

INCREASING PERIOPERATIVE EFFICIENCIES CASE STUDY: THE SCARBOROUGH HOSPITAL

OR SUITES: 8 PLUS 2 CYSTO ROOMS

ANNUAL SURGICAL VOLUME: 21,613 PROCEDURES

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Background

Managing surgical supplies creates challenges for a hospital. Routine supplies, evolving surgical procedures and surgeon-specific preference requests have increased surgical preparation, case pick, inventory management time and costs.

Medline's exclusive Perioperative Supply Management Solutions helps facilities simplify their supply management world by using Lean methodologies to link people, processes and supplies for high-volume clinical procedures. By applying these principles, the program saves time and money, while improving overall supply-management efficiencies. This case study was conducted to demonstrate the outcomes achieved as a result of the program that was implemented.

The Scarborough Hospital has developed a strong culture of Lean. Lean Healthcare is a structured way of continuously exposing and solving problems to eliminate waste in systems that deliver value to customers (patients). (Footnote below). The Scarborough Hospital strives for continuous improvement every day. The Scarborough Hospital has numerous sustainability initiatives as well. When Medline approached the hospital with their capabilities, they were very interested as the program had great synergy with the hospital's existing goals.

Summary of Results

3,721

Estimated number of annual labour hours saved by space redesign and utilization of supply modules.

1,887

Number of case pick labour hours saved annually.

1,834

Number of case set-up labour hours saved annually.

45

Percentage reduction in case pick time.

54

Percentage reduction in number of items picked for cases.

47

Percentage reduction in case set-up time.

28

Number of supply modules that account for 90% of all surgical procedures.

96

Percentage reduction in supply handling touch points.

Improved staff efficiencies allow for greater scope of work activities in case pick areas, set up, anesthesia and clean up.

Data current at time of study. (A) Scarborough Hospital. (B) Medline Industries, Inc. (C) WesPak Consulting and Design.



The four-part process below was used to identify opportunities for improvement at The Scarborough Hospital.



Several opportunities were identified for improving overall efficiencies at The Scarborough Hospital:

- » Implement Lean methodologies to enhance the current perioperative supply management processes to deliver supplies to the operating room in the most efficient manner allowing for increased time for patient care.
- » Re-engineer the current program and engage a clinical specialist to build a customized procedure-based program that includes routine supplies and reusable textiles obtained from Booth Laundry into a unitized delivery module. This program is called Complete Delivery Hybrid System (CDHS).
- » Compress inventory and reduce product redundancy.
- » Improve procedure supply cost identification.
- » Redesign Sterile Processing and Distribution (SPD) and enhance the current case pick process to reduce the handling of routine supplies and maximize storage space.
- » Increase staff productivity.
- » Reduce overall supply costs.
- » Reduce labour costs.

Project Scope:
Improvements Implemented

A unitized delivery program consisting of 28 procedure-based modules and four packs was implemented covering 90% of their surgical volume. These modules included routine back table surgical supplies, reusable linens, circulator items, anesthesia and clean up supplies. The hospital had been receiving all their linens from their laundry service on linen carts. In the new program, all of the routine, procedure-specific items are packaged in one container.



Storage space was assessed and redesigned for greater utilization of storage areas and increased staff productivity.

Before



Case cart

After



Case cart

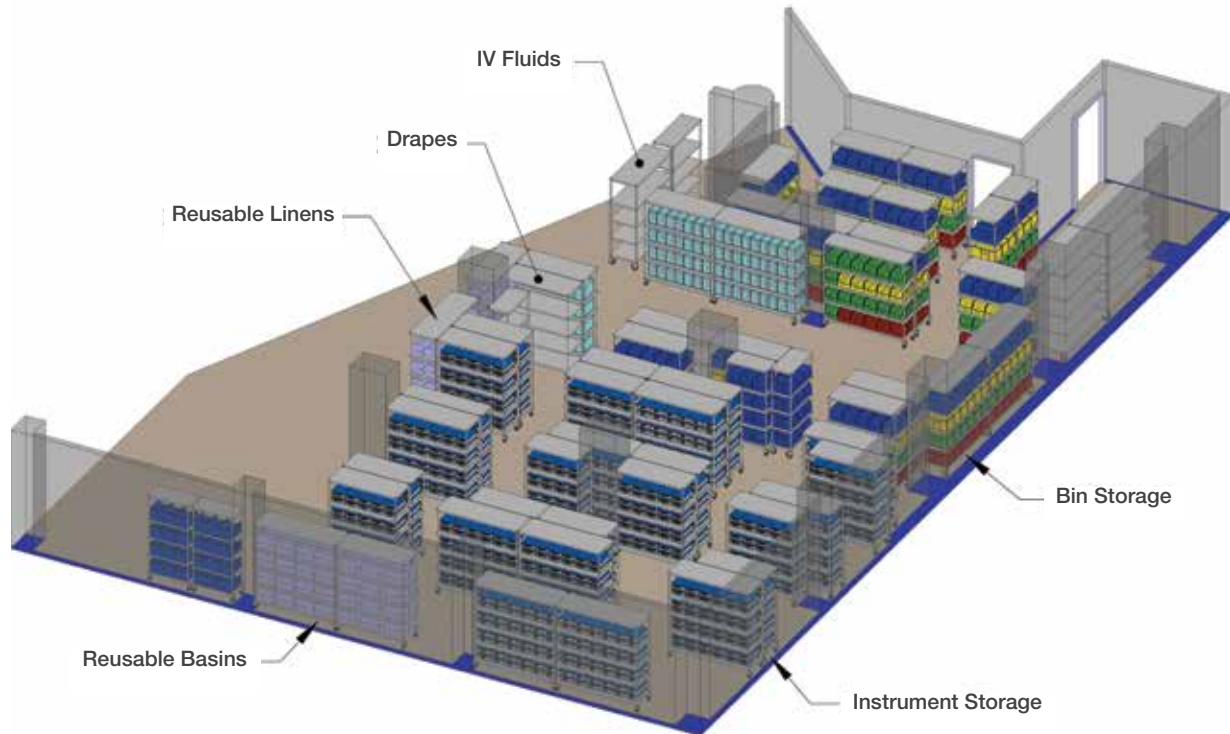


SPD Pack Storage



SPD Module Storage

Logistical assessments prior to comprehensive supply management program:



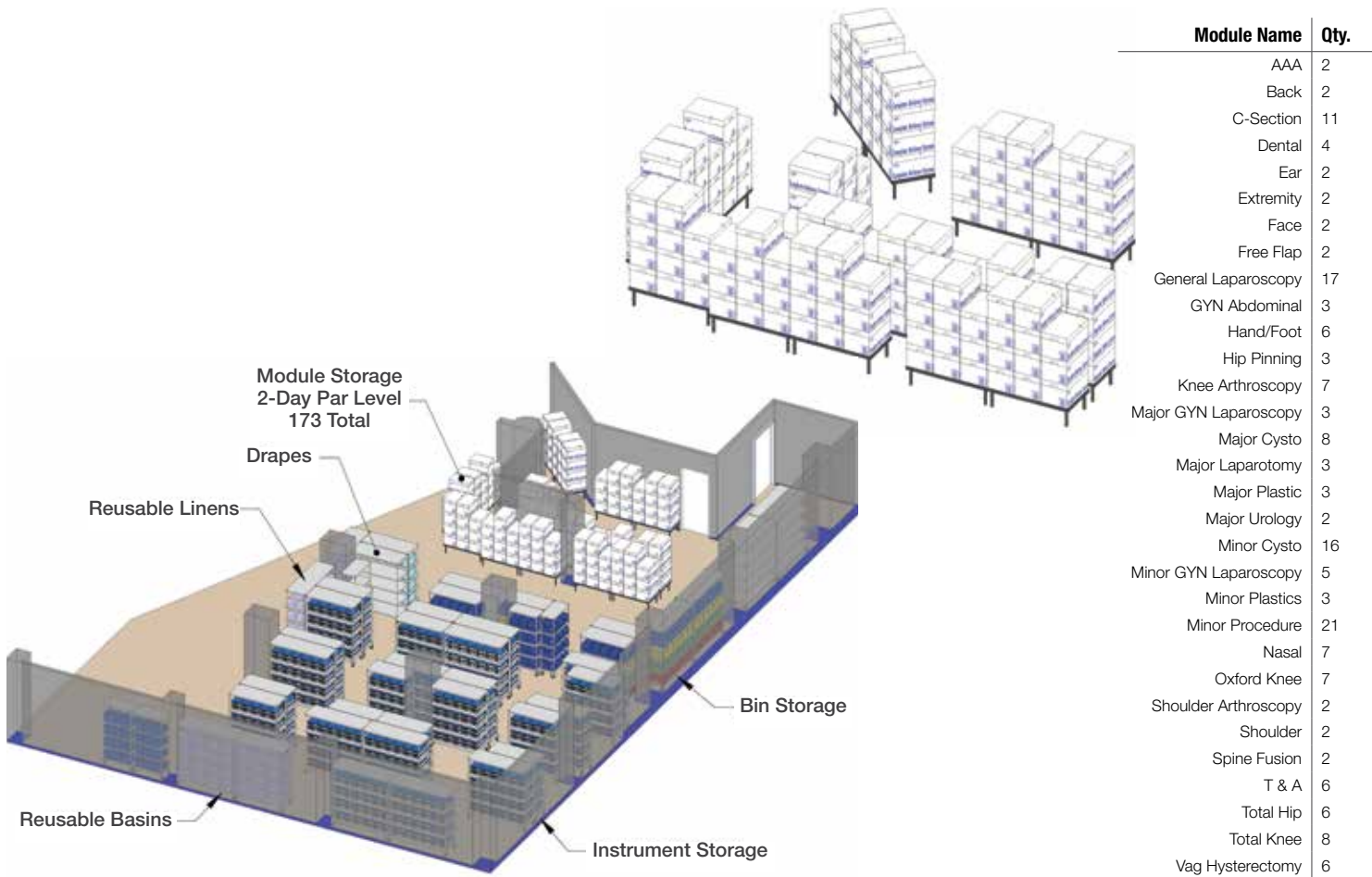
Logistics Overview and Design

- » Opportunities existed to redesign storage areas for a more efficient supply process for all sterile and non-sterile supplies supporting the surgical suites.
- » The Scarborough Hospital (TSH) received daily deliveries of packs and routine supplies from Medline.
- » TSH received daily deliveries of reusable linens from their linen service for the Operating Room (OR).
- » Linens were sent up to the OR on exchange carts.
- » Custom packs were stored on the shelves in SPD.
- » SPD is responsible for managing all OR inventory.
- » TSH set a goal to maximize the space available to support the storage and organization of the surgical supplies using existing infrastructure.

Case Picking Process

- » All of the case pick activities were initiated the day before the scheduled procedure and took place in the SPD department.
- » TSH wished to create an efficient case pick process that matched the existing case cart design and improved case pick flow.
- » Case carts are staged in a storage room in the OR and then moved outside each suite prior to room turnover.

Logistical enhancements after the implementation of comprehensive supply management program:



Logistics Overview and Design

- » Plans and 3D drawings of SPD were completed to help TSH understand the overall impact the program would have on supply management and case pick activities.
- » All modules were consolidated into one area within SPD closest to the main access allowing for ease of case picking and inventory replenishment.
- » TSH was able to reduce inventory on hand for routine sterile, single items.
- » The modules were placed on polymer dunnage racks increasing the linear storage capacity allocated for supplies.
- » The implementation of modules allow the staff to streamline the ordering process, enhance par level management for procedural supplies and simplify the delivery process of the supplies for SPD.

Case Picking Process

- » Linens now arrived in supply modules along with all other routine items for the procedure.
- » Modules were pulled by SPD and placed with any additional sterile supplies needed for the case and instruments on the case cart.
- » Picking of cases became more efficient due to the consolidation of routine supplies into the modules.

Study Objective

Evaluate the results of re-engineering the perioperative supply management processes at The Scarborough Hospital.

Data Collection Method

Electronic software was developed to allow for ease of data collection. Electronic data collection minimizes errors that can be present in a manual collection process. The flexibility of the software allows for customization on a facility-by-facility basis. Data collected was uploaded to a cloud service where it was stored until time of analysis.

Evaluation Criteria

Data was collected before and after program implementation. Timed evaluations of case pick times were collected. Observations were taken

over four days. Type of surgery, number of items and case pick completion time were recorded. Set-up time was measured and type of surgery and total set-up time were recorded.

Results

Before The Scarborough Hospital implemented a new program they used 20 custom packs. That program covered 67% of the facilities annual procedures. The revised program included 28 procedure-based modules and four packs that covered 90% of their surgical volume.

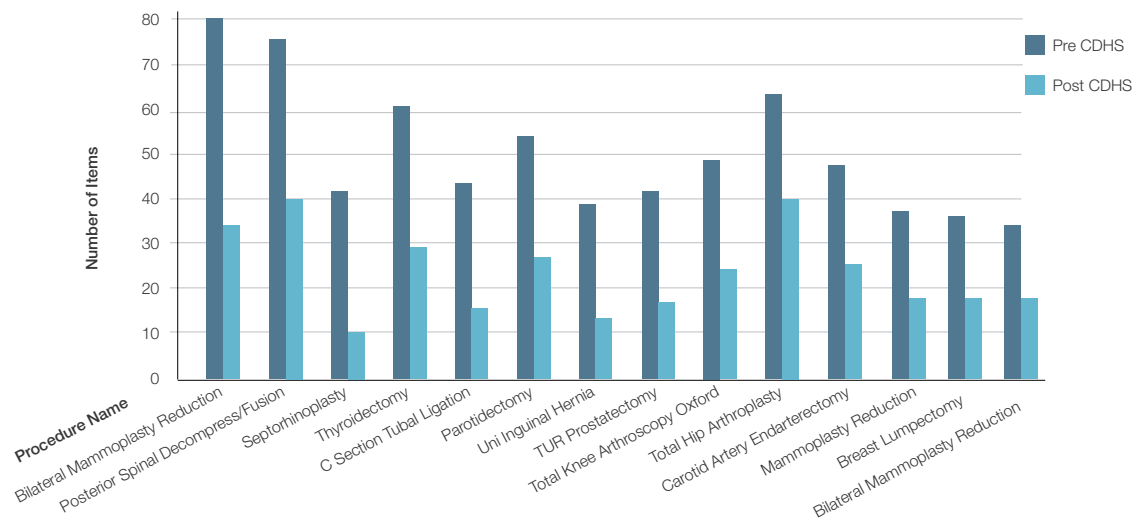
Case pick time based on surgically matched pre- and post-program observations was decreased by an average of six minutes per case. This was a 44.7% reduction in time

saving an estimated 796 hours annually. The observed procedures are representative of 8,544 annual procedures. Extrapolating the data and applying six minutes saved on the remaining annual surgical volume of 10,908 procedures an additional 1,091 hours are saved annually. Total case pick hours saved are estimated at 1,887 hours annually.

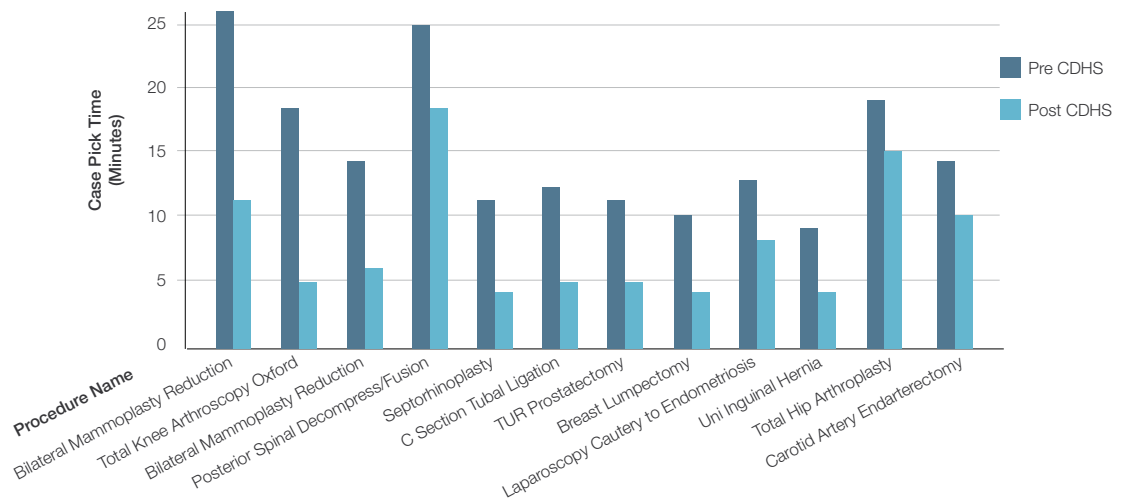
The Scarborough Hospital had a 54.3% reduction in the number of items picked based on measured cases. Average pre-program picked items was 46 and post items was 21.

Case pick variable of items that were not part of the original case pick pulled by staff during set up were observed.

Number of Items Picked Pre and Post CDHS



Case Pick Time Reduction



Case Pick Time Procedure-Matched Cases Observed

Procedure	Pre Time to Pick a Case (Minutes)	Post Time to Pick a Case (Minutes)	Time Saved with CDHS (Minutes)
Bilateral Mammoplasty Reduction	26	11	15
Total Knee Arthroscopy Oxford	18	5	13
Bilateral Mammoplasty Reduction	14	6	8
Posterior Spinal Decompress/Fusion	25	18	7
Septorhinoplasty	11	4	7
Caesarean Section Tubal Ligation	12	5	7
TUR Prostatectomy	11	5	6
Breast Lumpectomy	10	4	6
Laparoscopy Cautery to Endometriosis	13	8	5
Uni Inguinal Hernia	9	4	5
Total Hip Arthroplasty	19	15	4
Carotid Artery Endarterectomy	14	10	4

Supply Protocol	Pre Case Pick Time (Mins)	Post Case Pick Time (Mins)	Time Saved	# of Annual Procedures	Annual Time Saved (Mins)	% Time Saved
Minor	12	8	4	1,884	7,536	34%
C-section	12	6	6	1,224	7,344	50%
Major Cysto	12	6	6	1,200	7,200	50%
General Lap	10	5	5	1,200	6,000	50%
Hand/Foot	16	8	8	684	5,472	50%
Nasal	11	4	7	744	5,208	64%
Major Plastic	15	8	7	540	3,780	47%
Total Hip	19	15	4	420	1,680	22%
Face	15	9	6	252	1,512	40%
Spine Fusion	25	18	7	156	1,092	28%
Total Knee	18	14	4	240	960	23%

Total Procedures

8,544

Average

15

9

6

Total Mins Saved

47,784

Total Hours Saved

796.4

Case Pick Time – Other Hospital Procedures

Supply Protocol	Annual Usage	Annual Minutes Saved with CDHS*	Supply Protocol	Annual Usage	Annual Minutes Saved with CDHS*
Minor Cysto	5,700	34,200	Hip Pinning	240	1,440
Knee Arthroscopy	720	4,320	Back	192	1,152
Vaginal Hysterectomy CDS	708	4,248	Oxford Knee	180	1,080
T&A	696	4,176	Shoulder	168	1,008
Dental	612	3,672	Shoulder Arthroscopy	144	864
GYN Abdominal	372	2,232	Major Urology	96	576
Major Laparotomy	372	2,232	Ear	60	360
Major GYN Laparoscopy	324	1,944	AAA	48	288
Minor GYN Laparoscopy	240	1,440	Free Flap	36	216

Total Procedures

9,744

1,164

Total Minutes Saved

58,464

6,984

Total Hours Saved

1,091

*Based on 6 minute average time saved per observed case picks

About The Scarborough Hospital

Situated in the most diverse community in Canada, The Scarborough Hospital (TSH) delivers innovative, high-quality patient-centered care at two hospital campuses and five satellite sites.

Affiliated with the University of Toronto, TSH is also a referral centre for vascular surgery, pacemakers and cataract surgeries. TSH's vision is to be recognized as Canada's leader in providing the best health care for a global community. They embrace and celebrate their community's unique diversity and are proud of the sensitive care they provide on a daily basis.

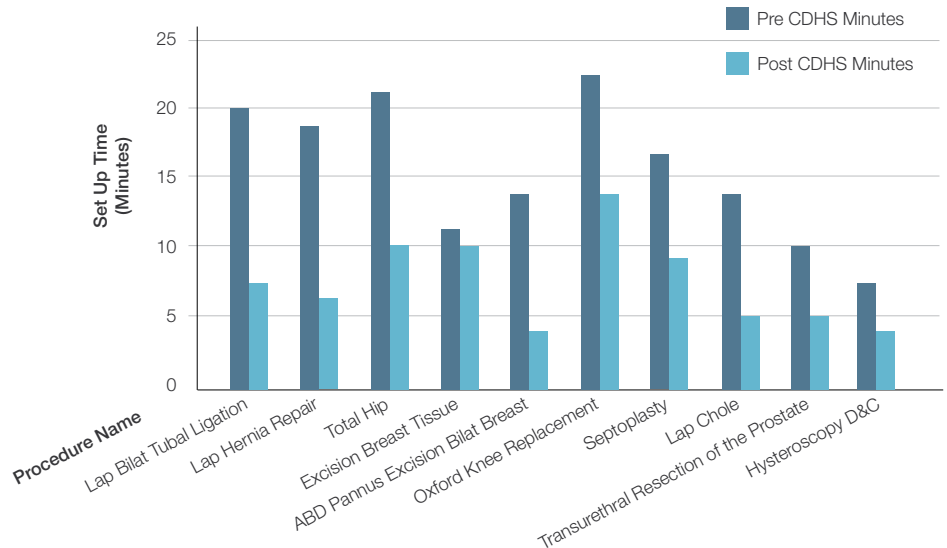
Over the past four years, TSH has renewed its focus on excellence and has posted impressive improvements in the areas of patient safety, finance, quality improvement and employee and physician satisfaction. They are proud of their achievements, and continue to strive for even better results through ongoing improvements.

The hospital's two campuses contain 491 beds and 17 ORs, three cysto rooms, two minor ORs with an annual surgical volume of 41,317 procedures at the time of this study.

The study was conducted at TSH's General campus, which contains 277 beds and eight OR suites plus two cysto rooms with an annual surgical volume of 21,613 procedures at the time of this study. This facility performs procedures on multiple shifts during weekdays and on weekends.

Procedure Set Up Time Saved Using Supply Modules

Pre- and post-program implementation surgical set-up times were timed and analyzed. Based on an average of eight minutes saved per case, 1,834 hours can be saved over the hospital's surgical volume. Case set-up variables of variability for length of set-up times, scheduled time of case, number of people setting up, delayed surgery and missing items were observed.



Touch Point Reduction for Supply Handling

Touch points are the number of times that a supply is physically handled or "touched." Reducing touch points can have a significant positive impact on a facility's day-to-day operations.

Before program:

5 Steps in Supply Process

- × 26 (average # of items being pulled sterile single per procedure that can be put into a module)
- × 19,452 annual procedures

2,528,760 Touch points

After program implementation:

5 Steps in Supply Process

- × 1 module
- × 19,452 annual procedures using modules

97,260 Touch points

Total touch point reduction: 96%

Reference:

1. Keller D. Lean Defined...Again. Lean Healthcare Exchange. Available at: <http://www.leanhealthcareexchange.com/?p=456>. Accessed on November 25, 2013.