

## Rhode Island Hospital Reduces Incidence of Hospital-associated *C. Difficile* by 70 Percent



Rhode Island Hospital has reduced the incidence of hospital-associated *Clostridium difficile* (*C. difficile*) infections by 70 percent and reduced annual associated mortality in patients with hospital-associated *C. difficile* by 64 percent through successive implementation of five rigorous interventions, as reported in the July 2013 issue of *The Joint Commission Journal on Quality and Patient Safety*.

*Clostridium difficile* is a toxin-producing bacterium that lives in the colon. A major cause of morbidity and mortality in the U.S., it can cause life-threatening infections that occur most frequently in patients who have received antibiotic therapy. Unlike other bacteria causing healthcare-related infections, *C. difficile* can be difficult to clear from the environment due to its ability to survive for prolonged periods of time as spores.

"Hospital-acquired infections are a major concern for hospitals across the country and *C. difficile* is among the most dangerous," says principal investigator Leonard Mermel, D.O., medical director of the department of epidemiology and infection control at Rhode Island Hospital. "The risks to patients are enormous, as is the excess associated hospital cost."

Mermel et al. note that from 2000 to 2009, discharge diagnoses from U.S. hospitals that included *C. difficile* increased from 139,000 to 336,600 – a 242 percent increase. Similarly, the yearly national excess hospital cost associated with hospital-onset *C. difficile* is estimated to be upward of \$1.3 billion.

To measure and reduce the incidence of hospital-acquired *C. difficile*, Mermel and his colleagues implemented a multi-step process based on a risk assessment: develop and implement a *C. difficile* infection control plan; monitor additional data sets, including associated mortality and morbidity as measured by *C. difficile*-related colectomies; improve sensitivity of *C. difficile* toxin detection in stool specimens to reduce false-negative results; and enhanced environmental cleaning of patient rooms and equipment.

Researchers monitored the number of *C. difficile* infections per 1,000 hospital discharges from the second quarter of 2006 to the third quarter of 2012, and found that hospital-associated *C. difficile* infections were reduced from a peak of 12.2 per 1,000 to 3.6 per 1,000 discharges. Additionally, the mortality in patients associated with this infection was reduced from a peak of 52 in 2006 to 19 in 2011, and by the end of the third quarter of 2012, that number was down to 13.

"This is a significant, hospital-wide effort involving the support of hospital administration, the department of epidemiology and infection control, nursing, medicine, surgery, pathology, pharmacy, environmental services and the microbiology lab. It is truly a multi-disciplinary effort to make the hospital safer for our patients, their families and our staff," Mermel said.

"By working together to better monitor those patients at risk, enhance the cleaning of patient rooms and equipment, and to use contact precautions as appropriate, we were able to significantly reduce the risk of this virulent infection and ultimately to provide better, safer patient care."

According to the Centers for Disease Control and Prevention, 94 percent of *C. difficile* infections are related to receiving medical care, and hospital stays from this infection tripled in the last decade, posing a patient safety threat especially harmful to older Americans. The infection causes diarrhea linked to 14,000 American deaths each year.

Source: [EurekAlert!](#)

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