



CINCINNATI VA MEDICAL CENTER



PAR Bin

Model PX3232

Manufacture Code: 18184

Calibration Code: 18184

TVOC Model Made in USA

0000020504123



ACTIVE ZERO 0



CASE STUDY

Cincinnati VA Medical Center displays new Vision for PAR

1

NO. OF HOSPITALS

9

COMMUNITY-BASED
OUTPATIENT CLINICS (CBOCs)

28,869

TOTAL SCALES
IN USE

71

NO. OF LOCATIONS
WITH SCALES

FOUR YEARS AGO, THE VETERANS AFFAIRS OFFICE OF INSPECTOR GENERAL (OIG) ISSUED AN ITEMIZED REPORT THAT CAST SERIOUS DOUBTS ON THE VETERANS HEALTH ADMINISTRATION'S (VHA) SUPPLY CHAIN EFFICIENCY, EFFECTIVENESS AND ABILITY TO ADEQUATELY SUPPORT THE CLINICAL AND FACILITY OPERATIONS OF ITS FACILITIES.

Benjamin Dillon, MBA-HCM, BBA, worked in supply chain at the VHA's Central Office in Washington, when the report crossed his desk. What he read not only surprised him but set into motion a mission of his own.

In short, the federal OIG report found the following:

- No effective inventory system for managing the availability of medical equipment and supplies used for patient care;
- No effective system to ensure that supplies and equipment that were subject to patient safety recalls were not used on patients;
- 18 of the 25 sterile satellite storage areas for supplies were dirty;
- Over \$150 million in equipment or supplies had not been inventoried in the past year and therefore had not been accounted for;
- A large warehouse stocked full of non-inventoried equipment, materials and supplies had a lease expiring on April 30, 2017, with no effective plan to move the contents of the warehouse by that date.

All told, these challenges impacted hundreds of millions of dollars in volume across the VA and VHA primary and secondary inventory points – clearly, significant value.

Unfortunately, an archaic inventory management system at the time hindered VHA's ability to identify medical product availability for patient care, due partly to the lack of data in secondary or point-of-us locations. Failure to identify recalled supplies to ensure they were not used on patients compounded the problem.

Meanwhile, at roughly the same time, Dillon chose to return to his roots in the Cincinnati metropolitan area, becoming Chief Supply Chain Officer at the Cincinnati VA Medical Center (VAMC), which spends approximately \$16 million on medical supplies annually. The VA OIG's report on supply chain and information technology issues afflicting the national organization motivated him to identify and improve supply chain operations on a local scale.

To accomplish this, Dillon and his team pioneered the installation of a new inventory management system, which meant sourcing available options, assessing and evaluating the fit of each, choosing one for



implementation, installing it and then training the team to incorporate it into what should become routine operations. This also would establish Supply Chain's credibility and repair its reputation among clinicians.

But that wasn't all. Supply Chain also needed to guarantee the environmental integrity of the sterile satellite storage areas and ensure they complied with VA policy as well as develop an inventory with accountability of healthcare supplies and equipment in all off-site VAMC locations.



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OUT WITH THE OLD?

Dillon homed in on two potential sources of Supply Chain's troubles.

First, the process itself needed to improve. While it included elements of automation it wasn't fully automated and required several manual steps to complement the electronics, including using a hand-held scanner to track product use and upload data into the computer.

For example, a person equipped with a hand-held scanner had to perform a minimum of seven to nine physical steps before he or she could print a pick ticket that would then initiate restocking orders, according to Dillon. He was hoping to compress those steps ... to two.

"From a leadership perspective, I believe my purpose is to remove the inefficient and bureaucratic barriers [that] hinder our Supply Chain team's ability to provide customer service," he noted.

That dovetailed into the second issue – the information systems themselves. Cincinnati VAMC's linked inventory and financial systems were legacy systems that could be classified as "vintage" from the late 20th century.

"From a supply chain perspective, our inventory management [system] is more than 30 years old and functioned off a MUMPS-based programming language," Dillon said. "The Generic Inventory Package (GIP) did not allow our team to meet the 21st century supply chain demands. GIP provided us a limited ability using current inventory management practices for identifying the availability of medical supplies for patient care – no data in secondary or point of use locations. We experienced patient safety concerns for identifying recalled supplies to ensure they are not used on patients. We also needed to ensure that necessary healthcare supplies and equipment are available in inpatient care cases at the Medical Center, specifically Operating Room (OR) and Cath lab.

"We wanted to install an effective inventory management system throughout the Medical Center, ensuring one standardized modality," Dillon continued. "We struggled maintaining accurate inventory and accountability of healthcare supplies at many of our off-site locations. We also wanted to guarantee the environmental integrity of our offsite storage areas and ensure that they comply with VA policy."



"We wanted to remove clinicians from managing inventories."

SCOUTING FOR THE NEW

Dillon established a baseline for any prospective inventory management system he and his team would evaluate for implementation.

"One of our primary requirements in selecting a new inventory management technology was for that technology to have the ability to allow for item management at the point of use," he said. "We had looked at a multitude of different inventory management systems as well as technology modalities. One consistent theme that we started noticing from many of the other technologies is that there is a lot of manual input into the system, which in turn allowed us to see the possibility for variances."



Dillon's Supply Chain team explored the Kanban or two-bin system as well as the automated supply cabinets. They quickly ruled out the automated supply cabinets as an option because those units required clinicians to hit buttons corresponding to the number of items they pulled from the cabinets, according to Dillon.

"We wanted to remove clinicians from managing inventories," he said.

That's what attracted the team to PAR Excellence and its one-of-a-kind weight-based technology, concentrating on several appealing operational capabilities.

"With each item on its own individual scale, we would now have access to real-time inventory on hand at the point of use," Dillon indicated. "Secondly, PAR Excellence removed clinical variances from the system as the functionality at the point of use was grab and go. Finally, PAR Excellence integrated with our current inventory management system so we could place orders based off current quantities on hand."

PAR Excellence also must interface with the facility's legacy system for financial reasons, according to Dillon. "PAR Excellence is the source of truth for our inventory concerns, but our financial system is currently tied to our legacy system or GIP. PAR Excellence communicates to the GIP so we can place our orders. PAR Excellence has ordering capabilities, but unfortunately, the VHA OIT [Veterans Health Administration's Office of Information Technology] has not designed an interface with our financial system IFCAP."

Dillon and his team favor the PAR Excellence system because they found "the weight-based is much more automated than other types of POU systems in the market that rely on practitioners and clinicians to manually press buttons for each item removed."

Streamlining the labor component was key, according to Dillon.

"From a labor perspective, we wanted to remove clinicians from managing inventory. From a supply chain labor perspective, we have been able to move from a primarily labor-intensive practice to a more data and analytical practice," he said.

"Data and analytics have dramatically allowed our supply chain team to effectively manage inventory in

real time at the point of use," he continued. "Better data has also allowed us to incorporate clinical feedback into rightsizing inventory points as well as building more trusted rapport with our clinical partners."

Dillon appreciates the results so far as they have implemented PAR Vision in the Medical Center, Community-Based Outpatient Centers (CBOC) and Veterans Centers.

"As we have learned and taken more usable data from the PAR Excellence system, we have been able to optimize and continually improve upon our inventories at the point of use," he noted. "I believe we have achieved and exceeded our initial expectations using the PAR Excellence system along with our leadership's supply chain acumen."

The clinicians recognize the difference, too, he observed.

"I believe they recognize the changes," he said. "My hope is our customers attribute the positive change to our service as it takes a team to implement and maintain the system as well as strive to improve upon it as possible."



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MAKING IT GO

Dillon acknowledges that implementation didn't go as smoothly as sourcing and evaluation, specifically on the VA OIT side.

Consequently, Dillon recruited a technical subject matter expert to meet with the OIT stakeholders and "clear up all questions that our OIT partners had about the system and specifically its OIT requirements."

The implementation team fused two groups – a project team from PAR Excellence that included installers and a VA project team that consisted of leadership, project leads and front-line team members.



"As the implementation matured, we noticed those on our VA team that were excelling within the new system, so we selected several leads from our supply chain [technician] team as early adopters to train others on the system," he said.

Still, Dillon faced more buy-in challenges from the supply chain team than from the clinical customers the new system also was designed to help.

"We had to continually communicate with our supply chain team, ensuring they understood that the system was not a [bandage] that would just fix any issues we may have had prior to rolling out the project," he noted. "For example, when we turned on the supply closets our supply technicians struggled with how large the pick tickets were from our primary inventory point. The reason behind this was due to some data anomalies, such as conversion factors and unit of issue. We also noticed that the manual process of scanning and counting was not near as accurate as the weight-based system."

The PAR Bins solution constantly and consistently calculates supply quantities based on weight in a storage bin. This data is collected within the software and distributed amongst various business intelligence reporting & analytics tools to provide the groundwork for an optimal inventory management process

"After we collected and analyzed the usage data in these secondary areas, we were able to right-size the PAR levels and reorder points to meet demand at the point of use," he added.

Supply Chain also tapped PAR Excellence to showcase to clinicians and the C-suite how the system worked.

"One of the main drivers to getting our clinical customers as well as our executive team members on board with the PAR Excellence program was having the PAR Excellence team conduct an in-person demonstration for our clinical customers to see and provide feedback," he said. "The demonstration allowed clinical customers as well as the executive team to get hands-on and see how the system operated."

Because implementation started pre-pandemic (early 2020) and finished during the pandemic (around April 2021), they weathered quite a few challenges, Dillon indicated. "We finished on time and under the original awarded budget," he said.



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RATING THE ROI

Rather than conduct their own internal assessment to evaluate progress that included labor cost improvements, Dillon reached outside the organization to a curious third party.

"From a supply chain perspective, we had a graduate [student] team from the University of Cincinnati Business School come and do a timed study based off current processes versus future processes for our supply technicians that showed a time savings per FTE," he said. When the time study was conducted, supply chain had 12 supply technicians for 72 supply closets. By implementing the weight-based PAR Excellence system, the team saved a bit more than three full-time equivalent (FTE) positions or 25% of the staff, he added.

Dillon doesn't think the improvements phased the graduate students as much as another indicator. "I think the graduate students were more surprised that we were still using our legacy system," he jested.

They observed how the system affected clinician performance as well.

"We also worked with our clinical team to determine time spent on supply chain activities specifically at the point of use," Dillon said. "The feedback that we received [initially] was that many of our clinicians we're spending upwards of 10% of their time completing supply chain activities. After implementation, we conducted the same survey and noticed a significant drop in the amount of time clinicians were spending on supply chain activities. We realized a 3% to 5% decrease of clinician time on those supply chain activities."

Dillon emphasized the results as significant to the bottom line.

"Nursing staff and their time are very expensive, and when they are not spending time on clinical activities



it can be averse to clinical care," he contended. "When you compound around 800-plus nursing and clinical staff saving 3% to 5% of their time annually, that is a large cost savings/avoidance."

Dillon expressed improvements in communication between clinicians and supply chain staff, which has led to efficiencies such as PAR level optimization and reduced ordering, improvements in direct labor utilization of personnel and improvements in the legacy information systems used for medical center supply management.

"The more visibility and engagement leadership has with their supply chain staff and clinicians, the higher performing results the teams are likely to achieve," he added.

Dillon places a great deal of stock in clinician feedback. In short, they care more about convenient access to product and less about the process to provide access.

"Given the opportunity, clinicians will provide honest, detailed feedback relative to perceived level of support, performance and value they receive from supply chain personnel," he admitted. "Primary metrics for clinical satisfaction relative to inventory management's impact on operations is the degree to which the right items are available when needed at the point of delivery/time of demand. Generally, clinicians aren't concerned about understanding the processes by which items arrive to secondary points of use if the correct item is there when needed or if a replacement can quickly be located if the item's out of stock."

Before the PAR Excellence system was installed and implemented, clinicians regularly hoarded supplies "as there was not a warm fuzzy feeling about items being on-hand consistently," Dillon indicated.

But it's certainly different now. "We have noticed our practitioners and clinicians trusting the system and realizing that items are on hand when they need it at the right place and right time," he added.

To date, Supply Chain has eliminated more than \$744,000 in overstocked inventory on the shelves as of mid-October 2021, according to Dillon. Supply Chain also has slashed total average inventory picking/restocking time by more than half to 20.11 minutes per supply area from 41.09 minutes.

Dillon calculated that the best-case scenario for ROI for Cincinnati VAMC amounts to more than 40% in just under 2.5 years. He also estimated the worst case exceeding 20% in just under five years. On average, however, it more likely will be between 27%-32% within three to four years.

If there were any doubts about the inherent value of the dramatic change to PAR Excellence technology, a process/technology "glitch" pretty much sealed the deal.

"We recently had server and switch changeovers within IT, so our team had to revert back to scanning in counting supplies," Dillon noted. "All I can tell you is they were very grateful when the new servers went back online."



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Dillon's team continues to pursue "multidimensional and multi-channelled coordination and communication" with their clinical customers to ensure the endurance of their process improvements. Further, he maintained that the weight-based inventory system will generate more useful data to make optimal decisions.

HINDSIGHT IS 2020; FORESIGHT IS 2022 AND BEYOND

Looking back, Dillon admits he would do a few things differently.

"The biggest thing I would do if given the opportunity to implement PAR Excellence at a new hospital or location would be to incorporate the supply chain frontline workers into the implementation process," he indicated. "For example, our supply technicians would work alongside the PAR Excellence team members when building out [each] supply closet [because this] allows those supply chain team members to build technical acumen needed to manage the point of use system."



Supply Chain techs weren't involved at the start but came in later.

"As we matured through the implementation process, we aligned our supply techs with the PAR Excellence teams during implementation as it provided hands-on training outside of the classroom," he added.

Dillon expresses interest in expanding PAR Excellence's footprint within the VHA, too.

"I would like to work with both VHA and the PAR Excellence team to see if we can make PAR Vision and PAR Client our inventory management system of record," he said. "Ideally it would be beneficial if the system could connect to our financial system and allow for real-time electronic data interchange, placing orders with our customers in real time from the point of use."

Until then, Dillon said he is working within a few national workgroups to modernize internal systems enough to accommodate additional features already built into the PAR Excellence system.

How would Dillon advise other provider organizations considering investing in PAR Excellence's technology?

"You really must put the work in up front to make the system operate as efficiently and effectively as possible," he said. "With any new technology, keep in mind that processes may need to be modified to meet the best practices built into the software. Additionally, technology is not the fix for bad data and/or bad processes."

PAR EXCELLENCE HIGHLIGHTS

Founded: 1993	317 Client hospitals and networks	1.5 MILLION scales installed
Headquarters: CINCINNATI, OH	7,000 Departments including: Surgery, Pharmacy, Nursing, Storerooms ,Central Sterile, Ambulatory, Non-acute	Perfect for COUNTLESS products including: catheters, CPTs, drapes, forceps, gloves, gowns, linens, medication, respiratory, shampoo, stents, sutures, trocars, wires ...and more!
Employees: 109		