

# Obstetrics & Gynecology TEAM



## Patient Safety

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◆ very important ◆ mentioned by doctor ◆ team notes ◆ not important

# Patient Safety

**First, Do No Harm:** First basic in medicine.

*"Medicine used to be simple, ineffective & relatively safe. Now it is complex, effective & potentially dangerous"*

Sir. Cyril Chantler, University College London

For example Medicine now have organ transplantation which is new and complex procedure.

## Scope of Problem & History of Patient Safety:

- 1999: IOM

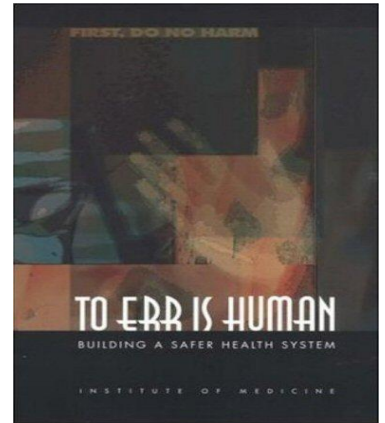
*To Err is Human: Building a Safer Health Care System*

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

## Medical Error Theory:

- Four factors contributing to medical errors:

- 1- Human fallibility . nobody is immune from making mistakes.
- 2- Complexity . we are dealing with very complex system now.
- 3- System deficiencies. there is no system is perfect
- 4- Vulnerability of defensive barriers . there is always gap.



Published November 1999

## 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.**

Like if you had child and there is something harmful to him what will you do ? you will put the harmful thing in far hidden place that is not reachable for the child.

A- Forcing functions.

B- Reminders @ the point of care.

## A-Forcing functions:

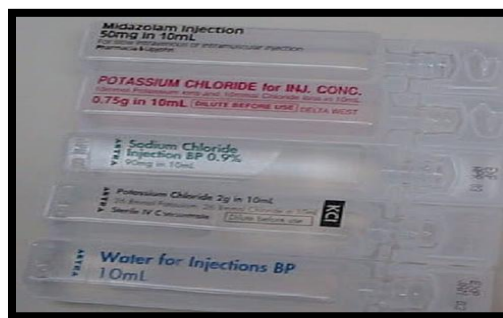
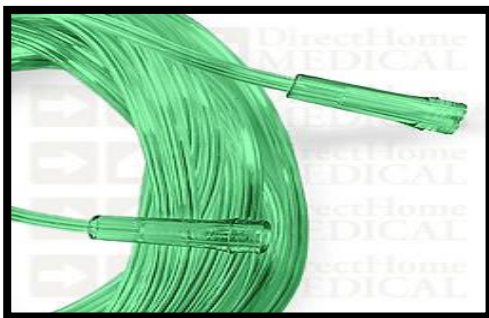
- physical or process constraints that make errors difficult if not impossible.

Example: in the past , the couplings connecting the various gases to the anesthesia machine were universal. The oxygen could be connected to the nitrous oxide port and vice versa

KCL:.....

the company made changes to the end of tubes like the oxygen tube will not fit in the nitrous oxide tube so here the anesthetic will not by mistake do errors . this is what we mean by making the system harder .

Also don't put similar tubes beside each other.



## B-Reminders at the point of care:

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

## Thermachoice Endometrial Ablation System ( Gynecare):

- checklist attached to machine that lists the sequence for the nurse to properly attach the connections.
- machine itself prompts the physician on the order of the steps and monitors the completion of one step before proceeding to the next.

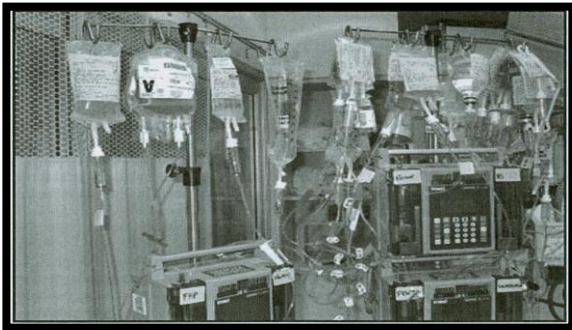
All new machines now have checklist to make it safer .



## 2- Complexity

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

- **Inpatient medication system**



It like looking for the needle in the haystack.

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.

Before giving any medication you should check if the patient have any allergy or if she is pregnant or lactating .

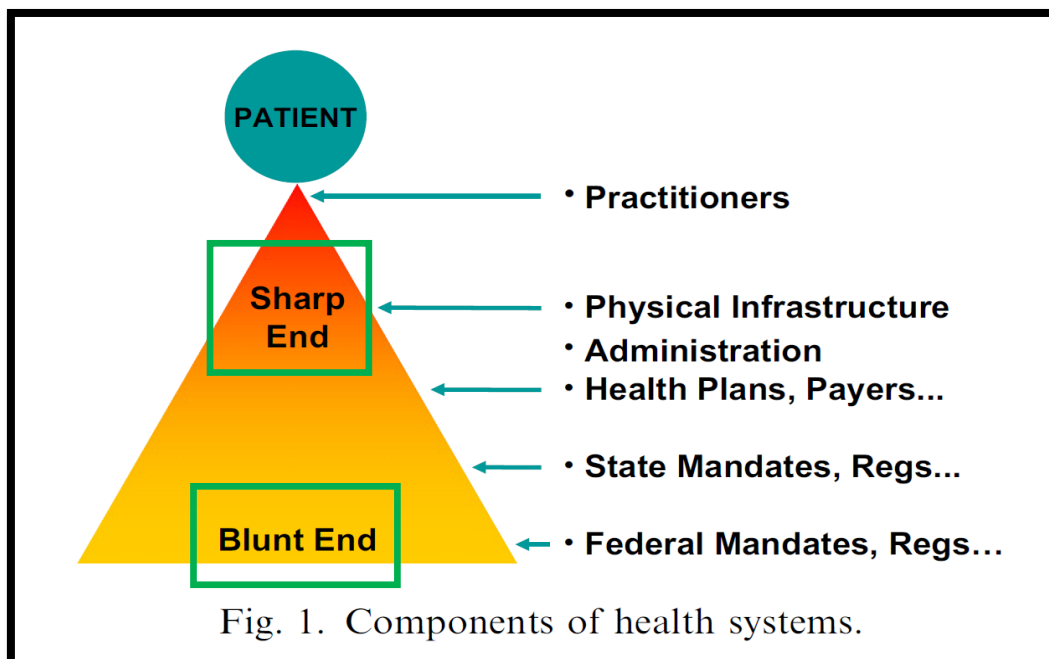
- it shows the major steps in this process
  - Each of these major steps has several components , all potential sources for error
  - This system is complex and disjointed
  - Strategy to improve medication safety would include simplifying and standardizing the process by using tools e.g., electronic prescribing



The pharmacist before giving medication to patient he/she should ask if there is any allergy or double check with the doctor if this is the right medication for this patient. So the pharmacist considered the second defense line.

### 3- System deficiencies & defensive Barriers: MSQ

- 2 major components: Sharp & Blunt Ends



Practitioners such as physicians ,dietitians ,technicians ,nurses....etc people who have direct relationship with patients they are in the sharp end.

The blunt end are those who have indirect relationship with patients such as Insurance companies if the procedure is so expensive for them to cover which will lead to medical errors for the patient because the patient will undergo less expensive procedure but will not be the ideal procedure for this patient .

**Also** the tests for women who want to do IVF some of medical system say there is no need for screening for infectious disease this is indirect relationship because the people who put this rules have nothing to do with patients.

**Here the press and media always blame people on the sharp end for medical errors .**

### 1- Active Errors ( usually practitioners errors):

Example :if a patient want to do right knee surgery but ended up with left knee surgery who will they blame ? maybe the patient came with incomplete documentation ,nurse wrote the wrong side ,surgeon didn't sleep well. these all happen on the sharp end .

-@ the **sharp end** of care.

- **Immediate** effects.

such as: collapse or giving the patient antihypertensive 100 mg instead of 20 mg here the patient will undergo into hypertensive state .

- Generally **unpredictable & unpreventable** .

like if the nurse instead of giving the patient calcium chloride she give sodium chloride.

- Example: inadvertent bladder injury during a hysterectomy for endometriosis with multiple adhesions.

- There is no "system" that would prevent this injury .

## 2- Latent Error (usually system error) : “ An Accident Waiting To Happen ” unless you take some steps to avoid you will do that mistake.

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 (one nurse responsible for 3 rooms), engineering defects (the monitor is far away from the surgeon in the procedure room) .

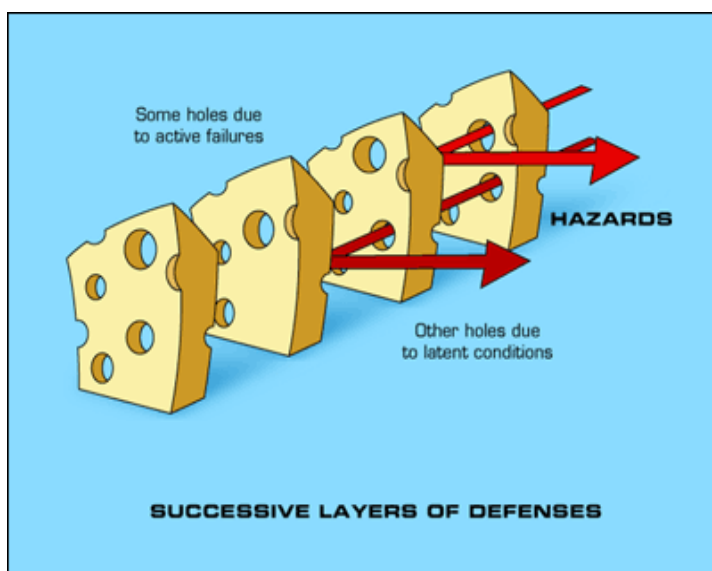
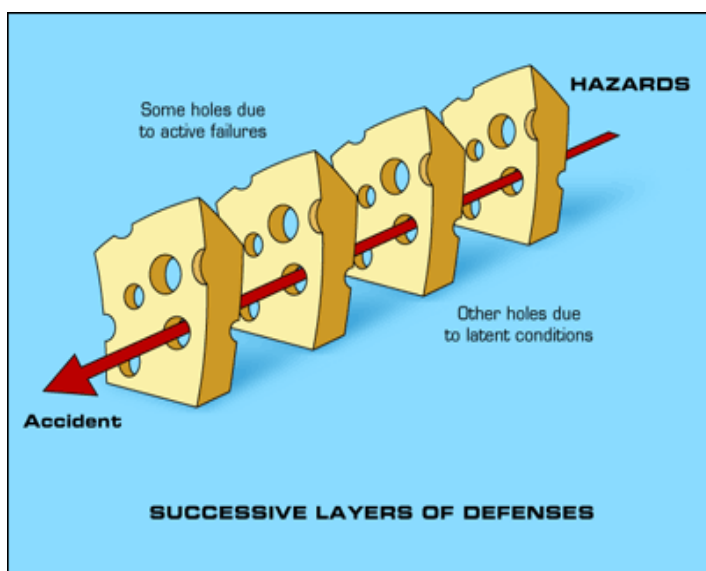
## Medical Errors & Swiss Cheese

**Defensive Barriers: Swiss cheese Model:**

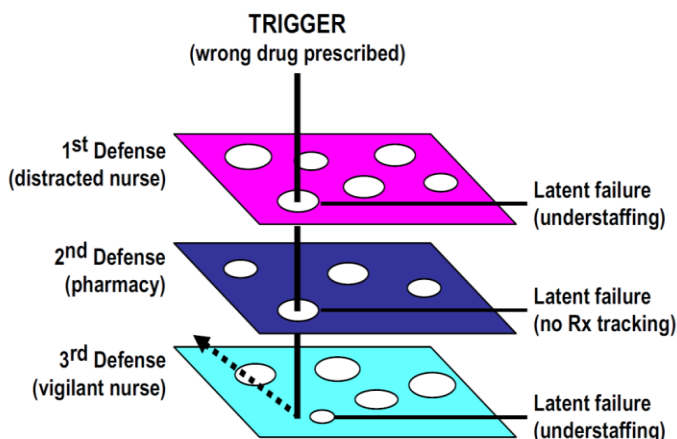
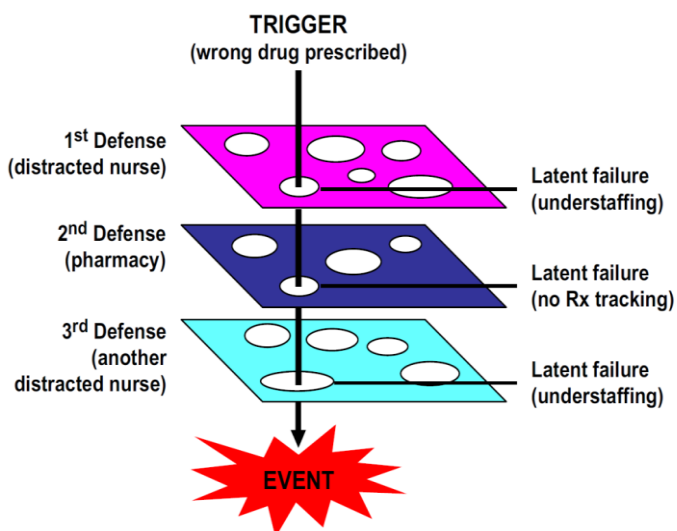
Example; if the nurse forget to check allergy the pharmacist will check the allergy.

Also in the surgical equipments ,if the surgeon forget there is alarm or notes in the system says that the system is not ready to be used.

These will prevent errors from happening so remember if Swiss chess in straight line once we do something the error will not happen .



## Trajectory of Error & Defensive Barriers



## Defensive Barriers

- No defensive barrier is perfect.
- Each has inherent vulnerabilities ( holes) that, under the wrong circumstances, can be pierced by the trajectory of error.
- Complex medical processes often have multiple layers of such barriers.
- When the potential defects in each of these barriers align in just the wrong way, errors will not be deflected and patient injury/death will results.
- Preventing harm: By interposing another piece of “ Swiss cheese” between the hazard and the potential injury.

## Practical solutions to improve safety in OB & GYN:

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

NAME [REDACTED] AGE 6/1/03  
ADDRESS [REDACTED] DATE 6/1/03  
- ILLEGAL IF NOT SAFETY BLUE BACKGROUND

Med. Rec. : Provera 10g  
3g T PO QD  
Days 1-14 /month  
Dop # 30

The patient was given Prozac ( instead of the intended Provera (medroxyprogesterone) ).  
The solution for these medication errors is **electronic system**.  
Medication Error: Advance Decision Support Alert

The screenshot shows a 'Web Page Dialog' window with three sections of medication alerts:

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

At the bottom, the URL is: <http://ppd.partners.org/mar/test/popup/ModalLauncher.html?http%3A//ppd.partners.org/scripts/phsweb.m>

March 2004 : Unexplained hyperkalemia in an elderly patient undergoing continuous renal replacement therapy in led to an analysis of the dialysate solution.

- The solution was found to contain 6 mmol/L sodium (should have been 110 mmol/L) and 60 mmol/L potassium (should have been zero).

the nurse instead of giving the patient with (renal dialysis) sodium chloride she give potassium chloride the patient went into arrhythmia and she was about to die but they revived her ,when they did blood tests they discovered that the potassium is 100 times the normal range . to prevent this from happening don't put these bottles side by side or put them in the pharmacy



Sodium chloride and potassium chloride bottles: a dangerous similarity

**Indiana Hospital: September 2006**

Similar vials of heparin involved in fatal dispensing error in neonatal setting ( the doses for adults and infants were similarly packaged)3 preterm infants died as a result of lethal overdoses of IV heparin.



**Heparin and insulin vials on a bedside tray** →

To prevent errors here each nurse should bring her Own medication with her , if morning nurse give heparin she should take it back and if patient need insulin at night the night nurse should give night dose and take it back so, we don't collect the medication by the bed side . here we will prevent the hole in Swiss chess.



**Medication Safety & Errors:**

- Clear handwriting
- Distinguishing between look-alike and sound-alike drugs. such as: gentamicin , erythromycin
- Avoid using abbreviations/ non-standard abbrev. Such as :o/d instead of once a day.
- Electronic system for generating & transmitting Rx's .
- All prescriptions should include detailed instructions to pt for using the medications.
- 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 "l" and the "O" mistaken for "l"	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 (11 Sept. 2006).



## **Patient Role in her safety: patient have a rule in preventing errors.**

- 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

### Examples:

There was a patient allergic to penicillin her doctor was in holiday and there was a new doctor in the hospital and he is new to the system he prescribed for her **Augmentin** (penicillin) she knew how to read English and she knew that she is allergic to penicillin and yet she take it.

Another patient prescribed for her **provera** taking on the 3 day of period when she went to the pharmacy they give her **Prozac** taking before breakfast every day but she was smart enough to know the mistake and said that her doctor says that she should take it on 3 day of period here the pharmacist knew that there was a mistake .

### **Let our Residents Rest!**

- 2003: work-hour limitations promulgated by the ACGME
- 2010: new standards  
(ACGME) : The Accreditation Council for Graduate Medical Education

- **US National Traffic Safety Administration**

sleepy drivers are responsible for at least 100,000 automobile accidents, 40,000 injuries and 1500 deaths annually

- Sleep deprivation increases errors in performing even simple familiar tasks
- needle sticks
- puncture wounds
- lacerations
- medical errors
- motor vehicle

### **Sleep deprivation affects human cognitive and physical function**

- It has long been recognized that fatigue can affect human cognitive and physical function
- There is increasing awareness within the patient safety movement that fatigue, even partial sleep deprivation, impairs performance

### **Surgical Environment:**

- In **Obstetrics & Gynecology** , the risks of surgical error may have increased because :
  - ↑ C.S
  - ↑ MIS
  - Robot-assisted laparoscopy.
  - Pressure for shorter lengths of stay post op.
  - More outpatient procedures .

### **Retained Foreign Objects:**

- Sponges, surgical instruments
- Indefensible!
- "Correct sponge count" does not exonerate the surgeon

If they forget objects inside the patient during a procedure and he raises a lawsuit against the nurse or surgeon the patient always win the lawsuit there is no excuse for them to forget these objects because they have a check list for every objects and they should double check .

So before finishing the procedure wait for the nurse to tell that the count is correct and they repeat it twice.



**Table 1. Characteristics of 54 Cases of a Retained Foreign Body after Surgery.**

Characteristic	No. of Cases (%)
Type of foreign body retained	
Sponge	37 (69)
>1 Sponge	4 (7)
Clamp	4 (7)
Other (e.g., retractor or electrode)	13 (24)
Cavity in which foreign body was left	
Abdomen or pelvis	29 (54)
Vagina	12 (22)
Thorax	4 (7)
Other	9 (17)
Outcomes	
Death	1 (2)
Readmission to hospital or prolonged hospital stay	32 (59)
Sepsis or infection	23 (43)
Reoperation	37 (69)
Fistula or small-bowel obstruction	8 (15)
Visceral perforation	4 (7)

**Table 3. Risk Factors for Retention of a Foreign Body after Surgery.\***

Characteristic	Risk Ratio (95% CI)	P Value
Operation performed on an emergency basis	8.8 (2.4–31.9)	<0.001
Unexpected change in operation	4.1 (1.4–12.4)	0.01
>1 Surgical team involved	3.4 (0.8–14.1)	0.10
Change in nursing staff during procedure	1.9 (0.7–5.4)	0.24
Body-mass index (per 1-unit increment)	1.1 (1.0–1.2)	0.01
Estimated volume of blood lost (per 100-ml increment)	1.0 (1.0–1.0)	0.19
Counts of sponges and instruments performed	0.6 (0.03–13.9)	0.76
Female sex	0.4 (0.1–1.3)	0.13

**Sponge is the most common forgetful object, and most common place they forget it in Are abdomen and pelvis.**

**A- surgical sponge with an embedded radiopaque thread on X-ray if the forget the sponge they can detect the thread on x-ray.**

### Surgical Environment

#### 2- Surgical Fire

rare

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

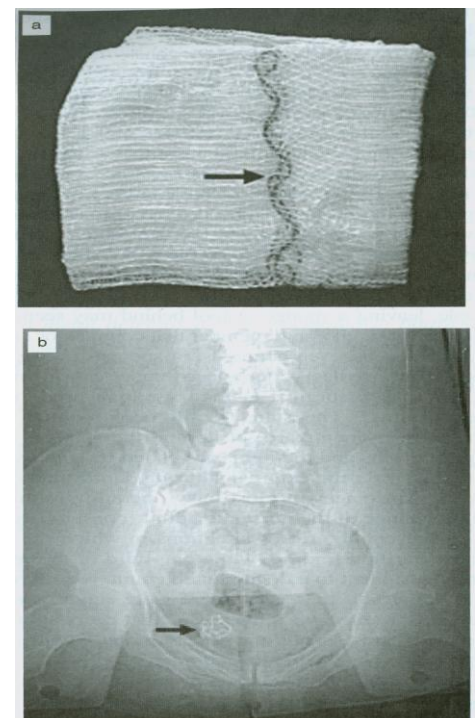
- 1- **oxidizers**: supplies of oxygen gas
- 2- **ignition sources**: electrocautary, fiberoptic light cables, lasers
- 3- **flammable fuels**: surgical drapes, **alcohol-based** prepping agents, anesthetic gases

#### Medication errors

- Prophylactic ABX: demonstrated effectiveness in reducing surgical morbidity.
- Failure to use them when appropriate is a medication error
  - inappropriate choice of agent
  - ineffective start of administration
  - incorrect duration of exposure

#### 4- Venous thromboembolism

- Failure to use accepted surgical thromboprophylaxis is another class of surgical error in patient safety
- Without effective thromboprophylaxis, major gynecologic surgery is associated with a prevalence of DVT 15 - 40%
- ACOG recommends:
  - Low
  - Medium
  - High
  - Highest



## **Transition & Handoff Errors**

- “ Care transition ” , “ Hand over ” or “ shift change”
- these are the most dangerous times for example: on weekends there is only the on call doctor and they don't know about the patient who came on Sunday or Monday this will lead to medical errors .
- Risky time:

1- Provider handoff

2- Patient handoff

**-Involves breakage of the continuity of care**

**-breakdowns and inconsistencies in the handoff process contribute to medical errors**

# **THANK YOU**

**This lecture provided by Dr. Saleh AlAsiri, MD, FRCSC, FACOG, FACS**

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