Strategies in Making the Journey to Smart Pump BCMA-EMR Interoperability

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Introduction

Smart infusion pumps with dose error-reductions systems (DERS) have significantly improved the safety of intravenous infusion therapy. Wireless connectivity has laid the foundation for integrating smart pumps with information systems such as the EMR, CPOE, BCMA and pharmacy information system. Integrating previously isolated individual pumps with other systems and devices has led to interoperability and meaningful improvements in infusion safety, clinical productivity, alarm notification and clinical practice.

Background

What is Smart Pump BCMA-EMR Interoperability? It is the use of barcode scanning to trigger the transmission of pharmacy verified physician orders from the EMR to smart infusion pumps, reducing the number of error prone keystrokes used in manual pump programming.

It provides an association between the smart infusion pump and patient, fundamentally enabling accurate time stamped infusion data while creating patient context, making it possible to analyze specific events such as dose limit overrides or incorrectly programmed infusions. Interoperability also enables pharmacy to view the infusion status of pumps to better plan pharmacy workflow and prepare infusions as close as possible to the time they're actually needed, reducing waste from discontinued medications.

Approach

Hospitals can start anywhere in preparing for interoperability-based capabilities and needs. Be sure to plan with a vision to:

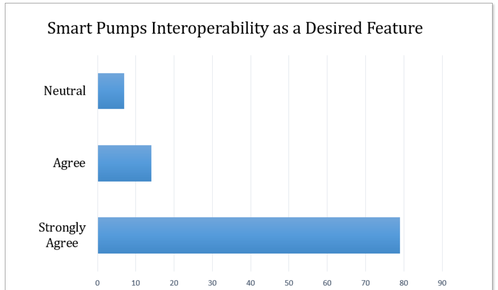
- ✓ Connect the pump to a secure and pervasive wireless hospital network
- ✓ Reliably associate the pump with the patient
  - ✓ Correlate drug/fluid, rate, dose, infused volume
  - ✓ Auto-program the pump from the pharmacy reviewed physician's order
  - ✓ Auto-document infusion data to the patient's electronic medical record
  - ✓ Send pump alarm and alerts directly to the appropriate clinician to reduce alarm fatigue and make patient care areas quieter
  - ✓ Share infusion data with pharmacy to facilitate patient-specific compounding
  - ✓ Communicate pump performance and issues with biomedical engineering/ IT team

Interoperability Vision

Improve infusion safety, quality of care, clinician satisfaction, financial performance and patient experience by integrating smart infusion pumps with the EMR and other hospital information systems

Discussion

A growing number of hospitals have smart pump BCMA-EMR interoperability on their 24 month plan and want to know how they can prepare.
Considerations when preparing for interoperability:



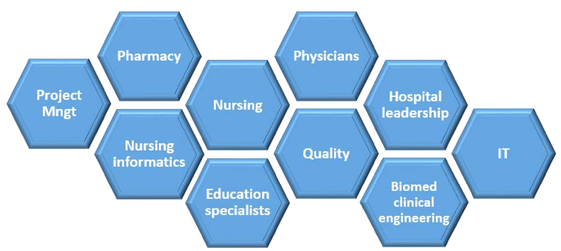
Polling question from June 24,2016 AAMI Foundation Patient Safety Seminar Highlighting the Work by Catholic Health Initiatives on Improving Infusion Therapy Safety

Project Planning

- ✓ Interoperability is a more intensive process than smart pump implementation, requiring a different set of resources and skills than past pump deployments
- ✓ Hospitals are required to work with two different vendor types, smart pumps and BCMA-EMR, which are regulated by different organizations (FDA & HIT policy) and needs to balance confidentially with transparency
- ✓ Bi-directional communication occurs in which the infusion pump and EMR 'talk' and 'listen' to each other, which is for more challenging than one-way integration
- ✓ Other hospital projects should be evaluated to determine when Smart Pump BCMA-EMR interoperability will fit into the road map (available resources)
- ✓ Interview and train clinicians to confirm they will not be burdened or overwhelmed with too many changes at once
- ✓ Determine the metrics to collect pre and post implementation in order to measure progress

Multidisciplinary project team

- ✓ The implementation team includes stakeholders from many organizational levels



Technology Readiness

- ✓ Vendor readiness should be assessed from CPOE, BCMA, EMR to smart infusion pumps
- ✓ The capabilities of the existing or new infusion pump fleet should be evaluated –validating pump wireless communication, server size, integration engines, drug library update, maintenance record and cybersecurity
- ✓ Interoperability has to function in every part of the hospital where patient care occurs, thus gaps in wireless coverage should be assessed and plans made for any infrastructure upgrade
- ✓ Bar code scanners work and are fully functional on the workstations on wheels

Align technology with practice

- ✓ Correct and complete physician orders using CPOE to pre-populate the pump
- ✓ Consistent pharmacy verification and dispensing in all clinical care environments;
- ✓ Align the pump's drug library with the CPOE order
- ✓ Medication labels and pumps are standardized & barcoded to maintain a familiar workflow for clinicians at the bedside

Conclusion

With an increased focus on medication error reduction, improved outcomes and costs, smart infusion pumps are no longer about delivering medications and fluids. The new standard of infusion therapy is the seamless integration with other once isolated systems including the EMR, CPOE, BCMA and pharmacy.

Hospitals are on a multi-year journey in moving towards smart pump interoperability. To prepare for this journey, a hospital can begin planning the steps in making the complex and often challenging implementation a reality. The purpose of interoperability is not to prove that integration can work. The purpose is to realize the vision of improving safety, quality of care, financial performance and satisfaction. Holding on to this vision is the first step.

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