

**Reducing Total Joint Replacement SSI: A focused initiative overcomes challenges**

*Palmetto Health, Midlands region, South Carolina; 7 facilities, approx. 1,500 beds, more than 1,000 physicians*



Anne Brittain, PhD

At **Palmetto Health**, a large integrated health care system in South Carolina, reducing its rate of total joint replacement surgical site infections involved a concerted plan. This effort faced a significant challenge when the number of surgeries suddenly tripled due to the addition of a new orthopedic group, but the hospital system was able to overcome the challenge.

The effort began in August 2011. **Anne Brittain**, PhD, RT(R)(M)(QM)CPHQ, FASRT, a quality improvement project manager for Palmetto Health, was on a team that realized the biggest commonality of patients who developed SSI after a knee or hip replacement surgery was their failure to attend total joint class, a session where educators cover the entire perioperative process from preparation for surgery through recovery, pain management, physical therapy and more. They made this discovery after a literature review and retrospective drilldown into data on SSI patients.

**Improving Pre-op Health Optimization**

The first step, Brittain explained, was to standardize the total joint class. At the time, classes were offered on two different campuses, with dissimilar content and different teachers. Now, Palmetto Health has the same person teach all the classes, ensuring a consistent message. Classes are offered once a week at different campuses.

The next step was to examine the patients' preoperative health. They discovered that patients who developed SSI tended to smoke, be overweight, have out-of-control diabetes and had not attended joint class. In response, "we created a preoperative health optimization program and shared that with our physicians' offices," Brittain said. It was successful because "it was a huge thing for our physicians to realize how much what they said mattered to patients. When the surgeon says 'You have to go to joint class,' they go to class." Palmetto Health works with patients to help them stop smoking, lose weight or take other action to improve their preoperative health.

The third step was moving the pre-op appointment (PAT) to **two weeks** before surgery, instead of two days before or even the day of. After this change in process, 97 percent of total joint patients had their PAT appointment two weeks ahead; anesthesia staff also saw and cleared them at this time, virtually eliminating day of surgery cancellations.

**A Bump in the Road**

The program was running smoothly, and total joint SSI rates had dropped. But two years into the project, the hospital staff learned that a 19-surgeon orthopedic group would be joining their system in 90 days. "We had a really rapid timeline to try and ramp up to be ready for this increased volume," Brittain said. Of the 19 surgeons, three conducted total joint surgeries.

In anticipation of the change, the hospital system added new staff, but there wasn't time to get the three new total joint surgeons and staff up to speed with Palmetto's processes and practices. The number of total joint surgeries tripled—from an average of 22 knee surgeries and 16 hip surgeries a month to 77 knee surgeries and 47 hip surgeries a month. All of this increased volume soon had an effect: PAT visit percentages decreased, fewer patients were completing the recommended preoperative health optimization program and infection rates increased.

**Finding a Solution**

After seeing the rise in infection rates, "our senior leaders got involved," Brittain said. "We called a meeting of all the total joint surgeons," including the ones new to Palmetto Health.

At the meeting, Brittain and her colleagues shared their data and described their efforts. "We shared the history of our program, what we did and how it had worked," she said. After further discussion, the surgeons were on board. "The surgeons took this challenge on," she said. "We've put in place a lot of processes." That work has paid off. Class attendance has doubled, PAT visits are back around 95 percent and SSI rates are around 1 percent for both hips and knees, including complex revision patients.

Palmetto Health also recently implemented prohibitive criteria. Patients with an A1c of greater than 7.5, a BMI greater than 45, or who currently smoke, for example, are not eligible for surgery until those conditions are corrected. The preoperative health optimization program has been expanded to ensure patients can be successful. A huge key to this success was a strong physician champion from within the group, according to Brittain.

In summation, Brittain said, "We have found the key to excellent total joint program outcomes is having a patient who is engaged, well-educated and in the best health possible prior to surgery."