Smart Pump Interoperability

_Tightening the Loop on Medication Administration_

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Objectives

• Define closed loop medication delivery system and specific technological components currently being used
• Acquire a general overview of smart pump interoperability
• Identify proposed benefits of smart pump interoperability
• Explore potential risks associated with smart pump interoperability

Infection
Chemotherapy
eMAR
Oral
Error
Acetaminophen
iv
Stat
Titrate
IM

Closed Loop Medication Administration

Order
Verify
Dispense
Administer
Document

Insulin
Patient
Fever
Pain
PRN
IV Pump
Safety
EHR
Order
Complimenting Process with Technology

- Prescribing
  - Using CPOE with embedded clinical decision support to prescribe medications
- Pharmacy Verification and Dispensing
  - Electronic verification by pharmacy and proper handling and delivery
- Administering
  - Automated 5 rights of medication administration with BCMA
- Documenting
  - Automated documentation (facilitating RTD) with BCMA

Closed Loop Medication Administration

- Order
- Verify
- Dispense
- Administer
- Document

- Improve process standardization
- Decrease process variability
- Reduce manual steps

Closed Loop Medication Administration: Oral PRN Medication

- Acetaminophen 325 mg PO Every 4 hours PRN for mild pain or fever greater than 101
- Available in profiled medication dispensing machine
- PRN Acetaminophen Administered via BCMA
- Documentation of Acetaminophen automated to eMAR
- Pass Rx Verification

Closed Loop Medication Administration: Scheduled Intravenous Medication

- Vancomycin 450mg IV Every 6 Hours
- Vancomycin administered via BCMA
- Dispensed to inpatient unit
- Documentation of Vancomycin administered to eMAR
- Pump Programming
- Documentation of Fluid Volume
- Closed Loop Medication Administration: Scheduled Intravenous Medication
- Pass Rx Verification
Smart Infusion Pumps

Errors Associated with Smart Infusion Pumps
- Selecting the wrong library
- Overriding soft alerts
- Non-intercepted errors
- Administering the drug to the incorrect patient
- Infusing the incorrect drug

? Smart Pump Interoperability ?
Communication between the smart intravenous pump and the hospitals information system which allows for auto-programming of infusion parameters from the corresponding EMR to the smart pump using the health information system’s BCMA system

Carefusion
**Potential Benefits**

- Decrease the number of intravenous preventable medication errors
- Increase healthcare quality
- Increase RN productivity

**Potential Risks**

- System failure
- Design flaws
- Bypassing system
- Introduction of new errors

**Pearls of Success**

- Reliable and secure wireless connectivity
- CPOE orders containing all of the necessary infusion parameters
- BCMA adherence
- Use of eMAR
- Reliable way for the pump to associate to the patient and medication order

The Therac-25
Questions