THE PROBLEM
*Clostridium difficile* (*C. difficile*) is one of the most dangerous antibiotic-resistant bacterium, with a newer and more virulent strain causing epidemics in the United States and other countries. On any given day, 7,178 patients in U.S. hospitals battle *C. difficile* infections, according to APIC. With a total of 350 to 400 cases each year in the early 2000s, SJHW and SJHC were seeing much higher rates of *C. difficile* overall and nosocomial *C. difficile* infections than other hospitals in the SSM system. The two hospitals’ mortality rate for *C. difficile* infections was 10 to 15 percent.

THE SOLUTION
The St. Joseph hospitals embarked on a rigorous overhaul of their cleaning and care procedures to reduce the rate of *C. difficile* infections by 50 percent. After researching best practices for *C. difficile* reduction, the team spearheading the effort committed to some changes that exceeded the best-practice guidelines available at the time.

RESULTS
» Reduced *C. difficile* infections to 0.5 cases per 1,000 patient days from 3.5 cases in 2004.
» Hospital-acquired cases at SJHC fell to fewer than 20 in 2008, a 10-fold decrease from nearly 200 in 2004.
» Hospital-acquired cases dropped to fewer than 50 at SJHW in 2008, a 10-fold decrease from nearly 200 infections in 2004.

BACKGROUND
The issue hit home at SJHW and SJHC in 2004. At the time, James Hinrichs, MD, an infectious disease specialist in a large practice that served four hospitals, was struck by how many *C. difficile* patients he was being asked to see at SJHC. Working with the hospital’s medical director, Hinrichs and infection control coordinator Becky Clapper, RN, discovered a severe *C. difficile* problem at the hospital and its sister facility, SJHW.

They pulled together a team that included representatives from pharmacy, medical staff, critical care, nursing, infectious disease, housekeeping, laboratory services and nutrition to research best practices for reducing the incidence of *C. difficile*. In a memo to the medical staff, the group laid out the problem, backed with hard data, and the case for change. The team then helped the two hospitals adopt new procedures in an aggressive effort to drive down *C. difficile* rates.

**PRINCIPLES OF PERFORMANCE EXCELLENCE**
Reducing Process Variation
SJHC and SJHW focused on standardizing best practices in three areas: environmental controls, use of isolation and antibiotic stewardship. The changes were rolled out rapidly in the second half of 2004. “We didn’t feel we could do the changes step by step,” recalls Hinrichs. “We felt a pressing need and decided to do it all at once.”

Using evidence-based models, the hospitals greatly stepped up the cleaning regimen for *C. difficile* rooms, taking 20 to 40 minutes to clean not just the bathrooms but any surfaces the patients come into contact with, including phones, curtains and doorknobs. Because antiseptics don’t kill *C. difficile* spores, the housekeeping staff switched to a bleach solution that the hospitals make themselves. With *C. difficile* patients moving throughout the facilities for tests and other procedures, the hospitals established a schedule to do a bleach-based cleaning in every room every six months.

In some cases, the team raised the bar on existing best practices. For example, CDC guidelines recommend moving *C. difficile* patients from isolation after their bowel movements fall below six a day. The two St. Joseph hospitals have instituted a standard of keeping *C. difficile* patients in isolation in a private room during their entire stay. They also move patients into isolation when *C. difficile* is suspected rather than waiting for test results. And all staff, such as transporters and...
nurses, who enter a C. diff room is required to wear gowns and gloves, with fresh ones placed in easy reach on isolation carts outside of the patient’s door.

Whenever possible, the hospitals have shifted to disposable items for C. diff patients, including blood pressure cuffs, thermometers, stethoscopes and mop heads. Another innovation is a sleeve that fits over the computer keyboard in every room that can be wiped with bleach.

The group formed an antibiotics stewardship committee that researched the best medications to treat patients with C. diff, changing order sets as needed. Because C. diff can grow out of control while patients are taking antibiotics, the team established stop dates on antibiotics and reinforces them by putting alerts in patient charts. The committee also rounds two times a week for every patient on an antibiotic, checking dose, frequency and length of therapy, explains SJHW pharmacist Donna Gaffney.

With all of the changes, “fairly immediately, we saw a downward trend,” notes Hinrichs.

**Creation of High-Reliability Culture**

To quickly gain acceptance of the new approach, the hospitals used a variety of methods to educate the staff on the issue and explain the evidence-based standards. The committee placed articles in staff newsletters, presented at staff meetings, wrote up policy changes and met individually with professionals from radiologists to nurses.

Both hospitals quickly got behind the efforts to reduce C. diff infections. “Once we presented the data on the problem to nursing and housekeeping, everyone was very interested in participating in solving it,” says Clapper. “Some began isolating patients on their own initiative.” Another step forward—at the nursing staff’s recommendation, visitors began following the same isolation procedures as staff to minimize the chances of spreading the spores.

Not all the changes were initially welcomed, however, especially isolation techniques, such as gowns and gloves and washing hands with soap and water every time they left a C. diff patient’s room, recalls Cheryl Drakesmith, a registered nurse on SSM St. Joseph Hospital West’s medical/surgical unit. “As time went on and they saw a difference in how effective the treatment was, they knew how important they were to follow.”

The new standards “are really hardwired at both facilities,” says Brandyn Romine, who has been an environmental services supervisor at both hospitals (now environmental services supervisor at SJHC).

**The Patient Experience**

Although the changes have added to the workload, the staff is enthusiastic about the positive impact they are making. “It’s worth it,” says Drakesmith. “We don’t want to hurt our compromised patients.”

That attitude is widespread. The housekeeping staff is “really engaged,” says Romine. “They feel it’s a better process and they are proud of it. It is their way of making a difference for patients.”

To benefit more patients, the hospitals are actively promoting their bundle to the entire 20-hospital SSM system. They made a presentation about their C. diff effort at a SSM showcase and now are working with other hospitals to share best practices. As part of the effort, they are helping to standardize how data is collected across the health system.

**CONTINUAL IMPROVEMENT**

In its search for new insights about beating this bacterium, the hospitals treat any C. diff infection that causes significant morbidity or mortality as a sentinel event, following Joint Commission guidelines. They are investigated by the hospitals’ sentinel event committees and the C. diff team, and the root cause analysis is shared with all staff.

“The next step is to take advantage of the new electronic health record system (EHR),” notes Hinrichs. The hospitals plan to build alerts in the EHR, that was installed in late 2008, to help physicians prescribe the recommended medications and follow guidelines for antibiotic duration.

Following a suggestion by the nutrition department and supported by a journal study on the promising benefits to C. diff patients, SJHW and SJHC are increasing the use of foods with probiotics. C. diff patients older than 50 without other exclusions are given DanActive twice a day and the staff recommends C. diff patients continue eating it after they are discharged.

“Our fragile population is still affected. We can’t really relax our efforts,” notes Hinrichs.