Standardize 4 Safety Webinar Series

1. Background and purpose of the Standardize 4 Safety Initiative – Let’s go back in time
2. A look at current and future S4S medication lists – Where are we now?
3. How the S4S lists are being evaluated – What does the data say?
4. Challenges with implementation of the S4S Initiative – Jumping over the hurdles
5. How to ensure successful implementation of the S4S initiative – Gather your tools
6. Implementation of the S4S Initiative at two Academic Medical Center – An adoption story

Implementing Standardize 4 Safety Standards: Adoption Stories

Mary Ann Kliethermes, Pharm.D.
Director, Medication Safety and Quality ASHP

Sean O’Neill, Pharm.D.
Chief Clinical Officer Bainbridge Health
ASHP and Bainbridge Health Collaboration

- Goal of collaboration: to enhance the distribution, adoption, and sustainability of the Standardize 4 Safety Initiative
- Bainbridge Health unlocks the full value of intravenous medication data from infusion pumps to improve safety, drive standardization, and scale scarce clinical resources

Press Release

ASHP Innovation Center and Bainbridge Health Collaborate to Improve Patient Safety, Increase Use of Standardized Medication Concentrations in Health Systems

Learning Objective

- Understand the process and overcoming challenges to adopt Standardize 4 Safety concentrations
A Discussion with:

Michael Dejos, PharmD, BCPS, DPLA
Medication Safety Officer
Methodist Le Bonheur Healthcare
Memphis, Tennessee

Paul Milligan, Pharm.D., B.S.Pharm.
System Medication Safety Pharmacist
BJC HealthCare
Saint Louis, Missouri

Questions

- How do you get started adopting S4S?
- What were your major barriers?
- How has the adoption gone in acceptance, uptake and results?
Pathway to Improved Smart Pump Usage and Governance

**Lead:** Safety Pharmacist or Nurse
**Members:**
- Pharmacists
- EHR Pharmacist
- Provider input
- Nursing input

**Time Estimate:**
4-6 2-hour meetings and offline stakeholder confirmation

**Leader:** Safety Pharmacist or Nurse
**Members:**
- Pharmacists
- Nurses
- Infection Control
- Nursing staff
- Providers

**Time Estimate:**
4-8, 2-hour meetings and offline work

Create “1 Library 4 Safety”
Standardize safe dosing limits and minimize number of drug profiles

Pilot “1 Library 4 Safety”
Inform larger rollout and allows for refinement

Establish a Library Governance Team
Review usage data and adjust guardrails for safety, completeness and usability
Coordinate with stakeholders, make or endorse team decisions
Be able to address patient safety design changes quickly and efficiently
Establish a sustainable communication plan for updates and feedback

**Members**
**Sponsor/Champion:** Nurse or Safety Pharmacist Leader
**Chair:** Pharmacist or nurse pump specialist

1 representative from each hospital—Either member or informed (cc'd)
- Pharmacists, including IV room and medication safety
- Nurses from many disciplines
  At least 1 from ICU
- Providers including anesthesiologists (ad hoc)

**Meetings**
Virtual or by email

**Time estimate**
1-1.5 hours per month

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2015 Current State

<table>
<thead>
<tr>
<th>Infusions</th>
<th># Hospitals</th>
<th>% Total (n)</th>
<th>Fluid (n)</th>
<th>Amt / vol (n)</th>
<th>Volume in ml (n)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine Infusion</td>
<td>7</td>
<td>0.75 mg/ml</td>
<td>premix (7)</td>
<td>75 mg/100 ml</td>
<td>(7)</td>
<td></td>
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<tr>
<td>Esmolol Infusion</td>
<td>8</td>
<td>10 mg/ml</td>
<td>(8)</td>
<td>250 mg/250 ml</td>
<td>(7)</td>
<td>NS (7)</td>
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<tr>
<td></td>
<td></td>
<td>20 mg/ml</td>
<td>(1)</td>
<td>2000 mg/100 ml</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>Fentanyl Infusion</td>
<td>11</td>
<td>8 mcg/ml</td>
<td>(8)</td>
<td>2000 mcg/250 ml</td>
<td>(1)</td>
<td>NS (8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/ml</td>
<td>unidiluted</td>
<td>2500 mcg/250 ml</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25 mcg/ml</td>
<td>(6)</td>
<td>2500 mcg/250 ml</td>
<td>(6)</td>
<td>(1)</td>
</tr>
<tr>
<td>Furomide Infusion</td>
<td>11</td>
<td>1 mcg/ml</td>
<td>(8)</td>
<td>2000 mcg/100 ml</td>
<td>(1)</td>
<td>NS (8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 mcg/ml</td>
<td>DSW (2)</td>
<td>2000 mcg/100 ml</td>
<td>(2)</td>
<td>(1)</td>
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<tr>
<td></td>
<td></td>
<td>4 mcg/ml</td>
<td>(8)</td>
<td>1000 mcg/100 ml</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mcg/ml</td>
<td>(1)</td>
<td>1000 mcg/100 ml</td>
<td>(1)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

*mcg/ml: 8, 10, 25, 50 Some are CADD*
Example of tracking document

<table>
<thead>
<tr>
<th>Drug</th>
<th>Conc. 1</th>
<th>Conc. 2</th>
<th>Conc. 3</th>
<th>Conc. 4</th>
<th>Dosing Units</th>
<th>Fluid</th>
<th>Amount/Vol.</th>
<th>Commerically Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esmolol</td>
<td>10 mg/ml</td>
<td>20 mg/ml</td>
<td>Yellow</td>
<td>mcg/kg/min</td>
<td>2500 mg/250 ml</td>
<td>D5W (peripheral)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Fentanyl</td>
<td>10 mcg/ml</td>
<td>50 mcg/ml</td>
<td>Yellow</td>
<td>mcg/hour</td>
<td>2500 mg/50 ml</td>
<td>NS</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Furosemide</td>
<td>1 mg/ml</td>
<td>2 mg/ml</td>
<td>10 mg/ml</td>
<td>mg/hour</td>
<td>100 mg/100 ml</td>
<td>NS</td>
<td>No, and the 10 mg/100 ml is administered</td>
<td></td>
</tr>
</tbody>
</table>

After all the discussion, and a final list was sent out......

- Bumetanide – which will be the standard? Recommend 12.5 mg/50 ml
- Calcium chloride - change standard default to 8 gm/D5W 1000 ml and remove other options unless other facilities also use this? Also need option for 8 gm/NS 1000 ml for diabetic patients. These are both currently restricted at BJH to be ordered from within the CVVHDF with Citrate order set only
- Cangrelor Infusion – add this item. 0.2 mg/ml concentration (50 mg/NS 250 ml)
- Cisatracurium – consider changing the standard to 200 mg/NS 100 ml because it comes in a 200 mg vial
- Clevidipine – which one will be the standard? I am told that Medicare only pays for the 25 mg, so maybe that should be the standard?
- Dexmedetomidine – which will be the standard? BJH currently uses 50 ml in the OR and 100 ml outside of the OR.
- Diltiazem – which will be the standard? BJH uses 100 mg/100 ml due to issues with Dose Edge
- Dobutamine – will the standard be 1000 mg/D5W 250 ml with an option for 1000 mg/NS 250 ml?
- Dopamine – which will be the standard?
- Furosemide – discussed at last meeting. BJH clinicians would prefer 2 mg/ml concentration (200 mg/NS 100 ml)
- Ketamine – change standard to 1000 mg/NS 100 ml and remove 5 mg/ml option. I think most facilities have already agreed on this.
- Naloxone – OB uses 0.4 mg/NS 1000 ml. Can this be built as the standard concentration in the OB order set?
- Nicardipine – allow options for 50 mg/NS 100 ml (central line) and 50 mg/NS 500 ml (peripheral line)
- Phenylephrine – would like to add additional option for 50 mg/NS 500 ml
- Procainamide – change base solution from NS to D5W since there is only stability in D5W in the package insert
- Sodium Bicarbonate – no standard listed. Recommend 250 mEq/250 ml (undiluted)
- Terbutaline – no standard listed. Recommend 3 mg/3 ml (undiluted)
- Vasopressin – there are two concentrations listed as standard. Are you able to do this? One is for hypotension/shock (20 units/100 ml) and one is for G1 bleed (100 units/100 ml)
- Zidovudine - change base solution from NS to D5W since there is only stability in D5W in the package insert
Medication Use Safety Team
Smartpump Dashboard

Questions & Feedback

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www.ashp.org/standardize4safety