The State of HAI Prevention

Infections continue to pose problems for U.S. health care facilities—but their elimination efforts are making admirable strides

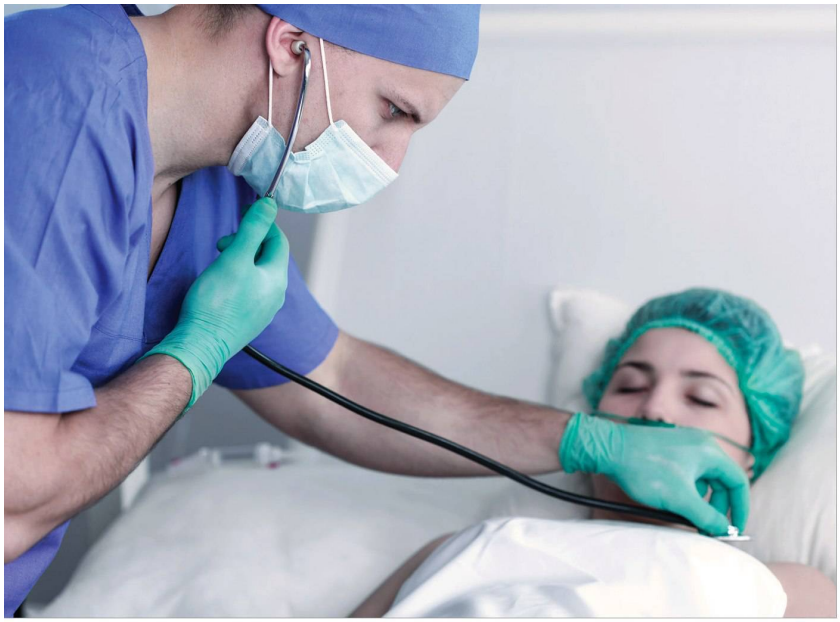
By Erin Brereton

Health care-associated infections (HAIs) cost hospitals in the United States between US$28.4 to $33.8 billion a year, according to the U.S. Centers for Disease Control and Prevention (CDC).

However, health care providers—and cleaning professionals—aren't just nonchalantly accepting that expense.

CDC data published earlier this year showed hospitals and other health care facilities have made notable progress toward the infection prevention goals the Federal Steering Committee for the Prevention of Health Care-Associated Infections set in 2009.

Reductions were found at the national level for nearly all infections studied—including *Clostridium difficile* (*C. difficile*, or *C. diff*), which can cause life-threatening inflammation of the colon, and methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria, which can cause skin, bloodstream, and other infections, according to the Mayo Clinic.



An Uphill Ailment Battle

Reducing HAI occurrences hasn't been easy.

Increased antibiotic use has made many patients more vulnerable to exposure to bacterium like *C. diff*, which can easily be spread by touching bedrails, tables, floors, and other surfaces.

Although the germs that cause HAIs pose a threat to doctors, nurses, and other individuals, patients face a particular risk.

"We know patients contaminate the environment more often if they have open wounds or drainage, diarrhea, or a respiratory device such as a tracheostomy or endotracheal tube," says Dr. Cliff McDonald, associate director for science in the CDC's division of health care quality promotion. "These conditions can lead to a lot of contamination, particularly in their skin as well as the immediate environment. In these states patients are both more vulnerable to get infected and more likely to transmit because they often have higher loads of organism."

Further complicating the situation, infections like *C. diff* can be extremely difficult to treat, given their resistance to most antibiotics.

"There are strands of bacteria now that antibiotics won't eradicate," says Dennis Thompson, executive vice president at commercial cleaning company Jan-Pro Franchising International. "That's a serious problem. Hospitals want to make sure all patients and visitors are safe."

Hospitals also have a financial incentive to reduce HAIs. At the start of the 2015 fiscal year, as part of the Hospital-Acquired Condition Reduction Program, the Secretary of Health and Human Services began docking Medicare payments for providers ranked in the bottom 25 percent of HAI prevention quality measures by 1 percent.

Regional Reductions

To address common HAI hazards, in addition to the federally issued reduction targets and guidelines, some states have sponsored individual initiatives.

Colorado, for example, increased prevention work for carbapenem-resistant *Enterobacteriaceae* (CRE), a family of bacteria resistant to most antibiotics that can cause infection when it spreads from the intestines to other parts of the body.

In 2012, Colorado made CRE infections a reportable condition to allow better outbreak surveillance. The state made two types of CRE testing available at its public health laboratory and developed educational brochures for health care workers and patients.

Colorado Department of Public Health and Environment staff members also contacted affected facilities to educate providers about prevention methods—such as wearing gloves and gowns when caring for CRE patients.

As a result, health care facilities in the state have been able to detect and contain outbreaks sooner.

After a needs assessment survey showed Oregon acute care hospitals and other facilities lacked a unified approach to multidrug-resistant organism issues, the state took an approach similar to that of Colorado's by providing real-time outbreak assistance to facilities with CRE cases and sponsored statewide education.

Other states have focused on *C. diff* concerns. After incidences in Illinois hospitals more than doubled from 1999 to 2009, the state's quality improvement organization, IFMC-IL, and the Illinois Department of Public Health established a *C. diff* prevention collaborative, which proved successful.

Using environmental cleaning practices, staff education, and other tactics, the 20 area hospitals that participated in the effort experienced a more than 15 percent reduction in *C. diff* infections, according to the CDC.

Eliminating Illness

In recent years, contagion concerns have prompted medical facilities around the country to adopt numerous strategies to prevent the spread of bacterium, such as

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>
> *—Dr. Cliff McDonald, associate director for science in CDC's Division of Healthcare Quality Promotion*

hand hygiene procedures, clearly established cleaning procedures, and applicable disinfectant use.

"Cleaning is one of the major components in preventing infection," says Trixi Babcock, owner of hospital housekeeping consulting company HCI Consulting Group LLC. "And it's a big one."

Methods to reduce the risk of contamination include:

- **Using the right tools.** Inadequately cleaned mops and cloths can actually spread microbial contamination to hands, equipment and other areas, according to the CDC, which recommends changing water-disinfectant mixtures after every three to four rooms, or within 60-minute intervals and frequently laundering mops.

  Microfiber materials—which the CDC notes demonstrated 26 percent stronger microbial removal than conventional string mops in a 2006 study—may also provide less contamination risk.

  "Other cleaning cloths [can] just push dirt and germs around," Babcock says. "You can't really clean sponges many times, and cotton reacts with quaternary ammonium-based cleaners. Most hospitals have switched over to microfiber because it was just more efficient."

- **Making clever chemical choices.** Bleach and other potent spray disinfectants are often used to clean rooms on a daily basis, according to McDonald.

  Products that offer a speedy application time are also popular.

  "Most disinfectant solutions, over the past decades, have killed microbes by covering them; the solutions had to sit on a surface for a various amount of minutes," Thompson says. "What we use chemically [now] doesn't poison microbes, it mechanically destroys the cell wall and neutralizes it—so we get very quick kills."

  Products intended to disinfect against certain infections can require 10 minutes of dwell time to be effective; that often isn't practical for a health care setting, according to the CDC, which advises using a U.S. Environmental Protection Agency (EPA)-registered disinfectant with a shortened contact time of one to three minutes, if possible.

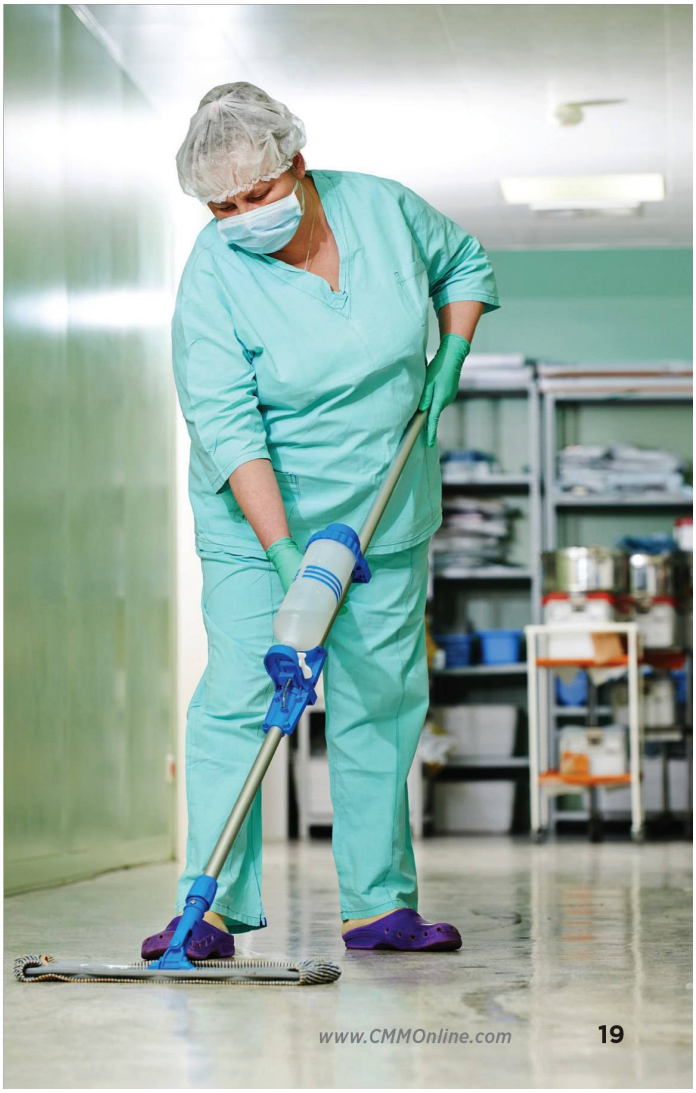
  "Hospitals need a disinfectant that will kill things quickly," Babcock says. "The faster the contact time, the more labor hours they'll save."

- **Providing ample information—and involvement.** Although *C. diff* prevention guidelines existed, they weren't generally followed when Massachusetts launched its statewide *C. diff* prevention collaborative in 2010.

  As the hospitals that participated noted, education alone may not cause procedural changes to be accepted. They instead found engagement efforts helped encourage improvements.

  Although managers are often on board, cleaning crews sometimes resist procedural changes, Babcock says. To encourage buy-in, Babcock opens staff training sessions by explaining how a chain of infection can spread.

  "If they don't understand [that], the cleaning practices don't make any sense to them," she says. "I always remind them that they've got one of the most important jobs in the hospital, because they keep infections from spreading from room to room."



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- **Ensuring consistent effort.** In a trial, phenolic disinfectant was found to provide a greater bacteria reduction than soap and water alone. However, a few hours later, the disinfected floor's bacterial count had nearly returned to its pretreatment level, according to the CDC.

  For maximum effect, cleaning procedures need to be clearly outlined and performed on a regular basis in hospital environments.

  The results can be significant. A collaborative involving 47 hospitals in New York that developed an environmental compliance checklist to reduce *C. diff* infections, containing 48 daily and terminal cleaning elements, estimated its procedural efforts saved hospitals in the state more than $2.7 million.

- **Measuring progress.** "In general, whether someone is using no-touch disinfection or a manual method, it's important to assess the cleanliness beyond just looking at it as, 'Is it dirty?'" McDonald says. "These are microorganisms; you can't assess the quality of the cleaning just by looking at it."

  Babcock sometimes suggests in-house and contracted cleaning provider clients use ATP testing or forensic gel to monitor whether staff are actually touching and cleaning furniture, doors, and other items.

  "An inspection gives hospitals a score—a baseline to work from," she says. "CEOs really like that because it's data they can use."

A Provider and Partner

Efforts to reduce HAIs are ongoing; currently, on any given day, approximately one in 25 patients has at least one HAI.

Some cleaning providers may fear hospitals won't want to incur the expense of additional equipment, time, or other tools that can aid in HAI prevention. However, Thompson says medical professionals are generally open to listening to new and improved ways of disinfecting.

"All hospital facilities we've ever worked with have had to work with some budgetary perimeters," he says. "But first and foremost, they're looking to approve an effective disinfecting protocol."

Cleaning professionals who can supply best-practice suggestions and guidance—in tandem with effective disinfection services—will be positioned to establish themselves as an indispensable component in hospitals' risk reduction program.

"There is an increasing recognition that it's not just about chemicals, but about the people doing it getting it done right," McDonald says. "They are a critical part of the care team."

Erin Brereton is a Chicago-based freelance writer, editor, and marketing consultant who has written about the cleaning industry; business and finance; and other topics for newspaper, trade magazines, and other publications.

By the Numbers

The CDC's latest progress report showed efforts to suppress health care-associated infection sources were paying off:

- National acute care hospital *Clostridium difficile* (*C. diff*) infections decreased 8 percent between 2011 and 2014
- Methicillin-resistant *Staphylococcus aureus* (MRSA) infections decreased 13 percent between 2011 and 2014
- 20 states had better *C. diff* reduction results than the rest of the nation
- 19 states performed better on MRSA bacteremia reduction.

Source: The CDC's National and State Healthcare-Associated Infections Progress Report