Reducing Preventable Harm: Strategies to Reduce Chemotherapy/Biotherapy Administration Errors

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APHON National Conference, 2020
Objectives/Disclosures

Objectives:
- Attendees will be able to identify common medication administration errors,
- Attendees will be able to describe how QI methodology can reduce medication errors through standardization of practice.

Disclosures:
- Nothing to disclose
The very first requirement in a hospital is that it should do the sick no harm.

Florence Nightingale
Medication Errors – The Numbers

- **US Patient Care**
  - >770,000 patients harmed/year
  - 7,000-9,000 deaths
  - ≈ 40-50% administration errors
  - 13% of all oncology adverse events medication errors
  - Most are preventable
  - $1-$5 billion/year

- **US Pediatric Chemo/Bio Treatment**
  - 18% visits associated with chemo errors
  - 56% administration errors
  - 10% error rate with PO chemo

- **One Program Average/Year (Level 4-9)**
  - 94,000 doses
    - 31,000 related chemo/bio treatment
  - 5 Medication errors (5.4σ)
  - 80% administration errors
    - 50% related chemo/bio treatment

Communication

65% of Sentinel Events reported to TJC identify Communication Failure as Root Cause for error

(Joint Commission, 2015)
Q.I. **Doesn’t Replace** Best Practice

**Systems-Based Problems**

**Evidence Based Practice**
Medication Errors

Clinical Error Severity Levels

1. Circumstances or events that have the capacity to be followed by error or harm
2. An event occurred but did not reach the patient
3. An event occurred that reached the patient but was not followed by patient harm
4. An event occurred that was followed by increased patient monitoring and/or minimal patient harm or minor injury
5. An event occurred that was followed by increased treatment or intervention and/or temporary patient harm
6. An event occurred that was followed by initial or prolonged hospitalization and temporary patient harm
7. An event occurred that was followed by permanent patient harm
8. An event occurred that was followed by a near death event
9. An event occurred that was followed by patient death
Institute for Healthcare Improvement
Quality Improvement Model

What are we trying to accomplish?
How do we know a change is an improvement?
What change can we make that will result in improvement?

Plan
Act
Study
Do

## AIM: Setting the Project Goal

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>We will ↑ or ↓ What</td>
<td>Decrease med admin related events level 3-9</td>
</tr>
<tr>
<td>In which Group/Population</td>
<td>Pts receiving Chemo/Bio INP</td>
</tr>
<tr>
<td>From What (baseline)</td>
<td>38 events</td>
</tr>
<tr>
<td>To What (goal)</td>
<td>34 events</td>
</tr>
<tr>
<td>By When (target)</td>
<td>12/31/2020</td>
</tr>
<tr>
<td>For How Long (sustain)</td>
<td>12 months</td>
</tr>
</tbody>
</table>

### Clinical Error Severity Levels

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Administration Cumulative Errors (3-9) by Year

Administration Errors by Severity and Year
<table>
<thead>
<tr>
<th>Administration Stage</th>
<th>Common Process Pitfalls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>- Missing observations/tests</td>
</tr>
<tr>
<td></td>
<td>- Completed observations/tests unintended for NOS</td>
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<tr>
<td></td>
<td>- Process for provider clearance</td>
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<tr>
<td>Pre/Post-Hydration</td>
<td>- Wrong fluid</td>
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<tr>
<td></td>
<td>- Incorrect total fluid rate with concurrent meds/fluids</td>
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<tr>
<td></td>
<td>- Compatibility</td>
</tr>
<tr>
<td>Pre-Medication</td>
<td>- Aloxi &amp; Zofran</td>
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<tr>
<td></td>
<td>- Lack of standardized protocols</td>
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<tr>
<td></td>
<td>- Timing Dexrazoxane</td>
</tr>
<tr>
<td>Chemotherapy/Biotherapy</td>
<td>- Tubing &amp; line concerns</td>
</tr>
<tr>
<td></td>
<td>- Primary vs. secondary infusions</td>
</tr>
<tr>
<td></td>
<td>- Include or exclude flush in rate</td>
</tr>
<tr>
<td></td>
<td>- Retiming medications after assigning HR0</td>
</tr>
<tr>
<td></td>
<td>- Order-sets/treatment plans/ad-hoc orders</td>
</tr>
<tr>
<td>Administration Stage</td>
<td>Common Process Pitfall</td>
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<tr>
<td>--------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Emergency Management</td>
<td>- When to stop vs. when to continue infusions</td>
</tr>
<tr>
<td></td>
<td>- Safety medications at the bedside</td>
</tr>
<tr>
<td>Symptom Management</td>
<td>- Total daily dosage across multiple care locations</td>
</tr>
<tr>
<td></td>
<td>- Potential drug interactions</td>
</tr>
<tr>
<td></td>
<td>- Drugs prohibited by studies</td>
</tr>
<tr>
<td>Coordination of Care – Internal</td>
<td>- Handoff between caregivers</td>
</tr>
<tr>
<td></td>
<td>- D/C medication teaching</td>
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<tr>
<td></td>
<td>- Home delivery medication and supplies</td>
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<tr>
<td></td>
<td>- Emergency instructions</td>
</tr>
<tr>
<td></td>
<td>- Communicate plan of care</td>
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<tr>
<td></td>
<td>- Line care and infusion education</td>
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<tr>
<td>Coordination of Care - External</td>
<td>- Clinical research office</td>
</tr>
<tr>
<td></td>
<td>- Pharmacy</td>
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<tr>
<td></td>
<td>- Lab</td>
</tr>
<tr>
<td></td>
<td>- Homecare</td>
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</tbody>
</table>
Fishbone

- Variation in practice
- EPIC MAR
- Meds left at bedside
- Pyxis Supply
- Meds/chemo
- Pumps/Supplies
- Orders
- Safety Practice
- CVC & tubing issues
- Communication
- Distractions
- Access to protocols
- Staffing

Nationwide Children's Hospital
When your child needs a hospital, everything matters.
Brainstorm Solutions

- Quick Wins
- Transformational
- Momentum Builders
- Derailers

High Impact
Low Impact
High Effort
Low Effort
References:


