Reducing Instrumentation in Major Operating Room Sets for Abdominal Colectomies and Proctectomies at University of Texas M. D. Anderson Cancer Center

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About University of Texas M. D. Anderson Cancer Center

• Located in Houston
• Cancer treatment and research center with 510 beds and 17,000 employees
• Project initiated in the Department of Surgical Oncology
The Project Team

- John M. Skibber, M.D. (Surgery) **Leader**
- Garrett Walsh, M.D. (Surgery) **Facilitator**
- Vijaya Gottumukkala, M.D. (Anesthesiology)
- Carla P. Willis, R.N. (Nursing)
The Problem

• Excessive amounts of instruments complicate the count process and may have a negative impact on patient safety in the operating room.

• Before the project, one major instrument set was routinely provided for all major abdominal/pelvic cases in M. D. Anderson Cancer Center’s Department of Surgical Oncology. Many instruments were not used in the surgeries.

• Because of the great number of instruments in a set, there is a greater chance of counting errors, which can lead to retained foreign objects.

• Reducing the number of instruments on the surgical field may yield cost savings of labor and instrumentation.
Project Goals

• To reduce the number of instruments in major operating room sets by at least 50 percent over a four-month period (October 2005–January 2006) for abdominal colectomies (removal of a portion of the colon) and proctectomies (resection of the rectum).
Root Cause Analysis

- The team tracked the types of incorrect counts for two days of surgery. Of 148 incorrect counts, 91 dealt with instruments and 31 involved needles.
- Reasons for incorrect counts included:
  - Not enough time
  - Opening too many supplies
  - No standard method of counting
  - Nurses feel rushed
  - No team effort
  - Inattentiveness
Root Cause Analysis (cont’d.)

Competency
- Larger # of instruments detract from paying attention to the patient and surgeon
- Training time for nurses, techs and sterile processing staff

Instrument Quality
- Set completeness more likely for smaller sets
- Control review process for set content
- Repeated reprocessing shortens lifespan of instrument
- Surgeon: a. RN trips to core b. unavailable items
- Cost
- OR Culture
- Preference cards
- Surgeon preferences
- Cost
- a. Trips to core b. Shift change communication c. Impact of surgeon dissatisfaction
- Nursing: a. Trips to core b. Shift change communication c. Impact of surgeon dissatisfaction
- Sterile Processing
- Anesthesiology
- Ergonomics: a. lighter sets

Satisfaction

Cost
- OR Time
- Potential to "lose" instruments
- Labor-Techs
- Labor - Nursing
- Labor-Sterile Processing
- X-rays at end of case
- Net margin/case
- Space: a. Sterile Processing b. Operating Room

Safety
- Communication of count at shift change
- Anesthesia Time
- Retained foreign bodies
- Ergonomics: a. lighter sets
- Staff Distractions
- Anesthesia Time
- Count Accuracy
- Net margin/case
- Space: a. Sterile Processing b. Operating Room

Too many instruments opened/unused
Addressing Root Causes

- Nurses and surgical technicians surveyed surgeons’ instrument use in 12 cases.
  - Many instruments were opened, counted, and then not used.
  - There was very little variation in instrument use among the three surgeons that were part of the project team.
- The surgeons agreed on a proposed set comprising any instrument they had used even once during the 12 cases surveyed.
- Over the course of the project, the team reduced the number of instruments used in proctectomies from 158 to 83, a 47.5 percent reduction. Instruments used in colectomies were reduced from 200 to 93, a 53.5 percent reduction.
Return on Investment

- It was estimated that instrument processing time would be reduced by 46 percent for proctectomies and 51 percent for colectomies based on the projected procedures volume for Fiscal Year 2006.
- Labor costs per case were reduced by 46 percent for proctectomies and 51 percent for colectomies.
- Along with the reduction in items, there were also savings in labor, supplies, and sterilization cost.
Monitoring and Evaluating Over Time

• After implementation of the reduced sets, the team documented instances where additional instruments were needed and made adjustments to the sets.

• The Perioperative Enterprise has expanded the project to look at other surgical sets.
  – For example, a cart with instruments and supplies for a mastectomy had 108 line items with total quantity of 148 pieces before improvement.
  – Now the cart has 20 percent fewer line items with a reduction of 34 percent in total quantity of pieces.
Instrument Set for a Colectomy Before and After Project

Colectomy

Current Set: 93 Instruments

Original Set: 200 Instruments
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