SUMMARY: Medication safety for the youngest of our patients can be a challenge in a large general academic medical center. We successfully delineated strategies for safety and engaged hospital leadership and multiple hospital-wide departments in a project management approach for the prevention of medication errors in pediatrics.

Status of Subcommittee Projects, October 1, 2009 to March 31, 2012

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Projects Being Scoped</th>
<th>On Hold</th>
<th>25% Completed</th>
<th>50% Completed</th>
<th>75% Completed</th>
<th>100% Completed</th>
<th>Closed (And Reopened)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>20</td>
<td>1</td>
</tr>
</tbody>
</table>

BACKGROUND

Adverse drug events in neonatal and pediatric patients:
- Occur three times more frequently than in adults
- Are more likely to result in harm
- Are usually preventable

Children are a minority population in large general academic medical centers.

Pediatric patients are at high risk because:
- Medications are formulated and packaged primarily for adults requiring special calculations and manipulation for pediatric doses
- Medication systems are not designed to cater to the needs of pediatric medicine
- Younger patients do not have fully developed renal, hepatic or immune systems and are less able to tolerate an error
- Children are not able to communicate effectively when an adverse event occurs

In 2008, the Joint Commission published the Sentinel Event Alert #39: Preventing Pediatric Medication Errors. The strategies outlined in the alert became the MGHC blueprint for pediatric medication safety.

A gap analysis was conducted analyzing current practice in relation to the Joint Commission recommendations.

The Preventing Pediatric Medications Errors Subcommittee (PPME) was formed to address the "gaps."

Subsequently, PPME has conducted gap analyses related to the National Association for Neonatal Nurses (NANN) "Medication Safety in the Neonatal Intensive Care Unit" Position Statement (2011) and relevant Institute for Safe Medication Practices (ISMP) Medication Safety Alerts.

CLOSED LOOP PORTFOLIO PROJECT MANAGEMENT

- Scope out each project/Define the deliverables
- Identify the project lead/team
- Place the project on the project grid
- Check in with the project team monthly
- Identify barriers to project completion
- Discuss barriers at PPME
- Engage institutional leadership as needed
- Implement/monitor impact

STANDARDS

GAP ANALYSIS

INFRASTRUCTURE (PPME)

PREVENTING PEDIATRIC MEDICATION ERRORS SUBCOMMITTEE

The Preventing Pediatric Medication Errors Subcommittee (PPME) was formed to create a centralized infrastructure for addressing pediatric medication safety.

- Co-Chaired by a physician, nurse and pharmacist
- Multidisciplinary membership; meetings well attended
  - Physicians
  - Nurses, NPs
  - Pharmacists
  - Information Systems
  - Quality and Safety specialists
- Members sit on hospital-wide committees
- Meets twice monthly
  - Review and approval for pediatric medication-related issues/policies
  - One full meeting a month devoted to the review of all safety reports from the previous month
  - Monthly review of all projects
- Reports to hospital-wide Medication Safety Committee

SAMPLE PROJECT GRID

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>TEAM</th>
<th>STATUS</th>
<th>% COMPLETE</th>
<th>NEXT CHECK-IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocking of meds in the ED</td>
<td>RM, BY, AC, CH</td>
<td>10 meds agreed to, 3 currently stocked</td>
<td>50%</td>
<td>2 months</td>
</tr>
<tr>
<td>Reform medication labels</td>
<td>TJ, Pharmacy</td>
<td>New format implemented</td>
<td>100%</td>
<td>Complete, monitor results</td>
</tr>
</tbody>
</table>

Key Success Factor: Monthly Project Review

- Review Project Progress Monthly
- Email Project Teams Requesting Update on Progress
- Update Project Grid, Set Next Review Date, Distribute to PPME and Leadership

MGH/C Medication Dosing Project

The Joint Commission Sentinel Event Alert: Issue #39 (2008) Preventing Pediatric Medication Errors suggested "Whenever possible, use commercially available pediatric-specific formulations and concentrations. When this is not possible, prepare and dispense all pediatric medications in patient specific "unit dose" or "unit of use" containers, rather than in commercially available adult unit doses. For oral liquid preparation medications, use oral syringes to ensure correct dosage."

As this suggestion represented a major impact on the ordering, preparation and administration phases of the medication process, MGHC convened a group of over 40 pediatric administrators, physicians, nurses, nurse practitioners, pharmacists, IS representatives for a professionally facilitated planning session. The deliverables of the session were a document identifying characteristics of an ideal medication system and a grid specifying how each category of medication should be dispensed and supplied to ensure safe administration to children of all ages. These are serving as a roadmap for change.

Medication Safety and Children on Ketogenic Diets

The Ketogenic Diet and LITG (Low Glycemic Index Treatment) are diets restricted in carbohydrate intake which have been effective in the treatment of children with seizures. Children need to avoid medications and IV fluids containing dextrose. In the absence of electronic prompts, this requires residents, pharmacists and nursing staff to recall these details each time one of these children is admitted, which is about once a month. The initial approach was staff education, reminder emails and parent education, which was minimally effective. Subsequently, the Preventing Pediatric Medication Errors Subcommittee, the Pediatric Epilepsy Program and POE IS teams implemented alerts in the Provider Order Entry (POE) system to guide ordering prescribers in selecting medications and IV solutions that are consistent with the child’s overall carbohydrate restriction. This has prevented the ordering of medications and IV solutions containing dextrose.

Review Project Goals and Timeline
- Change Timeline or Put Project on Hold
- Discuss Barriers at PPME
- Engage Institutional Leadership