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Educating surgeons on intraoperative disposable supply costs during laparoscopic cholecystectomy: a regional health system's experience

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Abstract

BACKGROUND: Surgeons play a crucial role in the cost efficiency of the operating room through total operative time, use of supplies, and patient outcomes. This study aimed to examine the effect of surgeon education on disposable supply usage during laparoscopic cholecystectomy.

METHODS: Surgeons were educated about the cost of disposable equipments without incentives for achieved cost reductions. Surgical supply costs for laparoscopic cholecystectomy in fiscal year (FY) 2013 were compared with FY 2014.

RESULTS: The average disposable supply cost per laparoscopic cholecystectomy was reduced from $589 (n = 586) in FY 2013 to $531 (n = 428) in FY 2014, representing a 10% reduction in supply costs ($P < .001$). Adjustments included reduction in the use of expensive fascial closure devices, clip appliers, suction irrigators, and specimen retrieval bags.

CONCLUSIONS: Disposable equipment cost for laparoscopic cholecystectomy can be reduced by surgeon education. These techniques can likely be used to reduce costs in an array of specialties and procedures.

The financial realities facing hospitals, including rising costs and lowered reimbursements, make value essential in all operations. The shift toward coordinated care, risk sharing, bundled payments, and a higher percentage of the patient pool supported by government insurance all necessitate tight cost controls to maintain positive margins. In financial shortfalls, the least profitable divisions typically sustain the brunt of cutbacks, regardless of their inherent value in providing care. Although many will debate the best path to confront the challenges facing the healthcare

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industry, all will agree that costs need to be carefully controlled.

The operating room (OR) plays a major role in a hospital's financial performance. A well-run OR has a tremendous opportunity to drive revenue; however, an inefficiently run OR can prove detrimental. Surgeons play a crucial role in the cost efficiency of the OR through total operative time, use of supplies, and patient outcomes. During operations, surgeons must decide what equipment is necessary to provide the highest quality of care for the patient, and these decisions can be made without consideration of the cost of the supplies. There is a tremendous opportunity to reduce the cost of many operations without compromising care if surgeons consider the cost of supplies in decision making. This requires surgeons to be well educated regarding the cost of equipment and available alternatives and to embrace the responsibility of their unique role in controlling OR costs.

In a 2012 study, it was observed that by simply distributing a price list containing laboratory and radiology costs to resident physicians, significant cost savings could be realized in an emergency room setting.[1] In this study, we hypothesized that meaningful cost reductions would occur if surgeons were educated about their disposable supply usage during common general surgery operations such as laparoscopic cholecystectomy.

Methods

Study design

This was a hypothesis-driven study to reduce disposable supply usage in the OR. This study did not constitute as human subject research and therefore did not require Institutional Review Board approval. In July 2013, 3 members of the department of surgery discussed avenues for improvement, standardization of procedure technique and equipment, and general strategies to reduce cost due to disposable equipment in the OR. Several common operations were identified for cost savings such as laparoscopic cholecystectomy, laparoscopic appendectomy, laparoscopic colectomy, and laparoscopic and open inguinal hernia repair. In September 2013, the purchasing department provided disposable supply costs and usage figures for fiscal year (FY) 2013. The costs included in this study represent hospital incurred costs that were collected using an OR equipment accounting system. These data were reviewed by the surgeons to identify the most common disposable supply discrepancies among surgeons and to prioritize changes that could be made without compromising care.

In October 2013, 2 surgeons presented a summary of cost data to the divisions of general surgery and surgical oncology for 3 common operations: laparoscopic cholecystectomy, laparoscopic appendectomy, and open inguinal hernia repair. The presentation was intended to inform surgeons of the variable costs incurred in the OR and to illustrate how surgeon preference can significantly impact the total cost of a procedure. The information provided to each surgeon included the following:

1. Average disposable equipment cost per case across department
2. Average disposable equipment cost per case, by individual surgeon, compared with the department average (surgeons only received their cost and their peers remained anonymous)
3 List of the most expensive disposable items used for these operations, including energy devices, endomechanical devices (staplers and clip appliers), specimen bags, and fascial closure devices
4. List of commonly used expensive devices with alternative cost-effective options (Table 1)
5. Strategies to reduce one's individual costs by exchanging certain expensive items for less expensive ones without compromising the quality of the operation

At the conclusion of the meeting, surgeons agreed to attempt cost reduction without compromising care for the first quarter of FY 2014. An updated presentation was planned for the end of the first quarter FY 2014 to provide feedback for every surgeon on their progress.

Data collection

This study specifically pertains to the outcomes of a surgeon-led initiative to reduce the cost of laparoscopic cholecystectomy. Data were retrospectively collected from October 1, 2012 to June 30, 2014, which aligns with FY 2013 and the first 3 quarters of FY 2014. Data were collected year over year pertaining to average cost per case by surgeon, operative times, and patient outcomes. At the time of this writing, fourth quarter FY 2014 was unavailable, so to allow comparisons all FY 2014 data will be

Table 1 Sample supply cost data provided to surgeons for laparoscopic cholecystectomy

Commonly used		Alternative option	
10-mm disposable clip applier	$83	Pack of 10-mm plastic clips	$32
5-mm disposable clip applier	$172	Pack of 5-mm plastic clips	$32
Carter–Thomason fascial closure device	$110	Endo Close fascial closure device	$22
Battery-powered suction irrigator	$48	Regular suction irrigator	$32
Specimen retrieval bag	$55		