# Patient Safety

Done by: Jawaher Abanumy , Samar AlQahtani , Nouf Alogaily , Laila Mathkour, Sara AlEnezy

Revised by: Allulu Alsulayhim, Rotana Khateeb

References: 437 Notes and Lectures, 436 Teamwork

Color code: 437 Notes , 436 Notes | Important | Extra | Kaplan

Editing file:

https://docs.google.com/presentation/d/1C-IJHwIqf6tV5j8V9UIMv8PKAH4i4zLbfK6GOFB2PA4/edit?usp=sharing

## Objectives:

Not given.

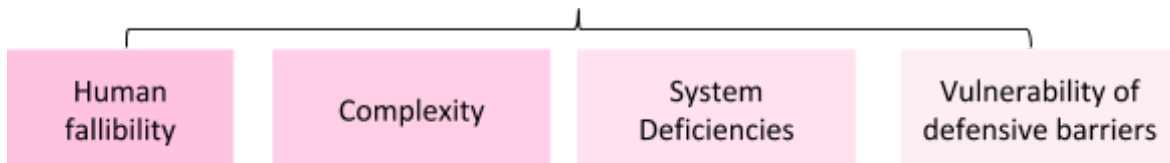### Scope of Problem & History of Patient Safety

- In 1999, IOM issued "To Err is Human: Building a Safer Health Care System"
- 44,000 - 98,000 Americans die each year from medical errors, which equals or more than a Jumbo jet crashing each and every day in the U.S.!


Lucian Leape
Patient Safety Champion

# Medical Error Theory

**Four factors contributing to medical errors:**

| Human fallibility | Complexity | System Deficiencies | Vulnerability of defensive barriers |
|---|---|---|---|

**1/ Human Fallibility:** Humans are likely to make mistakes even in best circumstances. Means that no matter how smart you are, at the end of the day you are human and you are liable to make mistakes.

- "To err is human": mistakes are part of the human condition.
- System changes are needed to make it **harder to do the wrong and easy to do the right thing**

1. Forcing functions B
2. Reminders at the point of care

| Forcing Functions | Reminders at Point of Care |
|---|---|
| Physical or process constraints that make errors **difficult** if not impossible. | Keeping a **checklist** to help ensure the steps are performed in the proper sequence. |
| Examples:<br>Pic 1     pic 2<br> | Examples:<br>Pic 3<br> |

- **Pic 1**: These tubes are used to administer oxygen and nitrous oxide (toxic). The tubes look similar, and misplacing them can lead to disastrous consequences. In order to make it harder to do the wrong thing, the company makes the tubes' tips different in shape, preventing a wrong tip from fitting in a wrong plug. Then, even if a healthcare giver is viable to make a mistake (sleepy, rushed.. etc), a mistake will be difficult to make.
- **Pic 2:** These are medications that look the same, and are kept in the same place. Changing sizes, labels, and colors prevent administering a wrong drug to a wrong patient.
- **Pic 3:** Keeping a checklist to insure the steps are performed in the proper sequence. This is a Thermachoice Endometrial Ablation System, used in Gynecological operations. The machine has its own checklist, and will not move to the next step unless the current step is finished. E.g. Did you check the patient's ID? You cannot proceed unless you click yes.

## 2/ Complexity:

We usually see this in the ICU, so the more complex system the more risk

of making an error.



- Modern health care is the **most complex** activity ever undertaken by human beings.
- Example: Inpatient medication system
- As an example of complexity, consider that for any patient seen in the hospital, the following are the steps a healthcare provider must go through in order to prescribe a medication safely:

## In Patient Medication System

Table 1
Inpatient medication system

| Prescribe → | Transcribe → | Dispensing → | Administer → | Monitor |
|---|---|---|---|---|
| Clinical decision | Receive order | Data entry | Receive from pharmacy | Assess therapy effect |
| Choose drug | Verify correct | Prepare, mix, compound | Prepare to administer | Assess side effects |
| Determine dose | Check allergy | Check Accuracy | Verify order and allergy | Review labs |
| Med record document | | Check allergy | Administer drug | Treat side effects |
| Order | | Dispense to unit | Document in MAR | Document |

*Abbreviation:* MAR, medication administration record.
*Adapted from* Aspden P, Wolcott J, Bootman, JL, et al. Preventing medication errors. Washington, DC: The National Academies Press; 2006. p. 60; with permission.

## 3/ System Deficiencies & Defensive Barriers:
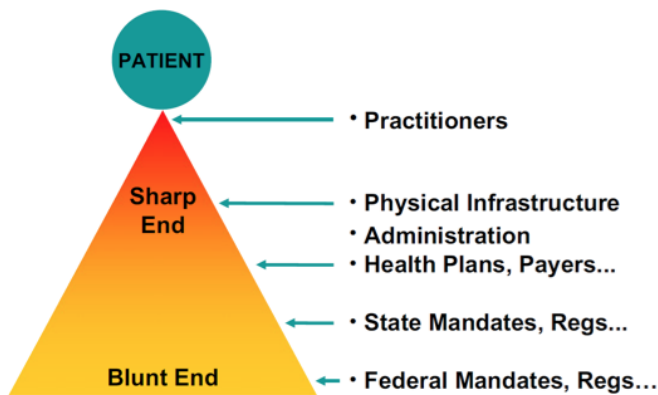
### 2 major components: Sharp & Blunt Ends
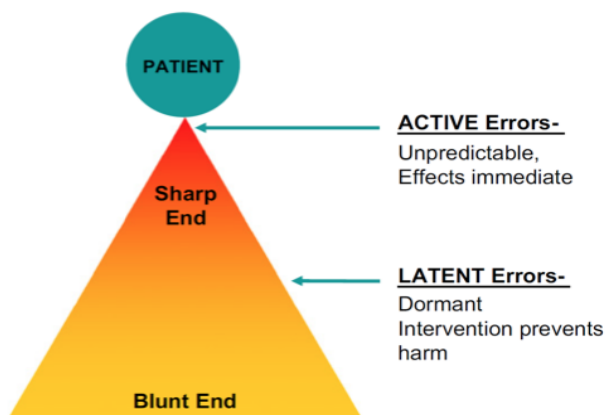


Fig. 1. Components of health systems.



Fig. 2. Types of errors in health systems.

| Active Errors | Latent Errors |
|---|---|
| • At the **sharp** end of care.<br>• **Immediate** effects.<br>• Generally unpredictable and unpreventable.<br>• There is no " system" that would prevent this injury.<br>• **Examples**: inadvertent bladder injury during a hysterectomy for endometriosis with multiple adhesions<br>• There is no system to prevent this injury. | • System deficiencies hidden in the **blunt** end of care.<br>• Holes in Swiss cheese (see below). Swiss Cheese model is the best example in literature.<br>• We work around these risks until the wrong set of circumstances occur → Patient injury.<br>• **Examples**: understaffing Like during holidays there will be overcrowding, engineering defects, Operation Room defects (poor lighting, poor construction.. etc.) |

- **Sharp End:** working in direct contact with the patient, and viable for committing **Active Errors** (affect the patient directly and immediately). Example: wrong dose, wrong site of surgery, wrong patient, wrong surgery, wrong blood transfusion.. etc.
- Practitioners responsible for active errors: nurses, physician, blood bank, pharmacist.. etc.
- **Blunt End**: working far away from the patient, and viable for committing **Latent Errors** (dormant, affect the patient indirectly and remotely). Example: Ministry of Health.
- Practitioners responsible for latent errors: Health authority (هيئة، وزارة الصحة، إدارة المدينة الطبية (الإدارة العامة للشؤون الصحية.
- Look at the big picture when dissecting a medical error. Consider the blunt end, and the sharp end.

> ■ *We cannot change the human condition, but we can change the (conditions) under which humans work*

## Defensive Barriers; Swiss Cheese Model
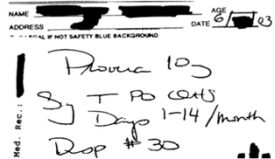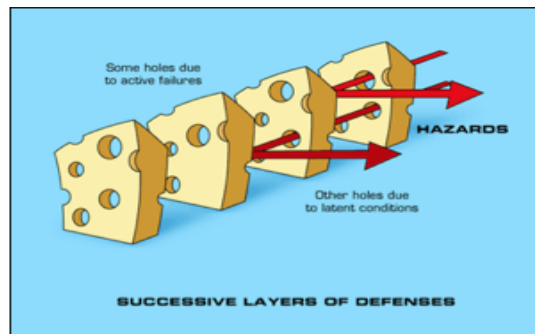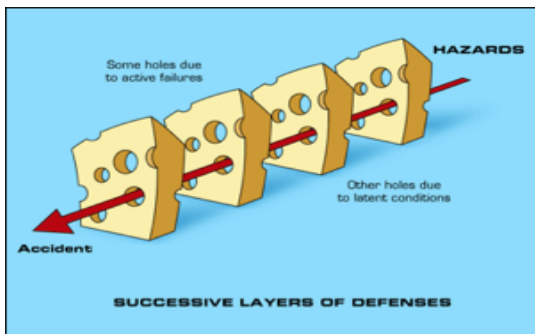
## Trajectory of Error & Defensive Barriers



E.g. A resident prescribed a wrong medication. The nurse who ordered the medication did not check, then the pharmacist did not know the patient has an allergy, and the nurse who administered it did not check as well. If anyone in this chain of command was **vigilant**, trajectory of error could have been prevented.

# Practical Solutions to Improve Safety in OB/GYN

### Medication Error

**Medication errors** account for the **largest** # of errors in health care!! MCQs

| | | | |
|---|---|---|---|
| Example |  |  |  |
| Explanation | The patient was given Prozac instead of the intended medication Provera cause bad handwriting Implementation of electronic systems prevents such errors. | • **At indian hospital NICU, 3 preterm infants** died as a result of lethal overdoses of IV heparin. <br>• Similar vials of heparin were involved in fatal dispensing errors in neonatal settings (the doses for adults and infants were similarly packaged). <br>• Neonatal dosage: 10 U/ml <br>• Adults: 10000 U/ml | • Heparin and insulin vials on a bedside tray. <br>• Do not keep similar meds beside each other. <br>• Putting the patient in unnecessary risk. It is best to keep one medication at a time. |

|  |  | • Neonates were given the adults med → intracranial hemorrhage → death |  |

## Advance Decision Support Alert

We have this in our hospital now, it alerts you to drug-drug interaction and allergy...etc.
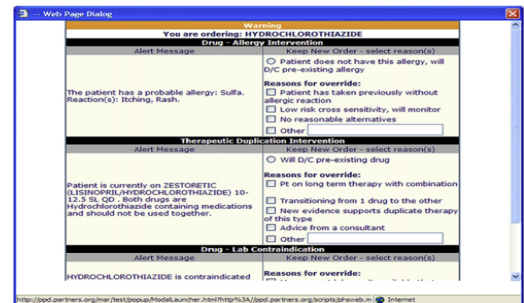


## Medication Safety

- **Clear** handwriting.
- Distinguishing between **look-alike** and **sound-alike** drugs.
- **Avoid using abbreviations** / non-standard abbrev.
- Electronic system for generating & transmitting Rxs.
- All prescriptions should include detailed instructions to pt for using the medications.
- Comprehensive recommendations/guidelines published by ACOG, ACS & **Joint Commission**. use instead column
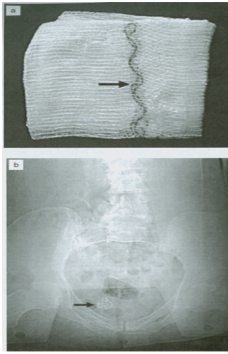


## Patient Role in her Safety

- It is a new concept in patient safety. The patient should not be a passive receiver of care, the patient should be an active participant.
- Speak up if you have questions or concerns.
- Pay attention to the care you're receiving.
- Educate yourself about your diagnosis, tests you are undergoing and your treatment plan.

- Know **what** medications you take and **why** you take them (**medication errors are the most common healthcare errors**).
- Participate in **all** decisions about your treatment.

## Surgical Environment

❖ **In Obstetrics and Gynecology, the risks of surgical error may have increased because:**
- ↑ Cesarean sections.
- ↑ Minimally Invasive Surgeries.
- ↑ Robot-assisted laparoscopy.
- ↑ Pressure for short lengths of stay post-op.
- ↑ More outpatient procedures.

| | |
|---|---|
| **1. Retained Foreign Objects** | <ul><li>Sponges, surgical instruments.</li><li>Indefensible!</li><li>"Correct sponge count" does not exonerate the surgeon. Even if the nurse counted them it's not an excuse for the surgeon if it's retained in the patient.</li><li>Pic a & b: Surgical sponge with an embedded radiopaque thread on X-ray.</li></ul>  |
| **2. Surgical Fire** | <ul><li>Rare</li><li>In OB/GYN there are all the 3 elements necessary to start / support fires:<ol><li>**Oxidizers**: supplies of oxygen gas</li><li>**Ignition sources**: electrocautary, fiberoptic light cables, lasers.</li><li>**Flammable fuels**: surgical drapes, alcohol-based prepping agents, anesthetic gases.</li></ol></li></ul> |
| **3. Transition & Handoff Errors** | <ul><li>Care transition, Hand over or shift change are the riskiest time for medical errors</li><li>Breakage of the continuity of care</li><li>Risky time:<ol><li>Provider handoff missing info between the two shifting persons.</li><li>Patient handoff Like if patients is shifted from the ER to the surgery, so ER staff will have to fill in surgery staff.</li></ol></li></ul> |

## MCQs

**1- Which of the following Is true for latent errors:**

A- Errors are hidden at the sharp end of care

B- Unpreventable

C- Errors are hidden at the blunt end of care

D- Has immediate effect

**2- The risk of surgical errors in ob-gyn increased because:**

A- More inpatient procedures

B- Less robot- assisted laparoscopy

C- Minimally invasive surgeries

D- Long lengths of stay post-op

**3- The most common medical errors in health care is:**

A- Surgical errors

B- Medication errors

C- Laboratory errors

D- Adverse drug reactions

**4- Performing the wrong procedure is an example of active error?**

A- True

B- False

Answers: 1- C.      2- C.      3- B.      4- A.