

QUALITY IMPROVEMENT STORY BOARD



Sterile Storage - Meeting CSA Standards

Background:

Medical Device Reprocessing Departments (MDRD) are divided into 4 specific job areas. **Decontamination**, where instruments are disassembled and cleaned; **Assembly**, where instruments are inspected, assembled and wrapped; **Sterilization**, where packs are sterilized; and **Sterile Storage**, where in-house reusable sterile supplies and one time use sterile supplies are stored. Standards apply to each area, as example: decontamination flow is from dirty to clean to avoid cross contamination.



Pictured is an ideal design for an MDRD, and an ideal rack system for sterile trays.

MDRDs are audited yearly to ensure standards are maintained. The audit tool is divided into 12 sections related to 4 main areas of the department. The expectation is a minimum of 85% in all areas. Kitimat scored less than 70% for sterile storage.

Objective:

By May 2019 sterile storage will not be stored with the prep and pack area and traffic in an out of the MDR area will be reduced by 75%. Re-organization of existing storage will allow for better flow, reduced waste of inventory and removal of obsolete and redundant equipment.

This will ensure the following standards (CSA Z314-18, section 10.2.5.1) are maintained:

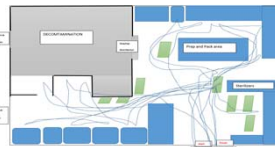
- Clean and sterile storage areas shall be:
- dedicated to the storage of clean and sterile supplies;
 - located in a separate, enclosed, limited-access area. The dedicated function of this area shall be the storage of sterile and clean supplies.
 - provided with adequate storage space to prevent crushing or damage to packages; and organized in such a way that items are used on a first in first out method.

Current State:

Kitimat hospital was built in 2004. The hospital was designed with high ceilings, spacious hallways, a grand entrance with an overall openness to it; the appearance is very roomy; with the exception of storage space. Most departments find they do not have the storage space they need and there is no extra real estate within the hospital for extra equipment and supplies; except for the back hallways.

Staff in the Operating Room (OR) have raised concerns for many years regarding the lack of storage for all the consumables and sterile supplies. With the increase in orthopedic surgeries the amount of equipment over the years has increased, so supplies have been stacked on top of each other, or been moved into the housekeeping room, the MDR assembly area, the supervisor's office, and even the lunch room. On top of this, there was a hoarding mentality, not unlike many hospital departments, so every possible storage room, shelf, drawer and cabinet was filled with *stuff*.

The limited space allocated for storage within the OR and MDRD was cluttered with many unused items (tall warming cabinet, chemical sterilizer, large ENT microscope, rack for positioning devices). There was sterile instruments that had not been opened in over 15 years. Shelves held many expired items and devices, and inventory was overstocked and sitting in bins on the floor. Storage of housekeeping supplies, chemicals for decontamination, and consumables for the endoscopy procedure room were all stocked in the small sterile hallway. As a result, sterile supplies would not fit on the shelves and were kept in the assembly area and stacked on top of each other. Staff from the OR had no choice but to walk frequently into the assembly area to retrieve sterile instruments and instrument trays. A spaghetti diagram shows movement of one person picking instruments for a surgical case.



A walk through MDRD clearly shows a cluttered and cramped work space



Solution:

The solution to this project began with many hours of on site observation. Pictures and measurements were taken to determine square footage of actual storage space. By examining and investigating all areas that could be useful for storage within the OR and MDRD it became obvious that a 5 S project was needed. There was outdated inventory, inventory that was overstocked; empty cardboard boxes and old or obsolete instruments and equipment. All of these items were taking up precious storage space. As well, some inventory items were stocked in the sterile storage only to be removed and restocked, sometimes in as many as 3 other places. Useful Lean tools included the 5 Why's to understand the current state, and spaghetti diagrams to follow movement. Following the recommendations for sterile storage outlined in the Ministry of Health's Best Practice Guidelines for Reprocessing Critical and Semi-Critical Devices a plan was formulated to organize the space and make the narrow storage space located off of the assembly area, the designated space (see diagram under Current State). The small alcove situated off of the hallway required the purchase of two new carts that could hold all the orthopedic total hip and knees trays. The repurposed cart wash room, which held large sheets of instrument wrap and housekeeping supplies was utilized for the numerous OR packs, drapes and gowns. Narrow carts replaced the wider bulkier carts that were lined down the hallway to allow for movement when case cart picking. The carts were organized by likeness, as example all IV supplies were on one cart, respiratory supplies on another, etcetera. The rationale is to make it easier for new hires and agency staff to find items quickly. The introduction of the Kanban system, will help with inventory outdates and overstocked items.

The 5 S project was as follows:

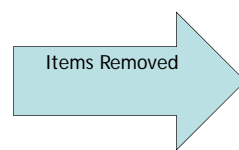
Sort: Remove all non-housekeeping supplies from the housekeeping room. Discard empty cardboard boxes and obsolete equipment from the decontamination room. Remove all outdated inventory and antiquated instrumentation. Resituate excessive inventory into a holding bin

Set in order: Build new racks. Organize like with like, label carts and shelves

Shine: Remove all unnecessary bins and carts. Clean and replace all required bins, and shelving. Remove wall racks holders from alcove (date to be determined)

Standardize: Introduce Kanban cards for inventory control. Kanban cards ordered and received

Sustain: Follow-up with site visit in June to provide education for maintaining a Kanban system



Glove and IV Carts



Results:

The project team was a group of like minded individuals that were keen on developing a more efficient, less wasteful operating room. The team sorted through years of hoarded supplies with vigor. It was like a weight had been lifted. There were 3 pieces of equipment and over 390 outdated items removed from the departments storage space.

- staff from the OR no longer have to enter the MDR work area for frequently used instruments; based on 5 surgeries this amounts to a minimum of 15 times less per day.
- Sterile packs, total hip and total knee instruments, suture trays and prep sets are stored in a designated storage area;
- 15 inventory items for housekeeping are now stored in the housekeeping room;
- MDRD and OR supplies are delivered and stocked using the Kanban system; approximately 30 items were removed from inventory
- Sterile storage meets Canadian Standards Association requirements

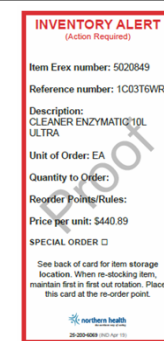
A walk through MDRD now shows an organized open work space



Next steps / Sustaining the Gains:

This project is part of an overall project for the northwest health service delivery area in Northern Health focussed on OR inventory management.

- Medical Device Reprocessing will be audited yearly to ensure CSA standards for sterile storage are maintained
- Follow-up will include the installation of wall racks to make room for more sterile supplies in the Sterile hallway.
- Inventory management will follow the PAR levels as indicated on the Kanban cards.
- Non-stock and special order items will be identified and managed using a card system



Example of Kanban card and label

Patient/Customer:

Initially there was buy in from everyone, however once inventory began to move to make room for sterile storage it became challenging for those less involved. There are still implementation issues that need work with managing inventory using the new Kanban system.

Follow up meetings will determine the advantages/disadvantages of the Kanban cards, and whether to continue with that system for inventory management. Housekeeping staff are very pleased to have their room back. 'I can get my floor machine in and out easily and don't have to worry about an OR bed and positioning rack always in the way'.

The OR nurses and sterile technicians have commented on the better organization and neatness within the whole department. Some staff have already taken it among themselves to neat and organize other areas of the department for improved efficiency. Picking cases appears more efficient from the spaghetti diagram below.

