Acute Care Surgical Model Improves Quality of Care, Lowers Costs

An acute care surgery model led to improvement in the quality of surgical patient care and reduced the cost of emergency surgical care at Loma Linda University Medical Center, report researchers who published their findings in the November issue of the Journal of the American College of Surgeons. “Our surgical team is one of the first to address the cost of care in an acute care surgical setting,” said Nephtali Gomez, MD, study co-author and instructor in general surgery. "The single most significant finding of our study is that it is possible to improve patient outcome, while at the same time reducing the cost of care,” Dr. Gomez said.

The authors explain that the acute care surgery service model was designed to combine trauma and emergency general surgery divisions into one 12-hour in-house shift service and was implemented on July 1, 2010, at their institution. The authors report that this new model “replaces the traditional model whereby non-trauma patients needing emergency surgical care had to wait for the general surgeon on call, who was usually preoccupied with other activities, such as office consults or elective surgery, which often occur outside of the hospital. This resulted in delays of the evaluation and treatment of these critical patients.” Additionally, the weekend shift for general surgeons spanned 72 hours with the backup surgeon being the trauma surgeon covering what was a separate service at that time and resulted in an extremely strenuous call.

The researchers compared patient outcomes and cost of operations performed in an acute care setting with a traditional surgical care model in patients undergoing appendectomy and cholecystectomy (surgical removal of the gall bladder) procedures, which are two of the most common surgical emergencies in the U.S. An estimated 280,000 appendectomies and 120,000 cholecystectomies are performed annually. Researchers found that patients benefited significantly from earlier surgical evaluation, earlier surgical intervention, earlier recovery and earlier return to home in the acute care model, compared with the traditional model.

In the traditional model, researchers reported the mean cost for each patient undergoing appendectomy was $8,942.00 compared with the acute care surgery model of $7,018.00, a cost savings of $1,024.00 per patient. For each patient undergoing cholecystectomy, the cost saving was a significant $3,225.00 in the acute care surgery model, according to researchers, who reported the cost for the traditional model was $13,128.00 compared with $9,903.00 in the acute care surgery model. The acute care surgery team, combining trauma procedures and general surgical procedures, also has an impact on the training and education of surgeons, according to Dr. Gomez.

“It will be part of the post-residency training of the new generation of critical care surgeons,” he said. “As more institutions turn to the acute care model, medical

centers will be looking for surgeons who have background and training in the acute care surgery model." A movement that started a few years ago, "the acute care surgery model is definitely now a trend, as more and more medical centers switch to the acute care model, especially since the initiation of fellowships in acute care surgery," Dr. Gomez said.

The improved timeliness of care, from surgical evaluation to length-of-stay in the hospital is key to the acute care surgery model, according to the authors. It reorganizes the use of trauma and general care surgeons into one seamless team of surgeons who work 12-hour shifts, eliminating 24-hour on-call and other clinical duties, that allow the surgeons to be immediately available. In the appendectomy patient groups, the time to surgical evaluation was 6.6 hours in the traditional model, while the acute care model reduced that time by two hours. The time to the operating room was 16 hours in the traditional model, while the acute care model reduced that time to 11 hours. The length of hospital stay was shaved from 2.8 days to 1.8 days with the acute care model, a reduced length-of-stay of about one day.

As the authors state: "These reductions in time translated into fewer patients with complications and substantial savings for each case and overall better outcomes in the acute care surgery group." In the cholecystectomy patient groups, the acute surgical care team significantly reduced the time to surgical evaluation by 5.84 hours and significantly reduced the time to the operating room by 25.37 hours, according to the researchers who also found fewer patients developed complications and length of hospital stay was two days less than with the traditional team.

The acute care surgery model means the trauma surgeon will cover both general surgical emergencies and trauma operations, thus reducing the team to two surgeons, one on call and one as back-up, who are more effectively rescheduled instead of three surgeons. "Reducing the cost of care while improving the outcome of patient care means that there is hope and room for improvement in the delivery of health care, especially surgical care," Dr. Gomez said. "Our findings should encourage other institutions to implement an acute care surgery model," he said.

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