MOBILE ASPECTS

Comparing Supply Tracking Technologies

Why Explore Supply Tracking Automation?

Hospitals and health systems in the US are typically generating annual revenues in the hundreds of millions to billions of dollars. Their profit margins are razor thin and getting squeezed tighter each day. Yet hospitals, and specifically their procedural areas like the ORs, Cath Labs and Interventional Radiology, are sitting on tens of millions of dollars of inventory that are being managed by a lot of manual processes.

Billion dollar companies in other industries have typically spent millions of dollars and countless hours over the past several decades upgrading their supply chains using the latest available technologies to ensure that they have exactly what they need when they need it, while minimizing any excess inventory. These just-in-time inventory systems boost profits and reduce waste by ensuring inventory processes are kept running at optimal levels of efficiency. In fact, much of Amazon's recent domination of the retail space can be attributed to significant investments made to optimize its supply chain operations.

The effect of poor inventory management practices is even more extreme in healthcare compared to other industries, with undocumented medical devices directly impacting top-line revenues.

So why are hospitals so far behind the curve when it comes to managing their inventory?

A lot of the explanation may lie in the historical establishment of hospitals and healthcare systems as non-profit entities whose primary purpose was to provide top-notch patient care without regard for revenue or profits. But with the introduction of the Affordable Care Act, bundled payments and other pending legislation, hospitals are being forced to quickly turn into well-oiled businesses just to make ends meet.

With the average hospital generating nearly half of its revenues and a larger portion of its profits from surgery, the procedural areas like the ORs, Cath Labs or Interventional Radiology are a great place to focus cost-cutting efforts in the supply chain. Hospital finance executives and department heads can look for quick wins in the supply chain in these areas to slash costs and improve the top-line.

We'll look at the pros and cons of implementing 4 common point of use systems to help you evaluate various options as you look to upgrade your hospital's supply chain.

The Pros and Cons of Four Common Point of Use Systems

Pros

Cons

Manual Tracking

Pros

- Comfort level, status quo
- Effective enough to maintain current business practices

Cons

- No actionable data to use to improve operations and no intelligent alerts
- Pervasive human error and missed charges
- Additional time spent managing supplies instead of patient care

Bar-code Tracking

Pros

- Provides introductory level data to improve operations
- Reduces human error
- Ability to realize some basic ROI from reducing inventory levels

Cons

- Item level details are very hard to track
- 15-20% of items will still be missed for charge capture and re-ordering
- Requires constant reconciliations
- Requires manual bar-code scan for every single item

Push-Button Cabinets

Pros

- Increased level of security and accountability over manual and bar-code systems
- Items are easy to search for and locate

Cons

- Pushing buttons is inherently error-prone
- Item level details are very hard to track
- 15-20% of items will still be missed for charge capture and re-ordering
- Requires constant reconciliations
- Inefficient use of physical space

RFID Tracking

Pros

- Rich, item-level data drives significant ROI
- Recall, expiration management greatly simplified

With optional cabinets:

- Items are easy to search for and locate
- Secure storage and accountability
- Elimination of cycle counts

Cons

- Higher implementation cost than alternative technologies
- Additional cost of tags required for usage

Manual tracking

Pros

Many departments managing their supplies manually have reached a certain comfort level – their staff have been following the same processes for years and the costs of maintaining their manual systems are baked into their cost of doing business. Fear of change is often a motivating factor for these departments to continue to avoid adopting technologies that can generate massive savings for the hospital. The systems and processes in place today are effective in allowing the department to run its operations, and are good enough to get the job done. Several hospitals have even adopted lean systems, such as Kanban, to reduce or minimize waste and have done a good job of re-ordering what they need to keep their department running.

Cons

Departments that are stuck in the manual way of managing their supplies are missing out on a huge opportunity to drive real savings for their hospital. The first thing they are missing is data on their usage and on-hand inventory. Because of this lack of data, the department is deprived of any means of improving its operations and is stuck in a spiral of waste and shrinkage.

With manual systems, the department has layers of human error built in to their documentation systems. Supplies are captured using stickers or charge sheets, which are fraught with human error. Data is then manually keyed into hospital information systems such as materials management, EMR and billing, again introducing human errors such as fat fingers or transposed characters.

The biggest downfall of a manual supply tracking system may not have anything to do with finances at all, but with patient safety. With all the time and attention being spent manually tracking supplies, clinical staff are being pulled away from patient care. This leads to unhappy staff and compromised patient safety. Instead of being at the bedside, staff are instead stuck with supply administration tasks like eyeballing on-hand levels as part of the re-ordering process, checking expiration dates or keying in usage data

Bar-code tracking

Pros

Bar-code systems provide departments with a low-cost way to track supply usage. This basic system provides the data that departments can begin to use to optimize their inventory and understand usage trends. When interfaced with hospital information systems, bar-code tracking also allows departments to eliminate manual data entry and the bad data from human error that goes with it.

With this new data that was previously unavailable, the department is now able to measure their usage and storage trends and improve on it over time. Having access to real-life data about product usage can allow administrators to approach their doctors to rationalize their product mix and stocking levels. Previously, this was a nearly impossible task when everyone was relying on their gut instincts or anecdotal data. The data also gives administrators the ability to reduce stocking levels because the re-ordering process is now much more efficient and credible. Even with reduced stocking levels, the department is now confident that items will be on the shelf when they are needed.

Cons

While bar-code systems provide an entry-level system for gathering usage data, they do have some drawbacks. First and foremost is the difficulty that bar-code systems have tracking item level data. While bar-code systems are good at capturing which products are used and when, they have difficulty capturing item level information such as serial numbers, lot numbers and expiration dates. Staff typically won't know how to or want to scan the multiple bar-codes required to capture this information.

From working with several hospitals, we see on average 15-20% of items will fall between the cracks and fail to be captured by bar-code systems. This can be for multiple reasons from untrained or overworked staff to user error. Because of these missed items, it is hard to know exactly how many units of each product a department currently has. This makes the dreaded reconciliation process necessary, along with the continuance of manual processes, such as eyeballing, in order to keep the right number of items in stock.

Push-button cabinets

Pros

The major advantage of push-button cabinets is the increased level of security that comes with having locked-down cabinets accessible only to designated staff. This helps to address several common issues around managing high-cost medical devices, such as allowing traceability when different departments borrow items and keeping vendor-consigned items available only to designated vendors.

Another benefit is that the cabinets allow for items to be consistently stored in the same place so that staff looking for a certain item can locate it efficiently. This can cut a lot of unnecessary time that staff has historically spent looking through stacks of medical devices to locate the one needed for their procedure.

Cons

Despite the added security measures that push-button cabinets bring to your medical devices, they do have some major drawbacks. The first is due to the requirement to “push buttons” when removing or adding medical devices to inventory. The manual step of pushing a button, as simple as it seems, can be missed or done incorrectly 10-20% of the time in the real-world hospital environment. Because of this, data is never accurate and reconciliations are still required to the same degree as a bar-code environment. These reconciliations are often done after hours or on weekends, costing the department real time and money.

Another drawback of push-button cabinets is the difficulty they have in tracking item-level details. Because items are only tracked at the product level, item level details such as serial number, lot number and expiration are required to be manually typed into the system to be tracked. This time-consuming process is more often skipped than not due to the hectic environment, so many hospitals skip this process altogether and don’t track these details. This makes tracking expiration of devices a manual process that again costs real time and money.

Another issue with push-button cabinets goes back to the way they were designed. Products are forced to fit into designated slots for the system to function correctly. This leads to several complications. The first is that the footprint of the cabinets is unnecessarily large. Most items won’t fit perfectly into each slot, requiring wasted space in order to house each size of each product properly. It is also difficult to add or subtract products from inventory. Slots literally have to be re-programmed any time a new product is added or deleted from the system, requiring additional overhead to maintain.

RFID tracking

Pros

The key benefit that RFID technology provides is rich, item-level data. Because RFID tags are applied to each item, the specific details of lot number, serial number and expiration dates are captured and tracked for each item. This makes the look-up of items in the case of a recall as simple as conducting a Google search. It also makes product expiration extremely easy to manage since the exact expiration date of each item currently in inventory is known and reportable.

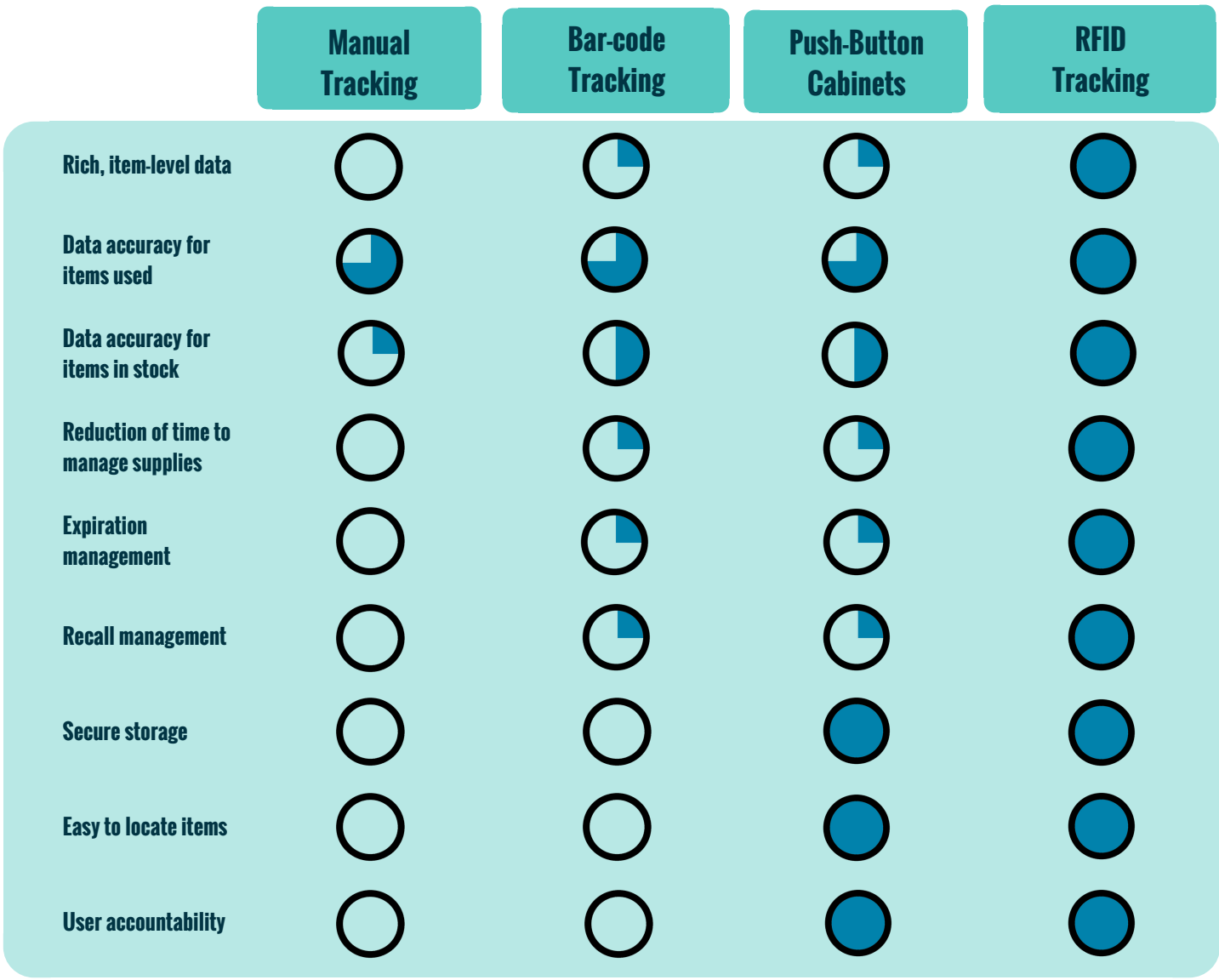
When coupled with RFID-enabled storage cabinets, all of your inventory can be located in real-time across your hospital or health system. At the touch of a button, you can check to see if that item needed in a case is stored somewhere else in the building, or elsewhere on campus. This process typically requires lots of running around and phone calls, and all of this excess time can be returned to patient care.

RFID cabinets also allow for the elimination of cycle counting. When all your RFID items are securely stored in cabinets, the exact whereabouts of each item is known in real-time. There are no overcounting or undercounting issues because each item is being tracked individually. All the dollars and hours currently being spent on inventory reconciliations can be returned to patient care.

Cons

The main disadvantage of RFID tracking is the cost associated with it. Each item that you track will require an approximately $1 RFID tag to be assigned to it. This cost of implementing RFID technology is the single biggest deterrent of adopting the technology. RFID cabinets are also an expensive investment due to the technology embedded into the cabinet to enable the real-time reading of items that are stored inside. Typically only busier environments that store a lot of expensive medical devices, such as the ORs, Cath Labs and Interventional Radiology, are good targets for RFID cabinets due to the cost of acquisition.

Benefit Comparison



Summary

At Mobile Aspects, we firmly believe that hospitals should only pursue the “right tool for the job”. Some hospitals may only require bar-code technology to feel that they are getting valuable data out of their supply usage. Other institutions may opt for RFID technology to provide the richest data that they can then turn into valuable insights. Many hospitals opt for a hybrid approach, storing their expensive inventory in RFID cabinets and reserving their cheaper items for bar-code scanning. Whatever your need, Mobile Aspects can help you manage your transition from manual, to bar-code to RFID tracking. Our “right tool for the job” approach ensures that whatever technology you decide to adopt, our rich reporting and analytics will be available to drive your cost savings initiatives. Our expert interface engineers will also ensure that your supply tracking systems are integrated with your billing, materials management and EMR systems. This will allow your department to maximize its revenue per procedure, while eliminating the costs of doing business manually today.