Critical Access Hospital Adopts Medication Management Technology to Enhance Patient Care

BD

Marlette Regional Hospital (MRH) is a critical access hospital serving east central Michigan. This growing affiliate of United Healthcare Partners provides 25 inpatient acute care beds, 39 long-term care beds, and 6 inpatient hospice beds to this rural area approximately 80 miles north of Detroit. As a rural facility, MRH is always working to expand its offerings, including updating its pharmacy information technology capabilities, so it can better live up to its mission: *"We've come a long way, so you don't have to."*

The Challenge

After learning their previous pharmacy IT solutions provider would be sundowning their equipment, Marlette Regional Hospital realized they had an opportunity to deploy new medication management systems that would offer enhanced functionality and additional capabilities. Ian Bradley, PharmD, Pharmacy Manager at MRH, called it the "perfect storm" to start from scratch and find the right solution to better support automated billing and documentation, as well as more comprehensive controlled substance management and tracking.

"There have been so many improvements in automation over the past few years," said Bradley. "We wanted to entertain all possible options, especially in regard to security and narcotics tracking, but, as a small critical access hospital, we needed to carefully consider costs."

As Bradley and other hospital stakeholders began reviewing potential solutions, they hoped to invest in systems that would support:

- Integration with their existing electronic health record (EHR)
- Secured refrigerated medication management
- Expanded medication availability that maximizes pharmacy workflows with less disruptions
- Improved controlled substance management and visibility, especially for anesthesia procedures
- Enhanced reporting for analysis and optimization
- Automated charge capture for stronger revenue recognition

The Solution

After reviewing several options, the pharmacy team selected the BD Pyxis™ MedStation™ ES, BD Pyxis™ ES Refrigerator, BD Pyxis™ MedLink Queue & Waste, and BD Pyxis™ Anesthesia Station ES to upgrade the hospital's overall medication management capabilities, both in the operating room (OR) and across the facility at large. To help provide the highest quality patient care to their community, MRH appreciated the ability to implement a holistic medication management system that supported storage and tracking of narcotics as well as refrigerated medications. The pharmacy team said this system has offered them the ability to distribute medications more efficiently so they can continue to provide the highest quality patient care.

Summary

Challenge

- Outdated clinical pharmacy solution
- Manual, labor-intensive medication tracking with limited resources
- Limited availability of life-saving medications for OR

Solution

- BD Pyxis™ MedStation™ ES
- BD Pyxis™ ES Refrigerator
- BD Pyxis™ MedLink Queue & Waste
- BD Pyxis™ Anesthesia Station ES

Impact

- Helps reduce time to therapy for patients
- Helps reduce dispensing errors
- Enables integration with electronic health record
- Helps increase accuracy in medication charges
- Helps improve visibility and control over inventory
- Increased medication capacity by 47%
- Realized pharmacist time savings
- Enhanced narcotics tracking

The Impact

Prior to adopting BD, the MRH pharmacy team had to perform manual refills to provide life-saving drugs to the anesthesiologists and certified registered nurse anesthetists (CRNAs).

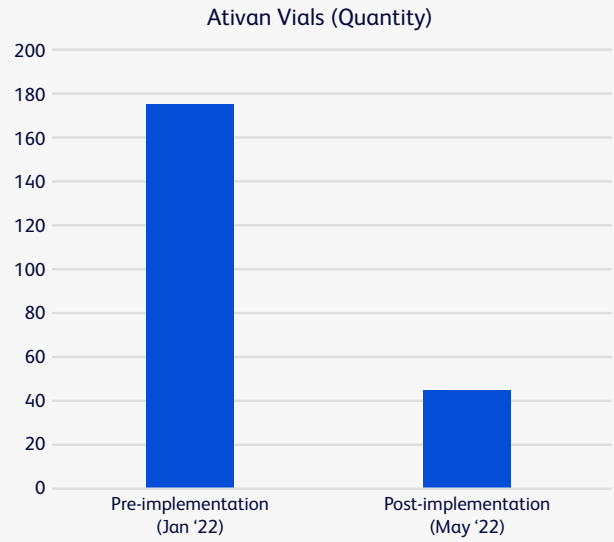
"We had to go manually check their trays and the narcotic tray – which were like lockboxes – and we'd have to review them daily for use," Bradley explained. "And it was all paper tracking in terms of narcotic usage which was difficult as it can be hard to accurately document what was used. Often, the anesthesiologist or the CRNA are going right to the next case or they're out the door, so things were missed that we'd have to account for later."

The addition of the BD Pyxis™ ES Refrigerator, BD Pyxis™ MedLink Queue & Waste, and BD Pyxis™ Anesthesia Station ES, Bradley said, has relieved "a big source of headache" for the pharmacists.

"Our narcotic tracking is no longer an issue," he said. "We haven't had to go and hunt down a CRNA on their day off to find out if they used a certain drug or where another drug went. We no longer have to go down to the OR, gown up, and physically assess the trays because, with BD Pyxis™, you can sit at your desk and run an inventory report right there. It frees up a lot of time for us to handle other tasks and responsibilities." This is hugely important to their pharmacy department which, like most critical access hospitals, operates with just one pharmacist on call at a time.

Bradley added that the features provided by the BD Pyxis™ ES Refrigerator, including its ability to integrate with the hospital's existing electronic medical record (EMR) platform, are a huge improvement over their previous storage for refrigerated medications.

"Our previous solution was, essentially, a home refrigerator with an electronic lock that wasn't very reliable," he said. "There were no bins. No tracking. It was basically open access, so we lost quite a few items because users weren't processing transactions correctly. With the BD refrigerator, everything is integrated with the rest of the Pyxis solutions and the EMR so we can easily keep up with inventory. The refrigerator's locking bins have also allowed us to store our Ativan in there now, where previously we had to short date it and waste a significant amount because we did not have a secure, lockable solution. It's solved a lot of problems for us."



After implementation, the MRH pharmacy team was able to store all Ativan vials inside the BD Pyxis™ ES Refrigerator, preventing the need to short date them due to unsecured refrigerated storage capacity. In the first month, MRH was able to reduce their Ativan order quantity by 75% compared to pre-implementation (cost savings of about 50% on a single drug), although some reduction may be attributed to national drug shortages.

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Ian Bradley, PharmD
Pharmacy Manager

Increased Efficiency to help Improve Outcomes

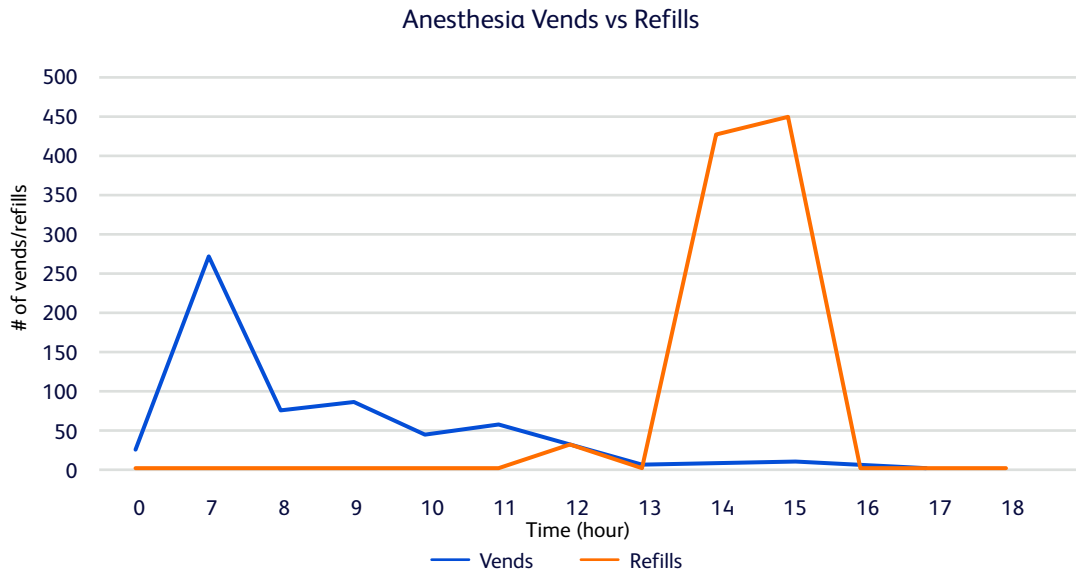
After implementing the BD Pyxis™ solutions, MRH is seeing key improvements in patient care – which is of vital importance given their rural location. If they are unable to provide care due to a lack of medication, patients would likely have to travel 50+ miles to receive care elsewhere. Now that pandemic-related mandates have eased, the hospital is seeing increased surgical case numbers so it is even more essential that the OR is always at the ready.

"We now have increased capacity which allows for greater inventory selection throughout the facility," he said. "Unlike a bigger hospital, we don't have a 24-hour pharmacy so by expanding our medication availability, time to therapy for patients is significantly reduced. Before, on occasion, the OR would run out of items on a busy case day and that could hold up surgery or even make it so the surgeon was unable to do the case here – which, obviously, is something no one wants. That isn't an issue with the new solutions."

The BD Pyxis™ ES Refrigerator has also helped the pharmacy team ensure they are not delaying treatment to patients. Bradley mentioned that one of the reasons they decided to invest in the refrigerators were so that the emergency department could have monoclonal antibody treatments for patients who came in with COVID-19.

"The refrigerator's additional tracking capabilities, transactional history, and secure bins mean that our emergency physicians could get a patient's information from the EMR, provide the treatment, and then quickly report that the treatment was given," he said. "It took what was a wildly time-consuming process and streamlined it so we could keep track of everything. Before, we didn't even allow the doctors to have access to the monoclonal antibodies for after-hours use because it was just so hard to keep track of everything – and that often delayed therapy for patients."

Now that Bradley and his team have had the new system in place for several months, he said he and his colleagues very much appreciate the security built into the various BD Pyxis™ solutions.



Two months after implementing the BD Pyxis™ MedStation ES and Anesthesia Stations, the majority of OR refills occurred after OR case activity, eliminating midday stock outs while potentially reducing time to therapy for patients.

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Pharmacy Manager

"Our previous solution was all open access pockets with no scanning, including narcotics. That obviously lends itself to the potential for medication errors, especially for different classes of medications with similar names. BD's integrated technology helps prevent those kinds of errors and it's made a world of difference."

"There are just so many capabilities supported with these solutions," he said. "Being able to expand medication availability is a huge benefit. But when you add in the narcotic tracking, the reporting capabilities, improved charge capture, the help with regulatory audits, and the inventory management, it just all coalesced into the best deal for what we were looking for. With these systems, we've seen significant improvements – and they give us a much better picture of what's happening in our hospital with medications without us having to have our eyes on it 24⁄7."

The Impact beyond the Pharmacy

The benefits of the BD solutions stretched beyond the pharmacy to the nursing floor as well. Courtney North, RN, a medical/surgical nurse and Acute Care Coordinator describes the impact to nursing: "When we were first told that we would be changing from our previous med dispense system to a very new and different system, it was slightly nerve-wracking. Now, after many months of trial and error, I think most nurses on the floor would agree that we like the BD Pyxis™ system a lot more than we thought we would," she said.

"The system has made it much easier to pull medications in a timely manner when completing med pass and has also allowed the Acute Care unit to have more access to medications that we would have previously had to contact the pharmacy for. This is especially true for night shift when a new admission occurs. There were times when medications were ordered that couldn't be given until the pharmacist was in the next morning, but now most medications are available and can be given when ordered! The BD Pyxis™ system has been easy to learn and has provided the unit with more independence, as we don't have to contact the pharmacy for new medication orders because most medications are available in the Pyxis. Overall, I think our hospital has benefited from the system and nursing staff has adjusted well and are happy with the change."

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Courtney North, RN
Med/Surg & Acute Care Coordinator

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