

A Team Approach to Improving Tissue Management



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ABSTRACT

Tissue implant management can be labor intensive because of multiple storage locations and cumbersome tracking systems. The purpose of this quality improvement (QI) project was to enhance patient safety and nursing satisfaction by upgrading our tissue-management facility and processes. We created a centralized storage room for tissue implants and staffed this room during all shifts. Tissue management was executed using tracking software and transportation devices that supported tissue receipt, storage, disposition, documentation, and reporting. Our project resulted in our full compliance with tissue implant requirements from the US Food and Drug Administration (FDA) and The Joint Commission. We also reduced our documentation error rate from 3% to less than 1%, and decreased the tissue-expiration rate by 1.1%. Tissues are now delivered to ORs, which allows RNs to focus on patient care rather than retrieval of implants. Monitoring of the tissue inventory has improved, resulting in the reduction of tissue wastage. *AORN J* 103 (April 2016) 380-387. © AORN, Inc, 2016. <http://dx.doi.org/10.1016/j.aorn.2016.01.019>

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Many challenges can arise at a facility that performs a diverse range of surgical procedures. The OR at our facility, West Virginia University (WVU) Medicine—Ruby Memorial Hospital, faces the challenge of effectively tracking tissue implants. Our tissue inventory consists of owned and consigned products. To manage this regulated inventory of stored tissue implants, hospital administrators currently provide a budget to support eight inventory-control analysts (ICAs). The ICAs are based in the materials management department, function in the semi-restricted areas of perioperative services (ie, behind the line that requires surgical attire), and provide 24-hour coverage of a centralized tissue storage room.

In this tissue storage room, tissue implants worth more than \$2 million are maintained for immediate use in patient care. Hospital planning and design staff created this room by renovating a storage room when the increasing volume of surgical cases caused the department to outgrow its system of manual logbooks and locked storage cabinets. To improve the processes for handling tissue implants, OR leaders chartered a quality improvement (QI) team. This team performed an analysis of the existing tissue-handling processes with the assistance of a perioperative nurse consultant and the use of the tissue implant tracking standards for hospitals set forth by the US Food and Drug Administration (FDA) and The Joint Commission.¹⁻⁵

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DESCRIPTION OF THE PROBLEM

Our original tissue implant tracking system consisted of storage cabinets placed throughout the OR suites. These storage cabinets had limited tracking capabilities when an implant was removed and required many manual keystrokes to keep the inventory current. To ensure that personnel tracked and documented all regulatory requirements, such as quality controls and expiration dates, the system required the use of paper spreadsheets in logbooks that were located throughout the OR.

There were multiple steps in the implant-tracking process. The first step in the receiving process was for an ICA to check in the product on the loading dock. Then, the ICA stocked the tissue in the proper computerized cabinet in one of eight different strategic locations among our 19 ORs. When a tissue implant was needed for a procedure, an RN left the OR and retrieved the implant, which often took several minutes. If the tissue was stored in a freezer, retrieval was more complex and could take even longer. The monitoring of tissue inventory records occurred daily to help ensure that used tissues were documented in the tissue logbooks, the computerized cabinets, and the patients' electronic medical records (EMRs). The process for tracking and monitoring tissue implant movement throughout perioperative services was tedious, and personnel were performing duplicate work for less-than-desirable results (eg, overstock or understock of tissue, lost implants, less time for direct patient care).

The system presented many administrative challenges. As personnel in the receiving department accepted the products, they manually entered tracking information into the logbooks and electronic supply cabinets. This receiving process did not always result in the documentation of temperature verification or inspection of package integrity. Manual entry of tracking information also invites human error, and accuracy cannot be ensured. The tissue storage was not centralized, requiring different teams of nurses to conduct a weekly tissue inventory. Any announced recall of tissue product required many hours by multiple staff members to ensure a complete removal from stock.

Tissue implant tracking became a tedious process for personnel. Informal audits by RN tissue champions noted that documentation was often incomplete or inaccurate, resulting in a 3% documentation error rate on a daily basis. Circulating RNs and scrub personnel expressed dissatisfaction with the amount of time RNs were spending out of the OR to retrieve tissue implants, particularly during trauma or emergency procedures. Staff members agreed that procedural delays occurred because of the amount of time it could take to obtain necessary tissue products. In an annual survey, staff members also identified tissue management as one of the top three areas of dissatisfaction in the work environment. Patient safety and employee

satisfaction are high priorities at our institution; therefore, OR tissue champions, directors, and managers decided that a new tissue management system was necessary to streamline the tissue-handling process and ensure regulatory requirements were met.

The QI team worked with RN tissue implant champions and an expert perioperative nursing consultant hired by the facility to submit a proposal for tissue handling to senior administrators. The QI team mapped out the square footage needed to store all tissue implants in one central location in the OR. The team carefully reviewed the quantity of all biological products, their shelf lives, redundancy of products, and regulatory requirements to determine tissue inventory needs.

Based on their service line expertise and past experience, nurse tissue champions from the hospital's shared governance council articulated the effects that the transfer of tissue implants to a centralized location would have on patient safety and health care—provider satisfaction. Potential improvements that the team hoped to achieve included controlled access to a high-cost inventory, improved tissue implant documentation in patients' EMRs, and improved nursing satisfaction with the work environment. In 2012, planning and design personnel converted a large storage room at our facility into a centralized tissue implant control center (Figure 1). This special room eliminated the need for locked cabinets because ICA personnel staffed this room and had the ability to lock it when needed. Additional ICAs were hired to staff the storage room 24 hours a day.

DESIRED IMPROVEMENTS

To involve clinical stakeholders in this change initiative, the QI team included OR RNs, RN informatics specialists, a

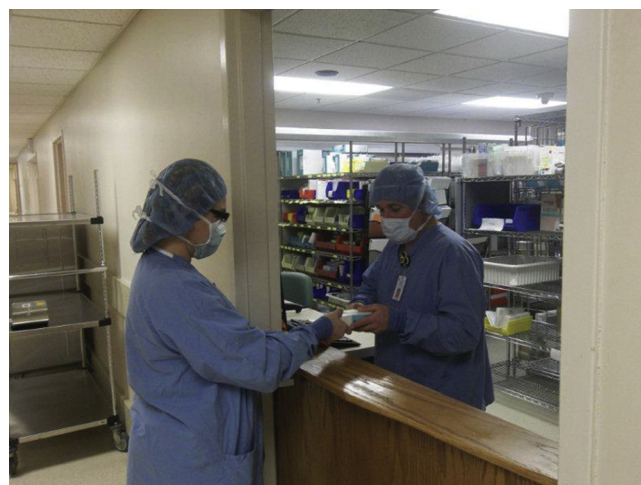


Figure 1. A nurse receives an implant from an inventory-control analyst from the centralized tissue storage room.

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