Objectives

- Describe roles of the pharmacist in improving medication safety.

- Identify the three key activities in the Medication Safety Pyramid.

- Recognize strategies used to prevent harm to patients during the medication-use process.
What IS the role of Pharmacy in medication safety?
Pharmacist Leadership in Medication Safety

- “Pharmacy controlled” processes
  - Procurement, inventory management
  - Pharmacist review, order processing
  - Drug preparation, product distribution

- Leadership
  - Medication management process, outside “sphere of influence”
  - Medication safety expertise
  - Role model

- Research

- Innovation
  - Action
Clinical Pharmacy Services

- **Intensive Care Units (ICU) (Leape et al)**
  - Round with ICU team
  - Available on call throughout the day
  - Result: Preventable ADEs caused by prescribing errors reduced by 66%

- **ICU Pharmacist (Lee et al)**
  - Prevents med errors
  - Improves clinical outcomes


Clinical Pharmacy Services

- **Internal Medicine 1**
  - Increased pharmaceutical care interventions
  - Increase in significance level

- **Pediatrics 2**
  - Med safety team
  - New error reporting process
  - Increased error reports 6-fold
  - Decreased severity level of reports (46% → 0% NCCMERP >C)

---

Medication Reconciliation

- 98% decrease in medication discrepancies
  - Omissions, dosage

Patient Counseling

- Lower rates of preventable ADEs after discharge

Technology

- **Which technologies?**
  - Any technology used in any step of the medication management process
“I went to a technology conference, and a patient safety meeting broke out.”

Carr, S. Patient Safety & Quality Healthcare, May/June 2010
Technology

- Leadership role
  - Planning: collaborative, comprehensive
  - Selection
  - System design
  - Development
  - Implementation
  - Maintenance

- Ensure technology supports safe medication use

Pharmacist Safety Strategies

- Interdisciplinary health care team
- Monitoring medication therapy
- Medication reconciliation
- Patient counseling
- Technology
- Prospective review of prescription orders
Medication Safety Officer

- Pharmacist “Patient Safety Officer”
- Medication Safety Program
  - Structural, leadership change
  - FMEA pharmacy dispensing
  - Protocols for high-alert medications
- Results
  - Reduced rate of ADEs
  - Reduced severity of ADEs
  - % inpatients with one or more ADE declined 3 fold

“Medication Safety Pyramid”

- Patient
- Influence
- Information
- Safe Culture

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Building the Pyramid
Goal: A “Just Culture”

- Leadership
- Organizational learning
- Non-punitive environment
- Role model
Patient Safety

Creating and maintaining a safe care delivery and work environment at DHMC is a fundamental responsibility of all who enter the Medical Center. We believe patients have a right to receive safe care, and that staff has a right to a safe work environment. DHMC is committed to advancing the study of patient safety and implementing innovative safe practices.

Always Think SAFETY First!

Stop
Ask
Fix and/or Follow Up
Evaluate
Talk to your Team
it’s Your Job!

Patient Safety
A Road Taken Together

Winchester Medical Center is committed to providing the safest environment possible for all patients. Patient safety is everyone’s responsibility, and two-way communication between you and your care provider is encouraged.

Feel free to ask your healthcare provider:

- Did you wash your hands?
- Did you label my specimen in front of me?
- What is this medication for?
- Did you ask me my name and date of birth?
- Did you check my armband?
Interactive Education: The “Games” We Play
## Interactive Education: The “Games” We Play

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Processes</td>
<td>12</td>
<td>(12%)</td>
</tr>
<tr>
<td>HMM/Protocol</td>
<td>18</td>
<td>(19%)</td>
</tr>
<tr>
<td>Patient Orders</td>
<td>13</td>
<td>(14%)</td>
</tr>
<tr>
<td>Sala - Storage</td>
<td>34</td>
<td>(35%)</td>
</tr>
<tr>
<td>Dispensing</td>
<td>9</td>
<td>(9%)</td>
</tr>
<tr>
<td>Packaging</td>
<td>7</td>
<td>(7%)</td>
</tr>
<tr>
<td>Equipment/Misc</td>
<td>3</td>
<td>(3%)</td>
</tr>
</tbody>
</table>

# Issues Addressed: 61 (64%) - Still work to be done !!!!
Interactive Education: The “Games” We Play
Building the Pyramid
Goal: Identify risk points, prioritize

- External Resources: ISMP, JCI, Literature
- Internal: reports, technology data, triggers, observation, safety rounds, teams, staff
- Standards of Practice: ASHP, JCI

Information:
External, Internal, Standards
Medication Error Management

- **Prospective**
  - Literature, newsletters, electronic media
  - Safety rounds: front line staff

- **Concurrent**
  - Problem resolution, questions
  - Triggers, med therapy management
  - Self-Assessments

- **Retrospective**
  - Risk reporting system
  - Data mining (technology)
A

Category B

235

11%

Category C

1920

89%

Category D

8

0.4%

B: An error occurred but did not reach the patient.

C: An error occurred that reached the patient but did not cause patient harm.

D: An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm.
### Dashboard

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Goal</th>
<th>Near Goal</th>
<th>Below Standard</th>
<th>Quarter 1</th>
<th>Quarter 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders reviewed prior to ADC removal</td>
<td>&gt; 95%</td>
<td>93-95%</td>
<td>&lt; 93%</td>
<td>94.6 %</td>
<td>96.2 %</td>
</tr>
</tbody>
</table>
Building the Pyramid
Goal: Improve systems and processes

- Collaboration
- Models: PDSA, IHI Model for improvement

Influence Practice
Role: Committees and Teams

- P&T
- Med Safety
- Performance Improvement
- Safety Committee
- Sentinel Event, RCA
- Accreditation Team
- Technology Steering Committee
- Clinical Initiatives (Anticoagulation, Insulin, ED)
- Other: Forms, Nursing/Pharmacy

Collaborative
The Medication Safety Team: Pharmacist as Leader

- **Membership**: Interdisciplinary, mixed levels of staff
- **Team charter**: Mission, goals, reporting structure
- **Frequency**: Monthly, 1-2hr
- **Agenda suggestions**: Engage team members, routine reviews, identify action items, provide timeframe
The Numbers Don’t Make it Safer

- Our Data... Our Actions
- Interdisciplinary, Collaborative Change

<table>
<thead>
<tr>
<th>Topic</th>
<th>Issues Identified</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narcotic PCA</td>
<td>ADE r/t dose, patient factors, reversal timeliness</td>
<td>Revise ord. form Auto-add naloxone Smart PCA pumps</td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>Incomplete orders, dispensing err, MAR err</td>
<td>Mandatory order forms, revised prep/check process, competencies, new references...</td>
</tr>
</tbody>
</table>
U-500 Insulin is Here!!
New Policy Highlights

Ordering:
- Should be written as actual number of units, not volume, not as if U-100.
- EVERY order requires a pharmacist to confirm the dose AND to write the patient chart before the first dose is administered.
  - Confirm the dose with patient, caregiver, pharmacy, or physician, whichever is most appropriate.
  - Write as: "Verified insulin dose (or change insulin dose to): HU 100 units per day."
- Regular insulin U-500 administer 100 units (.2mL) subcut once daily.

Dispensing:
- We will draw up all doses for patients in a TB syringe.
- Enter as an "IT" in Meds Manager.
- The vial is NOT to leave the pharmacy dept.
- Vial is located in the pass-through refrigerator in a bright red bin.
- The patient is NOT to use own med.

Other items of interest:
- Administered subcutaneously only.
- Pharmacology is different than U-100; duration of action is longer.
- Not for sliding scale use or for immediate lowering of blood glucose.
- Not appropriate for prn use.

For more info:
- The policy is online (currently on first pg of intranet).
- Also located in the new Medication Management section (Policy/Procedures, WMC. Admin/Clin).
- We’ll work on transitioning more policies into this new section so that it will be easier to everyone to find.
- See email message 12/6.
**Actions**

**Actions (T-PA) – for Stroke**

**Kit Supplies:**
- 1 box 10mg vial Alteplase with Sterile Water for Injection vial and transfer device
- 10 mL syringe
- 1 disposable spike
- 1 pack syringe caps
- 2 needles
- 2 50 mL syringes
- 1 empty IV bag 100mL
- 1 luer lock security seal
- 2 luer lock

**Preparation:**
1. Use aseptic technique throughout. Prepare in laminar flow hood.
2. Disinfect vials. Insert transfer device into vial of sterile water.
3. Holding vial of alteplase upside-down, spike vial with other end of transfer device.
4. Invert the two vials so that the alteplase vial is now on the bottom (upright) and the sterile water vial is upside-down.
5. Allow sterile water to flow down through transfer device. Fluid should be transferred in approx. 3 minutes. Approximately 0.5mL of sterile water will remain in vial. Alteplase concentration = 1mg/mL.
6. Remove empty sterile water vial and transfer device.
7. Gently swirl to dissolve drug. DO NOT SHAKE!
8. Insert a dispensing pin into vial of alteplase into same hole created by the transfer device.
9. In a 10mL syringe, withdraw bolus dose of alteplase. Cap syringe and label with bolus label.
10. Look at infusion label. Determine volume of infusion and draw up in syringes. Inject into an IV bag with infusion label and apply luer lock to injection port.
11. Complete pharmacist check. Syringe and bag to be hand-delivered to ER ASAP.

**Usual IV dosage:**
- **Total dose:** 0.9 mg/kg – MAXIMUM 90mg
- **10% of this dose** administered as IV bolus over 1 minute
- **Remaining 90%** of dose administered IV over 90 minutes

**Label Samples:**
- Bolus in Syringe
- Infusion in Bag
Alteplase Kit, Instructions

Alteplase (t-PA) – for Stroke

**Kit Supplies:**
- 1 box 100mg vial Alteplase with Sterile Water for Injection vial and transfer device
- 1 – 10 ml syringe
- 1 dispensing spike
- 1 pack syringe caps
- 2 needles
- 2 – 60 ml syringes
- 1 – empty IV bag 100ml
- 1 foil security seal
- 2 alcohol prep pads

**Preparation:**
1. Use aseptic technique throughout. Prepare in laminar flow hood.
2. Disinfect vials. Insert transfer device into vial of sterile water.
3. Holding vial of alteplase upside-down, spike vial with other end of transfer device.
4. Invert the two vials so that the alteplase vial is now on the bottom (upright) and the sterile water vial is upside-down.
5. Allow sterile water to flow down through transfer device. Fluid should be transferred in approximately 2 minutes. Approximately 0.5ml of sterile water will remain in vial. Alteplase concentration = 1mg/ml
6. Remove empty sterile water vial and transfer device.
7. Gently swirl to dissolve drug. **DO NOT SHAKE!**
8. Insert a dispensing pin into vial of alteplase into same hole created by the transfer device.
9. In a 10ml syringe, withdraw bolus dose of alteplase. Cap syringe and label with bolus label.
10. Look at infusion label. Determine volume of infusion and draw up in syringes. Inject into an empty bag. Label IV bag with infusion label and apply foil seal to injection port.
11. Complete pharmacist check. Syringe and bag to be hand-delivered to ER ASAP.
11. Complete pharmacist check. Syringe and bag to be hand-delivered to ER ASAP.

**Usual IV dosage:**
- Total dose 0.9 mg/kg – MAXIMUM 90mg
- 10% of this dose administered as IV bolus over 1 minute
- Remaining 90% of dose administered IV over 60 minutes

**Label Samples:**
- Bolus in Syringe
- Infusion in Bag
Building the Pyramid

Goal: No harm, error avoidance

Patient Safety
“Medication Safety Pyramid”

- Patient
- Influence
- Information
- Safe Culture

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Getting Started/Moving Forward

- Plan a “cultural event”
  - Survey
    - AHRQ Surveys: [www.ahrq.gov/qual/hospculture](http://www.ahrq.gov/qual/hospculture)
  - Provide education
  - Share safety data
  - Recognize “stars”
  - Invite participation
    - Mentor
    - Share the wealth
    - Play a “game”

- Resources:
  - [www.ashp.org/patientsafety](http://www.ashp.org/patientsafety)
  - accessed June 29, 2010
Getting Started/Moving Forward

- **What’s your internal data telling you?**
  - Drug (e.g. heparin, alteplase)
  - Therapy-based (e.g. pain management, anticoagulation)
  - Population (e.g. elderly, neonate)
  - Process (e.g. delivery delay, ADC fill)

- **What is your staff telling you?**

- **Ask: What’s the one thing that worries you most about med safety?**
What’s going on in the world around us?
  - Stay connected!
  - News resources; FDA, ISMP, TJC
  - Organizations; ASHP, NPSF, NQF

Network

Resources:
- www.ihi.org
- www.qualityforum.org
- www.fda.gov/safety/medwatch/safetyinformation/default.htm
- www.ismp.org
- accessed June 29, 2010
Getting Started/Moving Forward

- Select one or more high alert medications

- Perform a gap analysis
  - Compare recommendations to your practice
  - Identify the gaps
  - Create an action plan

- Resources
  - ISMP (e.g. newsletters)
  - ASHP (e.g. best practice guidelines)
  - Joint Commission (e.g. Sentinel Event Alerts)
Moving Forward

- Review pharmacy services
- Build relationships
  - Interdisciplinary
  - ALL departments using medications
  - Risk management, performance improvement
- FMEA, formal self assessments
- Form a medication safety team
  - Create a medication safety plan
- Consider a Medication Safety Officer position
- Think “big picture”
- Pair “cost questions” with a “safety question”
Your mission...

Prevent patients from being harmed by medications.
“If we do not change our direction, we are likely to end up where we are headed.”

Chinese Proverb