INTEROPERABILITY SHOWCASE™

HIMSS

Use Case Title: Connected Medication & Supply Management

Short Description: Follow this clinically integrated medication and supply management journey as Pamela Richard, a 67-year-old, is admitted for heart valve replacement. While a routine yet acute procedure, several teams are working behind the scenes to help ensure a safe and successful surgery. This team of nurses, pharmacy staff and supply chain personnel play an integral part in delivering the care for Pamela – from patient care to medication procurement, management, and delivery. To accomplish a successful procedure, this multi-disciplinary team relies on technology and connectivity to minimize risk and ease staff burden.

This use case will illustrate how these technologies and their ability to integrate are pivotal in delivering intended healthcare outcomes. This demonstration tracks Pamela's journey, including care and medications from the OR to the inpatient setting; looking behind the scenes in the central pharmacy to understand the daily workflow to manage, prepare, and distribute medications and the actionable insights needed to improve efficiencies both clinically and operationally. Next, Pamela is followed through her postoperative clinical care, which automates the processes to accurately inform, administer, and document her medication delivery and improve nursing efficiency. This connectivity platform optimizes data exchange between devices and the EMR, combined with cloud-based analytics to help provide critical advantages in near real-time workflow insights for Anesthesiology, Pharmacy, Supply Chain and Nursing.

Value: Health systems have made significant investments in EHR systems and medical technologies with the goal of increasing clinical efficiency and medication safety throughout the continuum of care. Studies have shown, however, that even with point-of-care solutions, like CPOE, BCMA and automation technology in pharmacy and care areas, there are still medication errors and delays in care. According to industry experts, the problem lies in the gaps between isolated systems and processes. This Use Case demonstrates how a common connectivity platform that supports EMR interoperability and system integration enhances data exchange and analytics to help improve medication safety and operational workflow efficiency, informing clinical care to help protect patients--and those who care for them.

Participating Vendors: BD, Epic and Codonics

Scenario	Vendor	Products	Standards
Pamela Richards, 67-year-old is scheduled for a heart valve replacement. We will follow her care as her surgical case begins in the hospital OR.	N/A	N/A	N/A
The nurse locates the devices, tissues, and supplies needed for use during surgery, most of which are located in the case pick area. The nurse logs into BD Pyxis™ Supply Procedural StockStation and selects Pamela's case to access the pick list from OpTime. As the nurse scans items out of BD Pyxis™ Supply Procedural StockStation, the system decrements the inventory and sends the usage and UDI data to OpTime. In addition to OpTime, the tissue usage information is also sent to the BD Pyxis™ Tissue and Implant Management System (TIMS). (Please note that if the reorder point is reached on any of these items, a reorder message will be sent to Supply Chain via the MMIS).	BD EPIC	BD Pyxis™ Supply Procedural StockStation BD Pyxis™ Tissue and Implant Management System (TIMS 2.5.3) OpTime	HL7®
In the OR, the Anesthesia provider logs into the Pyxis™ ES Anesthesia System to obtain the medications to be used during the surgery. Once the medications are removed, the provider scans a medication into the Codonics Safe Label System where the medication is announced (Safety Check) and a Joint Commission compliant label is printed. After the syringe is labeled, it can then be scanned directly into the Epic Anesthesia Module at the time of administration by the provider where again the medication will be announced by the Epic Anesthesia Module, automatically charted and the NDC captured directly into the Epic Anesthesia Module for accurate charge capture. With this integration Epic enables: Reconciliation of discrepancies when completing encounter documentation Provides information on unreconciled discrepancies for pharmacy Alternatively, through the BD Pyxis™ ES Anesthesia Station integration, the provider can manually select the medications dispensed from the cart and the drug names and NDC will pre-populate the Anesthesia grid in Epic.	BD Epic Codonics	BD Pyxis™ ES Anesthesia System Epic Codonics	HL7
Now, let's move into the Pharmacy Department so we can better understand the morning activities of this busy department within your hospital … Such as IV compounding, Formulary Management, Data Analysis reports and Diversion Issues	BD	BD HealthSight™ Inventory Optimization Analytics	N/A

Scenario	Vendor	Products	Standards
Via a BD HealthSight™ Viewer display in the Pharmacy, Pharmacists have the visibility to device and medication needs on the patient floor	BD	BD HealthSight™ Viewer BD Pyxis™ ES MedStation notifications -Nurse-initiated dose request -Clinical Alerts as generated by Clinical Advisor -Track & deliver status for compounded medications	HL7
On a typical morning a Clinical Pharmacist will review the system wide drug library or formulary management issues such as Clinical Alerts, then they will shift to addressing hospital wide Diversion events and Antimicrobial stewardship	BD	BD HealthSight™ Data Manager, Diversion Analytics, Clinical Advisor	Action oriented – patient/action list
Pharmacy acknowledges incoming dose requests and adds it to the IV compounding queue, reinitiating the compounding, tracking, delivery and administration workflow	BD Epic	BD Pyxis™ IV Prep Epic	HL7
As Pamela is moved to pre-op, Pamela mentions to the nurse that she remembered that she has a Cefazolin allergy. The EMR record is updated, and Pharmacy now receives a clinical alert through Clinical Advisor that patient has an allergy to a medication that has been ordered. Pharmacy contacts Nurse to prevent administration of inappropriate medication and contacts Physician to change medication order to an alternate antibiotic.	BD	BD HealthSight™ Clinical Advisor, HealthSight Viewer	HL7, Flat File
Pamela is now moved from pre-op to the operating room. In the room, the clinicians log into Pamela's case in BD Pyxis™ Procedural StockStation and anchor the case. Any specialty items that are needed throughout the case are pulled from the station, which automatically documents the inventory usage to OP-time and TIMS.	BD Epic	BD Pyxis™ Procedural StockStation OpTime	

Scenario	Vendor	Products	Standards
At the end of the successful case, nursing returns all unused in room items to the BD Pyxis™ Procedural StockStation. This will update Pyxis™ inventory status, billing & usage in OpTime and TIMS if necessary. Then they will log out of the case in BD Pyxis™ before leaving the room.	BD Epic	BD Pyxis™ Procedural StockStation OpTime	
Pamela is moved to the PACU post-op and begins to receive medication.	N/A	N/A	N/A
During post-op care, staff sends all unused picked items back to case pick to be returned to inventory. They will log back into Pamela's case via BD Pyxis™ Procedural StockStation and return the items. This will again update usage & billing in near real-time to Op-time & MMIS. Staff then logs out and begins the posting process.	BD Epic	BD Pyxis™ Procedural StockStation OpTime	
Instead of calling Pharmacy to understand where Pamela's medication order is, Nurse remotely locates the compounded medication from pharmacy and sees where it has been delivered to.	BD	BD Pyxis™ ES/Epic interoperability BD Pyxis™ IV Prep	HL7 FHIR®
Nurse retrieves the compounded medication from the delivery location.	BD		

Data exchange standards:

The BD Care Coordination Engine is a single platform that supports connectivity across products listed below.

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
EPIC	E H R	Anesthesia - ADS Integration	HL7 v2.x	NA	NA	NA	NA	Send Receive	Send ADT allergy info, med concentration volume, strength (V2.x RDE) Receive inventory and dispense (RDS)
		Willow - Med Link	HL7 FHIR	NA	NA	NA	NA	Send	Single Sign On Send patient context

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
		EpicCare	HL7	NA	NA	NA	NA	Send	Send clinical results. NSHN reporting via CDA
		Willow and Orders	HL7	NA	NA	NA	NA	Send Receive	Send order (RDE) Communicate dispense (RDS)
		Willow and Orders	HL7	NA	NA	NA	NA	Send	Send order, ADT, infusion status
		EpicCare	WCTP	IHE PCD	ACM	AC	PCD-06	Receive	Receive alarms message from AM
BD	Pyxis IV Prep	IV compounding	HL7	NA	NA	NA	NA	Receive Send	Receive order (RDE) Communicate dispense (RDS)
	Tissue and Implant Management System	Tissue and Implant Supply Management	HL7	NA	NA	NA	NA	Send	Tissue Usage details are sent to EPIC
	BD Pyxis Procedural StockStation	Open access point of care procedural supply management	HL7	NA	NA	NA	NA	Send	Send billing and item usage details to EPIC
	BD Pyxis ES system (BD Pyxis MedStation ES, BD Pyxis Med Link Queue & Waste)	Automated med dispensing	HL7	NA	NA	NA	NA	Receive Send	Receive ADT allergy info, med concentration volume, strength (V2.x RDE) Send inventory and dispense (RDS)
		Nursing mobility solution	HL7 FHIR	NA	NA	NA	NA	Receive	Single Sign On Receive patient context

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
	BD HealthSight™ Viewer	Repository / Analytics	HL7 FHIR	NA	NA	NA	NA	Receive	Receive order, ADT,
	BD HealthSight™ Clinical Advisor	Analytics/Clinical Alerting/Reporting	HL7, Flat File	NA	NA	NA	NA	Receive Send	Receive data with ability to submit data into EMR as PDF file

References:

https://www.healthcareitnews.com/news/connectivity-value-integrated-solutions-and-their-impact-patient-care
https://www.bd.com/en-us/products-and-solutions/solutions/bd-institute-for-medication-management-excellence