Look up in the sky. Is it a bird? Is it a plane? No, it’s medication safety.

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Learning Objectives

• Discuss the history of medication safety
• Assess the importance of medication safety through patient and financial outcomes
• Analyze medication safety deficiencies through the medication use process and medication use system
• Evaluate actions taken to improving medication safety
• Understand the pharmacists’ role in medication safety
Introduction

• **Definition:**
  – Provide best-known quality of care consistently to the appropriate patients in the safest manner possible

• **Fundamental purpose of the practice and profession of pharmacy:**
  – Providing safe and effective drug therapy

• The use, misuse, or underuse of drugs presents a **clear risk** for patient harm

• Safe drug practices improve patient care by:
  – **Effective utilization of drugs**
  – Preventing avoidable patient injury resulting from drug therapy
Introduction

- Medication safety is best thought of in a broader quality of care framework than simply error prevention
- Medication Safety Incorporates
  - Error Prevention
  - Effective and consistent application of pharmaceutical care principles
  - Knowledge in the care of patients
- Effective and consistent implementation of well-accepted medication safety processes is a complex and difficult task
Introduction

• Primary goal of medication safety
  – Preventing an Adverse Drug Events (ADEs)
    • Definition: An injury from a drug (or lack of indicated drug)
      – Not all ADE are preventable
    » Adverse Drug Reactions (ADRs)
      • Definition: Actual patient harm resulting from an unintended, undesired, or excessive response to drug therapy
        • Nonpreventable
  – ADEs are a serious public health problem
Introduction

• Medication Error
  – Definition defined by The National Coordinating Council for Medication Error Reporting Program (NCC MERP)
    • “Preventable event that may cause or lead to inappropriate medication use or patient harm, whereas the drug is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use.”
Medication Errors

Adverse Drug Events
(all blue areas)

Adverse Drug Reactions
(dark blue area only)
Question #1

Which of the following answers describe this picture?

A. Medication Error
B. ADR
C. ADE
History of Medication Safety
History of Medication Safety

• The importance of medication safety was known since ancient times
  – Example: Hippocrates stated “Primum non Nocere”
    • Means “First do no harm”

• The standard operating procedures of pharmacy practice are founded in the ideal of ensuring safe care of patients
History of Medication Safety

• Modern era of medication safety:
  – 1950s through 1980s
    • Seminal studies conducted that demonstrated a high frequency of ADEs
      – Was not fully appreciated even though it resulted from deficiencies in the quality of care
    • 1970s and 1980s
      – Witnessed the expanding concept of pharmaceutical care, prevention of drug related problems, and publication of systematic studies of poor patient outcomes resulting from deficiencies in medication use.
History of Medication Safety

• Modern era of medication safety:
  – 1990s
    • Revealed a rapidly expanding body of evidence regarding drug errors
      – Prompted a growing awareness of the problem within government, health care purchasers, and health care itself
    • Establishment of patient and professional safety advocacy groups
    • Institute of Medicine (IOM) release *To Err is Human: Building a Safer Health System* (1999)
      – Complied and evaluated previously available information regarding the problem of medical error
      – Estimated that 44,000-98,000 people die each year in the US because of medical errors
      – Substantially changed the direction to how to better understand and correct the problem or medical errors
History of Medication Safety

• Three additional reports by the IOM further defined the problem of:
  – Lack of quality standards and regulations
  – Suboptimal quality of care
  – Inadequate skills of health care providers
    • Major contributors to patient safety deficiencies

• Major safety efforts are focusing on improving the safety and quality culture of medical care and introducing technology into the medication use process
Deficiencies in Medication Safety

Hospital medical errors kill 98,000 Americans each year. -- Hearst News Investigation
# Deficiencies in Medication Safety

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Medication Use Process:
Drug History and Patient Assessment

"I've been reviewing your medical history ..."
Medication Use Process:
Drug Prescribing and Monitoring

“I don’t know what this medication does... but the commercials for it are really cool!”
Medication Use Process:
Documenting and Transcribing
Medication Use Process:
Drug Preparation and Dispensing

"This is the toothpaste. I asked you for the Preparation H."
Medication Use Process:
Drug Administration
Medication Use Process Factors
Patient Compliance

Pharmacist: "and which medication reminder device would you like to use with this prescription?"
Medication Use Process: Patient Counseling

"Here's your Prozac. I suppose it goes without saying... have a nice day."
Medication Use Process: High Alert Medication

- Electrolytes
- Analgesics
- Anticoagulants
- Chemotherapeutic Agents
- Antidiabetics
- Cardiovascular agents
Medication Use System:
Drug Approval/Regulation, Drug Research and Marketing
Medication Use System: Organizational and Management
Medication Use System: Work Environment

NEW EMPLOYEE DURING A RUSH

LONG TIME EMPLOYEE
Medication Use System:
Team Factors

.. NO...
IT'S YOUR
JOB TO CLOSE
THE DOORS...

ROLE CLARITY
Medication Use System: Individual Factors

I haven't a clue what's wrong with you, but Google would like to know did you mean you've been having menageries?
Medication Use System: Patient Factors

Doctor: You should take at least 10 Glasses of water every day.
Patient: It is Impossible.
Doctor: Why?
Patient: I have only 4 Glasses at home..!
Overall Impact of ADE

• >1 million serious drug related injuries per year
• >20% of Americans report they or their loved ones have experienced a serious medical error
  – Many related to medication use
• Many ADEs are preventable or ameliorable
Overall Impact of ADE

• The true frequency of ADEs resulting from medication use safety deficiencies are not known due to:
  – Nature of such events
  – Lack of consensus definitions
  – Inadequacies of present methods to identify and quantify the problem

• The reported frequency of errors and preventable ADEs varies considerable based on:
  – Methodology used
  – Definition of ADE and error
  – Care setting examined

• Based on these limitations, it is likely that available studies reporting ADE frequency underestimate the magnitude of the ordeal
Adverse Drug Event-Related Societal and Financial Costs

• The ADE-related societal and financial costs are substantial

• The direct cost of ADEs to the US economy is estimated to be $21 billion annually
  – Cost of ADEs in hospital is estimated to be $2000-$5000 per occurrence

• Given estimates that 20-60% of ADEs are preventable
  – With improved quality of care
Adverse Drug Event-Related Societal and Financial Costs

• Considering increasing cost of health care and resource limitations
  – Major societal concern
  – Provides economic and business based argument for implementing improved medication safety practices

• Negative societal impact extends beyond the direct harm it causes patients
  – The public’s trust and confidence in health care are clearly affected
    • More than 50% of the public consider medical errors to be common or somewhat common
    • 2/3 of the public feel that the quality of medical care is a significant problem
    • Fear of receiving the wrong drug is the most common concern of patients being admitted to the hospital
BEDSIDE MANNER
Not what it used to be...
ADE: Hospital Setting

• Hospital Setting
  – ADEs occur in about 10-30% of patients
    • 3-7% are serious or fatal
    • 30-60% of ADEs are considered preventable
  – Patient residing in higher acuity of care areas experience more ADEs than lower acuity of care areas:
    • Higher acuity of care
    • More medical conditions
    • Increased number and potential toxicity of drugs prescribed and administered
  – Pediatric and elderly patients particularly are vulnerable to ADEs resulting from errors.
    • Related to the acuity of care and severity of patient illness
ADE: Hospital Setting

• Hospital Setting
  – Common causative agents
    • Cardiovascular agents
    • Antimicrobials
    • Antidiabetics
    • Central nervous system agents
    • Electrolytes
    • Respiratory agents
    • Chemotherapeutic agents
  – Common deficiencies in medication safety
    • Prescribing and monitoring drug therapy
      – Contributes to 50-70%
    • Administration
      – Contributes to 25-40%
    • Transcription and dispensing errors
      – Contributes to 10-15%
ADE: Community Setting

• Community Setting
  – ADEs occur in about 5-35% of patients
    • 10-30% are preventable
    • 25-50% are ameliorable
    • 15-30% are severe
      – 40% are preventable
  – ADEs are a common cause for patients seeking increase level of care
    • Emergency Department visits
      – 2-15% are a result of ADEs
        » 70% are preventable
    • Hospital admissions
      – 3-7% for adults
      – 2-3% for pediatrics
        » 30-60% are preventable
ADE: Community Setting

- **Community Setting**
  - Common causative agents
    - Central nervous system drugs
    - Psychiatric agents
    - Cardiovascular
    - Antidiabetic Agents
    - Anticoagulants
    - Corticosteroids
    - Gastrointestinal agents
  - Common deficiencies in medication safety
    - Prescribing and monitoring drug therapy
      - Contributes to 50-60%
    - Patients actions or communication failure
      - Contributes to 20%
    - Dispensing errors
      - Contributes to 2%
ADE: Long Term Care

• Long Term Care Setting
  – ADEs occur in about 2 per 100 patient-month
    • >50% are preventable
    • >40% are serious or fatal
      – 70% are preventable
ADE: Long Term Care

- Long term Care Setting
  - Common causative agents
    - Central nervous system drugs
    - Antimicrobials
    - Anticoagulants
    - Cardiovascular agents
    - Antidiabetic agents
    - Hormonal agents
  - Common deficiencies in medication safety
    - Prescribing and monitoring drug therapy
      - Contributes to 65-70%
    - Administration errors
      - Contributes to 3%
    - Transcription and dispensing errors
      - Contributes to < 1%
Improving Medication Safety
Keys to Improving Medication Safety

- Leadership
- Adequate health system resources
- Cultural change
- Application of technological advances
- Improved caregiver skills
- Increased patient involvement
Leadership for Safety and Quality

• Organization leadership must establish the framework and resources to produce improvements within an organization
  – Ensure that there is a clear and effective executive leadership and accountability related to medication safety
  – Clearly communicate a vision that patient safety is everyone’s primary responsibility
  – Clearly define how the organization strives to attain this goal
Safe Medications Use System Processes:

• Increase visibility of processes
• Simplify tasks to reduce reliance on individual performance skills
• Establish error recovery processes that make it easy to recover or back out if a wrong action is taken
• Respect human limits by applying knowledge about human factors in process design
• Promote effective team functioning
• Anticipate the unexpected
• Create a learning environment in which detection of process deficiencies and failures is seen as an opportunity for improvement
Information Availability, Transfer, and Use

• The Joint Commission (TJC) require that organizations define a minimum set of patient information that is readily available to caregivers.

• Initiation of unit-based pharmacists are now able to detect and prevent more than 75% of preventable ADEs in hospital which is due to:
  – Improved communication
  – Teamwork
  – Access to patients and families
  – Readily available information
Improving Identification, Verification, Checking, Reconciliation, and Alerts

• Processes to improve:
  – Patient and drug identification
  – Double-checking and verification processes
  – Appropriate warnings and alerts

  Assist with common routine task and guiding care in uncommon or unfamiliar situations
Staffing and Competency

- Ensuring the availability of a competent staff is critical
  - Competent in drug therapy knowledge
  - How to function safely and effectively within the medication use system by:
    - Adhering to policies and procedures
    - Fostering team work and communication
    - Consistently using decision-support tools
Staffing and Competency

- Organizations must have effective processes to ensure their staffs are competent to use devices and equipment when caring for patients
- Staffing must be appropriate for the workload
  - Work hours should be limited to safe levels
- Routine constructive assessment of staff competency and performance is critical
**Assigned Learning**

<table>
<thead>
<tr>
<th>Name</th>
<th>Due Date*</th>
<th>Status</th>
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<tbody>
<tr>
<td>TH – ICD-10 JATA - ICD-10 CM PCS Ancillary Module - General Awareness</td>
<td>10/01/2015</td>
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<tr>
<td>TH – Influenza Prevention Plan</td>
<td>10/28/2015</td>
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*All assignments are due at midnight, Eastern Time.*

**Elective Learning**

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>BLS Instructor Course - NU206</td>
<td>Self</td>
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<tr>
<td>FY14 Cardiac Rhythms Made Easy</td>
<td>Self</td>
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**Upcoming Classes**

<table>
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<tr>
<th>Start Date &amp; Time</th>
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<th>Options</th>
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NOTE: To drop a class, click Class Schedule. If you drop a class you will remain enrolled in the course - unless you also un-enroll from the course.
Communication and Teamwork

- Fostering effective communication and teamwork among all participants in the medication use process is critical.
- Broad organization communications as well as caregiver to caregiver communications should be addressed.
- Deploying pharmacists to patient care units substantially improves communication and effectiveness of pharmacist decision support to prescribers and nurses.
Environment and Equipment

• Establishing and maintaining an environment that supports staff performance can enhance patient safety.

• Includes
  – Proper space and lighting
  – Minimal clutter
  – Proper temperature
  – Low noise levels
  – Minimum number of distractions and interruptions

• Medical equipment should be assessed, controlled, distributed, and maintained with safety as a primary priority
Monitoring of Safety

- Necessary for an organization to provide safe drug therapy
- Promotes continue improvements within an organization
- Help creates a culture of safety
Find a form

Please use the search above to narrow down your event results by using keywords to describe the event that you're looking for.
Patient Involvement

• Patients and their families are critical components of a safe medication use systems
  – Should be educated regarding medication safety
  – Instructed to actively participate in their care and error prevention activities

• Effective education and continued engagement of patients in their care results in
  – Improved medication use
  – Fewer Errors
  – Earlier detection of problems
Technology

• Application of computer and other technologies in the medication use process
  – Provides improved information and access in many areas
    • Real time transfer and provision of critical patient and drug information and decision support
    • Support for teamwork and communication among caregivers
    • Effective means of drug and patient identification and verification
    • Improve patient monitoring through automated alerts and information feedback

• Long term benefit of information technology
  – Measuring and monitoring medication use processes and outcomes
Technology
<table>
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<tr>
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<tr>
<td>Agency for Healthcare Quality and Research</td>
<td>AHRQ</td>
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<tr>
<td>American Hospital Association</td>
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<tr>
<td>American Society of Health-Systems Pharmacists</td>
<td>ASHP</td>
</tr>
<tr>
<td>California Institute for Health Systems Performance</td>
<td>CIHSP</td>
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<tr>
<td>Center for Disease Control and Prevention</td>
<td>CDC</td>
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<tr>
<td>Center for Drug Evaluation and Research</td>
<td>CDER</td>
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<tr>
<td>Food and Drug Administration</td>
<td>FDF</td>
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<tr>
<td>Institute for Healthcare Improvement</td>
<td>IHI</td>
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<td>Institute for Safe Medication Practices</td>
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<td>The Joint Commission</td>
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<td>National Coordinating Council for Medication Error Reporting Program</td>
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<tr>
<td>National Patient Safety Foundation</td>
<td>NPSF</td>
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<tr>
<td>National Quality Forum</td>
<td>NQF</td>
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<tr>
<td>United states Pharmacopeia</td>
<td>USP</td>
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<tr>
<td>Veterans Affairs National Center for Patient Safety</td>
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Role of Pharmacists in Medication Safety

• Pharmacists are the most qualified health care professionals in improving medication safety
  – Fundamental skill of the profession

• Pharmacists should integrate this practice with drug therapy and patient education.

• They should become the medication safety advocates within their organization and their community
Summary

• Medication safety is defined as providing the best-known quality of care consistently to the appropriate patients in the safest manner possible.
• Most adverse drug events are preventable or ameliorable.
• Pharmacists are the most qualified health care professionals in improving medication safety.
References


Q & A
You have Questions
We have Answers