Streamlining variability in hospital charges for standard thyroidectomy: Developing a strategy to decrease waste

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Background. *We assessed the efficiency, consistency, and appropriateness of perioperative processes for standard (total) thyroidectomy and devised a valuable strategy to decrease variability and waste.*
Methods. *Our multidisciplinary team evaluated <23-hour stay standard thyroidectomy performed by 3 surgical endocrinologists. We used the nominal group technique, process flowcharts, and root cause analysis to evaluate 6 perioperative processes. Anticipated decreases in costs, charges, and resources from improvements were calculated.*
Results. *Median total charge for standard thyroidectomy was $27,363 (n = 80; $48,727 variation). Perioperative coordination between surgery and anesthesia clinics could eliminate unnecessary testing (potential decrease in charges of $1,505). Nonoperating room time was less in the outpatient operating room (43 vs 52 minutes; P < .001). Consistent scheduling could decrease charges by $585.49 per case. By decreasing 20% of nondisposable instruments on the surgical tray, we could decrease sterile processing costs by $13.30 per case. Modification of postoperative orders could decrease charges by $643 per patient. Overall, this comprehensive analysis identified an anticipated decrease in cost/charge of >$200,000 annually.*
Conclusion. *Perioperative process analyses revealed wide variability for a single, presumed uniform procedure. Systematic assessment helped to identify opportunities to improve efficiency, decrease unnecessary waste and procedures/instrument usage, and focus on patient-centered, quality care. This multidisciplinary strategy could substantially decrease costs/charges for common operative procedures. (Surgery 2014;156:1441-9.)*

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Health care cost containment is essential. Developing a value-based health care system that focuses on the quality of patient outcomes relative to the dollars spent is paramount. A recent study described how the 6 categories of waste—overtreatment, failure of coordination of care, or failures of care delivery (eg, failure to adopt known best practices), administrative complexity, pricing failures, and fraud and abuse—accounted for an estimated 21–47% of total 2011 US health care expenditures.[1]

Intermountain Health Care in Utah and Idaho has demonstrated how process improvement can increase value. Health system leaders developed an Advanced Training Program so clinicians could learn about and implement W. Edwards Deming's process management theory to decrease process variation. The health system has been able to increase value in several major process areas.[2]

In 2005, the University of Texas MD Anderson Cancer Center established a Clinical Safety and Effectiveness Quality Improvement curriculum to in the words of Dr. James Brent, "integrate quality and safety concepts into the way we do our work every day and enhance organizational knowledge through disseminated successful practices." In this context, we assessed the efficiency, consistency, and

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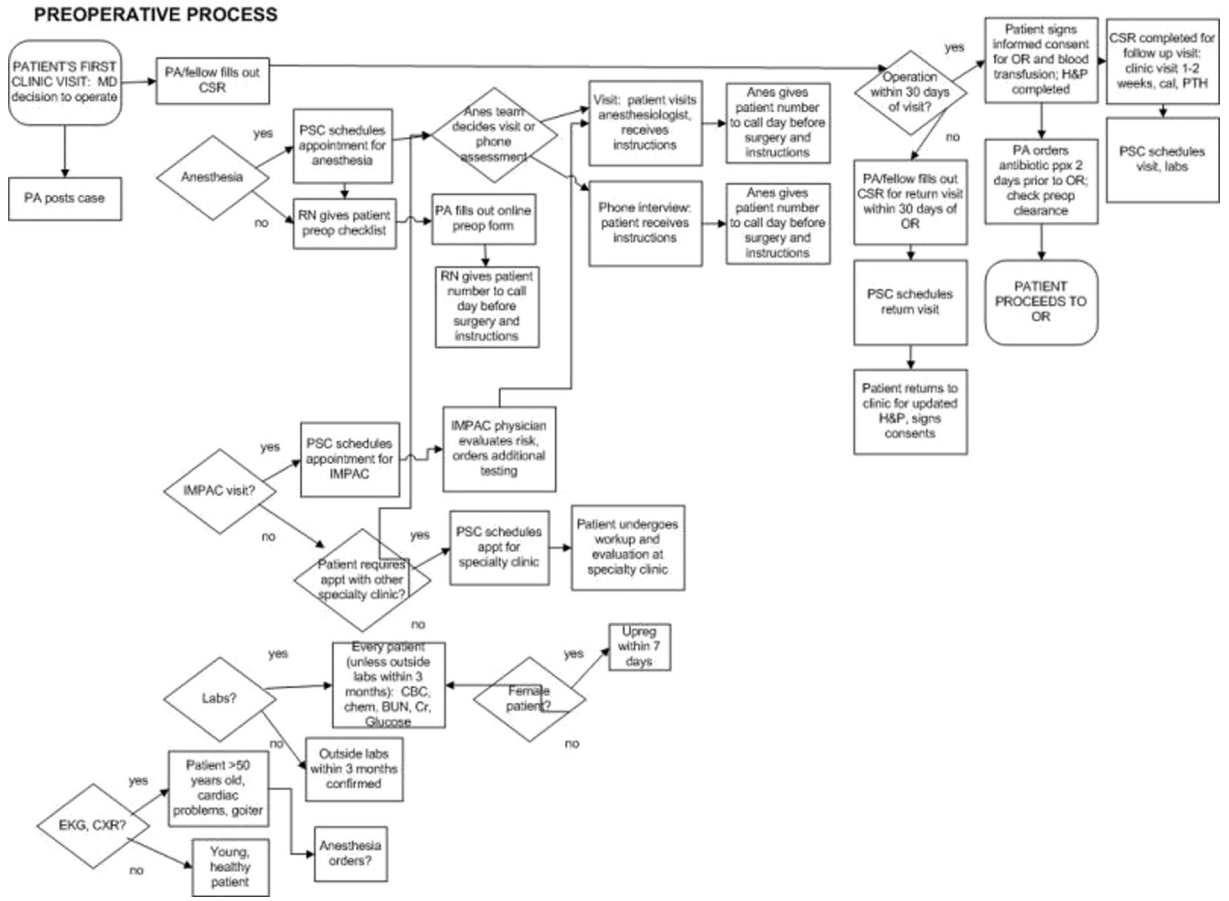

Fig 1. This sample process flowchart developed for the preoperative process highlights each patient and employee step between the decision for surgery and the patient's arrival in the preoperative area on the day of operation. Our group created similar flowcharts for each of the 6 process areas to identify redundant steps and create a clinical pathway. *CSR*, Central scheduling record; *IMPAC*, internal medicine preoperative assessment clinic; *PA*, physician's assistant; *PSC*, patient scheduling coordinator.

appropriateness of perioperative processes for a commonly performed procedure: Standard (total) thyroidectomy. The purpose of our project was to decrease waste and variability in charges. We present a descriptive report of our methodology, areas of waste reduction, process efficiency, and anticipated savings. Although costs and charges do not reflect actual savings, we have included monetary values to establish a quantifiable baseline for change. We offer tactics that are applicable widely to any surgeon's commonly performed procedures.

METHODS

We formed a multidisciplinary team that included endocrine surgeons (LFM and NDP), an anesthesiologist (JC), mid-level providers (JSB and MO), operating room (OR) and postanesthesia care unit nurses, a clinical business manager, a patient, and an industrial and systems engineer facilitator (CB). We undertook a systems engineering-based study of 6 perioperative processes: Preoperative clinic, preoperative holding area, OR, postanesthesia care unit, overnight observation, and postoperative clinic. This project was performed from the perspective of the hospital.

Baseline data were obtained from a clinical informatics report for all patients who underwent total thyroidectomy between January 1, 2011, and December 31, 2011. The following data were included: Hospital, professional, and total charges; surgeon; OR time (room entry to room exit); operating time (incision to closure); procedures performed; use of a hospital-employed first assistant; and duration of hospital stay. Additional information gleaned from the electronic medical record included procedure setting, thyroid pathology (benign versus malignant), and complications.

We defined standard thyroidectomy as total thyroidectomy performed by 1 of 3 endocrine surgeons within surgical oncology. All patients