



“Distribution Systems” By Paul A. Hess, BSN, RN, CRCST, ACSP – Adapted from a presentation by Richard Blackburn, Director of Materials Management, Clarion Health, Gastonia, NC

Let's spend a little time on Distribution Systems. All too often we look at the technical

aspects of sterilization and infection control for which we are responsible and overlook the supply chain functions of our roles. With that thought in mind, at the completion of this in-service the reader will be able to

- Name and describe six principal distribution systems used in healthcare
- Compare advantages and disadvantages of each distribution system
- Describe distribution work practices
- Identify safety practices in distribution

The goal of any distribution system is to ensure the timely and accurate delivery of patient care items, while maintaining the function and sterility of the item. Someone has spent a considerable amount of time to create a requisition. Then a buyer has created a purchase order and placed the request with the vendor. A courier has delivered the goods to our doorstep and now it's our turn.

There are many types of Distribution systems

- Demand distribution
- Par level restocking
- Exchange carts
- Case carts
- Specialty carts
- Stockless or JIT

We will look at the factors affecting which systems are used. Depending on these factors we may use one or all of these systems in our day-to-day practice.

The **Demand Distribution** system is also termed **Requisition** or **Delivery Distribution**. This type of delivery system essentially requires nursing or other customers to manage the supplies they use. The Central Services staff fills orders as requested. It's a simple, but labor-intensive for everyone. Additionally, nursing may have other priorities and, thus, not spend time managing supplies appropriately.

In a **Par Level Restocking Distribution System**, the CS staff is responsible for replenishing stock levels of supplies to an optimum level based upon customer usage requirements. Par level quantities are checked frequently and adjusted to meet usage. Supplies can be stored in various locations on a unit on open shelving, carts, and cabinets.

On a routine schedule CS staff replenish supplies to the

preset par amount by making rounds with a cart to re-stock par areas or by counting a par level supply location and then returning to CS to pick the required items and then deliver to par level area. In other words if they use 10 items every day, the Par Level may be set at 12. If they use 5 items and you count seven on the shelf you would replenish them with the five missing items. The Par level restocking distribution system has the following advantages.

- Patient caregivers are no longer spending time managing supplies
- Inventory is managed more effectively
- Organization can operate more efficiently

The disadvantage is that there can be a lag time between usage and replenishment

There is new technology & variations in par level restocking distribution systems such as locked electronic access cabinets where the supplies are in locked cabinets requiring a password and / or patient name to access supplies. We also have barcode technology, which is a printed array of contrasting bars, and a space that encodes information used to identify a specific item. Open bins with handheld scanner where supplies or bins have barcode labels that are scanned. In both systems, replenishment notice is sent automatically to CS and, in some instances, the item is billed to the patient. Either technology is less labor-intensive than the Demand Distribution System.

An **Exchange Cart Distribution System** is similar to par level restocking. It is used to establish & maintain supply quantity on hand to meet patient care needs. In this type of system there are two identical carts of supplies created. CS staff on a scheduled basis, usually daily, exchanges them.

Exchange cart distribution system advantages are that it is practical, flexible, dependable and easily managed. Some of the disadvantages are the duplication of inventory (cost of money being tied up in a redundant storage system) and storage space requirements for the second cart.

A **Case Cart Distribution System** is best suited for Surgery, Labor & Delivery or other departments where specific type and quantity of supplies can be identified and delivered via a cart. They are almost always procedure or physician-specific. The supply cart is prepared and staged until needed for procedure, includes instruments and most all of the supplies requires to do the task at hand. The case cart has a list of supplies that can be a computerized list, on procedure card, or on a requisition form that resembles a recipe card that you would have in your kitchen.

The advantages to a Case Cart Distribution System are efficiency and economy. The CS staff use expertise to manage inventory and processing. By centralizing the processing and inventory management, it enables nurses, physicians or other staff to focus on patient care. There is a cost avoidance and appropriateness of work activity.

There are disadvantages to a Case Cart Distribution System. Physical condition and design of existing facility may prohibit a cost-effective implementation of a case cart system and space requirements for storing case carts. Ideally you will need three case carts for each surgical suite. That begins to take up a lot of real estate. It also requires a collaborative relationship between CS and Surgery or other department using the system, especially effective communication.

Next let's look at a **Specialty Cart Distribution System.**

Specific supplies for specific situations are assembled onto a cart and taken to point of use. Two common types are code carts and disaster carts. A code or crash cart is to respond to cardiac or respiratory arrest. It is restocked after each episode according to a standardized list of supplies and quotas. Disaster carts are designed to handle situations where large numbers of patients may present for treatment as a result of a natural or man-made disaster. They contain large amounts of gloves, PPE, bandages, dressings, IV fluids and supplies. Items for orthopedic needs such as fractures are common on a disaster cart. Carts are stored in CS and delivered according to procedure to the designated area in the event a disaster response is implemented.



A **Stockless or Just-In-Time Distribution System** is a modified par level restocking system. It is based on pre-determined supply quantities established for each area. The CS staff count items to be replenished, the replenishment information is transmitted to vendor / supplier and the vendor / supplier picks and delivers supplies to the healthcare facility, sometimes directly to the customer area. The advantages to a stockless or just-in-time distribution system are:

- Reduction of inventory in the facility
- Reduces or minimizes supply storage space
- Space can be used for other purposes
- May reduce staff in CS required to manage inventory

Disadvantages include:

- That it may require additional staff for process to be efficient
- Inability to provide additional supplies quickly

Delivery Methods and Equipment include

- Transport carts
- Nurse servers

- Dumbwaiters & pneumatic tube system
- Tracked automated systems

Distribution work practices

In order for all distribution systems to function appropriately, personnel must be accurate, efficient and timely in selecting, handling and delivering items needed for patient care. This includes the selection of items from inventory that match the requisition from the requester. You must select the right item and the right quantity of that item. Always check for package and sterility integrity any time you handle a package. Check for shelf life and / or expiration dates. You then must deliver the items and maintain package integrity and protect clean or sterile items from contamination, damage, or loss during transport.

Delivery of items

Transport carts should have a solid bottom or barrier between items and wheels of the cart and floor. Always keep transportation vehicles, containers and carts clean. Contaminated or used supplies should be transported separate from clean or sterile supplies in another vehicle, container or cart and always use good body mechanics. That means lifting with your legs not your arms and do not bend at the waist to lift anything. Be aware of traffic control issues, restricted areas,

quarantine and isolation rooms. CS departments should identify transportation routes to minimize traffic flow problems and potential sources of contamination.

Patient charging

Once the items are delivered to your facility we need to be sure that we can continue to operate. If it has been determined that an item is chargeable, that expense needs to be allocated along to the patient. Patient charges can be a vital source of revenue. Your Finance department along with user departments determines need for and advantage of supply charging, and designs an effective system to meet that need. Methods for charging include, paper requisitions with patient information attached to item; stickers attached to item and placed on patient record; electronic or computerized request system that automatically charges item to patient; and barcode systems. If the supply item is a piece of **Durable Medical Equipment** an equipment tracking system can provide information about where equipment is located, being used or stored; can identify patient, length of use, and charge capture.

