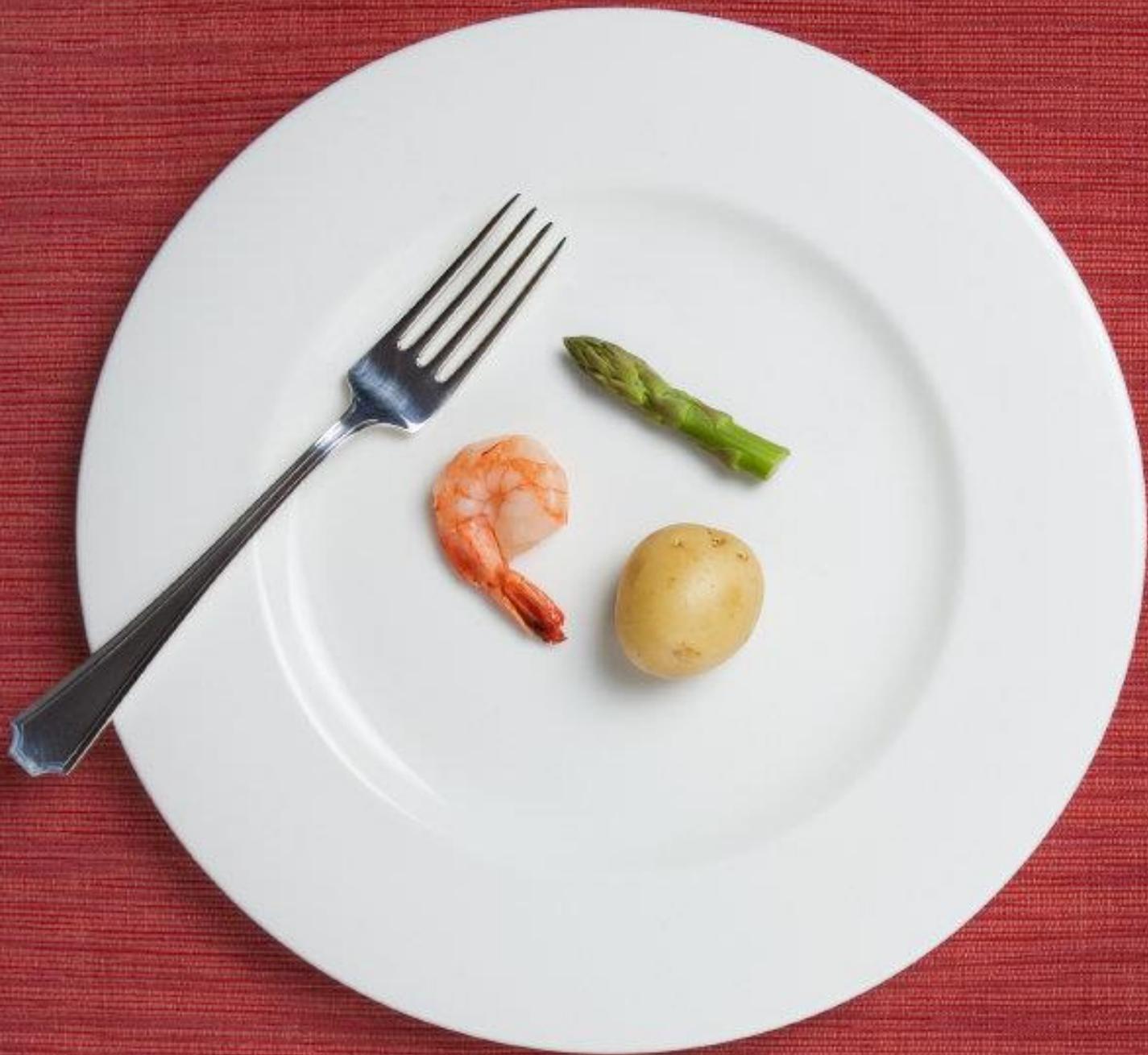


# Patient Safety



# Lucian Leape

Patient Safety Champion

*Harvard School of Public Health*



# Scope of Problem & History of Patient Safety

- 1999: IOM

*To Err is Human: Building a Safer Health Care System*

- **44,000 - 98,000** Americans die each year from medical errors

**Jumbo jet crashing each and every day in the  
U.S.**



# Medical Error Theory

- Four factors contributing to medical errors:
  - 1- Human fallibility
  - 2- Complexity
  - 3- System deficiencies
  - 4- Vulnerability of defensive barriers

# Medical Error Theory

## 1- Human fallibility

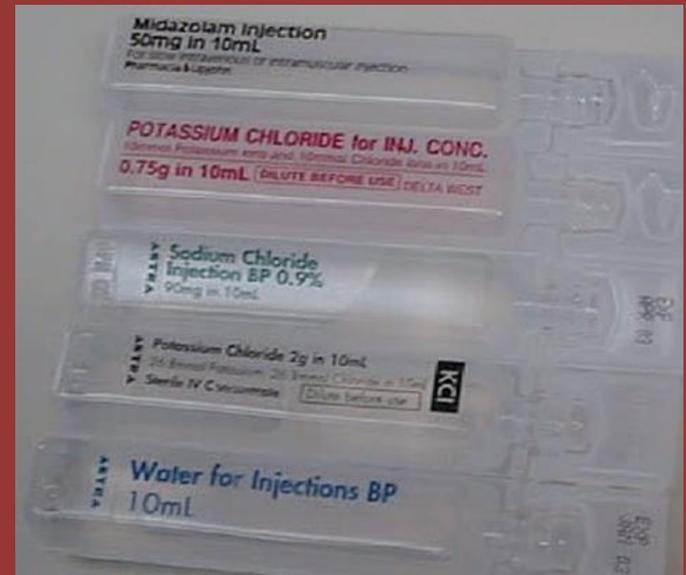
- “To err is human”: mistakes are part of the human condition
- System changes to make it harder to do the wrong & easy to do the right thing

**A- Forcing functions**

**B- Reminders @ the point of care**

# Medical Error Theory

- **A- Forcing functions:**
  - physical or process constraints that make errors difficult if not impossible



# Medical Error Theory

## B- Reminders at the point of care

- keeping a **checklist** to help ensure the steps are performed in the proper sequence



# B- Reminders at the point of care



## 2- Complexity

- Modern health care is the **most complex** activity ever undertaken by human beings



# 2- Complexity

- Inpatient 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

- 2 major components: Sharp & Blunt Ends

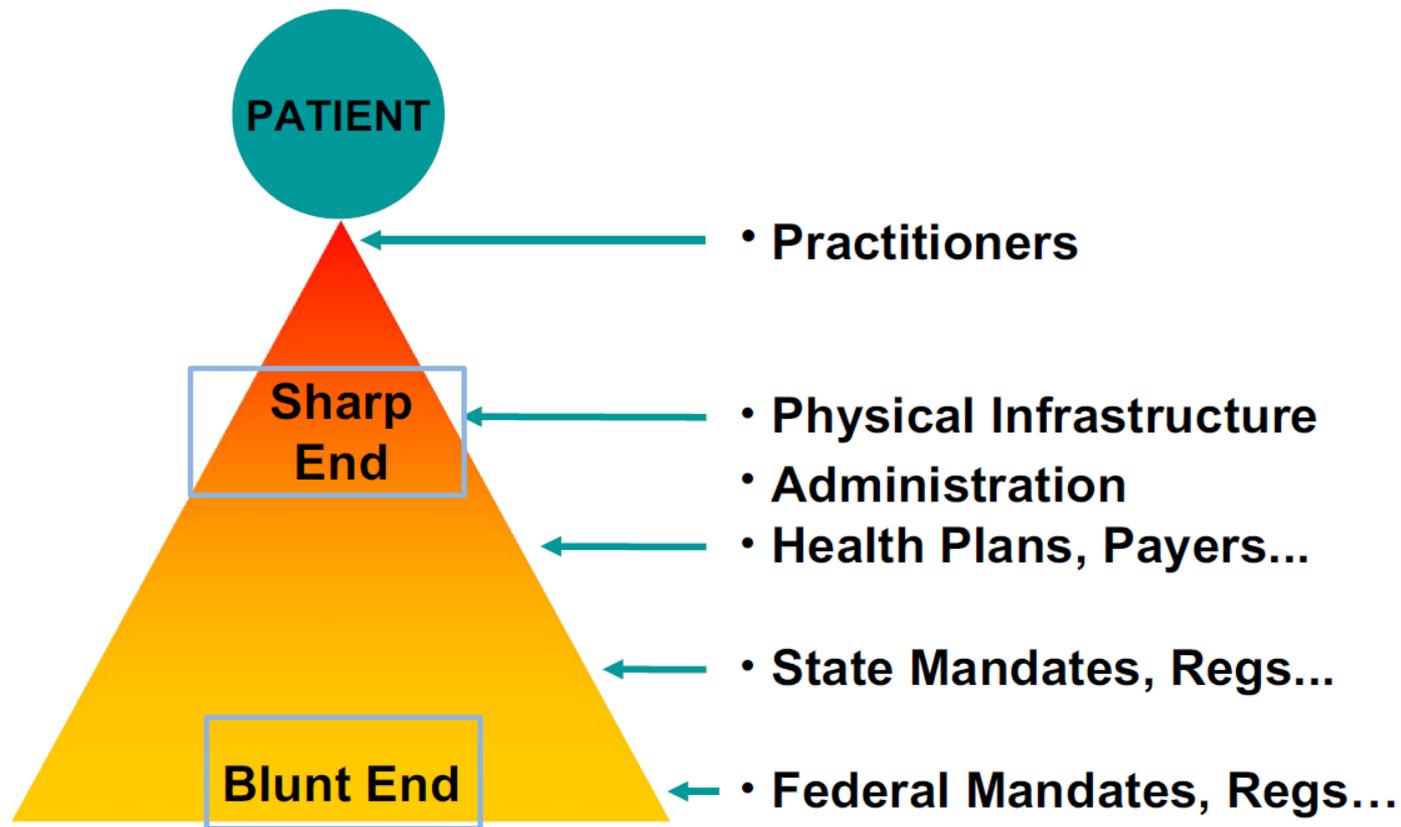


Fig. 1. Components of health systems.

### 3- System deficiencies & defensive Barriers

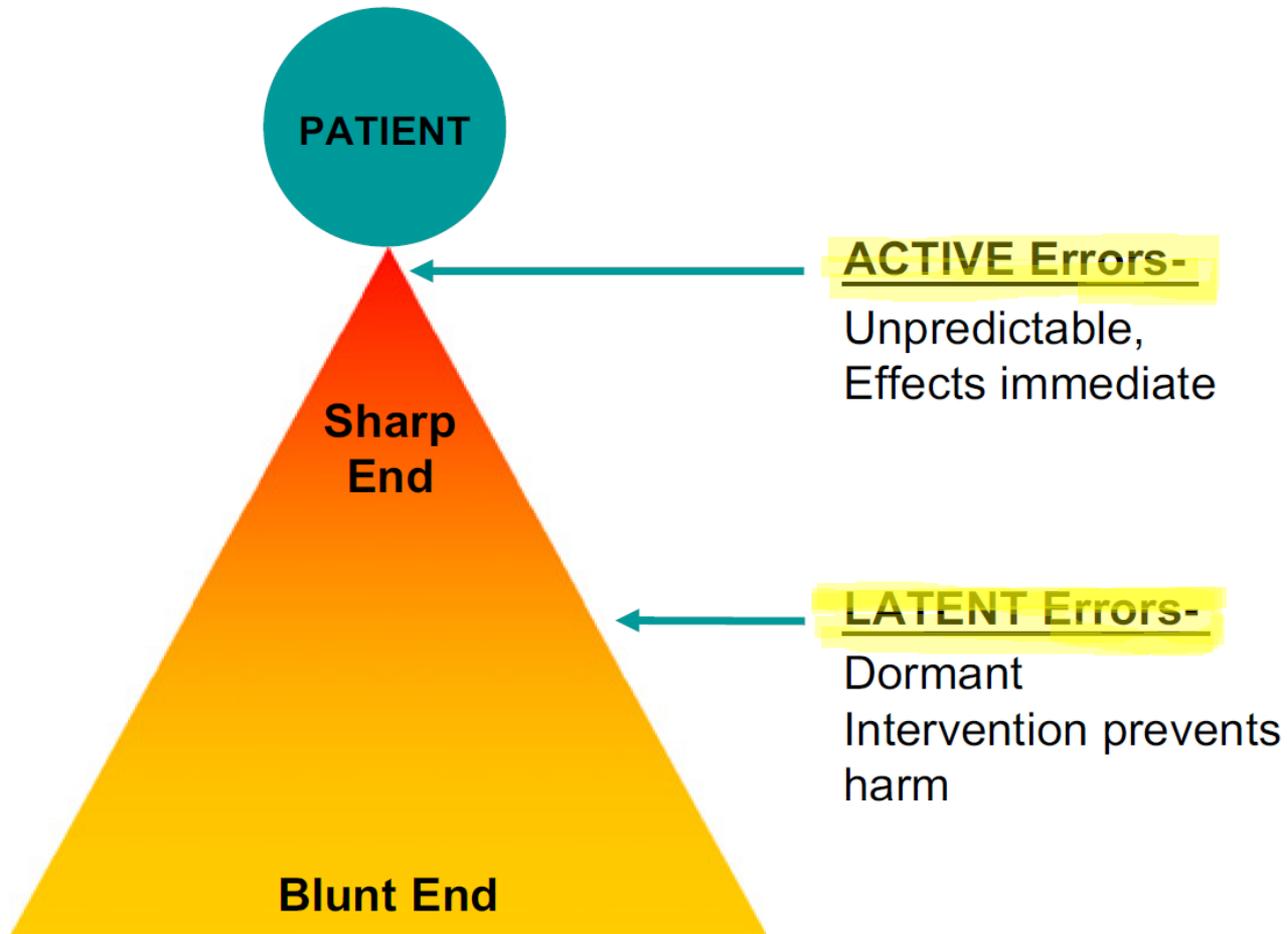


Fig. 2. Types of errors in health systems.

# 1- Active Errors

- @ the sharp end of care
- Immediate effects
- Generally unpredictable & unpreventable
- **Example:** inadvertent bladder injury during a hysterectomy for endometriosis with multiple adhesions
- There is no “*system*” that would prevent this injury

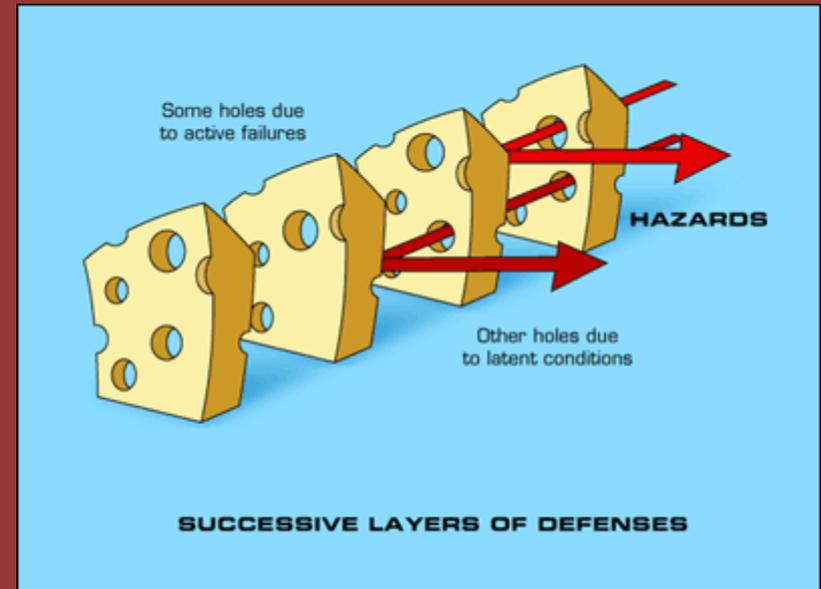
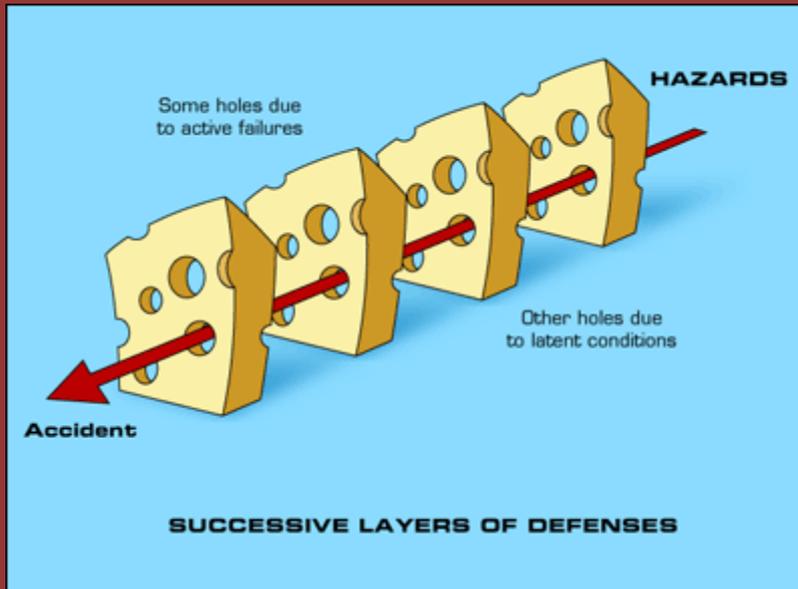
## 2- Latent Errors

- System deficiencies hidden in the blunt end of care
- *Holes in Swiss cheese*
- We work around these risks until the wrong set of circumstances occur → Patient injury
- **Examples:** understaffing, engineering defects

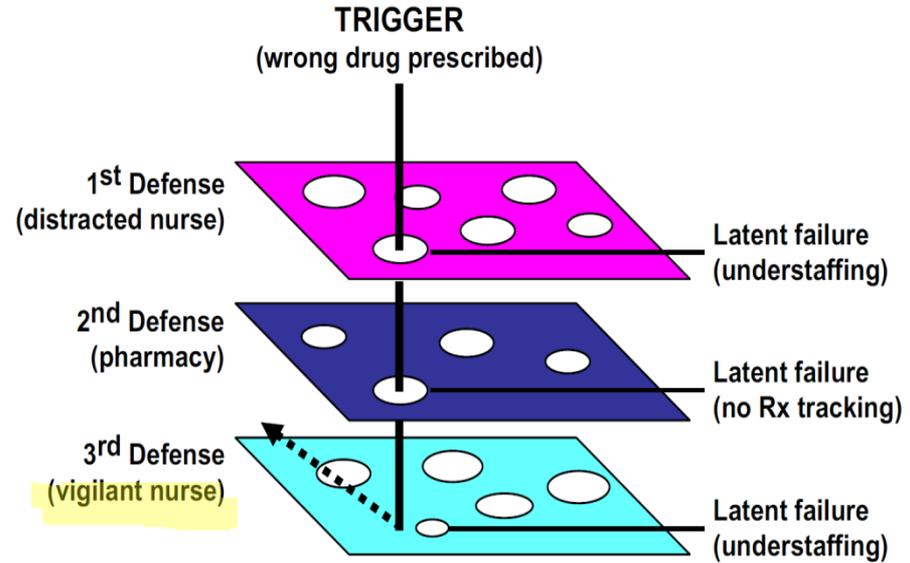
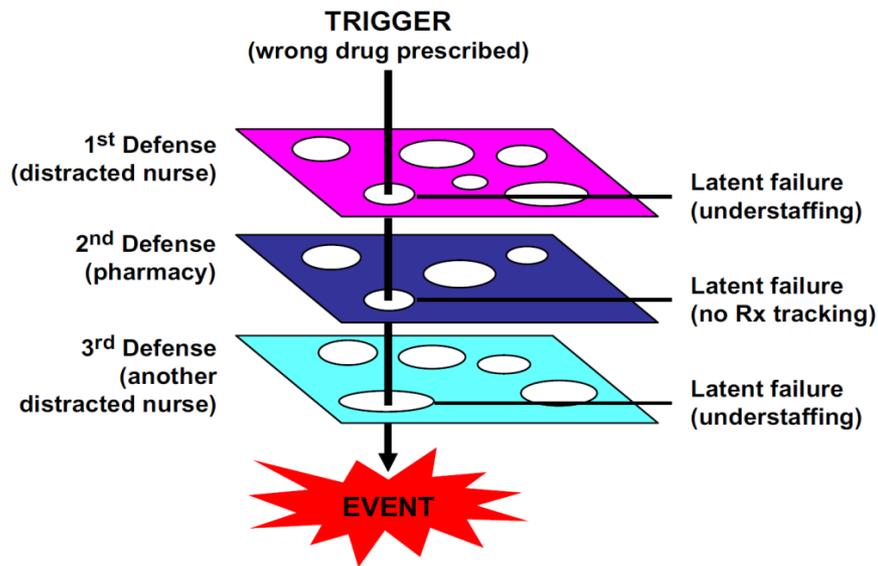
# Human Error

■ *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



# Practical solutions to improve safety in OB /GYN

- Medication errors account for the largest # of errors in health care

NAME [REDACTED] [REDACTED] AGE 6/10/03  
ADDRESS [REDACTED] DATE 6/10/03  
- ILLEGAL IF NOT SAFETY BLUE BACKGROUND

Med. Rec.:  
Provera 10mg  
Sig T PO QHS  
Days 1-14 /month  
Disp # 30

# Medication Error: Advance Decision Support Alert

-- Web Page Dialog

Warning	
<b>You are ordering: HYDROCHLOROTHIAZIDE</b>	
<b>Drug - Allergy Intervention</b>	
Alert Message	Keep New Order - select reason(s)
The patient has a probable allergy: Sulfa. Reaction(s): Itching, Rash.	<input type="radio"/> Patient does not have this allergy, will D/C pre-existing allergy
	<b>Reasons for override:</b> <input type="checkbox"/> Patient has taken previously without allergic reaction <input type="checkbox"/> Low risk cross sensitivity, will monitor <input type="checkbox"/> No reasonable alternatives <input type="checkbox"/> Other <input type="text"/>
<b>Therapeutic Duplication Intervention</b>	
Alert Message	Keep New Order - select reason(s)
Patient is currently on ZESTORETIC (LISINOPRIL/HYDROCHLOROTHIAZIDE) 10-12.5 SL QD . Both drugs are Hydrochlorothiazide containing medications and should not be used together.	<input type="radio"/> Will D/C pre-existing drug
	<b>Reasons for override:</b> <input type="checkbox"/> Pt on long term therapy with combination <input type="checkbox"/> Transitioning from 1 drug to the other <input type="checkbox"/> New evidence supports duplicate therapy of this type <input type="checkbox"/> Advice from a consultant <input type="checkbox"/> Other <input type="text"/>
<b>Drug - Lab Contraindication</b>	
Alert Message	Keep New Order - select reason(s)
HYDROCHLOROTHIAZIDE is contraindicated	<b>Reasons for override:</b>

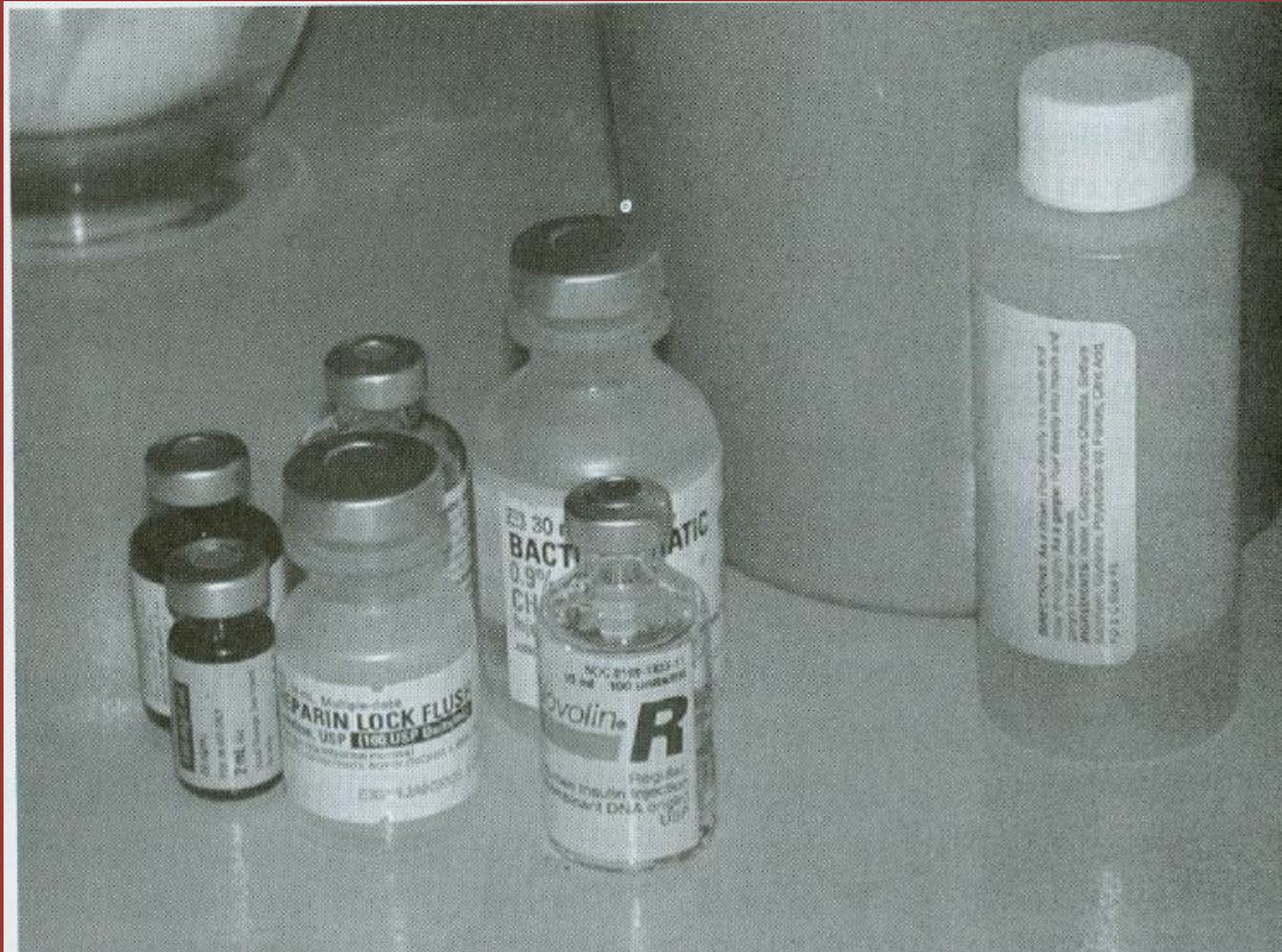
<http://ppd.partners.org/mar/test/popup/ModalLauncher.html?http%3A//ppd.partners.org/scripts/phsweb.m> Internet

# Indiana Hospital, NICU: September 2006

3 preterm infants died as a result of lethal overdoses of IV heparin



# Medication Errors



# Medication Safety & Errors

- **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

# Medication Safety & Errors

- Comprehensive recommendations/guidelines published by ACOG, ACS & Joint Commission

## JCAHO's "do not use" list

To comply with Goal 2, hospitals are required develop a list of abbreviations, acronyms, and symbols that must not be used in orders or other medication-related documentation that are handwritten, are entered into a computer, or appear on pre-printed forms. JCAHO has created its own "do not use" list that facilities can emulate.

Do not use	Potential problem	Use instead
U (unit)	Mistaken for "0" (zero), the number "4", or "cc"	Write "unit."
IU (international unit)	Mistaken for IV or the number 10	Write "International Unit."
Q.D., QD, q.d., qd (daily) and Q.O.D., QOD, q.o.d., qod (every other day)	Mistaken for each other. Period after the Q mistaken for "I" and the "O" mistaken for "1"	Write "daily" or "every other day."
Trailing zero (X.0 mg) Lack of leading zero (.X mg)	Decimal point may be missed.	Write "X mg" or "0.X mg." (Trailing zero may be used only when required to demonstrate the level of precision of the value being reported, such as for lab results, imaging studies that report the size of lesions, or catheter/tube sizes.)
MS	Can mean morphine sulfate or magnesium sulfate	Write "morphine sulfate" or "magnesium sulfate."
MSO <sub>4</sub> and MgSO <sub>4</sub>	Mistaken for each other	Write "morphine sulfate" or "magnesium sulfate."

In addition, JCAHO is considering the following items for inclusion on its do not use list: All abbreviations for drug names; the symbols "<" (less than), ">" (greater than), and "@" (at); the abbreviations "cc" and "µg"; and apothecary units. While these items are not currently prohibited, eliminating them now will make it easier to meet this requirement if JCAHO does add them to the list in coming years.

**Source:** Joint Commission on Accreditation of Healthcare Organizations. "The official Do Not Use list." 2006. [www.jointcommission.org/PatientSafety/DoNotUseList2006](http://www.jointcommission.org/PatientSafety/DoNotUseList2006) (11 Sept. 2006).



# Patient Role in her safety

- 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

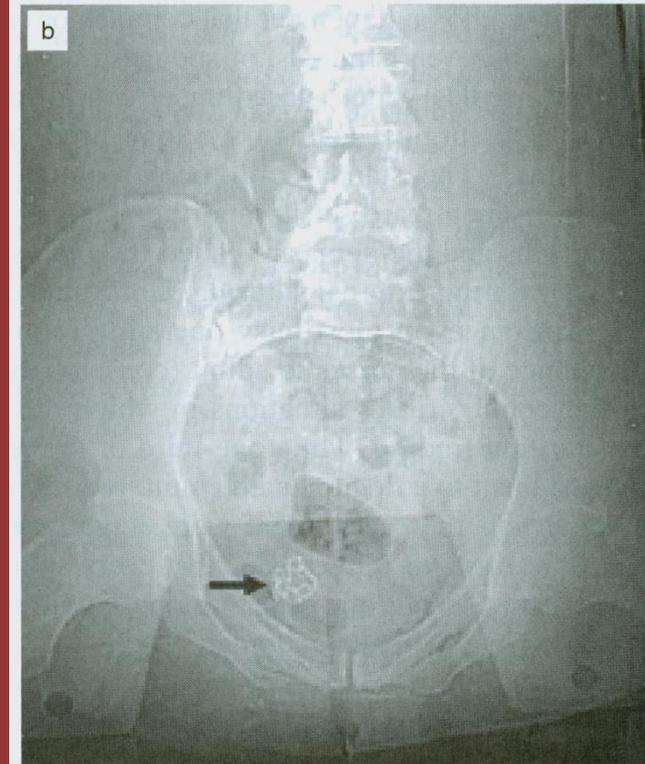
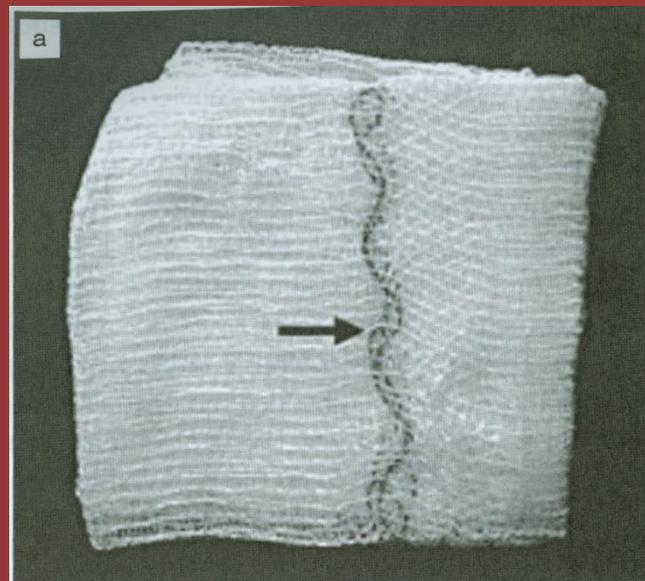
- In **Obstetrics & Gynecology** , the risks of surgical error may have ↑ because :
  - ↑ Cesarean sections
  - ↑ Minimally Invasive Surgeries
  - ↑ Robot-assisted laparoscopy
  - ↑ Pressure for short lengths of stay postop
  - ↑ More outpatient procedures

# 1- Retained Foreign Objects

- Sponges, surgical instruments
- Indefensible!!
- “Correct sponge count” does **not** exonerate the surgeon

# Retained Foreign Objects

- Radiopaque thread detectable by X-ray



## 2- Surgical Fire



# Surgical Environment

- **Surgical Fires:**

- Rare

- We in **O & G** have all the **3** elements necessary to start / support fires:

- 1- Oxidizers:** supplies of oxygen gas

- 2- Ignition sources:** electrocautary, fiber-optic light cables, lasers

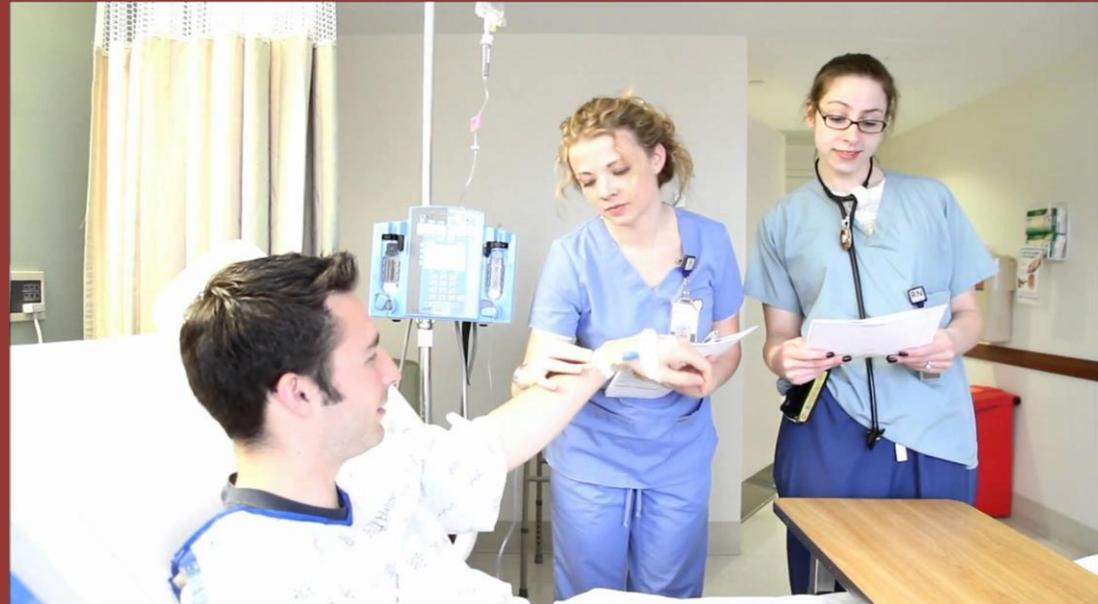
- 3- Flammable fuels:** surgical drapes, alcohol-based prepping agents, anesthetic gases

# Surgical Fires



# 3 - Transition & Handoff Errors

- “ Care transition ” , “ Hand over ” or “ shift change ”
- Breakage of the continuity of care
- **Risky time:**
  - 1- Provider handoff
  - 2- Patient handoff





obrigado

Dank U

Merci

mahalo

Köszí

спасибо

Grazie

Thank  
you

mauruuru

Takk

Gracias

Dziękuję

Děkuju

danke

Kiitos