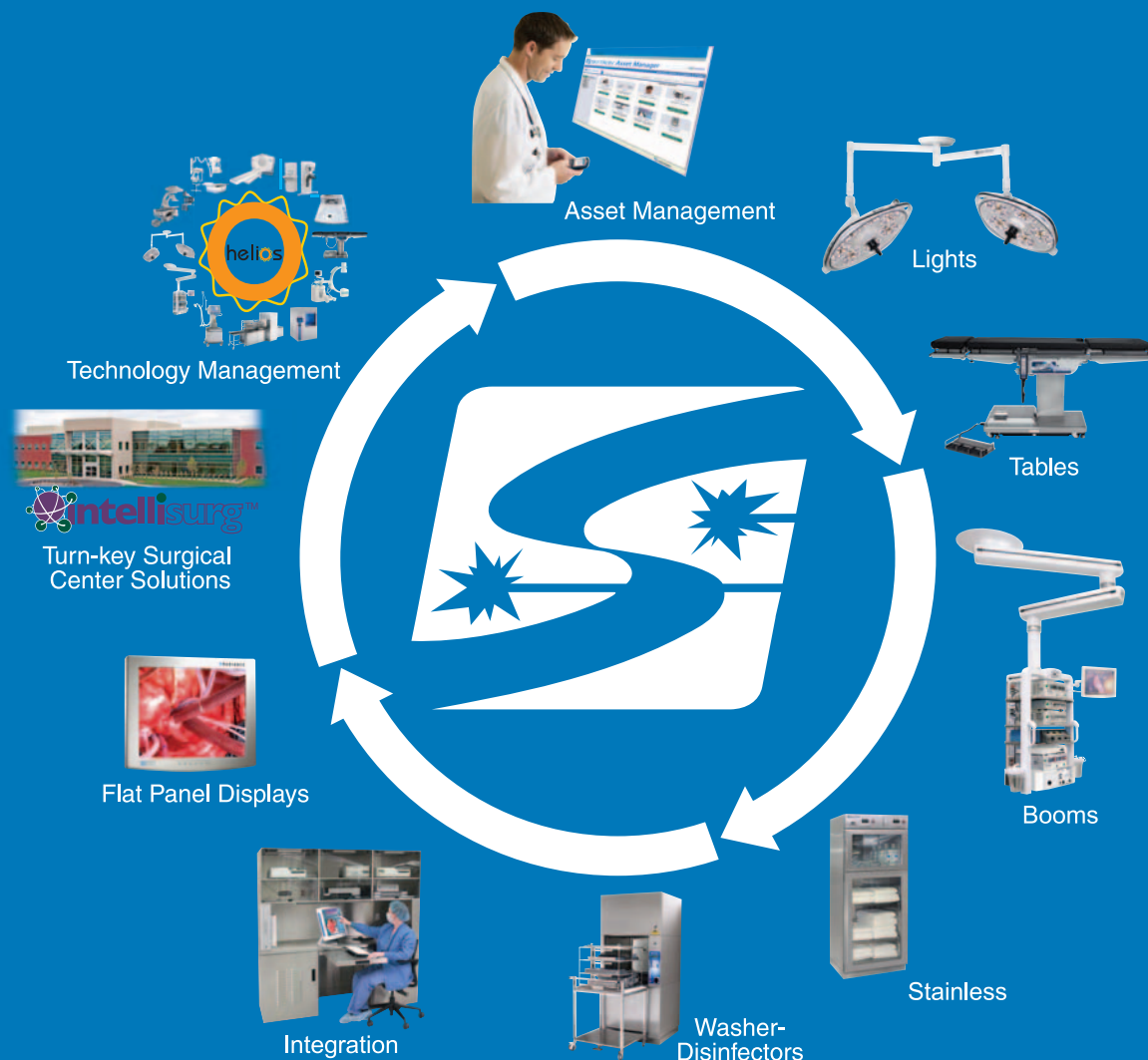


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## NE BRISEZ PAS LA CHAÎNE : L'IMPORTANCE DE LA GESTION DE LA CHAÎNE D'APPROVISIONNEMENT DANS LA SALLE D'OPERATION

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### RESUME :

La gestion des fournitures dans une salle d'opération joue un rôle important dans la baisse du coût des soins de santé tout en maintenant un haut niveau de qualité des soins. Ce domaine des soins de santé exige donc un suivi assidu de la part des utilisateurs finaux, c'est-à-dire les gestionnaires, les médecins et le personnel infirmier de salle d'opération.

Cet article vise la compréhension de la gestion de chaîne d'approvisionnement dans le contexte de la salle d'opération. Les renseignements présentés dans l'article peuvent s'appliquer aux centres de santé de petite ou de grande taille. La gestion de chaîne d'approvisionnement est définie, un bref aperçu des processus de chaîne d'approvisionnement est présenté et les bienfaits de suivre ces processus sont expliqués. L'article offre également des recommandations pour améliorer la chaîne d'approvisionnement de salle d'opération.

Les responsabilités du personnel infirmier périopératoire en matière de gestion des ressources sont articulées au sein des compétences en pratique des soins périopératoires présentées dans le module 1 (2007) de l'Association des infirmières et infirmiers en salle d'opération du Canada (AIISOC). *ORNAC Recommended Standards, Guidelines and Position Statements for Perioperative Registered Nursing Practice*. (8<sup>e</sup> édition).

## DON'T BREAK THE CHAIN: IMPORTANCE OF SUPPLY CHAIN MANAGEMENT IN THE OPERATING ROOM SETTING

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### ABSTRACT:

Management of supplies within the operating room (OR) has considerable implications for decreasing healthcare costs while maintaining high-quality patient care. This area of healthcare therefore requires more monitoring by end-users including OR management, physicians, and nursing staff.

This article is based on understanding supply chain management in the OR setting. Information provided throughout the article can be applied to small or large health care centers. It defines supply chain management and contains a brief overview of supply chain processes. It reviews the benefits of following these processes. The article also includes recommendations for improving the supply chain in the OR.

### INTRODUCTION:

It is estimated that Canada's healthcare system spends approximately 21% of its annual budget on medical/surgical supplies.<sup>1</sup> In hospitals, costs of medical/surgical supplies are second only to labor expenditures. Within the OR, equipment and supplies account for 50% of operational costs.<sup>1</sup> There is no question that OR supply management is an area that requires attention. The literature states, "the supply chain is one of the largest determinants of where cash flow will be derived and where capital will be consumed."<sup>2</sup> Management, physicians, and OR nurses have a responsibility to acknowledge the importance of managing OR supplies.

## DON'T BREAK THE CHAIN (cont.)

One of the major hospitals in Edmonton, Alberta, follows supply chain best practices. As a result this hospital experienced, in one fiscal year, a 34% reduction in direct buy spending on OR supplies.<sup>3</sup> In just over three years, this hospital decreased its overall OR medical/surgical supply costs (excluding consignment inventory) by 42% and increased its on-contract spending by 52% (as highlighted in Figure 12).<sup>3,4</sup> What does this mean? It means that managers, physicians, and nurses need to take a close look at the supplies they are using and stocking on their shelves and ask themselves important questions like: Why do we stock this product? How much does it cost? How often do we use this product? Does this product provide the best care to my patients?

Effectively managing this area of healthcare requires preliminary groundwork that includes understanding the term 'supply chain management'; the benefits of supply chain management; and the steps required to improve the supply chain in the OR.

### WHAT IS A SUPPLY CHAIN?

There are numerous definitions of supply chain management. Some definitions refer to the elements of a supply chain while others focus on the management perspective. In an effort to provide an operational definition, supply chain management will be defined as coordinating the "production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served."<sup>5</sup> Supply chain management integrates supply and demand within and across companies. For the purposes of this discussion, supplies will refer to consumables, typically single use medical/surgical items that are used, in the OR, during surgical cases.

### SUPPLY CHAIN PROCESSES:

The five most important aspects of the supply chain that are driven by responsiveness and efficiency include:

- Production;
- Inventory;
- Location;
- Transportation; and
- Information<sup>5</sup>

An efficient supply chain will streamline inventory and the distribution of supplies in order to minimize the transportation costs of moving supplies from the manufacturer to the point of use.<sup>6</sup> Inventory in the OR should include items that are used on a regular basis by most surgeons. Each item is labeled, is assigned a location, ordered using a set schedule (bi-weekly), and has a minimum and maximum (par level) quantity. This information is stored using Information Technology (IT) databases related to inventory management.

It is important to establish specified procedures for purchasing OR supplies.<sup>6</sup> One way to achieve this is to develop a regional product request form. Standard information is provided through the utilization of this form. The request for new product purchases or evaluations are driven by end users (managers, physicians, and nursing staff) and are based on clinical and functional preferences that are supported by evidenced-based justification.<sup>7</sup> Standard elements of the product request form are outlined in Figure 2. Once the form is completed, the supply chain coordinator works with management, the vendor(s), and corporate head office to outline financial implications of the new product so that management can make an informed decision regarding the product that is being requested for purchase or evaluation.

### BENEFITS OF SUPPLY CHAIN MANAGEMENT:

One of the benefits of managing supplies in the OR is the ability to make informed decisions about the purchase and evaluation of supplies. It is important to involve end users in these processes so that all decisions reflect OR and patient care needs. "Supply chain products and services literally touch every part of the patient's experience throughout the integrated delivery system."<sup>6</sup> An ideal supply chain will provide supplies at the right place, right time, right price, and when they are needed.<sup>6,8</sup> This is achieved by analyzing supplies for cost, utilization, and the ability to support quality patient care.<sup>6</sup>

In the absence of supply chain processes the selection of supplies is often driven only by

*Continued on Page 30*



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<sup>1</sup>Roger V. Ostrander, Michael J. Botte and Michael E. Brage; *Efficacy of Surgical Preparation Solutions in Foot and Ankle Surgery*, *J Bone Joint Surg Am.* 87:980-985, 2005. doi: 10.2106/JBJS.D.01977.



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surgeon preference.<sup>8</sup> By following supply chain processes, supplies are driven by the need to provide quality care to patients and to minimize healthcare costs. Supplies are chosen based on the product's ability to meet the needs of the patient, not solely on the preference of one or more surgeons. An example of this may occur if there are two similar supplies that can be ordered. Supply "A" costs \$250.00 each and has been used by the surgeon (who is requesting this product) at another hospital site. Supply "B" costs \$150.00 each, is used by all other surgeons in the specialty service on site, and will not compromise the quality of care provided to patients. Supply chain management processes would support the purchase of Supply "B" in this example. This information would be communicated to the requesting surgeon and the rationale for the decision would be provided. Supply chain management decisions should be made considering best patient outcomes and wisest utilization of resources.

Another major benefit of supply chain management in the OR is the impact it has on saving healthcare dollars. It is estimated that, by implementing supply chain processes, ORs could save, in one fiscal year, between 15 and 30% on supply costs.<sup>9</sup>

Managing the supply chain also includes the use of IT inventory systems that track and monitor supply use in the OR. Supply-related costs are substantially reduced, through the utilization of IT, since all supply chain processes are supported and coordinated using an inventory management system.<sup>6</sup> The most common IT applications used in supply management include the use of database supply management systems; inter-operative charting applications that identify supply usage and case costing; and regional index catalogues which list all of the products available from a regional warehouse.

All inventories are counted annually to manage supplies effectively. This includes 'ward' stock (regional warehouse supplies ordered by OR); direct buy purchase items; and specialty items such as implants (pacemakers, stents, etc.). Consignment inventory (mostly comprising orthopaedic implants) are high cost items that

are monitored closely and counted on a monthly basis for variances. It is important to note that, regardless of the IT application that is chosen, the focus is on building a reporting system that collects and presents data that is strategic, tactical, and operational.<sup>5</sup> When considering automation of supply chain processes, a system should be chosen that meets the needs of the department, is adaptable, and is well researched for its options.<sup>10</sup> It is also important to involve the end users in all stages of the process. "If the technology is implemented in the right way, it is basically free, because it is subsidized with lower expenses and better results."<sup>6</sup>

The use of bar code technology provides one example of how IT is being used in supply chain management. Supplies with bar codes monitor physician use and can, for reporting purposes, link the specific patient to the supplies. By identifying OR supplies, through the use of bar code technology, the technology enables staff to accurately capture case costs, reorder supplies as they are used, and closely monitor on hand inventory of high cost supplies (such as implants). In 2005/06, one of the major hospitals in Edmonton tracked 4,230 supplies using bar code technology.<sup>4</sup> Bar code technology applications are now expanding to include tracking the usage of instruments consigned and purchased from vendors as well as the location of purchased equipment being used in all clinical settings.

Implementing supply chain processes in the OR also encompasses the management of vendors. Streamlining supplies in the OR promotes the use of fewer vendors and the commitment to purchase large quantities of products from select vendors.<sup>6</sup> This leads to the possibility of larger volume discounts. Many hospitals across Canada and the United States have adopted Corporate Administrative Directives that pertain exclusively to vendors. Some of the highlights include: vendors are required to sign in every time they enter the OR; vendors must ensure they have made an appointment, or have been invited, to be in the OR; and vendors are present to provide education and assistance to OR staff (no selling or promotional activity is allowed). Enforcement of this directive depends on the cooperation and collaboration between management, physicians, and nursing staff

on site. The literature indicates "savings can be realized through sustainable improvements in contract compliance and product selection."<sup>6</sup>

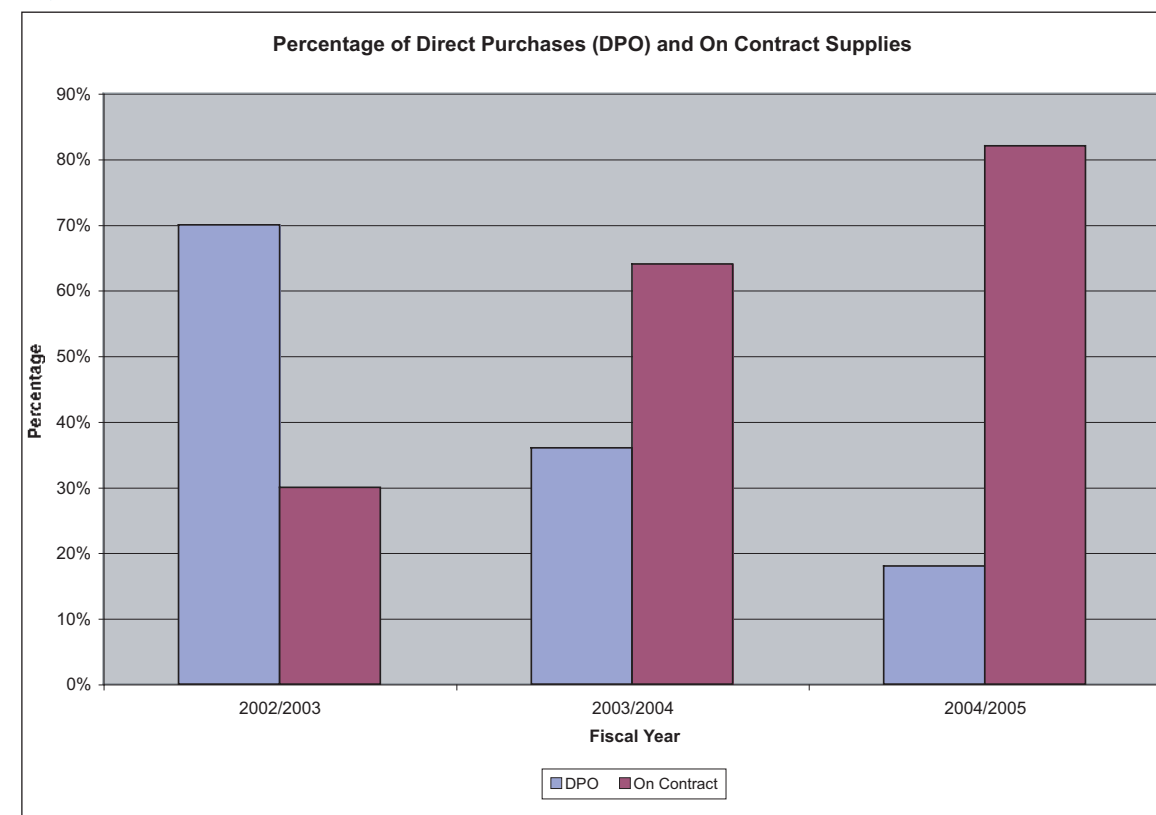
Another benefit of managing supplies in the OR is that vendors are contracted to provide their products. Essentially this means that a pricing agreement will be in place for a set term (usually two years with the possibility of extension for an additional year). Contracts are set regionally so that all hospital sites within the health region are able to purchase the vendor's products for the same price.

### KEY STEPS TO IMPROVING SUPPLY CHAIN MANAGEMENT IN THE OR:

Collaboration between management, physicians, and nursing staff is essential for the successful improvement of supply management in the OR. Questions arise such as: How can supply chain management be improved in my OR setting? What can I do to improve supply management in the OR? These issues can be addressed using the following strategies as a guide.

It is important to educate end users about the relevance of supply chain management. Key Stakeholders are likely to embrace new initiatives when empirical evidence is provided to support the use of supply chain management processes, a reduction in supply costs, and the provision of high quality patient care. Education on the subject should include outlining the processes to be followed; explaining the timelines and rollout of processes; and enabling end users to provide their input. Focus group meetings, for example, could be set up and include representation from OR management, physicians, and nursing staff. To improve supply chain processes (as listed in Figure 3) a multi-disciplinary team should be created to involve stakeholders both early in the process and often throughout all six steps.<sup>11</sup> "The most effective way for most hospitals to reduce supply costs is to work with physicians to reduce costs for physician-preference items."<sup>9</sup>

Figure 1<sup>3,4</sup>



## DON'T BREAK THE CHAIN (cont.)

Assessing the status of the supply chain in an OR will provide a starting point. Questions that should be reviewed during this step are: How much variability exists between supplies for each surgical specialty and for each surgeon? Do we have redundant inventory that can be eliminated? How many vendors do we have supplying similar products? Can vendor selection be streamlined? Are there supplies currently bought directly from vendors that are available through the regional warehouse? Can high price inventory items (such as implants) be minimized? What products do we need to stock in order to maintain high quality patient care?

It is important to next evaluate how a process change would impact OR costs. Representatives of site and/or regional finance can offer support during this step. Reports outlining current spending on supplies (including ward stock, direct buy purchases and consignment inventory) will provide a baseline of supply cost information. Creating a teamwork atmosphere, and being committed to providing safe, effective patient care, will translate into a reduction in supply costs and an improvement in clinical efficiency.<sup>9</sup>

Design supply chain processes based on benchmarks from other health regions, research findings, input from key stakeholders, and resources available at the hospital site. Supply chain improvement goals should be strategically driven based on organizational goals, take a flexible approach, and create innovative relationships in, and across, organizations.<sup>6</sup>

### IMPLEMENTING SUPPLY CHAIN PROCESSES:

Some immediate actions, that can reduce costs within the OR, include: reducing variations in supplies; eliminating unused items in case carts; changing from disposable to re-usable products wherever possible; standardizing and reducing custom procedure packs; and whenever a new product is requested ensuring someone asks why it is needed.<sup>7,12</sup>

Quick wins need to be identified during this step. Involvement and support from end users is also a pivotal marker of success during implementation. The literature indicates that

physician involvement in rationalizing supply choices and reducing variation of supplies is essential elements to successfully improving the supply chain within the OR setting.<sup>7</sup>

Track progress by highlighting the outcomes, the changes over time, the cost containment successes, and the quality of care provided. This can be achieved by communicating the changes occurring in the OR supply chain. The use of a staff newsletter, placing a report in the staff lounge or on bulletin boards, sending out a distribution email to all OR staff, and conducting staff meetings and in-services, are all effective ways to communicate both progress and change to OR staff members. "If companies and people in a supply chain have real-time access to the data they need then they will steer toward their targets [and] if they are rewarded when they achieve their targets then they will learn to hit these targets more often than not."<sup>5</sup>

Other strategies for successfully improving supply chain management in the OR include:

- Building a compelling case (using statistics and benchmarking to guide decision-making regarding the use of high cost supplies);
- Engaging physicians throughout the process by enabling them to have a voice in supply contracts and negotiations;
- Sticking to supply chain processes as outlined; and
- Sharing rewards with all staff (for example: money saved on supplies can be used to purchase other much-needed equipment)<sup>3,6,9,12</sup>

### CONCLUSION:

Within Edmonton alone there are four centres (of varying size) working on decreasing OR supply costs by implementing supply chain processes. Supplies in the OR environment are a commodity that can be managed efficiently and effectively. The implementation of supply chain processes can have a significant impact on healthcare dollars and quality of care provided to patients. Implementation of these processes depends on the availability of information systems and may need to be modified accordingly. End user involvement and the establishment of clear processes are, however, essential to the successful integration of the supply chain in the OR.

**Figure 2**  
Standard elements of product request form

**PRODUCT REQUEST FORM**  
To be completed by end-users (*whomever is requesting the product*)

- Requestor name (typically a physician)
- Product name/description, code, vendor, rationale for request
- Identify current product(s) being used for this purpose (name/description, code, vendor)
- Identify if new product will decrease need for or eliminate use of current product
- Identify estimated annual usage of new product
- If evaluation, identify how long the evaluation will be (# of cases) and the quantity of product required
- Signature of requestor
- Signature of surgical specialty chief
- Signature of manager (either approving or denying request)

**Figure 3**  
Six steps to improve supply chain processes.

**KEY STEPS TO IMPROVING SUPPLY CHAIN<sup>11</sup>**

1. Create a multidisciplinary assessment team with representation from OR management, physicians, and nursing staff
2. Conduct an assessment of your current supply chain/supply management processes
3. Evaluate how a process change would impact OR costs
4. Design supply chain processes (based on benchmarks from other health regions, research findings, input from key stakeholders, and resources available at your hospital site)
5. Implement supply chain processes (identification of quick wins and buy-in from end-users)
6. Track progress (track outcomes and change over time, cost containment successes, quality of care provided)

The perioperative registered nurses responsibility related to resource management is further articulated within the competencies of the perioperative registered nursing practice found in Module 1 (2007) of the Operating Room Nurses Association of Canada (ORNAC) (2007). *ORNAC Recommended Standards, Guidelines and Position Statements for Perioperative Registered Nursing Practice* (8th edition).

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