



Making a Case for Case Carts.

Hospitals are under intense pressure to cut costs everywhere, especially in the surgical suite. An efficiently run OR can be an attractive profit center, but it is also one of the most expensive departments to manage. While quality patient care is always the first priority, cost containment pressures are forcing surgery departments to operate as efficient business units as well.

The basic function of a case cart system is to ensure that the right instruments and supplies are available at the right time for the right procedure.

Supply costs are a significant expense in surgical services—running about 20 percent per case, and they often represent the largest percentage of a healthcare organization's total inventory cost as well. Consequently, hospital administrators often focus on materials management in order to reduce costs. Increasingly, the trend in healthcare is to create a centralized materials management system as a way to improve efficiency and cut the costs associated with inventory, storage space, time, and labor.

When a case cart system is implemented in the surgical department, instruments and supplies for surgical cases are processed, picked, and prepared in a hospital's central processing services and then distributed to the OR on case carts. The basic function of a case cart system is to ensure that the right instruments and supplies are available at the right time for the right procedure. They may contain supplies for a single case or for multiple cases in separate drawers. After each procedure, used items are then reloaded onto the cart and returned to central services for processing, sterilization, or disposal. Carts can also be kept supplied and available in the OR for the most common emergency procedures. Thus, the humble case cart, the “four-wheeled wonder” of the OR, has landed front and center in the ongoing battle for greater efficiency in healthcare.

The case for a cart system

A centralized material processing system that provides just-in-time delivery of instruments and supplies to the surgical suite offers some compelling advantages:

- **Inventory is consolidated and standardized.** When supplies are located and cases are prepared in the surgical suites, inventory is harder to manage efficiently. This kind of decentralized supply system is a magnet for redundant inventory, inconsistent sizes and packaging, and unexpected shortages or surpluses. It takes more time to prepare for procedures; inventories take more time to manage; and overstocked or hoarded supplies become outdated or damaged. The result is a system that is time-consuming, labor-intensive, wasteful, and less responsive to emergencies. Ultimately, costs are higher and patient care is compromised.

A centralized supply management system, on the other hand, can better monitor par levels, standardize supplies and instruments, and automate reordering. The result is better information for deciding when to change par levels, for example, or to eliminate a little-used item, or to raise or lower costs. An organization's inventory costs are reduced because less inventory needs to be on hand. Creating standardized pick lists discourages people from getting into the habit of ordering many custom items for procedures, and creating a standard nomenclature reduces the confusion of many names for the same item.

- **Space is efficiently used.** Ideally, the only supplies stored permanently in the surgical department are items that are hard to standardize, such as gloves, sutures, and implants. Everything else is delivered and returned to central service on case carts. This frees critical space in halls and surgical suites for equipment, patient care, and additional processes.

Case carts are designed to protect sterile supplies and to contain soiled ones, reducing the potential for contamination on the trip to and from the OR.

- **Time is efficiently managed.** Nobody likes to wait—not surgeons, staff, or patients and their families. Since minutes in the OR are valued in the hundreds of dollars, wasted time is wasted money. Reducing the time it takes to clean up after one procedure and prepare for the next—turnover time—is a critical exercise for any surgical department.

Case carts allow supplies for a procedure to be unloaded and then quickly reloaded onto the cart for return to central services. An efficient case cart system can reduce turnover time, possibly allowing more procedures to be performed. With a case cart system, the OR is also more flexible and responsive to changes in scheduling.

- **Staff is efficiently deployed.** Ideally, clinical staff cares for patients, and material management staff handles the supplies. A case cart system removes the burden of supply management from the clinical staff and allows material management employees to do the jobs they are trained and compensated for. The result is improved patient care and lower costs.
- **Infection control improves.** Hospital-acquired infections are a serious and costly problem for hospitals. These infections are estimated to occur in five percent of all acute-care hospitalizations. Movement within the surgical suite increases the risk of airborne contamination. A case cart system helps reduce traffic into and out of the OR during a procedure because supplies are organized and available. Also, case carts are designed to protect sterile supplies and to contain soiled ones, reducing the potential for contamination on the trip to and from the OR. Tamper-evident locks and seals in a variety of options further protect sterile equipment.
- **Information is more effectively captured.** Patient charges for supplies can be calculated more accurately when carts are stocked and unloaded in central service. Additionally, integrating the case cart system with patient billing keeps charges accurate and immediate. It also allows the system to track actual usage numbers of supplies for each procedure.

Sizing up the system

With the skyrocketing cost of healthcare and intense pressure to contain those costs, controlling inventory is a good first step. Developing a case cart system presents an opportunity to assess the status quo, to analyze inventory management, and to standardize materials, nomenclature, and packaging systems. The goal is to shift as many items as possible to central service, keeping only the designated “time of procedure” items, nonstandard supplies, and carts equipped with emergency materials in the OR.

For a case cart system to be effective, a cross-functional team must communicate early and often in order to understand the needs of both the clinical OR team and the materials management staff. The system should be evaluated regularly in order to address error, to improve efficiency, and to eliminate redundancy and waste. Some organizations, for example, put inspection sheets in every cart to document variances.

The physical constraints of a facility need to be assessed as well, since they have a big effect on the type and number of carts an organization uses.

Materials management staff may then follow up with clinical staff to determine the cause of any errors—whether they were a one-time coincidence or an indication of a systemic weakness.

Surgeon preference cards, for example, can be a minefield for inconsistent nomenclature and lack of standardization. According to David Kaczmarek, principal of Healthcare Supply Chain Solutions, “Given free reign, surgeons will customize the supplies and instruments they use for virtually every case... [but] standardization has many benefits including better patient outcomes. It also makes for a significantly better operating case cart system.”

The physical constraints of a facility need to be assessed as well, since they have a big effect on the type and number of carts an organization uses. The size of halls, elevators, and cart washers may determine the size and number of carts the facility can accommodate, as will the amount of space available for storing carts that aren't in use. The route from central service to the surgical suite may determine whether closed or open carts may be used. (A dedicated clean pathway would allow for open carts, whereas shared halls and elevators necessitate closed carts.) Planning for a case cart system should include:

- Forming a multi-departmental committee that will identify tasks and determine responsibilities
- Developing a budget that will include both the cost of materials and the cost of personnel necessary to perform all tasks
- Identifying a case cart coordinator and instrument specialist
- Determining the floor space required in sterile processing for the case carts
- Mapping the route the carts will follow to and from the OR
- Preparing procedure and preference lists
- Specifying specialty carts and emergency case carts
- Standardizing storage items in the decentralized areas
- Setting timelines for the completion of each step

According to Kaczmarek, “best practices” systems are fully automated—contained on computers and regularly updated, fully standardized, and integrated into both patient billing systems and into the master materials management program, so inventory is automatically updated. Both the clinical and materials management staff should continue to evaluate the processes, routes, and occurrence of errors to streamline the system and increase its efficiency.

Assessing the carts

Case carts are a basic workhorse product with a simple function and many options for shapes and sizes. Choosing the appropriate size and number, however, depends on an organization's unique needs. The goal is to have enough carts to be able to run the facility at peak capacity. Some organizations have found that the best approach is to have three carts per operating room: one in use; one being prepared for the next case; and one being reprocessed.

Quality and durability are the first considerations, of course, since carts must endure the rigors of many years of hard use.

A good process for evaluating carts is to test-drive a broad selection from several manufacturers simultaneously so staff can do a side-by-side comparison of the features of many carts. Quality and durability are the first considerations, of course, since carts must endure the rigors of many years of hard use. They should be able to withstand the heat of the cart-washer without rusting or deteriorating; welds and drawers edges should be smooth and clean; and parts should move easily and fit securely.

Cart sizes and components come in an array of options, and many manufacturers can customize them to fit specific needs. They can be tall and narrow for a tidy, space-saving footprint or short and wide for use as an extra surface during procedures. Some closed carts have drop leaves that open to provide even more workspace.

Choosing between **open and closed carts** is another fundamental consideration. Closed carts are heavier, more expensive, and harder to clean than open carts. But they provide greater security for sterile contents, and without a dedicated clean pathway, closed carts are a necessity. Doors on closed carts should fit smoothly and should stay open and fold out of the way. They should latch securely and smoothly. On the other hand, open carts are lighter and move more easily, although their contents are more visible and may be more vulnerable. “[C]ustom, tamper-proof covers are available for most open carts—as an infection control and security measure,” writes Sharon Bayliss of Johns Hopkins Hospital in an article in *Outpatient Surgery*.

Carts with interchangeable **drawers and shelves** offer the greatest flexibility for transporting everything from small, delicate instruments to bulky drapes. Drawers that pull out make unloading easy (as long as they have a stop to prevent dumping the contents). On the other hand, a simple open cart with wire shelves allows contents to be viewed and unloaded easily. Solid shelves should be slightly sloped for drainage.

Carts should be easy to move even when fully loaded, and they should have large, sturdy casters that allow the cart to swivel and roll over long distances, across thresholds, and over all types of flooring. Casters must withstand the rigors of the cart washer without warping or rusting. In addition to stainless steel, polymer casters are easy to clean, and they maintain their shape.

Ergonomic features, such as comfortable, well-positioned handles, safe, easy-to-reach shelving, and cart sizes that all staff members can handle safely are additional considerations.

Case closed

The benefits of a case cart system are clear. It saves time and money by appropriately deploying employees, by standardizing inventory and instruments, and by automating preference cards, billing, and ordering systems. While the system can be complex, the product that supports it—the case cart—is simple and straightforward. Choosing the best case cart to support a materials management system is a matter of assessing

the many features of case carts against the physical limitations of the facility and the demands of the system.

CASE CART EVALUATION CHECKLIST

Criteria: Use the list of criteria below to evaluate each case cart. Use a rating of 1 (does not meet) through 5 (meets very well) for each criterion.

	Cart A	Cart B	Cart C
General Design:			
Appropriate selection of cart heights and widths			
Appropriate variety of caster sizes and finishes			
Handle is well-positioned			
Cart is easy to load and unload			
Doors stay open during loading/unloading			
Cart moves easily when fully loaded			
Sloped floor to speed drying			
Construction:			
Welds are smooth inside and out			
All parts are stainless steel			
Latch prevents door from popping open			
Door closure is flush with cart front			
Shelf edges are smooth			
Shelves are easy to move and reposition			
Components:			
Choice of shelf styles: wire and perforated			
Drawers to contain/protect small items			
Breakaway lock tab to secure contents			
Warranty:			
How long is the cart warranty?			
Other:			

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