

Pyxis™ ES platform:

A powerful medication management tool for the new healthcare environment

Introduction

Medication management practices have become more complex and demanding as the continuum of care expands. With this extension of care and associated consolidation of providers, the need for standardized protocols that support safer and more efficient care delivery models is growing.

As health systems evolve, those in leadership are working to assure clinicians spend more time positively impacting patient care by reducing or eliminating nonclinical tasks. They are also expanding the role of health information technology (HIT) departments to streamline efficiencies to the clinical end users, with the shared goal of optimal patient outcomes.

The hospital pharmacy is a key focal point for these efforts. Inpatient pharmacies typically have one of the largest hospital budgets and are always challenged to hold down drug costs and stay within budget constraints. They also under pressure to develop more efficient medication delivery processes which increase medication availability, by revamping their medication management practices to better support users—with streamlined dispensing and administration practices across facilities.



This is no easy task. In fact, results from a recent TechValidate survey of 93 pharmacists showed that 44% had difficulty managing medications across a growing health system. The Pyxis™ ES platform from BD is designed to address this changing healthcare environment.

By supporting pharmacy, nursing, HIT and patients in a safe and efficient manner, Pyxis ES platform is a powerful tool for hospitals and health systems as they adapt to a new healthcare environment. “Pyxis ES is moving in the direction that we see our medication management moving in,” said Ginger Schnell, Pharmacy IT Manager of Ochsner Health System. “That direction is the pharmacist providing assistance to clinical services with our quality improvement group and technicians managing dispensing cabinets. We’re trying to move our pharmacists into more clinical roles and have our support staff facilitate the day-to-day functions. Pyxis ES gives us the flexibility to do that.”¹ Like Ochsner Health System, organizations that have implemented the Pyxis ES systems are realizing improvements and efficiencies in their medication fulfillment, user management and formulary management processes.

Medication fulfillment

Traditional automated dispensing cabinet (ADC) system workflow requires most configuration settings to be entered at a central console, a PC workstation, located in the main pharmacy. These settings can include changing size and location of storage compartment settings or locating additional medication storage compartments. This process, assures the right medications are in the ADC, which decreases the risk of missing medications and locating missing doses. Since the majority of the pharmacy technician work can be in the patient care areas, the constant back and forth to access the central console in the central pharmacy means many trips back and forth, which can be time consuming, especially when access is limited to one individual at a time.

The time-intensive is avoided with an integrated advanced solution such as the Pyxis ES system. “I have been at hospitals with other ADCs, and I am always happy when I’m assigned to a hospital that has Pyxis,” said Susan Drady, Director of Pharmacy, Princeton Community Hospital. “I enjoy being able to know the equipment, the product’s capabilities and that support is available when needed.”

Rather than being limited to the single access point at the main console within the pharmacy, permissioned staff have remote system management access from any web-enabled computer. “It’s convenient that Pyxis ES is web-based so that we can access ‘the brain’ from anywhere,” said Jodee Mashek, Pharm D, Director of Pharmacy at Nevada City Hospital.

Properly tracking inventory levels and related pocket management ensures that the right medications are loaded in the right devices for the right patients and decreases requests to the pharmacy. One facility at a health system in Maryland reported that remote access has saved 72 hours per month, with the information extracted from unnecessary pocket reports.² Similarly, at Vail Valley Medical Center, pharmacy staff were able to increase labor productivity by six to 10% in part because of remote, web-accessible system management.

Remote access to the Pyxis ES system functionality and information also allows nurses or technicians to search easily for med availability, eliminating the need to call pharmacy or physically check the main console. As the director of pharmacy at a mid-size acute care facility stated, “Pyxis ES has made a large impact on patient safety, nursing, and pharmacy efficiency. Due to the nature of our remote location, being able to access the server from home has had a positive impact on the pharmacy staff.”³ Eliminating the need to walk to a console helped a not-for-profit health system in the Midwest recognize a 10-minute savings every time pharmacy staff needed to perform one of these core management activities.⁴ Although every pharmacy manages their ADC maintenance differently, customers can save nearly an hour per main, per week, by having remote access to the server—assuming that a given MedStation may require five such activities per week.

By minimizing the pharmacists’ duties in administering the system, the Pyxis ES system enables pharmacies to expand their roles in patient care. “Our administration is very pro-pharmacy,” said Kevin Tripode, Supervisor of Pharmacy Services at Our Lady of the Lake Regional Medical Center in Baton Rouge, LA. “We are moving toward a model where our clinical pharmacists perform clinical functions at or near the bedside with rounding teams throughout the day, as they are in between their order entry functions. That way they are also available to assist the nursing staff with questions.” In addition, remote web access to the Pyxis ES system allows the pharmacists to manage the distribution related issues directly from patient care areas, instead of the central console in the pharmacy. “The most impactful feature of the Pyxis ES system is the ability for me to be on any campus and work with the system at a moment’s notice,” said Tripode.⁵

User management

As hospitals and health systems grow rapidly, the need for scalable medication management platforms and improved user management across the health system is a top priority for safety and security. Actively managing user capabilities in the health system is critical to preventing lost access, managing employee terminations or new hires (*and their access to medications*), and allowing pharmacists to spend more time on medication management and clinical functions.⁶

The Pyxis ES system integrates user management with a hospital or health system's Active Directory and thus, integrates user management into the Health Information System (HIS), thereby improving enterprise-wide visibility. As a result, pharmacies can focus on user privileges while allowing information technology departments to manage individual user system access and profiles. User roles can be established at the health system level for standardization.⁶ "It takes a considerable amount of time to manage all of the users, especially here because we have a very large student nurse population," said Michael Mohundro, Senior Director of Pharmacy at Our Lady of the Lake Regional Medical Center. "Provisioning all of those users consumes a great deal of the pharmacist's time. We also need to provision them on the back end when they are no longer a part of the organization. So the ability for the Pyxis ES system to help remove that burden was a key driver of our decision."⁶

Because Pyxis users can flow directly from the hospital user management system, a 919-bed private, not-for-profit healthcare system in the Southeast reported a two-hour per day, per facility time savings for system user management, along with increased security. This same system also eliminated all time spent deactivating user access and eliminated errors found by the manual legacy system.⁷ When an employee is no longer with the health facility, Pyxis receives notification from the HIS, which automatically terminates user access, saving pharmacy time and preventing potential threats to security.

Eliminating the requirement for pharmacy setup saves significant time for the pharmacy manager.

Another health system that includes 25 hospitals and 50 health centers recognized that the Active Directory integration decreased Pyxis System user management work from three to four hours every two weeks, down to three minutes.⁸ Employee additions to the directory require only configuration; complete user detail entry is no longer required every time. "With Pyxis ES, we are easily able to use employees from other campuses. Active directory is a plus," said the pharmacy director of a large acute-care facility.

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their users. "Once they're in Pyxis ES, each site can assign that nurse an area and a role at that hospital," said Suzanne Warren, Director of Pharmacy at Ochsner Health System. "Each hospital used to have their own method of assigning user names. So each nurse used to go to one hospital and have another username. It was very confusing. Now no matter where they go it is the same username and password as their hospital username and password."¹

In a study of 37 users of the Pyxis ES system conducted by TechValidate, 57% of surveyed pharmacists who reported time-intensive user management processes or nursing workflow process inefficiencies increased their labor productivity by six to 10% or more with the Pyxis ES System.⁴ A vice president of pharmacy at a multi-site health system said, "We chose the Pyxis ES system to achieve better management from a system perspective, remote access to server and user maintenance with active directory."⁴



Formulary management

At Ochsner Health System, the Pyxis ES system allowed managers to standardized user management processes across their system and realized significant efficiencies in handling their users. The item can then be configured for a single site or for multiple sites at once. Pharmacy Information System (PIS) formulary integration has saved Pyxis ES customers up to 20 hours per facility, per month that was previously spent managing their ADC formulary.⁶ Managing a single formulary reduces the amount of time required to oversee the entire pharmacy distribution chain. Mercy Medical Center in Baltimore, MD estimated that prior to implementing the Pyxis ES System, 21 to 30 hours per week were spent managing formulary changes and additions at each acute care site.⁴

King Faisal Specialist Hospital in Riyadh, Saudi Arabia optimized its medication management enterprise-wide by implementing Pyxis ES system. Perwez Siddiqui R Ph, Specialist of Pharmacy Informatics at King Faisal,

updates and improved data management with Pyxis ES, including enabling clinicians to use just a single password enterprise-wide, will free nurses to devote more of their time and attention to patient safety and care.” Results from a study at King Faisal showed that full interoperability between the Pyxis ES systems and the hospital’s HIT systems reduced the time required for formulary management by 83%.⁹

Because legacy ADC systems cannot manage system-level formularies from one server, separate formulary databases must be managed individually at each facility. Thus, when a pharmacist needs to make a system-wide formulary line item edit, that edit must be made on location for each individual facility.⁶

Clearly, managing multiple formulary databases with legacy ADC systems consumes pharmacy resources that could be utilized more efficiently elsewhere, particularly in the clinical care setting. Integration between Pyxis ES system and the PIS results in one master formulary for the entire health system, which can be adjusted as needed for each hospital.¹⁰

With Ochsner Health System moving to standardize processes across its enterprise, there was a strong push for the system to establish one formulary across all sites as well. The integration between the Pyxis ES system and the PIS resulted in one system formulary for the entire health system, with the flexibility to adjust by facility. “With separately managed systems, a single drug could be listed with eight different descriptions—no continuity. Now our central team can enter meds matching Epic with the same view of drug, no matter where they are or what system they are in. This gives users confidence that they have the right med for right patient at right time,” said Schnell.

Managing multiple formularies also creates disruption in the pharmacist workflow and can add to overall formulary expense. Without proper management of the formulary, high-cost non-formulary medications used at outlying facilities may be difficult for health systems to identify and eliminate. Also those medications with low usage may not be identified, causing waste and preventing possible sharing of medications across facilities. Changes to formulary line items create intensive labor when they need to be reentered so often, particularly in large health systems. The Pyxis ES also helps customers discover previously unknown medication usage information to better forecast orders, waste and turnover. Streamlining the process of managing formulary items has helped an 800-bed regional medical center experience a 50%

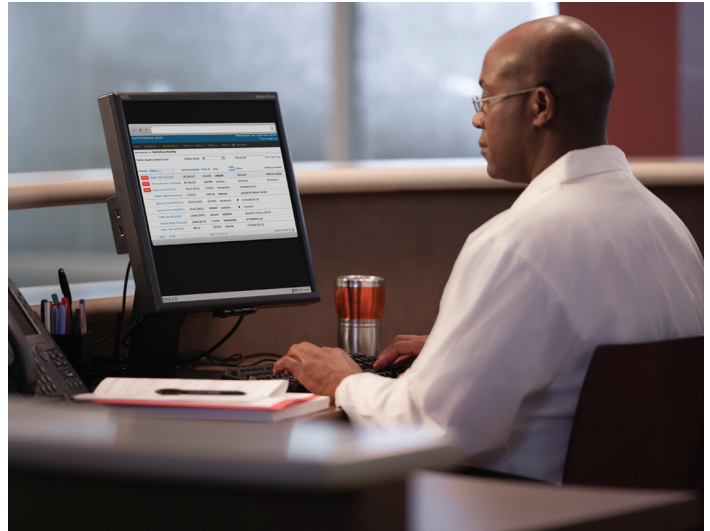
“Pyxis ES also helps customers discover previously unknown medication usage information to better forecast orders, waste, and turnover.”

increase in the efficient management of formulary additions and changes. This can be translated as a time savings of four to five hours per month. This same medical center was able to reduce its ADC medication expiration by 25% due to more active outdate tracking.¹¹ Another three-hospital system had a 75% reduction per change or update event to formulary management after configuration was completed.¹² There is no doubt that customers choose the Pyxis ES system for its efficient formulary management. Kim Metcalf, Director of Pharmacy at the University of Connecticut Health Center said, “We chose to implement Pyxis ES system because its single formulary allowed us to manage the entire pharmacy distribution chain—from ordering, to receipt, to packaging, to dispensing, to delivery, to administration.”¹⁴



Unprecedented enterprise management

The new Pyxis ES system features many familiar and fundamental core Pyxis MedStation capabilities, such as vastly improved medication availability, allowing nurses to start patient therapies faster by reducing time to first dose and improving nursing and pharmacy workflow. However, the strength behind the new Pyxis ES platform lies in its ability to provide capabilities that can be leveraged across the health system in unprecedented ways. “Simplified and convenient server access coupled with reliable MedStation and Anesthesia system devices make for an easy-to-operate system, even in a large institution such as ours,”⁴ said Albany Medical Center’s Pharmacy Supervisor, Ian Colgan, about his experience integrating the Pyxis ES system into his organization’s workflow.



Integration between the Pyxis ES system and HIT provides the data staff needs, when and where they need it, to support immediate decision making and reporting, as well as hospital and hospital system long-term growth strategies.¹⁰ And customers are realizing these platform benefits. When asked why he rated the Pyxis ES system a 10 on a scale of one to 10, Colgan stated, “The extreme reliability, uptime, features and convenience of Pyxis ES versus the legacy platform makes for an amazing product.”

Utilizing the Pyxis ES system creates improvements and efficiencies in medication fulfillment, user management and formulary management—with impact at the enterprise level. The Pyxis ES system users are realizing benefits that allow nurses to focus on patients, pharmacists to focus on medications and patients to focus on healing.

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