

New approach to colorectal surgical care results in quicker recovery times and lower costs

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A new multidisciplinary approach to managing patients undergoing a colorectal operation results in shorter hospital stays, fewer complications, and lower medical costs, according to research results published online in the *Journal of the American College of Surgeons*. The study will appear in a print edition of the *Journal* this spring.

Currently, patients undergoing a colorectal operation remain in the hospital for five to 10 days, and often experience significant pain and complications. In an effort to improve these outcomes, researchers at the University of Virginia Health System (UVA-Health), Charlottesville, developed a standardized approach for colorectal surgical care. The program, based on the principles known as enhanced recovery, incorporates proven practices that lead to faster recovery into the preoperative, intraoperative and postoperative phases of surgical patient care. UVA-Health is a participant in the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP).

This approach enables patients to become engaged in their own care from the start. Nurses provide surgical patient educational materials, checklists, and counseling prior to an operation. Moreover local anesthesia modalities such as intravenous lidocaine infusion and spinal anesthesia are used instead of opioids like morphine during and after an operation, which can have harmful side effects. Patients are encouraged to eat and get out of bed and start walking as soon as possible after the

operation.

"The key to our success is that we brought everyone who cares for these patients together, including anesthesiologists, nursing staff, pharmacists, nutritionists, and we coordinated every detail of their care," said study coauthor Traci Hedrick, MD, FACS, assistant professor of surgery. "This recovery plan was a quality initiative right from the start."

For the study, Dr. Hedrick and colleagues analyzed data from 207 consecutive patients at UVA-Health undergoing elective colorectal operations before and after the enhanced recovery protocol was implemented. One hundred nine patients were studied in the enhanced recovery group, and 98 in the conventional group.

The primary outcome was risk-adjusted length of stay, with the investigators using the ACS NSQIP Surgical Risk Calculator to estimate expected length of stay. After implementing the protocol, the surgical team found that length of hospital stay decreased by 2.2 days, overall complication rate decreased 17 percent and patient satisfaction scores with pain control increased 55 percent.

In addition, the study results showed that using the enhanced recovery approach reduced health care costs by as much as \$7,129 per patient, corresponding to a total cost savings of more than \$700,000 in the enhanced recovery group.

With a before and after study design, there is always the possibility that the patients in the study might not be similar. The researchers did note that a limitation of the study was in the before and after study design. Well-designed randomized controlled trials, where half the patients are treated with standard care the other half are treated with the new protocol or treatment, are considered the gold standard.

In order to stratify risk, the researchers entered all patient information into the NSQIP risk calculator, which then provided a predicted length of stay for each patient. "We were actually able to prove that the predicted length of stay was the same for both groups, indicating that both groups were very similar and that the comparisons were accurate," Dr. Hedrick said.

Further, researchers demonstrated that before their protocol was initiated patient stays were on average 1.6 days longer than the NSQIP predicted length of stay, but after the new standardized model of care was implemented patient stays were about a half day below the NSQIP predicted length of stay.

"We are now working to implement a similar protocol for other surgical specialties, as well as looking for additional ways to further improve our outcomes and patient experience," Dr. Hedrick said. "This study shows just how successful small investments can be at raising the quality of care for patients."

The researchers would like to see this protocol for colorectal surgical care adopted nationwide. "I think in five years this will be the standard way that we are managing patients, because the results are so dramatic," Dr. Hedrick said. "It provides higher quality at lower cost, which is the ultimate goal."

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