Sheridan Memorial & Parkview Health – Infusion Pump interoperability

Session ISED12, February 13, 2019
Sheridan Memorial: Barbara Trohimovich
Parkview Health: Jackie Myers, Sara Schneider and Hunter Jett
Conflict of Interest

Kirsi Ludwig, PharmD, MBA and Stephanie Eisenhauer, RPh have no real or apparent conflicts of interest to report.

Barbara Trohimovich, RPh is an independent contractor to ICU Medical.
Agenda

• Smart pump programming
• Infusion documentation
• Alarm forwarding
• Infusion and alarm data displayed in the EHR
• Summary
Learning Objectives

1. Understand the basics and benefits of IV-EHR interoperability for general purpose and PCA* devices
2. Describe the data available as a result of smart pump programming
3. Define alarm forwarding and it’s impact on the clinician

*Patient-controlled analgesia
Sheridan Memorial Hospital

• Located on the eastern slope of the Big Horn Mountains in Wyoming
• Serving a community of 33,000 for over 100 years
• 88 licensed beds
• Accolades:
  – Becker’s Healthcare Top 100 Great Community Hospitals
  – NRHA Top 20 two years running
  – ANCC Nurse Residency Accreditation
  – H&HN Most Wired 2016
Smart Pump Integration Timeline

- Jan 2012  Smart Pump Go-live
- Aug 2012  EHR Go-Live
- Jun 2013  Interoperability Project Kick Off
- Jun 2014  ICU Go-Live
- Jan 2015  House-wide Expansion
- Nov 2016  Alarm Forwarding Go-Live
- Sept 2017  PCA integration/Alarm Forwarding Go-Live
Smart Pump Programming

• Program infusions directly from the EHR
• Automatically send infusion data from the pump to the EHR
• Benefits
  – Reduces programming steps
  – Adds another layer of safety
Information Flow

Smart Pump Programming
PCA Pump Integration

• Physician’s order is automatically programmed into the pump and infusion data sent back to the EHR

• Benefits
  – Added double check
  – Streamlines documentation; don’t have to manually chart each parameter
  – Easy for pharmacy to see how much medication the patient has received from MAR, infusion documentation, and/or I&O view
Infusion Documentation: Unit View
The Newest Frontier: Alarm Forwarding

- Provides the ability to display pump alarms on a workstation or mobile device
- Contributes to reducing alarm fatigue
- Helps improve clinician awareness and response times
- Requires minimal education

Kirsi Ludwig, Project Champion: “Easiest part of the project. Intuitive for the nurse.”
Configuring Alarm Forwarding
Med/Surg nurse: "Display of alarm information on my monitor is really helpful. I can take what I need into the room"
## Alarm Information: Patient View

<table>
<thead>
<tr>
<th>Infusion Documentation</th>
<th>Patient Device Association</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alerts (2)</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Intake

<table>
<thead>
<tr>
<th>Items</th>
<th>12:55</th>
<th>12:53</th>
<th>12:52</th>
<th>12:00</th>
<th>11:00</th>
<th>10:00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intake Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Continuous Infusions

- **dobutamine additive...**
  - Rate: mL/hr
  - Vol Infused: mL
  - mL/kg/min: 5
  - mL/hr: 7.5

- **NS 1,000 mL IV ordered...**
  - mL/hr: 125

### PCA Infusions

- **morphine PCA 1mg/m...**
  - Continuous Dose: mg
  - Loading Dose: mg
  - PCA Dose: mg
  - # Attempted
  - # Delivered
  - Vol Infused: mL

### Pump Settings

- Loading Dose: mg
- PCA Dose: mg
- Lockout Interval: minutes
- Continuous Dose: mg/hr
- Dose Limit: 24mg/4hr
Alarm Information: Patient View

- **0122**
  - Description: Air in Line
  - Action A: *dobutamine additive (4 mg/mL)*
  - Site: Left Thigh
  - Action B: *No Order*

- **31820**
  - Description: Upstream Occlusion
  - Action A: *NS 1,000 mL*
  - Site: Epidural
  - Action B: *No Order*

- **85558**
  - Action A: *morphine PCA 1mg/mL 30mL* *30 mcg*
  - Site: Left Upper Arm
### What Does The Data Tell Us?

#### Top Five Infuser Alarms

<table>
<thead>
<tr>
<th>Alarm Name</th>
<th>Total Alarms</th>
<th>% of Total Alarms</th>
<th>Alarm Rate/1,000 Infusions</th>
<th>Alarms/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infuser idle 2 minutes</td>
<td>4721</td>
<td>28%</td>
<td>526</td>
<td>52</td>
</tr>
<tr>
<td>Distal Occlusion</td>
<td>4238</td>
<td>25%</td>
<td>472</td>
<td>47</td>
</tr>
<tr>
<td>Line A VTBI Complete</td>
<td>3382</td>
<td>20%</td>
<td>376</td>
<td>38</td>
</tr>
<tr>
<td>No Action Alarm</td>
<td>700</td>
<td>4%</td>
<td>78</td>
<td>8</td>
</tr>
<tr>
<td>Prox Occl B at Startup</td>
<td>502</td>
<td>3%</td>
<td>56</td>
<td>6</td>
</tr>
</tbody>
</table>
Addressing Frequent Alarms

• Educational and practice solutions
  – Educate patients on positioning their arm
  – Start IVs in radial instead of antecubital sites
• Technology solution: investigate pump with distal occlusion reset

Among internal motivators for addressing alarm management are “opportunities to integrate alarm management into other initiatives, such as the implementation of new medical technology.”

AAMI. Alarm Management Compendium 2015
Summary

- **Smart pump programming**
  - Reduces programming steps
  - Adds 5 Rights checks to pump programming

- **Infusion documentation**
  - Provides complete and accurate infusion data for all caregivers
  - Assists pharmacy in managing IV admixture preparation

- **Alarm forwarding**
  - Allows nurses to remotely identify cause of alarm
  - Provides information so the nurse can respond more quickly & proactively

- **Pump interoperability wins**
  - Reduces medication errors
  - Improves workflow
  - Provides data transparency
Questions

Thank you for attending!

Barbara Trohimovich, RPh; barbara@bt20consulting.com
Kirsi Ludwig, PharmD, MBA; kirsiludwig@sheridanhospital.org
Stephanie Eisenhauer, RPh; stephanieeisenhauer@sheridanhospital.org

• Please complete the online session evaluation
• Please stop by the ICU Medical booth 2315 today from 3:00 pm to 4:00 pm. We will be there to answer any additional questions you have.
Parkview Health - Infusion Pump Interoperability

Session ISED12, February 13, 2019

Jackie Myers, MSN, RN, CENP, CPPS – Sara Schneider, BS-BA, RN – Hunter Jett, RN – Parkview Health
Conflict of Interest

• Sara Schneider. BS-BA, RN and Jackie Myers, MSN, RN, CZENP, CPPS have no real or apparent conflicts of interest to report.

• Disclosure:

• Both Sara and Jackie did receive compensation for travel and expenses to present today.
Agenda

• Hospital Statistics
• IV Pump Interoperability Timeline
• Know the Process
• Know your Vision and Purpose
• Know what Problems are Solved
• Know Who You Will Need
• Know the Workflows
• Know How/What to Test
• Education Plans
• Roll Out Plans & Beyond
Learning Objectives

- Understand lessons learned from Parkview’s implementation of full interoperability between infusion pumps and Epic

- Identify impact of interoperability with nursing practice and improvements to patient safety
Infusion Pump
INTEROPERABILITY
Parkview Health

- Not-for-profit, community-owned
- 11 inpatient locations throughout NE Indiana
- 13,000 employees
- > 900 providers
- 1,000 inpatient beds
- 152 physician practice locations
- > 25 specialties
- Live on Epic since 2012
- Currently on Epic Aug 2018
IV Pump Interoperability at Parkview

October 2015
Decision to purchase Hospira pumps

May/June 2016
Pumps deployed throughout health system

July 2016
Interoperability project kicked off

November-December 2017
Interoperability roll-out to nursing units

December 2017 and beyond
Syringe pumps PCA pumps OSMs?

Next steps
Know the process

1) CPOE/Pharmacy verifies

2) Order to MAR

3) 5 Rights of Med Administration with barcode scanning

4) Nurse presented with auto-programming pathway

5) Nurse scans pump

6) Required parameters sent to the pump / drug library match

7) Nurse verifies info and starts pump

8) Pump sends info to matched order in Epic
Know your vision and purpose

01
Medication Safety
Have a strong sense of purpose to improve medication safety

02
Leadership Support
Have support of Senior Leadership to acquire needed resources, people, and technology

03
Technology
Assess your technology usage and compliance

04
Wireless Infrastructure
Assess your wireless network

05
Drug Library
Understand your build and utilization
Know what problems interoperability solves and what it creates

**Addresses:**
- One med at a time workflow
- Ties med order to pump channel
- No need to interrupt critical infusions

**Be aware:**
- Bolus workflows
- Barcode mix-ups
- Misinterpretation of MAR
- Volume calculator confusion
- No Drug Selected
Know who you will need

- **Steering Committee**
- **Core project team**
- **Workflow analysis team**
- **Technical team (I.S. and BioMed)**
- **Training team**
Know the workflows - recommended

- Starting/Stopping a Fluid/Medication
- Subsequent bags
  - Titration rate changes
- IV Piggyback
- Med bolus from new bag
  - Med bolus from existing bag
- Pump association after transfer to out-of-scope area
- Emergent back association
  - Data errors
Know the workflows - reality

- Obstetrics
- Critical Care
- Medical/Surgical
- Emergency Department
- Perioperative areas
- Oncology
- OP Infusion
- Pediatrics
Know how/what to test

- **Internal I.S. Tests**
  - Wireless network
  - Unit testing
  - 30-drug test

- **Integrated Med Test**
  - Every infusion medication
  - in every dosing unit

- **Integrated testing**
  - End-to-end Epic testing

- **Production Test**
  - Moved build to unused unit in production
Encourage simulation run-throughs

1. Movement of patients throughout the organization
2. Narrators and Activates
3. To and From procedural areas
4. Non-integratable drugs
Develop your education plan

Work closely with Clinical Educators

- Basic CBL
- Videos
- Classroom sessions
- Super Users
- Sidebar report
- Physician education
- Out-of-scope area education
Know your roll out plan and beyond

01. Decide on go-live strategy
02. Where to start roll-out?
03. Keep Finance involved throughout the project
04. Plan early for ongoing education
05. Need an on-going governance plan
06. Watch out for “gotchas” – drug shortages, etc.
07. Have a communication plan, even post-implementation
08. Plan for frequent drug library pushes
09. Pump updates pose unique challenges

Fully Implemented!
Interoperability Compliance

Total Compliant Infusions

Total Infusions

- Emergency Departments
- ICUs
- Medical/Surgical units
- Family Birthing Centers
- Outpatient Infusion Centers
Thank you!

Questions? Contact us:

**Jackie Myers**
- MSN, RN, CENP, CPPS
- Director, Medical Nursing units
- jackie.myers@parkview.com

**Sara Schneider**
- BS-BA, RN
- Manager, Inpatient Care Solutions
- sara.schneider@parkview.com

**Hunter Jett**
- RN
- Epic Analyst
- hunter.jett@parkview.com

**Becca Mahuren**
- BS, RN
- Medication Safety Integration Nurse
- rebecca.mahuren@parkview.com
Please complete your online session evaluations and stop by the ICU Medical booth 2315 today from 4pm to 5pm after this session.