Overview of Medication Errors

Basic Medication Safety (BMS) Certification Course

King Saud bin Abdulaziz University for Health Sciences

Ministry of National Guard – Health Affairs

Learning Objectives

- Identify Human Factors associated with medication errors
- Explain the concept of a Just Culture
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- Review definitions related to medication safety
- Discuss the impact of latent failures on medication safety

To Err is Human

- Occupational injuries cause 6,000 deaths per year
- **7,000** deaths yearly are caused by **medication errors**[1]

[1]*Institute of Medicine (IOM) USA, 1999*

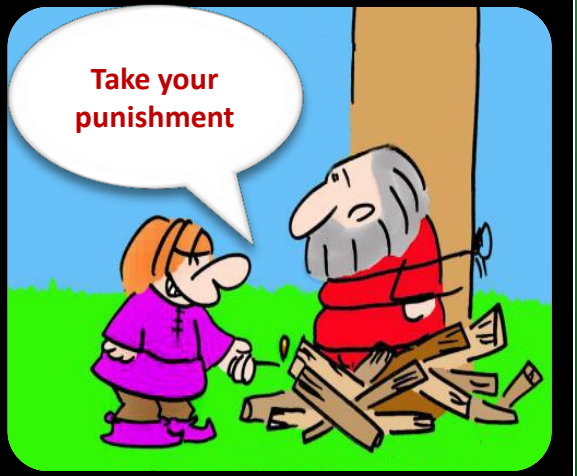
Human Factors – Confront Two Myths

The perfection myth:

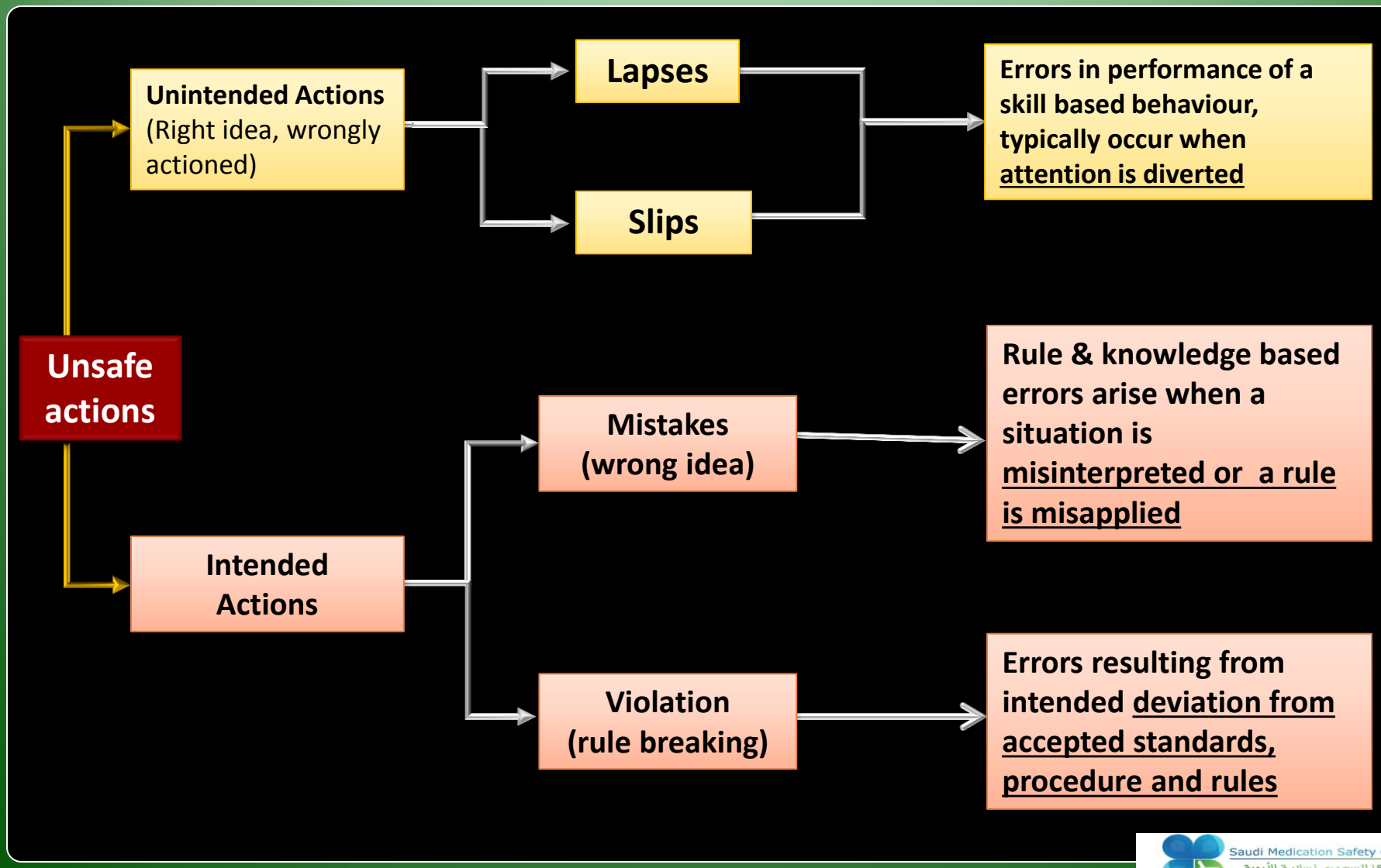
If people try hard enough they will not commit medication errors.

The punishment myth:

If we punish people when they make an error they will make fewer of them.



Human Factors – Error Types



The Three Behaviors

Human Error

Product of Our Current System Design and Behavioral Choices

Manage through changes in:

- Choices
- Processes
- Procedures
- Training
- Design
- Environment

At-Risk Behavior

A Choice: Risk Believed Insignificant or Justified

Manage through:

- Removing incentives for at-risk behaviors
- Creating incentives for healthy behaviors
- Increasing situational awareness

Reckless Behavior

Conscious Disregard of Substantial and Unjustifiable Risk

Manage through:

- Remedial action
- Punitive action

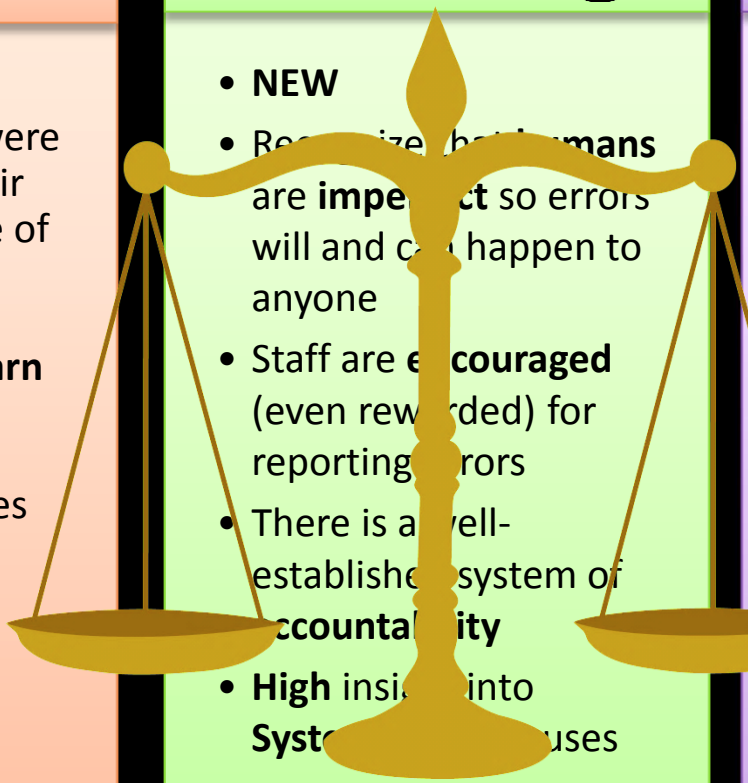
Console | **Coach** | **Discipline**

JUST CULTURE / CULTURE OF ACCOUNTABILITY

Punitive Culture

- Before the 1990s
- Frontline workers were **afraid** to **report** their own errors or those of a colleague
- **Missed** enormous opportunities to **learn about Errors**
- **Little** insight into **System**-based causes

Just Culture



- **NEW**
- Re[illegible]ize [illegible]**mans** are **impe[illegible]ct** so errors will and c[illegible] happen to anyone
- Staff are **e[illegible]couraged** (even rew[illegible]rded) for reporting [illegible]rors
- There is a [illegible]ell-establishe[illegible] system of **[illegible]ccounta[illegible]ity**
- **High** insi[illegible] into **Syst[illegible]** [illegible]uses

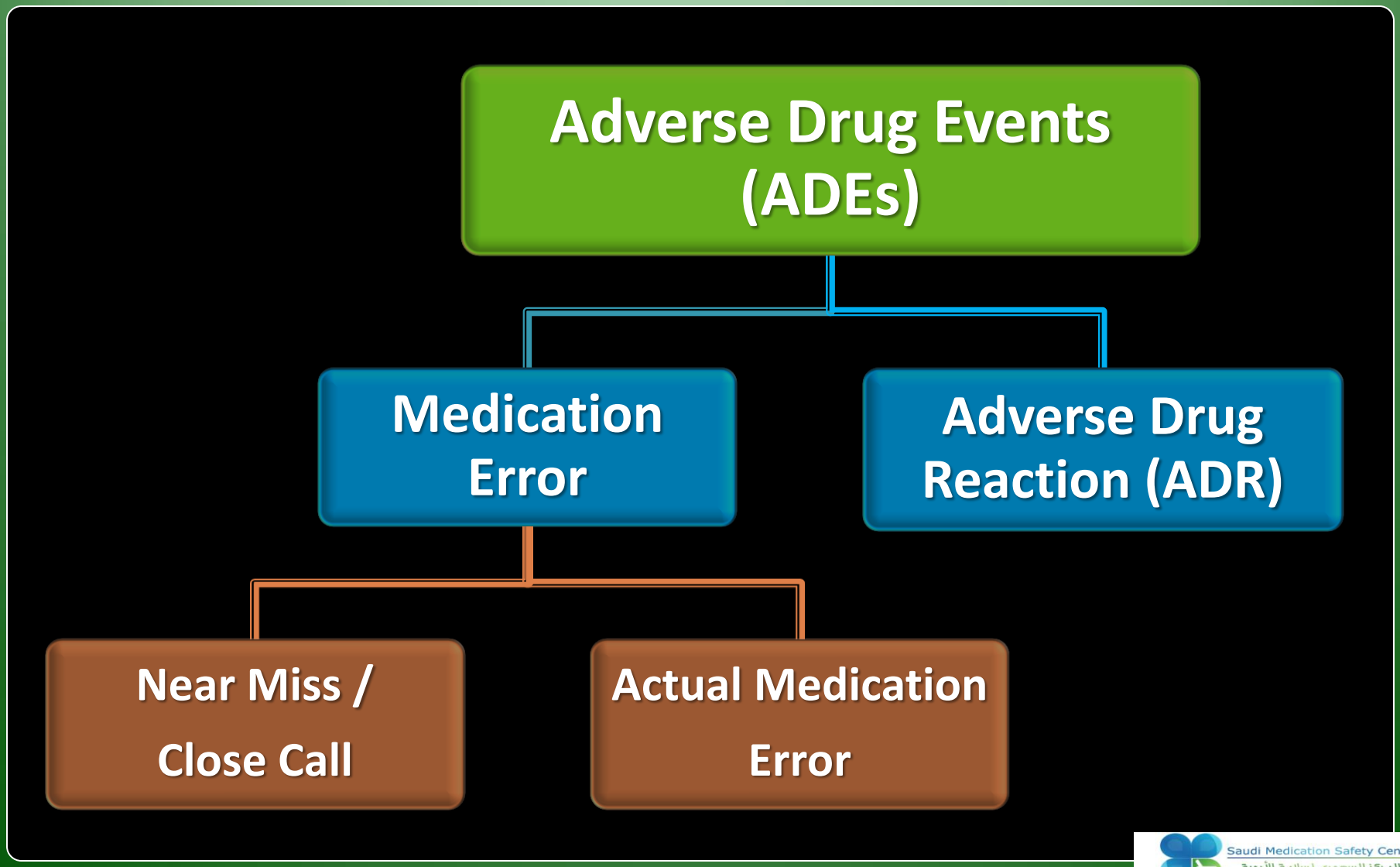
Blame-Free Culture

- By the mid 1990s
- Supported a **"no-blame"** response to errors
- **Unsafe acts** were the result of mental slips or lapses, or honest mistakes
- **Fails** to tackle individuals who make [illegible]nsafe / reckless behavioral choices

Just Culture Algorithm

1. Categories that best describes the caregiver's action
    - Impaired Judgment
    - Malicious Action
    - Reckless Action
    - Risky Action
    - Unintentional Error

2. If three other caregivers with similar skills and knowledge would do the same in similar circumstances



Definitions

- **Adverse Drug Event (ADE)**

  An injury from a drug-related intervention, and can include Adverse Drug Reaction and can result from errors in prescribing, dispensing and administration.

  (APP 1434-07 Adverse Drug Events)

- **Adverse Drug Reaction (ADR)**

  A response to a medicinal product which is noxious and unintended and which occurs at doses normally used for the prophylaxis, diagnosis or therapy of disease or for restoration, correction or modification of physiological function.

  (APP 1434-07 Adverse Drug Events)

Definitions

- **Medication Error**

  Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication 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.

  (APP 1434-07 Adverse Drug Events)

Definitions

- **Near Miss (Close Call)**

  An event, situation, or error that took place but was captured BEFORE reaching the patient.

  Example: The wrong drug was dispensed by pharmacy, and a nurse caught the error before it was administered to the patient.

(APP 1434-07 Adverse Drug Events)

Definitions

- **Latent Failure (hidden / dormant errors)**

  Refer to less apparent failures of organization or design that contributed to the occurrence of errors or allowed them to cause harm to patients.

  (Agency for Healthcare Research and Quality)

Latent Failures

- Environmental Factors
- Technology Factors
- Lack of and / or complex policies and procedures
- Communication Factors
  - **ISBAR**

    (Identification - Situation – Background – Assessment – Recommendation)

    APP 1435-07 Patient Care Handover and Verbal/Telephone Communication

Examples of Medication Errors

- Prescribing errors
- Dispensing and preparation errors
- Administration errors
- Monitoring and dose adjustment errors
- Wrong patient
- Wrong medicine
- Wrong formulation
- Wrong calculation
- Wrong dose and frequency
- Wrong rate of administration
- Wrong route
- Known medication allergy
- Expired medicine
- **Omitted and delayed medicine doses**

Rapid Response Report NPSA/2010/RRR009: Reducing harm from omitted and delayed medicines in hospital

February 2010

Review of evidence of harm

Table 1 below shows the clinical outcomes of incident reports of omitted or delayed medicine reported to the RLS between **29 September 2006 and 30 June 2009.** (RLS datafields IN05=medication incident and MD02=omitted or delayed medicine†).

Table 1

Care Setting	Clinical Outcome of Incident Reports					Total
	Death	Severe Harm	Moderate Harm	Low Harm	No Harm	
Acute / general hospital	27	68	975	4,430	13,027	18,527
Community nursing, medical and therapy service (incl. community hospital)			67	239	1,211	1,517
Mental health service			33	150	1,156	1,339
Total	27	68	1075	4819	15394	**21,383**

Definitions

- **Defective Medicine**

  It is a medicine where the product presentation and quality is not in accordance with regulation and professional standards.

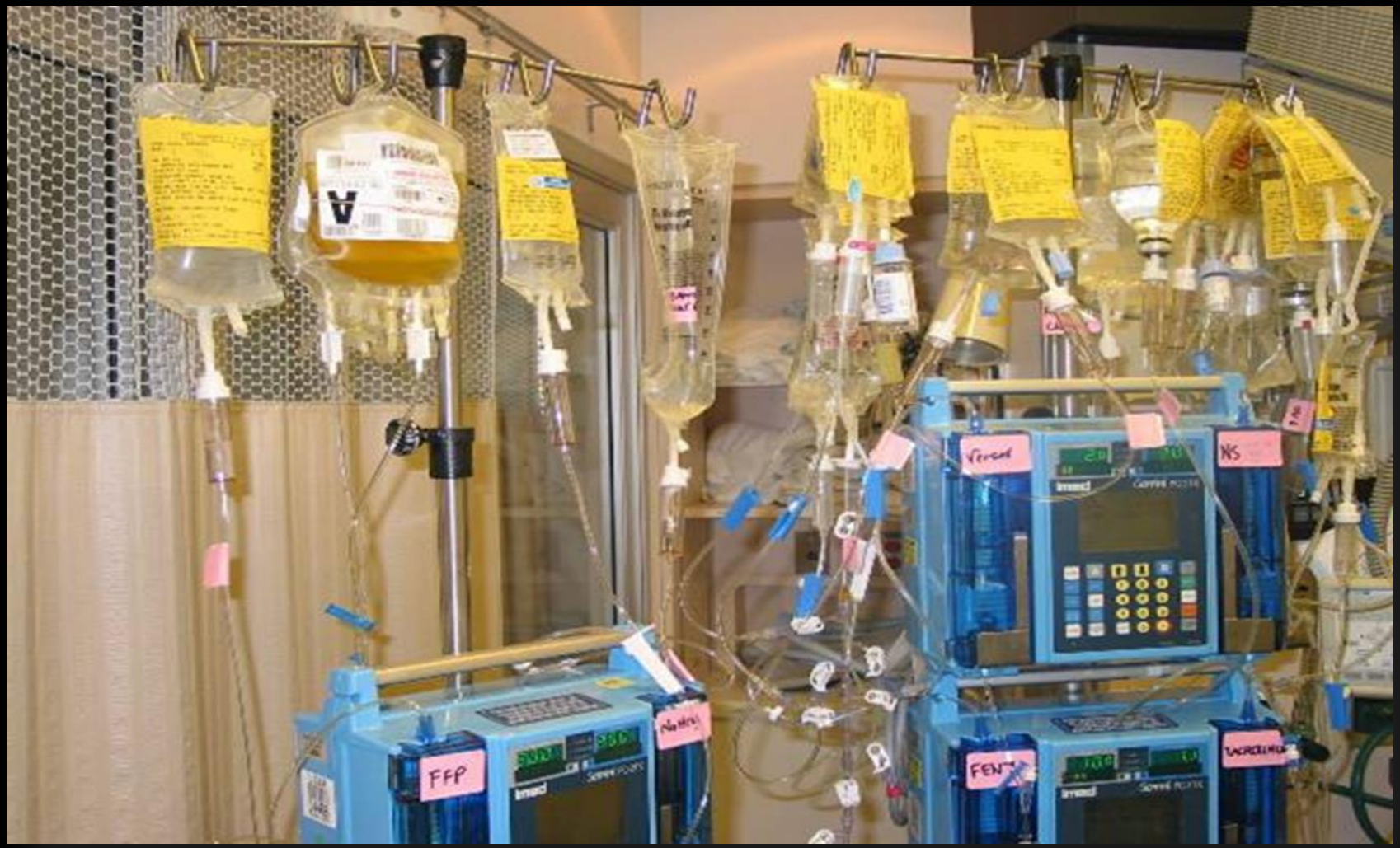
  (National Patient Safety Agency, UK)

- **Counterfeit Medicine**

  It is a special form of defective medicine that is produced or sold with the intent to defectively represent its origin, authenticity or effectiveness.

  (Council of Europe)

Risk Exists All Around Us



Errors In Medication Use Process

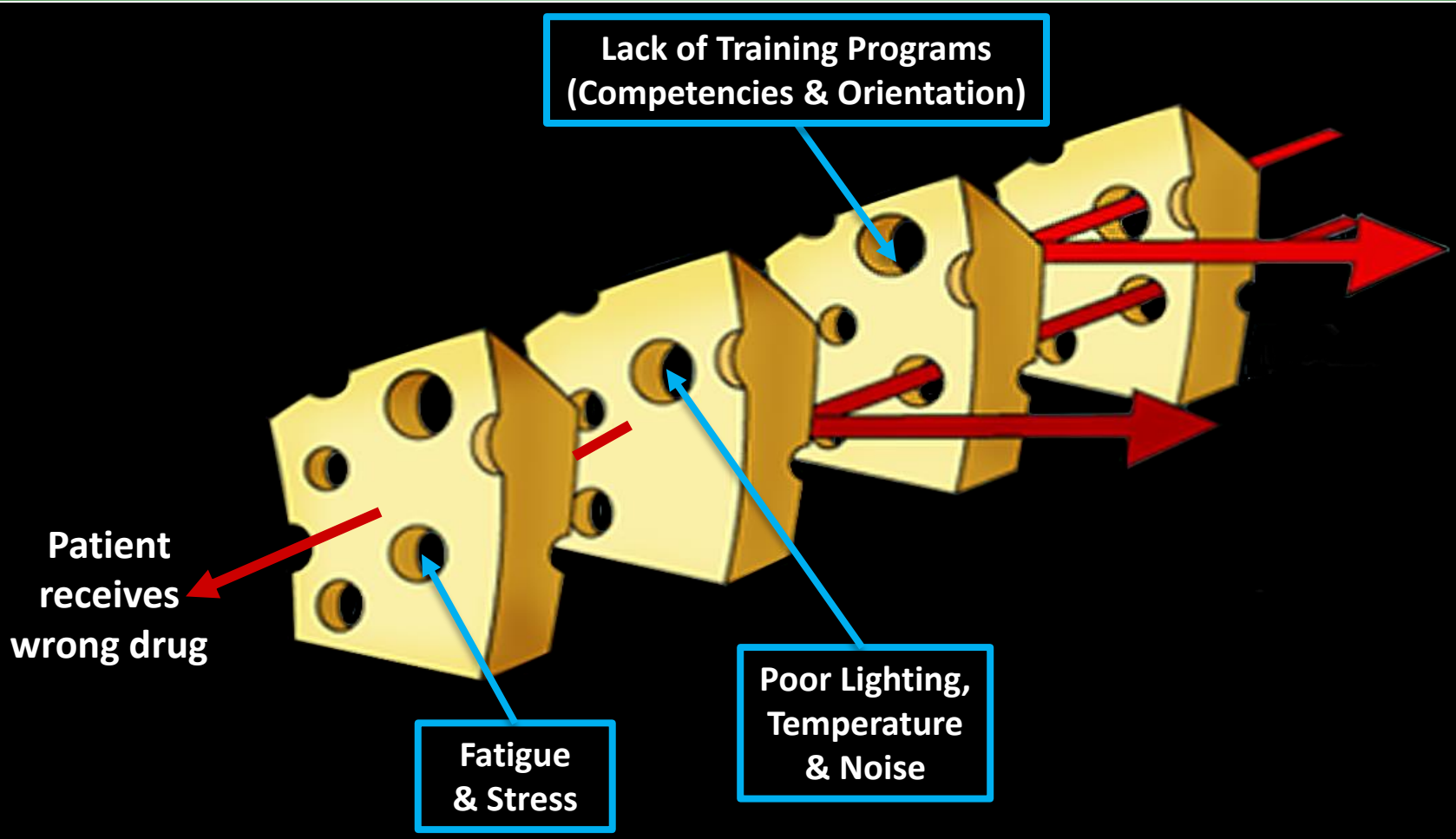
	Prescribing	Transcribing	Dispensing	Administering
Potential For Harm[1] (Rate per 100 patients)	63.69	0.28	0.28	3.37
Errors NOT Intercepted (ADE)[2]				84%

High incidence for **ADEs** due to medication **administration** errors justify the need to target interventions to prevent these errors in a hospital setting.

(1) *Qual Saf Health Care* 2010;**19**:e30 doi:10.1136/qshc.2008.031179

(2) *BMJ Qual Saf* 2012;**21**:933-938 doi:10.1136/bmjqs-2012-000946

Swiss Cheese Model



James Reason, 1991

Verbal and Telephone Orders

Why Standardize Verbal / Telephone Orders?

Inherently problematic: Different accents and limited short-term memory.

When do you take a telephone order?

1. Emergent situation
2. Urgent situation: The prescribing practitioner has determined that the patient is in need of a medication within a specific time period and he / she is unable to physically enter the order in the patient's clinical record due to his / her physical location.

APP 1429-03 Prescribing and Dispensing Medication Guidelines

Telephone Order Procedure

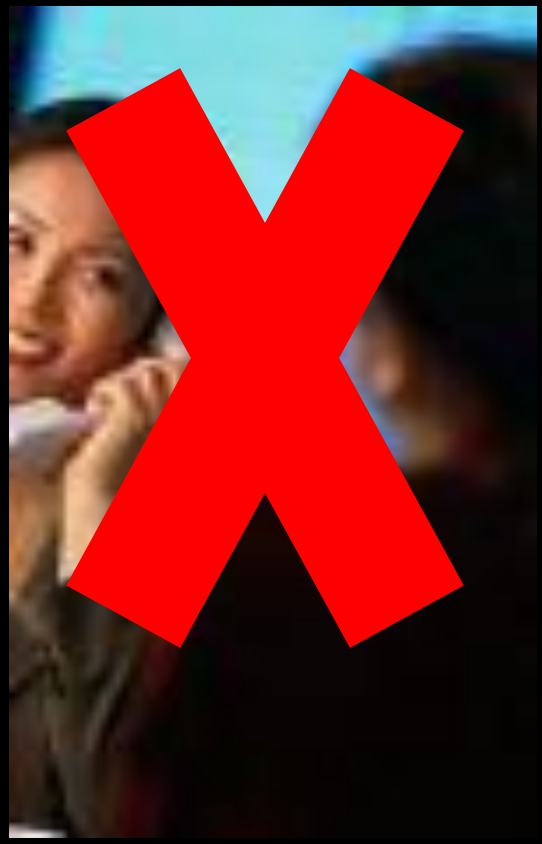
- **1st Nurse records, 2nd Nurse "Reads Back"**
- "**Read Back**" – NOT repeat back
- Spell out **1- 5** for 15 [confused with 50]

Verbal / Telephone Orders

NOT allowed for the following:

- Chemotherapeutic agents
- Parenteral nutrition

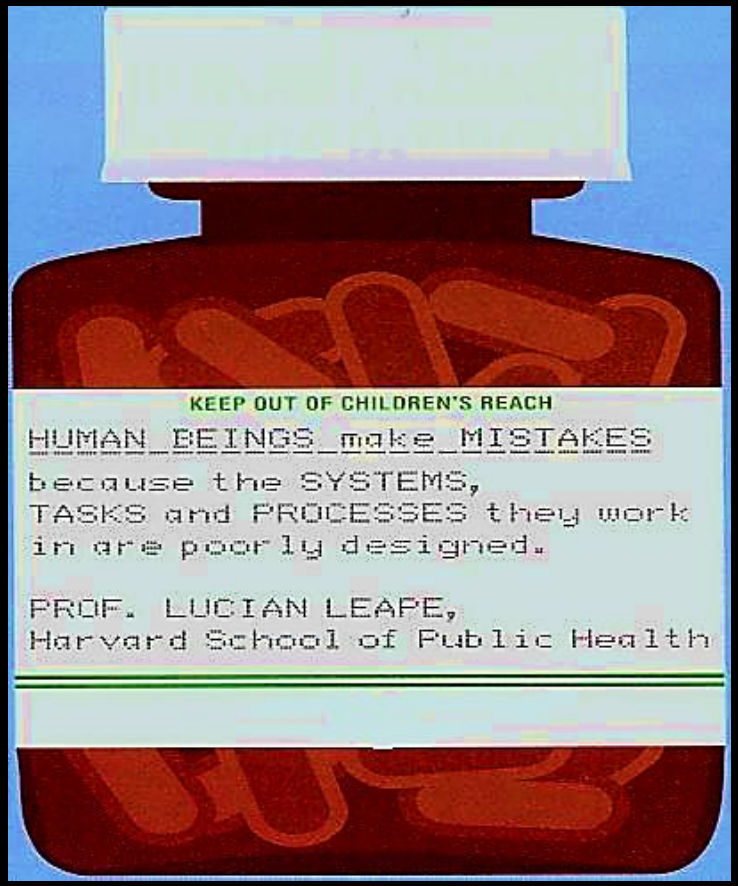
- **Initiation of:**
  - Epidural medications
  - Patient Controlled Analgesia / narcotic drips
  - Parenteral pressor agents
  - Parenteral skeletal muscle relaxants



APP 1429-03 Prescribing and Dispensing Medication Guidelines

System Focused Thinking

- Humans are imperfect
- Accept that errors will occur
- Focus on the system, not the people



Safe Patient Care Is Our Goal