CAS 2024
Economics Abstracts

Contents

Initiation of a prehabilitation program at a tertiary care centre: an economic analysis

Submission ID

85

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INTRODUCTION

The average age and comorbidity burden of our surgical population is increasing. Older, more comorbid, patients are at increased risk of postoperative complications. These complications are significant causes of morbidity and mortality.[1] Postoperative complications also increase length of stay and need for additional treatment, thereby increasing the cost of perioperative care.

Prehabilitation is a multimodal intervention to optimize patients prior to surgery. Prehabilitation aims to reduce the incidence and severity of postoperative complications, particularly in high-risk surgical populations. Prehabilitation is therefore expected to result in postoperative cost savings.

Our aim was to assess the cost impact of our prehabilitation programme on two high volume, high risk surgical populations at a large tertiary academic hospital: patients undergoing major gynae-oncological procedures and patients undergoing radical cystectomy. Prehabilitation domains that were focused on during this period were anemia, smoking cessation, glycemic control, sleep apnea and cardiac risk stratification.

METHODS

Six months of data were extracted from existing NSQIP data for the control group (December 2017–May 2018) and from existing REDcap data for the prehabilitation group (December 2019–May 2020). Major gynae-oncology was defined as open hysterectomy with or without BSO, lymph node dissection or omentectomy. Radical cystectomy was defined as open cystectomy.

Baseline demographics recorded included age, body mass index, American Society of Anesthesiologists Physical Status class, smoking status, diabetes mellitus (yes/no) and anemia (yes/no).

National Surgical Quality Improvement Program (NSQIP) outcome data were extracted. Where readmission or reoperation occurred, review was undertaken to establish the reason for readmission and the nature of re-operation.

The NSQIP complications were tallied and converted into percent incidence. The cost per patient was calculated based on percent incidence and cost per complication. Costs were taken from the Canadian Institute for Health Information calculator.

For reoperations and readmissions an average of the costs associated with each re-operation or readmission respectively was calculated. This was then converted to a per patient cost, as described above.

The cost per patient for each of the outcomes were summed and the total costs per patient between control and prehabilitation groups compared.

Costs for implementation of the programme were taken from an assessment performed as part of a provincial collaborative.

RESULTS

Gynae-oncology

There were 112 patients in the control group (C) *vs* 42 patients in the prehabilitation group (P). Median age was 61 yr (C) *vs* 62.5 yr (P). Other baseline characteristics were equivalent. The cost saving generated by prehabilitation was $814/ patient, driven by a reduced readmission rate.

Radical cystectomy

There were 42 patients in the control group and 21 patients in the prehabilitation group. Median age was 71 yr (C) *vs* 67 yr (P). Other than age, baseline characteristics were equivalent. The cost saving generated by prehabilitation was $5,097/ patient, driven by reductions in surgical site infections and reoperations.

A provincial collaborative with 11 other hospitals assessed the costs of prehabilitation at $54–$1,789 per patient. We estimate our costs to be at the lower end of this range; our centre had high patient numbers, no new services were created, and no additional staffing costs were incurred.

DISCUSSION

Our centre demonstrated net cost savings from prehabilitation for radical cystectomy and major gynae-oncology procedures, after accounting for implementation costs.

Strengths of this study are that we are a high-volume centre (90% of provincial caseload for both procedures), and baseline demographics were similar in control and prehabilitation groups. Because of the single-centre nature of the study data, it is more likely that the savings seen are attributable to the prehabilitation intervention.

Small sample size in the prehabilitation groups reflected the difficulty of screening the patients and initiating prehabilitation a minimum of three weeks prior to their date for surgery.

REFERENCES

No references.

Where's my laryngeal mask airway?

Submission ID

96

AUTHORS

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INTRODUCTION

Laryngeal mask airways (LMAs) are medical airway devices used in the provision of anesthesia but also as rescue devices in emergencies. Our hospital uses reusable LMAs to reduce excess waste and minimize environmental impact. Recurrent shortages of LMAs, despite being reusable, led to surgical delays as staff searched for LMAs and almost $10,000 in annual costs to the surgical program to replace missing LMAs. Our project sought to understand the causes for the missing LMAs and develop a process to reduce shrinkage which would help reduce costs for the hospital and surgical program.

METHODS

A process map was made with the key stakeholders. This included staff from: Department of Anesthesia (DOA) (users), nursing (collecting used LMAs), housekeeping (transporting used equipment for reprocessing), Medical Device Reoricessing Department (MDRD) (reprocessing devices and restocking supply) and hospital administration (ordering). Potential causes were identified that included: an inconvenient storage location for LMAs that promoted hoarding and inconsistent practices by DOA members for used LMA's. These practices included wrapping used LMAs in sterile towels (MDRD's workflow was to place towels in the linen cart and nonlinen material was thrown out) and placing used LMAs in plastic bags (the cleaning staff believed the bags were garbage). Ultimately, the root cause was determined to be the product design of the LMAs themselves. Despite being a reusable product, the plastic LMAs looked disposable. New anesthesia staff and trainees would often dispose of LMAs after use. Meetings were then held with each stakeholder department to disseminate findings and problem solve solutions.

RESULTS

Our plan-do-study-act cycle began with stakeholder meetings in January 2021. The new process, developed from these meetings, was introduced to the various stakeholders again in meetings (early March 2021) and launched in late March 2021. Monthly meetings were had with the leads of each stakeholder group to obtain feedback and assess the effectiveness of the process. Monthly stock counts of LMA's were initiated in the OR. After eight months zero LMAs had gone missing. Compared with the annual re-orders of LMAs we saw a significant reduction in the number of LMAs that needed to be repurchased.

DISCUSSION

Previous efforts to improve this issue had focused on educating stakeholders that LMAs were not disposable. These efforts failed to appreciate the viewpoints and workflows of the various stakeholders. At a cost of $250 for each LMA this new process will result in significant cost savings for the hospital, around $10,000 annually. Some factors to quality improvement may seem out of your control (a product design that made a reusable product appear disposable) yet these factors can be mitigated through a collaborative process and creative thinking around process flow (placing LMAs in obviously nondisposable trays).

REFERENCES

No references.

Table Annual LMA re-orders and cost from 2016–2021