FINANCIAL OUTCOME STORY

Castle Rock Adventist Hospital
Centura Health

Quality Initiative Collaborative Leads to Reduction in Linen Usage and Overall Cost Savings

Laura Bergroth, MD, MBA

INTRODUCTION

The American Reusable Textile Association reports that approximately 2% to 3% of hospital budgets is allocated to linen services and management.[1] Interventions to reduce unnecessary linen costs include benchmarking and forming a linen committee.[1] Laundry outsourcing is a growing area of interest due to the increasing costs of labor, utilities, and equipment and maintenance.[2]

Laundry cooperative services are an option for hospitals that wish to outsource linen services. The Healthcare Laundry Accreditation Council (HLAC) provides an accreditation that inspects and accredits laundries processing textiles for hospitals, nursing homes, and other health care facilities. The accreditation ensures that cooperative facilities adhere to high standards for processing health care textiles and laundries.

The following outcome story describes how a linen reduction initiative at Castle Rock Adventist Hospital (CRAH) led to increased efficiency, cost savings, and clinical practice change.

METHODS

Clinical setting: This quality improvement (QI) initiative took place in the perioperative setting at a 47-bed hospital with 4 operating room (OR) suites.

Metrics: This outcomes story focused on the reported linen laundering data for the OR since these metrics have been available since 2016. A total of 2,949 surgeries were performed from November 1, 2016 to November 30, 2017. Additional clinical settings were included in the QI initiative starting in 2018.

Linen laundering data were collected on a monthly basis. Value analysis was also performed to determine the effect of the QI interventions. Before and after comparisons of linen usage and costs were calculated.

Interprofessional team: The Linen Reduction Committee consisted of department leads from clinical units, a wound ostomy care nurse, and a representative from environmental services.

Interventions: A Lean project was initiated by the supply chain to assess areas of inefficiency and identify hospitals that were not at a linen benchmark of 13.08 lbs of linen per adjusted patient-day.

- Nursing education was a focus of the linen reduction intervention, to ensure that unit leaders understood the number of linens to be stocked or placed in a room (standard room makeups) and the process for contacting environmental services for additional linens as needed.

METHODS *continued*

- Infection Control rounded with the nursing team to discuss appropriate disposal and laundering of products.
- Environmental Services was educated on appropriate bed makeup.
- CRAH signed an equipment usage agreement for the forced-air warming units with the incentive of a linen reduction guarantee.
- With the knowledge that use of a forced-air warming system and a disposable reflective blanket with diffusion technology helps reduce the need for warm bath blankets, clinical practices at CRAH changed to incorporate forced-air warming into perioperative hypothermia (PH) prevention efforts.

Forced-air warming: Perioperative hypothermia occurs when a patient's core body temperature decreases to less than 36°C during the surgical cut time.[3] PH is common during the induction of anesthesia, as a result of inhibited thermoregulation.[4] Patients who develop hypothermia experience an increased incidence of complications such as coagulopathy and cardiac morbidity.[3,4] Beyond the OR, research has shown that PH is associated with increased length of hospital stay, and patient satisfaction may be negatively affected by thermal discomfort.[5,6]

Forced-air warming devices: Forced-air warming devices were delivered to the OR on October 13, 2016. The device is indicated for use in the OR and intended to increase and maintain patient temperature by means of surface warming. The electrically powered forced-air warming device consists of a fan and heating element that propels warm air through a flexible hose and single-use disposable blanket draped over the patient. System features include the following:

- High-efficiency particulate air (HEPA) filter
- Reflective technology
- Diffusion technology

Education: Staff received education and in-servicing on the appropriate use of the forced-air warming devices in October 2016. Training was also provided on proper stocking, linen counting, reporting methods, and management of appropriate par levels, as well as process management for working with the linen cooperative to ensure that the hospital was operating within industry benchmarks.

RESULTS

The linen reduction QI initiative resulted in a 54% decrease in operating room linen usage in the OR (Figure 1) and a 47% cost savings (Figure 2). Overall hospital linen usage also decreased since 2016. It is important to note that patient outcomes remained unchanged.

RESULTS *continued*

Figure 1. Operating Room Linen Reduction

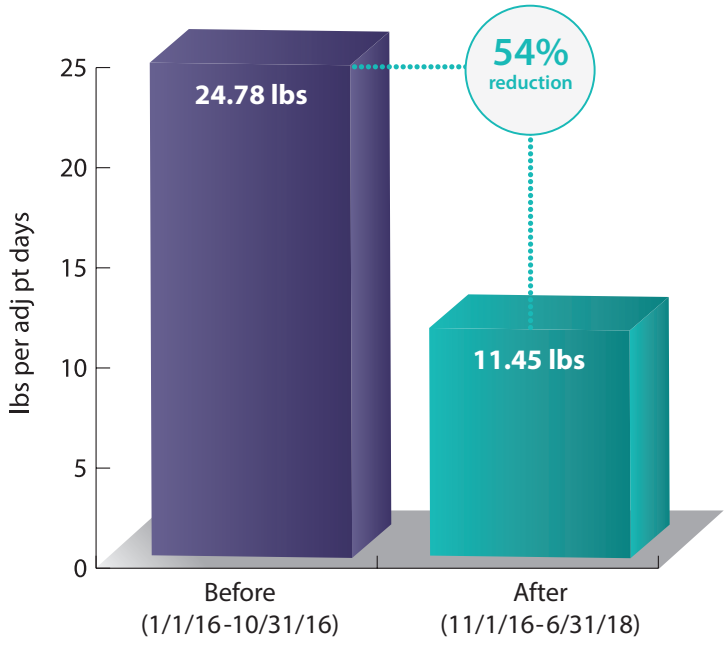
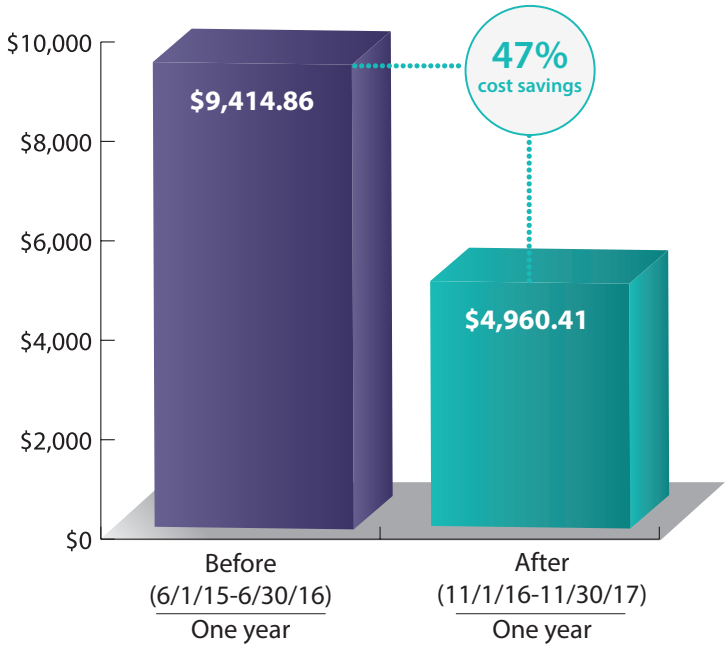


Figure 2. Operating Room Bath Blanket Cost to Launder



CLINICAL IMPLICATIONS

The linen-reduction initiative is ongoing. Evidence-based education and team collaboration resulted in process change and team buy-in to ensure that the hospital decreased unnecessary linen usage. The key takeaways from this outcome story are as follows:

- Buy-in from clinical staff is essential to the success of implementing new products/processes.
- Outsourcing linens to an HLAC-accredited linen cooperative helped track process efficiency via benchmarking and led to sustained linen usage reduction and value analysis for comparing units across systems.
- It is important to communicate the results of successful QI initiatives to clinical teams to ensure that they can see the effects of their actions.
- The success of this linen-reduction initiative led to clinical practice change incorporating use of a forced-air warming system.
- This was the trial department for the QI initiative and the forced-air warming system has now been added in the emergency department, labor and delivery, medical/surgical, and the intensive care units at CRAH. Data are currently being tracked, and the hope is to update this story to show continued reduction.
- Using the same initiative over the entire system or in facilities with larger ORs with a higher volume of procedures may result in proportional savings/reduction.

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