Smart Pump Interoperability: A Multi-System Safety Journey

February 23, 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:

1. National Coalition to Promote Continuous Monitoring of Patients on Opioids
2. National Coalition for Alarm Management Safety
3. National Coalition for Infusion Therapy Safety
4. Patient Safety Initiative Library:
   - Seminars
   - Papers
   - + More

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**AAMI Foundation**

Opoid Safety & Patient Monitoring Conference Companion
National Coalition to Promote Continuous Monitoring of Patients on Opioids
Clinical Alarm Management Compendium
Infusing Patients Safely: Priority Issues From the AAMI FOI Infusion Device Summit
Patient Safety Initiative Library:
- Seminars
- Papers
- + More
A Special Thanks

CLINICAL EXPERTISE
NURSING PRACTICE
SYSTEMS INNOVATION

NACNS
National Association of Clinical Nurse Specialists

AAMI FOUNDATION
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: mflack@aami.org
Speaker Introductions

Jennifer Biltoft, PharmD, BCPS
System Director, Clinical Pharmacy Services, SCL Health

Deborah Bonnes, RN, MS
Nursing Informatics Specialist, UCHHealth
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Today’s Presenters

*Jennifer Biltoft, PharmD*
System Director, Clinical Pharmacy Services, SCL Health

*Deborah Bonnes, RN, MS*
Nursing Informatics Specialist, UCHealth
Learning Objectives

1. How infusion pump integration enhances patient safety
2. The EHR documentation improvements and challenges associated with moving to interoperability
3. How workflows can simplify or complicate interoperability
4. The interoperability implications specific to pediatric and NICU patients
5. The importance of the drug library build for project and ongoing success
Hospital Overview: SCL Health

• SCL Health is a faith-based, nonprofit healthcare organization providing comprehensive, coordinated care in Colorado and Montana.

• SCL Health was founded by the Sisters of Charity of Leavenworth, who opened their first hospital in 1864.

• SCL Health Includes:
  – 8 hospitals
  – 200+ clinics
  – Home health care
  – Hospice
  – Mental Health Care
  – Safety Net Services
  – Recognized for Top Rural & Critical Access Hospitals

• Alaris Customer since 2009
• Epic Customer since 2003

<table>
<thead>
<tr>
<th>SCL Health</th>
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<tbody>
<tr>
<td>Full-time Equivalents</td>
</tr>
<tr>
<td>Medical Staff</td>
</tr>
<tr>
<td>Total Inpatient Admissions</td>
</tr>
<tr>
<td>Emergency Visits</td>
</tr>
<tr>
<td>Available Beds**</td>
</tr>
<tr>
<td>Non-acute Care Beds***</td>
</tr>
<tr>
<td>Births</td>
</tr>
<tr>
<td>Total Community Benefit</td>
</tr>
</tbody>
</table>

*Statistics based on year-end December 2015 results.
**Available beds are beds in service and available for all hospital nursing units (excluding bassinets).
***Non-acute beds include beds used for nursing home care, mental health treatment, and other such services.
Hospital Overview: UCHealth

Formed in 2012: Non-profit Colorado-owned and operated integrated health care system
- Alaris Customer Since 2008
- Epic Customer Since 2009

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Beds</th>
<th>Admissions</th>
<th>ED Visits</th>
<th>Clinic Visits</th>
<th>Employees</th>
</tr>
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<tbody>
<tr>
<td>Memorial Hospital North</td>
<td>80</td>
<td>104,572</td>
<td>348,705</td>
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<td>Memorial Hospital</td>
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<td>Medical Center of the Rockies</td>
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<tr>
<td>Poudre Valley Hospital</td>
<td>238</td>
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<tr>
<td>University of Colorado Hospital</td>
<td>615</td>
<td></td>
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</tbody>
</table>

FY15 UCHealth data and statistics
What is Interoperability & Why Pursue It?

1. Scan patient
2. Scan IV medication
3. Scan pump
4. Pump programmed, review & start
5. Document infusion data & validate

Enhance Patient Safety
Promote Best Practices
Drive Standardization (ERX/Formulary, Alaris Library, RN Workflows & Training)
Capture Valuable and Accurate Information
Improve Documentation & Increase Revenue
When is a good time to go live with interoperability?

University of Colorado Hospital: 7 years 3 months

Southern Region (2 hospitals): 2 years

Northern Region (2 hospitals): 15 months

<table>
<thead>
<tr>
<th>Point of Care Units</th>
<th>Large Volume Pump Modules</th>
<th>Syringe Modules</th>
<th>Patient Controlled Analgesia Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,320</td>
<td>3,413</td>
<td>202*</td>
<td>382</td>
</tr>
</tbody>
</table>

*UCH only

Use Real Time Location System (RTLS) for Tracking
Project Timeline SCL Health: St. Vincent Healthcare

201 Days from Project Kick-Off to Go-Live

- Start Project Steering Committee Weekly Meetings: 9/13 2013
- Start Local Steering Committee Monthly Meetings: 10/31
- Start Dataset Alignment Weekly Meetings: 11/18
- Start Clinical Workflow Bi-Weekly Meetings: 11/25
- Mapped Record Testing: 1/27-31 2014
- Integrated Testing: 3/24-3 28
- 30-day Day In The Life (DITL): 4/9-4 -11
- Bi-Weekly Meetings: 4/14
- Command Center: 5/13-5/16
- Push Out New Dataset: 5/8
- Kick Off Meeting: 10/24
Training occurred at each site by local clinical informatics staff starting about 1 month prior to go live depending on the number of nurses to be trained.

**Kick offs**
- Good Samaritan: 05/04/15
- St. Mary's: 05/06/15
- Lutheran: 05/11/15
- Saint Joseph: 05/12/15
- St. James: 05/20/15
- St. Francis: 05/27/15

**Mid-point Check In** (in addition to bi-weekly calls with RNs & Rx)
- St. Mary's: 06/16/15
- Saint Joseph: 07/08/15
- Good Samaritan: 07/15/15
- Lutheran: 07/22/15
- St. Francis: 07/29/15
- St. James: 08/10/15

**Kick Offs**
- Holy Rosary: 01/28/16

**Mid-point Check In** (in addition to bi-weekly calls with RNs & Rx)
- Holy Rosary: 02/24/16

**Go Live & Command Center**
- Holy Rosary: 04/12/16 – 04/15/16

**Kick offs**
- Platte Valley: April

**Go Live & Command Center**
- Platte Valley: 2017 Epic “Go Live”
Project Objectives and Scope: SCL Health

**In-Scope Units:**
- ICU
- Med/Surg
- Peds/PICU
- Maternity
- ED
- Neuro
- Infusion Centers
- Oncology

**Out-of-Scope Units (Whole-house deployment):**
- Clinics
- Procedural Areas/Peri-op
- NICU in the interim due to nursing workflows
UCHealth Scope

In-Scope for UCHealth

- Large Volume Infusion Pumps
- Syringe Pumps at UCH Neonatal ICU (Pediatric and other Neonatal ICUs going live on Syringe Pumps summer of 2018)
- Focus on Inpatient and ED(s)

Out-of-Scope:

- Outpatient Infusion Centers
- Perioperative Areas
- Hospital Outpatient Departments (HODs / Procedural Areas)
- Areas not using Alaris pumps
The Team: SCL Health

- Clinical Informatics Team
- Pharmacy Team
- Clinical Education/Training
- Quality
- Nurse Managers
- Super User in Epic & Alaris
- IT Team
- BioMed

Project Manager
Resource Requirements: UCHealth

TEAMS

- **Executive Steering Committee**: Monthly Standing Meeting
- **Vendors**: Electronic Health Record & Smart Infusion Pump
- **Pharmacy Integration Team (PIT)**: Weekly
- **Core Clinical Process Team**: Every Two Weeks
- **Training Team**: Every Two Weeks

RESOURCES

- **Executive Sponsor**: Chief Nursing Officer
- **Hospital Project Manager**
- **Medication Safety Pharmacists**: 1.5 FTE
- **Medication Safety Nurses**: 0.8 FTE
- **Information Technology**
  - Electronic Health Record Analysts: 1.5 FTE
  - Nursing Informatics Specialist: 1 FTE
- **Server / Networking / Interfaces**: 0.75 FTE
- **Clinical Engineering**: 0.25 FTE
IDN Level Lessons Learned: SCL Health

- Accelerated Schedule
- Collaboration on Library
- General Use of Pumps
- Wireless Infrastructure
- Shared Resources
- Impacts in Epic
- Training: Classroom vs. Floor
IDN Level Lessons Learned: UCHealth

- Committed Executive Leadership
- Embrace that Interoperability Does Not Tolerate Variability
- Adequate Number of Pumps
- Provide Comprehensive Training
- Start Early! Standardization Takes Time
- Pediatrics & NICU?
- Understand that Testing is a Journey, Not a Destination
- Someone Must Own the Data
Success Metrics: SCL Health

- **Patient ID compliance**: FROM 35.5% TO 80%
- **Overall adoption rate**: Decrease in ‘Basic’ infusion programs:
  - 2014: 70%
  - 2015: 80%
  - 2016: 90%

**Decrease in overall alerts**:
- 39% drop in total monthly pump alerts
- 46% decrease in cancelled infusions
- 41% decrease in infusions requiring reprogramming

**Total Guardrails Suite usage**: >95%

**Increase in outpatient IV start/stop time doc. compliance**:
- (40%) equates to $370k in revenue
Success Metrics: UCHealth

**Patient ID compliance**

FROM 67% TO 80%

**Integration Compliance**

88% SEPT 2016, 91.3% MAR 2017

**Med Error Reduction**

54.4% decrease in mean errors per month following implementation

**Reduction in “basic” infusions**

50.8%

**Overall nursing satisfaction?**

I believe the use of the new system Improves the quality of patient care (Strongly agree/Agree/Somewhat agree).

52.0% 2016, 81.2% 2017
Thank you!
Polling Questions

Select your answer in the “Polling Section” on your webinar dashboard
Future/Ongoing Initiatives
Mark Your Calendars!

May 11, 2018 – 12 noon to 1pm EST

Title: Implementation of Smart Pump/EMR interoperability to Improve IV Medication Safety, Quality and Cost

Nilesh Desai, B.S, RPh, MBA
Administrator, Pharmacy and Clinical Operations
Pharmacy and Clinical Operations
Hackensack University Medical Center

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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.

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This concludes the presentation