation, that's due in part to following a set of protocols developed 15 years ago by Peter Pronovost, MD, who currently serves as senior vice president for patient safety and quality at Johns Hopkins Medicine in Baltimore, MD.

Pronovost's checklist contains five basic steps that physicians should follow when placing a central-line catheter. The steps include washing hands; cleaning a patient's skin with chlorhexidine; wearing a mask, hat, gown, and gloves and putting sterile drapes over the patient; avoiding placement of the catheter near the groin, where infection rates are higher; and removing the catheter as soon as possible.

While central-line infections are always going to be a risk, Adalja believes they can be reduced even more by minimizing the use of central lines, using different types of intravenous devices, or employing new innovations, like antibiotic-impregnated central catheters. "There are a whole bunch of things that can be used to try and get the rate even lower," he said.

See also:

Nov 21 *Consumer Reports* [investigation \(http://www.consumerreports.org/hospital-safety/hospital-acquired-infections-zero-tolerance\)](http://www.consumerreports.org/hospital-safety/hospital-acquired-infections-zero-tolerance)

Nov 21 *Consumer Reports* [news release \(http://www.consumerreports.org/media-room/press-releases/2016/11/consumer-reports-zero-tolerance-list-identifies-31-teaching-hospitals-that-pose-risks-to-patients/\)](http://www.consumerreports.org/media-room/press-releases/2016/11/consumer-reports-zero-tolerance-list-identifies-31-teaching-hospitals-that-pose-risks-to-patients/)

March 2016 CDC [HAI progress report \(http://www.cdc.gov/hai/surveillance/progress-report/index.html\)](http://www.cdc.gov/hai/surveillance/progress-report/index.html)

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