MEDICATION ERRORS AND PHARMACY

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Medication Use Process

• Complex system
• Opportunities for error
• Impacts patient care
Defensive Layers in the Medication System

Latent Medication System Errors

Latent Error and the Preventable ADE
Medication Errors

ADRs

ADEs

Adapted from Bates et al.

Relationships Among Medication Misadventures

Framework for Identifying Errors

Patient Receives Treatment

No Error Made

Good Outcomes

Bad outcomes (Unpreventable ADE due to underlying disease)

Error Made

Minor

Caught

Close Call

Not Caught

Minor or no injury (Preventable ADE)

Serious

Caught

Close Call

Not Caught

Patient Injury (Preventable ADE)

Causes of Medication Errors

- Nature of drugs
- Gaps in biomedical knowledge
- Difficulties in training
- Time constraints and interruptions
- Incomplete access to patient specific data

Hennessy, E. AJHP 2000; 57:543-548
Causes of Medication Errors

- Ambiguities in Professional Practice roles
- Reliance on error prone processes
- Pervasiveness of commercial influence
- Economic barriers
- Multiple and changing formularies
- Patient non-adherence to therapy

Hennessy, E. AJHP 2000; 57:543-548

Cost of Adverse Drug Events

- Diversion from therapeutic objective
- Negative outcome from event

Cost Impact of ADE’s

<table>
<thead>
<tr>
<th></th>
<th>Increased LOS</th>
<th>Increased Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADE</td>
<td>2.2</td>
<td>$3,244</td>
</tr>
<tr>
<td>Preventable ADE</td>
<td>4.6</td>
<td>$5,857</td>
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Unfortunately the way we often calibrate our medication system is with Sentinel Events.

Airline Safety

- Redundancy built into system
- Interface between equipment and people
- “But my luggage!!”

Preventable ADE’s
Pharmacy
A key in medication safety

BUILD
Patient centered systems
NOT
Department centered

Take responsibility for the Medication Use system
IOM Report on Medical Errors

• Create the Center for Patient Safety
• Required reporting of serious mistakes to state agency
• Encourage voluntary reporting
• Extend peer-review protection to safety data used for quality improvement

IOM Report on Medical Errors

• Focus performance standards on patient safety
• FDA to focus on safe use of drugs
• Continually improved patient-safety as a goal
• Implement proven medication safety systems

IOM Report and Pharmacy

“Implement proven medication safety systems”
Patient Information systems

- Physician order entry
- Pharmacy computer system
- Automated dispensing system
- Point of care system

Murray, M. AJHP 2000;57:565-571

Interruptions

- Pay attention to Physical environment
- Minimize interruptions
  - Order Entry
  - checking

Staff Training

- Orientation
- Training
- Evaluation of Competency
- Continuous Learning
Patient Education

- Educate patients on medications
- Empower patients

Pharmacist Instant Action Items

- Question unclear & unusual orders
- Focus on high-alert drug issues
- Reduce interruptions and distractions
- Read labels three times
- Report errors
- Eliminate the culture of blame

Process Improvement

- Continuous Quality Improvement
- Data driven
- System focused
Ideal System

- Electronic order entry
- Pharmacy system with checks
- Single dose dispensing
- Bar-codes
- Point of care system
- Patient involvement

Summary