

Making a Case for a Case Cart System

Once upon a time, when life – and healthcare – were much simpler, the biggest concern in the OR was completing a surgical procedure in a way that was in the best interest of the patient. Today, quality patient care is still the number one priority, but it also has a price. And that price has spiraled out of control. Cost containment pressures are forcing surgery departments to operate as efficient businesses as well as quality caregivers.

Supply costs are one of the major expenses in surgical services and often represent the largest percentage of a healthcare organization's total inventory costs. As a result, this area is frequently targeted by hospital administration for overhaul because it affords an opportunity to improve service, cut costs, and have the biggest impact on the department's operating budget.

Many organizations are evaluating options for streamlining materials management operations – containing and reducing both the direct and indirect operating costs of product usage, labor, space, and time.

Over the years, the trend has been to centralize materials management and implement various methods for distributing supplies to other departments.

Some hospitals are implementing just-in-time delivery systems, a materials handling concept that provides supplies as close to the time and point of use as possible. This reduces the amount of capital an organization has tied up in inventory. A just-in-time inventory system for surgery departments has evolved into the case cart system.

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

A case cart system may be introduced during an OR renovation as users examine workflow. It may emerge as a new directive during new building construction. Or it may simply be a way to introduce an improved method of supply delivery in existing facilities.

What is a case cart?

A case cart is a vehicle stocked with instruments and supplies designated for a single surgical procedure. A case cart can also be used for multiple cases in which a single drawer is designated for a single procedure. The carts are filled using a standard supplies list and/or preference list specific to the surgical procedure. Case carts may be packed and distributed by the sterile processing department or prepared within the surgical services department.

Carts are prepared in advance for all scheduled surgery cases, with the earliest cases of the day prepared first, and transported to the operating room. After the procedure, used items are reloaded onto the cart and sent back to sterile processing for disposal or reprocessing.

Case carts are also supplied and kept in the surgery department for the most frequently performed emergency cases.



A case cart is a vehicle that is supplied with items designated for a single surgical procedure and transported to the operating room. Items are removed from the cart and used during the procedure. After the procedure, used items are placed back into the cart and transported out of the OR for decontamination, disposal, and/or reprocessing.

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Why implement a case cart system?

Most hospitals have recognized the drawbacks of the traditional decentralized system for managing surgical supplies. They are moving toward centralization of reprocessing and supply storage in a central sterile processing department instead of in the surgery department. Further, they are increasingly implementing case cart delivery systems to supply the ORs.

Here are 10 of the top reasons why.

These probably won't make the *David Letterman Late Show* count-down, but they may very well be of interest to you.

10. Consolidate and standardize inventories

Traditionally, the range of items ordered and stocked for surgery departments results in an overabundance of different products with inconsistencies in sizes and packaging.

Widely scattered, disorganized inventories require extra time for assembling materials disbursed throughout the surgery department. Overstocking and hoarding of supplies and instruments can result in their becoming damaged or outdated sitting on shelves.

Cost containment pressures and quality improvement initiatives have prompted healthcare organizations to consolidate these inventories, standardize on certain supplies, and eliminate unnecessary sizes or varieties of the same items.

9. Streamline utilization of supplies and instruments

Inaccurate inventory results in unforeseen shortages as well as unnecessary costs. As the environment becomes more and more illogical, materials management becomes more labor-intensive, time-consuming, ineffective, and less responsive to emergencies. In surgery, this results in increased costs, but more importantly, can have a negative impact on the quality of patient care.

Streamlining inventory control means establishing policies and procedures for inventory levels, monitoring inventory growth, controlling outages and back orders, and automating ordering. It can result in better information for making such decisions as when to increase or decrease par levels of stock, when to eliminate an item from inventory because of its usage history, or when to raise or lower costs.

8. Improve space utilization

Advances in technology mean new equipment. Unfortunately, the "hardware" needed to support this technology is not shrinking in size or number. Eliminating excess supplies from the department frees up space to house this bulky equipment.

More space means less time searching for equipment or freeing it from a crowded corner. More space may also result in reducing the potential for damage to sensitive equipment. The amount of equipment stored in peripheral hallways and impinging on required passageways is also reduced.

Ideally, extra space may be used for patient care, staff needs, or added processes.

7. Enhance productivity of staff

OR staff's time is expensive. Relieving them from the responsibilities of inventory management allows them to focus on their primary responsibilities – patient care. Staff will have more time to assess, plan, implement, and evaluate perioperative care.

"Downtime" between surgical cases is frustrating for surgeons who can do little but wait. Dealing with anxious and frustrated patients and families who are also waiting is not a pleasant task for staff.

Instituting an instrument tracking system and standardizing on instruments to be included in the case carts mean a reduction in the time it takes to prepare the ORs at the beginning of the surgical schedule and a decrease in the time between cases.

In fact, the efficiencies realized in a well-run case cart system may enable an increase in the surgical caseload without increasing staff or adding operating rooms.

6. Improve infection control

The movement of patients, personnel, and materials within the surgical suite must be planned and controlled to assist in the containment of contamination.

Greater amounts of airborne contamination can be expected with increased movement. A case cart system can help reduce traffic in and out of the OR during a procedure since supplies are better organized and readily available for that specific procedure.

For some facilities that do not have a dedicated passageway or dedicated clean and soiled elevators to separate clean and soiled materials, a case cart system can both protect clean and sterile supplies and fully containerize soiled ones to reduce potential contamination of the environment.

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5. Increase operating room utilization

Minimizing turnaround time is critical for maximum utilization of operating rooms. Turnaround time for ORs is reduced when collection of materials takes place elsewhere and when soiled items can be gathered, placed into the used case cart, and moved out of the OR efficiently.

The faster the room is turned around, the more surgeries can be performed in the room. This results in generating more revenue or decreasing the number of ORs needed.

The case cart system also allows each OR to become more flexible and responsive to variations in scheduling.



Here is an example of an inefficient and unsafe method of supply delivery. The use of a back table to gather and transport supplies provides no protection from dropping or damaging the contents.

4. Improve charging systems

Consolidation and control over supplies make it easier to track costs for individual items or procedures.

Accurate charging for supplies and procedures and the collection of accurate usage information are additional advantages of a case cart system.

3. Reduce costs

A well-developed and well-run case cart system can result in significant cost savings by reducing multiple site storage of the same supplies, decreasing unofficial inventory, and enhancing inventory control and management.

2. Increase revenue

An increase in revenue can be measured by increased room utilization and decreased downtime. Charges previously “lost” may be comprehensively captured to accurately determine both patient charges and the costs of care.

1. Improve patient care

Patient care is improved when highly trained professional OR staff are released from the non-nursing activities of inventorying and restocking supplies and allowing them to focus on the care of patients. In addition, errors may be reduced because the right items are in the right place at the right time.

Why haven't you implemented a case cart system?

A recent materials management survey revealed that more than half of all hospitals utilize a case cart system. Why haven't the other half?

Because creating such a system isn't always easy.

A variety of reasons, all important to the staff, may be identified for delays in implementing a case cart system. Do any of these sound familiar?

“But we've always done it this way.”

It's natural for people to wonder why they should change a system when it seems to be working. But the realities of managed care and the spiraling costs of healthcare have made it impossible to not

evaluate every system for its potential to reduce excess costs and become more efficient.

At first people are reluctant to let go of the way they've always done things – like giving up the responsibility or control of inventory. Or even cutting back on the number of each item inventoried.

What some organizations have discovered is that what starts out as relinquishing control can end up as a very positive experience with beneficial results. They've even found that the more they are involved in the new system, the more they realize that they don't need as much stock in inventory.

There is also another beneficial outcome of redesigning a system – an appreciation for the cultural changes that accompany procedural ones. Staff soon come to realize that change is inevitable and that they have to break out of the old paradigm.

Effective communication and continual education help promote acceptance and smooth the transition. You may even experience what other organizations have – a spirit of cooperation, a newly developed sense of interdependency, and a heightened interest in the potential for cost reductions.

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“We have a gazillion different sizes and types of supplies, and we need them all.”

Developing a case cart system presents a perfect opportunity to assess the status quo, analyze inventories in all areas, implement product standardization, clean up and synchronize databases, and institute a common nomenclature and packaging system for all items.

It's also a good time to determine which items should be stored in the

surgery department and which ones could be better inventoried and managed in a central sterile processing area. The goal is to shift as many items as possible to sterile processing, but keep the designated “time of procedure” items in the OR since their usage can't be predicted.

Standardized back-up supplies may be kept in each operating room. Specialty carts can be used to organize the items whose usage can't be predicted. For example, the size of implants or sutures often can't be determined until the time of the procedure. These carts can also house micro-instruments which are processed in the department because they are so delicate.

“We have 5000 different preference cards from our surgeons.”

Here is where more analysis, evaluation, and standardization play a major role in the success of a case cart system. The job starts with reviewing physician preference cards.

Most preference cards are hand written, are rarely updated, and

frequently result in the pulling of supplies that are no longer needed and never get used.

Furthermore, different terms are often used to refer to the same instruments and supplies, which only adds to the confusion and inefficiency.

Reworking, standardizing, and computerizing physician preference cards will significantly decrease the number of “different” preferences. This will also decrease errors in stock as well as reduce overall inventory.

“We don't have a cart washer.”

That's not a problem ... There are alternatives. The cart can be cleaned by hand between each case, using a disinfectant approved by the infection control committee.

Or you can choose not to use the case cart to transport soiled items, but instead use the cart only to deliver clean and sterile items to the OR. With this method, it is not necessary to wash the cart between uses.

“We're not convinced that sterile processing will deliver materials on time and in the appropriate quantities.”

In order for a case cart system to be successful, it is critical that the staff of both the sterile processing department and the surgery department become familiar with the changes and requirements demanded of this new system.

It is essential to have staff input into the system in order to encourage a team approach.

As employees become more capable and confident, they are

better able to accomplish their tasks and contribute to the success of the case cart system.

This can be achieved only by effective training and continual in-service programs. Time must be allocated to develop and implement in-service programs, to assess abilities, and to evaluate training efforts. Good communications between the two departments will also enhance the success of the system.

It's critical to develop thorough and effective guidelines and to review and revise these guidelines on a regular basis. Job descriptions should be written. Policies and procedures manuals and infection control techniques must be documented and implemented. Procedures must also be developed to allow for changes in OR schedules, for emergencies, and for cancellations.

“We have quite a few emergency procedures after hours.”

Equipment for emergency cases must be available at all times. Basic case carts can be prepared to handle emergency cases and housed in the surgical area for immediate use. Specialty carts can be stocked with instruments and supplies to support specific surgical procedures.

Making a Case for a Case Cart System cont'd.

“We don’t have the budget.”

The cost of introducing a case cart system, including planning time and space requirements, may be offset by the expected benefits of such a system.

Consider the hidden costs of not implementing a case cart system, and use these figures to calculate a return on the investment required to implement a case cart system.

These include the costs of:

- Supply hoarding
- Dated and obsolete supplies
- Broken or damaged supplies
- Stock-outs and emergency requisitions
- Amount of space in each unit dedicated to storing high levels of supplies
- Cost of labor when professional staff is responsible for managing supplies
- Lost patient charges resulting in lost revenue

You may find that the cost savings due to reducing inefficiencies and the increased revenue due to increased productivity more than pay for your carts and the costs of implementing the system.

You can determine this by developing a business plan that includes all the elements required to implement a case cart system – cost of the carts, cost of the staff time required to develop and implement the system, and the anticipated savings in reduced inventories and increased efficiencies.

If you plan to increase your caseloads, you’ll also want to include an estimate of your increased revenue potential.

“We don’t know where to begin in planning a case cart system or in selecting the appropriate carts.”

The successful implementation of a case cart system will be enhanced by the planning done prior to initiating the system.

The case cart market is extremely homogeneous. Case carts are sold as commodity products by a large variety of small regional stainless steel manufacturers.

Few manufacturers specialize in case carts, instead they tend to specialize in stainless steel

equipment and furnishings for commercial and industrial applications.

Consequently, it’s critical to determine what’s important in your situation and to carefully research the available options. Of course, it doesn’t hurt to have a list of things to look for – a list that represents what others have documented as important in implementing their case cart systems.

Planning for a case cart system should include the following:

- Form a multi-departmental committee to identify tasks and determine responsibilities
- Determine a budget that will include both the costs of materials and the costs for personnel necessary to perform all identified tasks
- Develop policies and procedures to support each phase of the system
- Identify a case cart coordinator and instrument specialist
- Educate personnel in the concepts and desired outcomes
- Determine the floor space required in sterile processing to hold the case carts
- Map out the pathway the carts will travel to and from the ORs
- Prepare procedure and preference lists
- Specify specialty carts and emergency case carts
- Standardize decentralized room storage
- Set timelines for when each process should be completed

Making a Case for a Case Cart System cont'd.

What to look for in choosing a case cart?

In order to determine the best cart for a particular facility, the decision makers should:

- Become familiar with all the available design features (For example, is a specific size needed because of the size of doors, elevators, or dumbwaiters?)
- Establish the performance criteria that will be used to evaluate the various carts (Make a list of the cart's features that your case cart system will require.)
- Set up trial multi-cart evaluations (It's helpful to have several brands of carts available at the same time to make immediate comparisons.)

Here are some issues that others have used in evaluating and selecting case carts:

Number of carts required

The required number of carts for a case cart system will vary among organizations. The goal should be to have enough carts to run the facility at peak capacity. Some organizations have found that the most efficient method is to have three carts per operating room. This maximizes the use of the carts since while one cart is in use, the second is prepared and ready for the next case, and the third cart is being reprocessed.

Open or closed carts

The initial selection of case carts will include whether the carts will be open or closed.

An open cart:

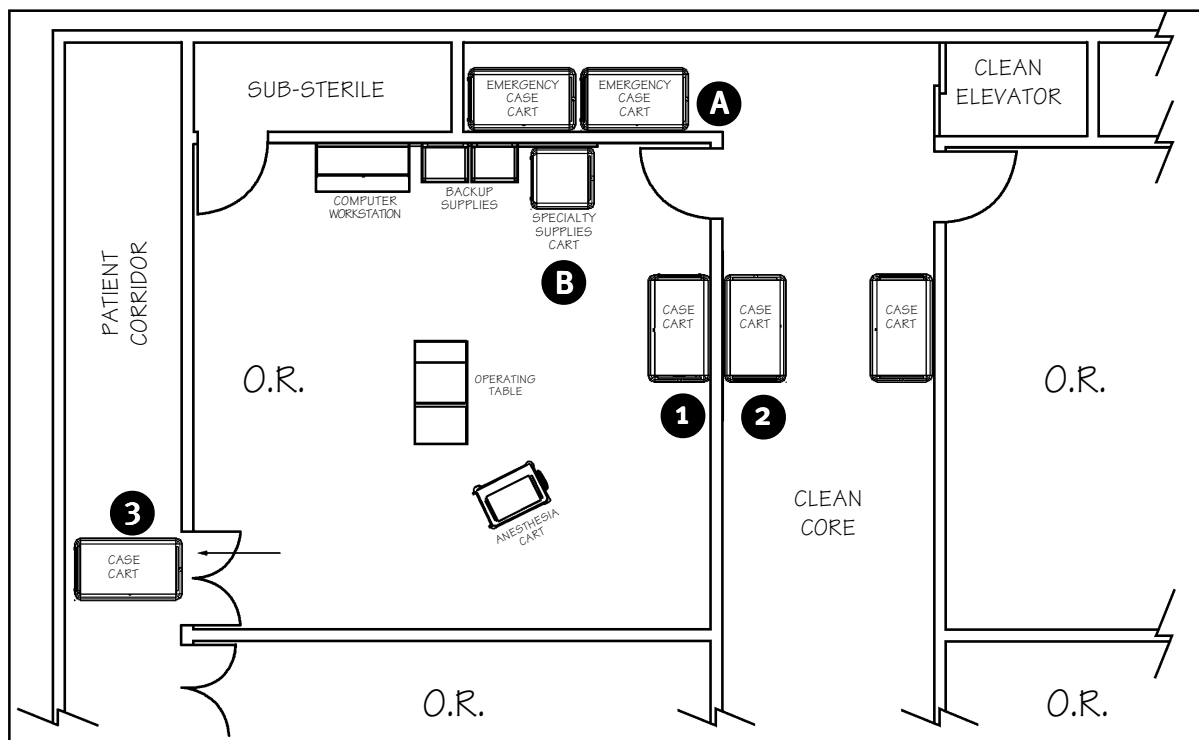
- Will be lighter in weight
- Will have a lower cost
- Will require a covering during transport (which will require additional expense for purchase and disposal of covers)
- May increase the potential for compromising the sterile integrity of the contents
- May be more difficult to fully containerize small and/or soiled items

A closed cart:

- Will be heavier in weight
- Will have a higher cost
- Will better secure and protect the contents
- Will help reduce the potential for environmental contamination
- May need to be large enough to handle soiled linen and trash which "expand" after packaging is opened
- May need to be used as a back table

Utilizing three carts per operating room maximizes the use of the carts:

- 1 The first cart is in use
- 2 The second is prepared for the next case
- 3 The third is transported out for reprocessing



A Additionally, there are generally three to four "emergency" carts for emergency and add-on cases.

B Specialty carts are also required since there are a variety of items that cannot be determined prior to the procedure; e.g., suture, eye, ortho, neuro.

Making a Case for a Case Cart System cont'd.

Developing your checklist.

Several hospitals have found that developing and using a “checklist” of the features and benefits they desire in a case cart improves their selection process. Here is a sample.

How easy are the carts to use, clean, and maintain?

Do the casters roll easily, do they swivel, do the carts have a brake to keep them in place once they're parked?

Can you organize multiple cases in one cart? Do they allow you to contain/control small items to prevent them from getting dropped, torn, crushed in plastic bags? Do you have to unload the whole cart to get to the bottom items?

Can the carts be cleaned easily? Can they be washed in an automated cart washer? Is the floor sloped to speed drying? Are there drainage ports to prevent pooling?

Can the carts be repaired and maintained easily and inexpensively? Are they all stainless steel, including the casters, to help prevent rust? Do they have replaceable bumpers?

Are the sizes and options appropriate?

Are the selections of heights and widths appropriate for your use? You may need a variety of sizes – low and wide carts to be used as back tables, tall carts with a small footprint to conserve space, large carts for housing large instruments such as in orthopedics, tall carts to use for multiple cases in one cart, etc.

Are the caster sizes and finishes appropriate for your situation? If your carts travel over long distances, in trucks, or over thresholds, you will need large and durable casters. If you clean your carts in an automated cart washer, stainless steel casters will be more durable.

How well are they made?

Are there smooth welds inside and out to decrease the potential for tearing sterile packaging? Is the shelving smooth and adjustable?

CASE CART EVALUATION CHECKLIST			
CRITERIA Use the list of criteria below to evaluate each case cart. Use a rating of 1 (lowest) through 5 (highest).	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:			
TOTAL SCORE			

Making a Case for a Case Cart System cont'd.

Once implemented, how do you evaluate and improve a case cart system?

The same analysis and planning that went into implementing a case cart system should be applied to evaluate how the system is working. You may want to make portions of the case cart system part of your CQI (Continuous Quality Improvement) program. For example, during one quarter, you may track how many unused items are returned on case carts. This will help you better determine the actual supplies needed on particular case carts and improve your inventory management.

Other areas that can be evaluated are:

- Comparison of supply purchases before and after implementation to determine reductions in inventory and the associated costs
- Analysis of charging systems to determine reductions in lost charges
- Tracking the completeness and on-time delivery of the case carts
- Analysis of room utilization statistics

There really was a time when healthcare – and life – were much simpler. Developing and implementing a case cart system is not a simple process. However, an efficient and effective case cart system can help simplify the delivery of quality surgical patient care, help reduce the costs of inventory, and contribute to the increased productivity of staff.

Herman Miller for Healthcare has experience in planning case cart and materials handling systems. We would be happy to share our knowledge and expertise in these areas with you and your project teams.

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