

# Safety program for surgical patients sharply drops surgical site infections

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Surgical site infections (SSIs) in patients undergoing colorectal operations were reduced by 61 percent in less than two years in Hawaiian hospitals participating in the Agency for Healthcare Research and Quality (AHRQ) Safety Program for Surgery, according to new study findings published as an "article in press" on the website of the *Journal of the American College of Surgeons* ahead of print.

Despite widespread efforts to rein in SSIs, this postoperative complication remains common, accounting for about 20 percent of hospital-acquired infections, according to the Centers for Disease Control and Prevention. Infection of the [surgical site](#) prolongs hospital stays, raises health care costs, and increases risk of serious illness and death.

"It's a major problem because half of the patients in our hospitals have an operation, putting them at risk for infection afterwards," said study coauthor Julius Cuong Pham, MD, Ph.D., an associate professor at Johns Hopkins University School of Medicine, Baltimore, and a patient [safety](#) officer at The Queens Medical Center, Honolulu, Hawaii. "And a colorectal operation is a procedure with one of the highest rates of surgical site infection."

To help address this issue, researchers from Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality, Baltimore; University of Hawaii, Honolulu; and University of California, San Francisco evaluated the effectiveness of AHRQ's Safety Program for Surgery in all

hospitals across Hawaii, the first time the program has been implemented at a state level.

This 15-hospital collaborative was part of a larger AHRQ-funded effort to improve surgical care nationwide. Between January 2013 and June 2015, health care teams in hospitals across Hawaii implemented AHRQ's Comprehensive Unit-based Safety Program (CUSP), as well as their own customized interventions. CUSP is an innovative program that uses feedback from frontline providers to improve surgical teamwork and patient safety.

The study's aim was to reduce colorectal SSIs and improve [hospital](#) safety culture. Multiple clinical interventions were implemented, specifically chlorhexidine wash before procedures, proper use of appropriate antibiotics, and standardized post-surgical debriefing. Non-technical skills for improving the safety culture involved better communication, teamwork, and decision-making strategies.

Two years after the start of the project, researchers found that the colorectal SSI rate for the collaborative decreased from 12.08 percent to 4.63 percent. The 61.7 percent reduction in colorectal SSIs seen is the greatest state-level reduction reported, the study authors noted.

"With this collaborative, we created a platform that allowed diverse types of hospitals to come together and accelerate learning and change," said lead study author Della M. Lin, MD, MS, an anesthesiologist in the department of surgery, University of Hawaii. "By not working in silos, we were able to accelerate the reduction in [surgical site infections](#) faster and perhaps more effectively than hospitals could do by themselves."

At the same time, safety culture improved in 10 of 12 categories, as measured by the AHRQ Hospital Survey on Patient Safety Culture. Areas of improvement included teamwork across units, communication-

openness, and overall perception of patient safety.

Nationally, AHRQ's survey tool showed (in 359 hospitals) the average change across these 12 [patient safety](#) culture domains was one percentage point between 2012 and 2014. In this collaborative, however, the average score across the 12 categories improved by more than five percentage points.

This outcome is significant because changes in safety culture, especially using AHRQ's survey tool, are not common, and especially in the perioperative area, according to Dr. Pham.

The research is important for several reasons. This study highlights the fact that this program can be scaled up to a state level and likely to a health system level, according to Dr. Pham. "We already know that one or two hospitals can succeed at changing their safety culture. But it has never been done on a state level before."

Additionally, the results are durable. "Since the Hawaii collaborative has ended, the infection rates are continuing to stay at these low rates, so that gives us some satisfaction knowing that there is sustainability in these remarkable results," Dr. Lin said.

"Instead of working in isolation, we are creating a space for all hospitals within the state to leverage not just the national work but also each other for more powerful results," Dr. Lin said. "This study is unique because it demonstrates how teams actually can get better ideas and results by synthesizing and harvesting the work together. The Hawaii collaborative continues as Hawaii Safer Care, applying what we've learned to future projects such as enhanced recovery after surgery protocols."

**More information:** Della M. Lin et al. Statewide Collaborative to Reduce Surgical Site Infection: Results of the Hawaii Surgical Unit-

based Safety Program, *Journal of the American College of Surgeons* (2018). [DOI: 10.1016/j.jamcollsurg.2018.04.031](https://doi.org/10.1016/j.jamcollsurg.2018.04.031)

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