

Supporting the Needs of the Surgical Specialty Environment Automating Inventory Management with RFID-Enabled Technology

Introduction

The surgical environment is an unique setting for patient care, drastically different from inpatient medical-surgical care settings and outpatient care settings. Important operational needs such as maximizing available time for procedure rooms, optimizing case turnaround times, and having the flexibility to accommodate scheduled and non-scheduled cases make this environment dynamic, exciting and at times, unpredictable.

In addition to those unique attributes, the management of medical device and supply inventory used to support surgical care is also unique. Consider the following statistics that illustrate the unique role medical supplies and devices play in the operational and financial performance of these service lines:

- ◆ *In a typical hospital, about 60 percent of the total supply cost is driven by three clinical service areas: surgery, cardiology and pharmacy (Source: 2004 VHA Supply Cost Benchmarking Database. VHA, Inc.)*
- ◆ *Forty percent of supply costs can be attributed to implants, stents, and other devices (Source: Serb, Chris. Strategic Savings. Hospitalconnect.com. April 16, 2004.)*
- ◆ *The device costs for total joints, pacemakers, and internal defibrillators represent 50 percent to 72 percent of the total cost for the corresponding diagnosis-related groups (Source: HFMA. Controlling Implant Costs. March 2006.).*

Managing Inventory with the Right Technology

Many surgical departments are seeking assistance from technology solutions to automate many of their device utilization and inventory management processes. Common issues they seek to address are improving charge capture accuracy, maintaining accountability and security for owned and consignment inventory, reducing levels of on-hand inventory, addressing JCAHO documentation requirements, and creating systems to better manage device expiration and recall.

Often, a first source in seeking a solution is to evaluate enterprise solutions that support medical device and supply management needs within the hospital by combining multiple models and designs of storage and management technology to cover all areas of patient care. The solutions seek to support a spectrum of needs ranging from low acuity, med-surg units on a patient care floor to fast-paced, complex surgical specialty units located in the OR. In seeking to support the highly diverse set of needs, these enterprise solutions commonly apply the technology used to support the medical-surgical units and, through small modification and adjustment, seek to adapt those technologies to surgical specialty areas.

The result is having a system that is tasked with supporting the storage and management of high cost physician preference items in a fast-paced environment while built on technology design principles to manage medications and low cost supplies used in a different patient care setting. A simple example illustrates the shortcomings of applying this technology in the surgical specialty setting.

The Newspaper Dilemma

Most of us at some point in our lives have purchased a newspaper from a vending machine similar to the one pictured in Figure A. In providing a newspaper through this mechanism, the newspaper company has placed faith in the notion that the consumer can be trusted to only take the quantity of newspapers for which they have paid. After depositing the fifty cents for the newspaper, it is up to the compliance (and integrity) of the person to make the decision to remove only one newspaper. However, if the individual wants to take additional copies from the dispenser, there is no mechanism to limit the removal of additional quantities. Thus emerges the risk of a model built on manual compliance and the exposure of the newspaper company to lose potential revenue.

In drawing a comparison of the newspaper vending machine example to medical device and supply utilization managed through an enterprise solution using a technology such as barcode scanning, these systems are similarly reliant on the compliance of the end user. There is no mechanism to assure that all items are scanned and tracked in timely manner, if at all, leaving its efficacy solely reliant on the end user.

This becomes particularly meaningful in environments like the surgical specialty setting where cases need to be turned around quickly or a patient may require immediate medical attention. Appropriately so, the clinician's focus is on the patient, however the scanning of items is often neglected and the downstream impact can be missed charges, inaccurate inventory counts, missed product replenishment needs, and other operational issues. With this simple yet meaningful example, one can start to see the inherent limitations of using enterprise solutions to support process automation in the surgical specialty environment.



Figure A: Newspaper Vending Machine

RFID: The Right Solution for Surgical Specialties

In contrast to the approach of enterprise suppliers, the Mobile Aspects *iRISupply* solution is designed specifically to meet the unique needs of surgical specialty environments. Most notably, *iRISupply* uses radio frequency identification (RFID) technology to track and manage the utilization of medical devices and supplies. The key points of differentiation include:

- ◆ **Time is precious.** By using an RFID-enabled technology, *iRISupply* eliminates manual effort to document item utilization by the clinician. As opposed to manually-intensive

mechanisms such as barcode scanning and button pushing, surgical clinicians are able to optimize their time and efficiency to support immediate patient care needs, turning around rooms for cases, and addressing any immediate needs as directed by the physician.

- ◆ **Accurate charge capture is essential.** Because the use of high cost physician preference items is common in nearly all procedures, the system provides assurance that all charges will be captured for the use of these items. Assuring the accuracy for charge capture on items such as drug-eluting stents, ICDs, surgical implants, and other items can have significant impact to the financial performance of the service line.
- ◆ **Inventory is an investment.** In the surgical setting, there is a need to maintain a delicate balance between having items available for the case but also to avoid over-inflating inventory levels and tying up precious capital in inventory. To maintain this balance, it is critical to have access to a real-time summary of on-hand inventory to assure items are in stock. In addition, automated processes to replenish inventory based on utilization and PAR levels will ensure the appropriate levels are being carried at all times.
- ◆ **Each item is unique.** With JCAHO documentation requirements and issues such as product recalls and product expiration, it's imperative that inventory is tracked at the unique item level, including access to such information as lot number, serial number, and expiration date. In addition to the tracking of these items, finding their location in a moments notice can mean the difference in safety and error.
- ◆ **Continued pressure to improve performance.** As the healthcare environment continues to exert dynamic

pressures on its providers, there is a continued call to improve financial and operational performance. In order to meet this challenge, access to performance data is required to facilitate improvements in areas such as product utilization and standardization, inventory carrying costs and aging, procedure turn around times, and other key operational metrics.

Seeing the Results of RFID-Enabled Technology

The adoption rate for RFID-based technology is quickly growing across the healthcare setting. Mobile Aspects has worked with several healthcare organizations to implement the RFID-based *iRISupply* clinical resource management solution. By using the cabinet-based solution to automate the utilization cycle of medical devices and supplies in areas such as the OR, cath lab, and vascular lab, clients have realized the following benefits:

- ◆ A 30% improvement in capturing charges related to medical devices and supplies used with interventional cardiology procedures.
- ◆ A decrease of \$230,000 in on-hand medical device and implant inventory for cardiothoracic surgical services.
- ◆ The elimination of \$250,000 in annual costs by avoiding the expiration of time-sensitive medical devices such as drug-eluting stents within cardiac catheterization and electrophysiology laboratories.

These benefits are testament to the value that RFID-based solutions can bring to the surgical care setting. With these examples of its ability to provide a return on investment, along with the avoidance of the challenges experienced with solutions such as bar code scanning, RFID presents a more advanced and evolved solution to address automating medical device and supply utilization within the perioperative care setting.



**Client Installation: NewYork-Presbyterian Hospital Cornell Weill Medical Center
(Cardiovascular Surgery)**

For more information on the *iRISupply* system and other Mobile Aspects solutions, please contact Mobile Aspects at (412) 325-1690 or visit www.mobileaspects.com.
