Transforming Healthcare
Implementation of Smart Pump/EMR Interoperability to Improve IV Medication Safety, Quality and Cost

May 11, 2018

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**Vision:** Health technology enhances healthcare providers’ abilities to improve patient outcomes.

**Mission:** The AAMI Foundation drives reductions in preventable patient harm and improvements in outcomes with complex health technology.

Current National Patient Safety Coalitions:

- National Coalition to Promote Continuous Monitoring of Patients on Opioids
- National Coalition for Alarm Management Safety
- National Coalition for Infusion Therapy Safety
- National Coalition to Promote the Safe Use of Complex Healthcare Technology

Patient Safety Initiative Library:
- Seminars
- Papers
- + More
A Special Thanks

Clinical Expertise
Nursing Practice
Systems Innovation

NACNS
National Association of Clinical Nurse Specialists
Thank You to Our Premiere Industry Partners

Without the generous support of our industry partners, we would not be able to produce the many tools and deliverables created by the coalition to help you improve infusion therapy safety. The AAMI Foundation is managing all costs for the series. The seminar does not contain commercial content.
Questions?

Post a question at the AAMI Foundation LinkedIn page: https://www.linkedin.com/groups/4284508

Type your question in the “Question” box on your webinar dashboard

Or you can email your question to: JPiepenbrink@aami.org
Transforming Healthcare
Implementation of Smart Pump/EMR interoperability to Improve IV medication Safety, Quality and Cost
Today’s Presenter

Nilesh Desai, B.S, RPh, MBA
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Learning Objectives

1. The business case for smart pump/EMR interoperability
2. Changes to nursing workflow efficiencies
3. Pre/post study outcomes on safety, quality and cost
4. Critical success factors for implementation
Beds: 775
Employees: 8,700
Physicians: 1,600

2016
Admissions: 45,000
Births: 6,400
Emergency Visits: 117,200
Outpatient Visits: 450,000
Awards and recognitions
Hackensack University Medical Center

Goals

• Provide highest level of comprehensive healthcare while operating competitively
• Blend technology with continuous process improvement to drive innovation in clinical care
• Improve intravenous (IV) infusion medication safety and documentation accuracy
IV Infusion Challenges


Potential errors, harm and cost

- Allergies
- Meds administration
- IV programing

Over 7 million key presses on average annually

Manual Infusion

CPOE → E-MAR/BCMA → Isolated Pump

GAP

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IV Infusion Challenges

- Infusion documentation was subject to errors
  - Manual transcription
  - Delays
IV Infusion Challenges

• Lack of visibility to infusion status resulted in IV medication waste and unnecessary cost
Solution: Smart pump/EMR interoperability
Scan Patient’s Identification Band
Scan Medication Bag or Syringe
Scan Alaris System module

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Review, Confirm and Press Start

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Evaluating outcomes
Reduced manual keystrokes

Pre-population of infusion parameters reduced manual key strokes on the pump by an average of 75%

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Evaluating outcomes
Increased Guardrails compliance

**73%** compliance with use of Guardrails™

Protects against **75%** of avoidable errors for infusions and subsequent titrations

Supports use of prescriber-ordered and pharmacist-approved infusion parameters

Evaluating outcomes
Decreased total Guardrails alerts

Pre vs. Post Total Guardrails Alerts
(Per 1000 Guardrails Infusions)

- 25% decrease ADULT area
- 45% decrease NICU area
- 57% decrease PEDIATRIC area

Pre vs. Post Total Guardrails Alerts
(Per Guardrails Infusions per Day)
Evaluating outcomes
Reduced reprogramming total alerts and total overrides

Pre vs. Post Total Reprograms
(Per 1000 Guardrails Infusions)

Pre vs. Post Total Overrides
(Per 1000 Guardrails Infusions)

40% reduction ADULT area
28% reduction NICU area
35% reduction PEDIATRIC area

25% reduction ADULT area
56% reduction NICU area
45% reduction PEDIATRIC area
Evaluating outcomes
Increased capture of Patient and Device ID

Actionable information - a foundation to drive quality
Evaluating outcomes
Increased accuracy and timeliness of infusion status information

Medication Availability

Infusion Documentation

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Evaluating outcomes
Reduced costs associated with IV medication waste

73% cost reduction
$132,000 annualized/year

Infusion status data sent from the pump to the EMR
- Start and stop time
- Rate changes
- Dose titrations
- Volume infused
- Drug/fluid name (alias)
- Patient ID
- Order ID
- Alaris System ID

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Smart pump/EMR Interoperability

No new screens

No new prompts

No user interface changes
Pump Module Programming

**Supported**
- Fluids
- Continuous
- Subsequent
- Intermittent
- Piggyback (Secondary)
- New Infusion Starts

**Manual**
- Titrations
- Bolus Doses
- Basic Infusions
Syringe Module Programming

**Supported**
- Fluids
- Continuous
- Subsequent
- Intermittent

**Manual**
- Titrations
- Bolus Doses
- Basic Infusions

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Implementation Success Factors

- Multi-disciplinary team
Implementation Success Factors

- Interoperability readiness
  - Workflow reviews
  - Drug library alignment between EMR and Alaris™ System
  - Testing (a lot of it!)
  - Policies and procedures development
  - IT: Wireless infrastructure, Server deployment
  - Identification and adequate pumps, Barcoding
  - Training
  - Issues hotline to pharmacy, IT, Biomed and EMR vendor
Implementation Success Factors

- Post go-live compliance monitoring
Pre-population Tips

- New formulary items must be tested!
- Guardrails limits apply to all infusions - all rate changes and titrations are protected
- Pre-population DOES NOT mean automatic infusion start
- Clinicians have the option to manually program and make changes to pre-populated infusions
Thank you
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We hope that you will support this important mission

Why Support? Adverse events continue to be a troubling issue in healthcare and technology is a contributing factor. With complex technology being introduced at the point of care at a rapid rate there is a need to identify solutions to help care givers navigate this environment and mitigate the risks that are present. Your support will create essential tools to help reduce the risk of technology related incidents.

How to Support? It is easy! you make a tax deductible donation two ways:

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