# Patients Safety

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# Outline



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# Objectives



- After completing this lecture you should:
  - Recognize the magnitude and the importance of patient safety
  - Discuss the facts and concepts relevant to patient safety.
  - Define and describe the key elements of healthcare quality and explain how each element contributes to safer care for patients.
  - Summarize the differences between error and harm
  - Describe the Swiss cheese model of error including the difference between active failures and latent conditions

- Explain how medical errors are a significant cause of death and disability
- Recognizing characteristics of a just culture
- Differentiate between the different types of clinical incidence
- Describe what improvements can be made in the healthcare system, and in human functioning, to avoid most medical errors.
- Describe several specific behaviors you can practice to foster a culture of safety in your workplace

# Defining patient safety



**Patient Safety:**

- The freedom from accidental injury due to medical care or from medical error' (Institute of Medicine (IOM)- 2000).

- The reduction of risk of unnecessary harm associated with health care to an acceptable minimum. (WHO, World Alliance for Patient Safety 2009).
- The goal of the field of patient safety is to minimize adverse events and eliminate preventable harm in health care.

# Introduction



- Significant numbers of patients are harmed due to their health care, either resulting in permanent injury, increased length of stay (LOS) in health-care facilities, or even death.
- About 10% of all patients admitted to hospital will be unintentionally harmed in some way, or about 85,000 adverse events per year.
- 44 – 98,000 deaths annually caused by medical error
- There are more deaths annually as a result of health care than from road accidents, breast cancer and AIDS combined.
- Recent financial estimates suggest that adverse events cost the Uk £2 billion in 2000 in extra hospital days alone. Other costs, such as suffering of patients, their families and the health care workers involved, are incalculable

# Why is it a problem?





**Table B.1.1.** Data on adverse events in acute-care hospitals in Australia, Denmark, the United Kingdom and the United States of America

| | Study | Year in which data was collected | Number of hospital admissions | Number of adverse events | Adverse event rate (%) |
|---|---|---|---|---|---|
| 1 | USA (Harvard Medical Practice Study) | 1984 | 30 195 | 1 133 | 3.8 |
| 2 | USA (Utah–Colorado study) | 1992 | 14 565 | 475 | 3.2 |
| 3 | USA (Utah–Colorado study)[a] | 1992 | 14 565 | 787 | 5.4 |
| 4 | Australia (Quality in Australian Health Care Study) | 1992 | 14 179 | 2 353 | 16.6 |
| 5 | Australia (Quality in Australian Health Care Study)[b] | 1992 | 14 179 | 1 499 | 10.6 |
| 6 | UK | 1999–2000 | 1 014 | 119 | 11.7 |
| 7 | Denmark | 1998 | 1 097 | 176 | 9.0 |

Source: World Health Organization, Executive Board 109th session, provisional agenda item 3.4, 5. 2001, EB 109/9 [19].

# The key dimensions of healthcare quality





- **Safe:** Avoiding injuries to patients from the care that is intended to help them.
- **Effective:** Providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and overuse). Doing the right thing for the right person at the right time.
- **Timely:** Reducing waits and sometimes unfavorable delays for both those who receive and those who give care.

# The key dimensions of healthcare quality





- **Family-centered:** Providing care that is respectful of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions.
- **Efficient:** Avoiding waste, in particular waste of equipment, supplies, ideas and energy.
- **Equal:** Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location and socio-economic status

# Sources of System Error





All errors can be divided into two main groups:

- **Active errors or human error**
- are committed by frontline staff and tend to have direct patient consequences.
  - Example, giving the wrong medication, treating the wrong patient or the wrong anatomical site, or not following the correct policies and procedures.

- **Latent or system errors**
- are those errors that occur due to a set of external forces and indirect failures involving management, organizational culture, protocols/processes, transfer of knowledge, and external factors
  - Example : understaffed wards or inadequate equipment.

# Error in medicine



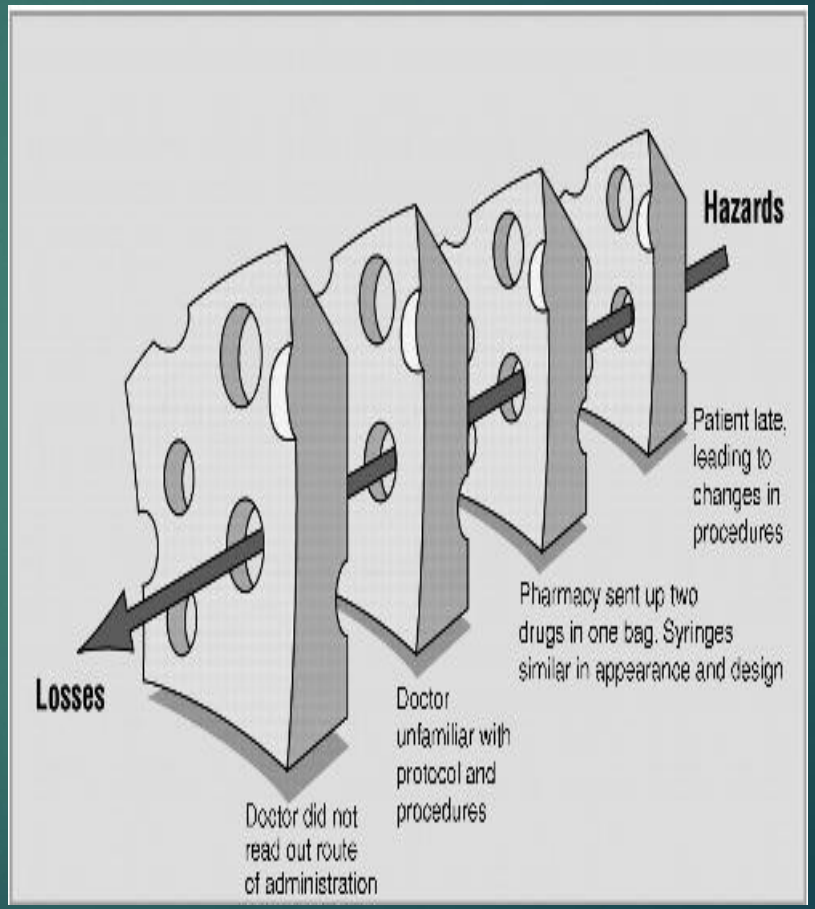
- Errors in health care can be caused by ‘‘active failures’’ or ‘‘latent conditions.’’
- Most errors are not a result of personal error or negligence, but arise from system flaws or organizational failures

# "Swiss cheese" model of accident causation





- The systems  have many holes: some from active failures and others from latent conditions.
- These holes are continuously opening, shutting, and shifting their location. In any one slice, they do not normally cause harm, because the other intact slices prevent hazards from reaching the potential victim.
- Only when the holes in many layers momentarily line up does the trajectory of accident opportunity reach the victim causing th.e damage



# Patient safety culture



- **Definition Culture of patient safety:**

An integrated pattern of individual and organizational behavior, based on a system of shared beliefs and values, that continuously seeks to minimize patient harm that may result from the process of care delivery.

# Patient safety culture



- Previously, in many cases the traditional response to adverse incidents in health care has been to **blame, shame and punish** individuals.
- The opposite of a 'blame' culture is a '**blame-free**' culture, which is equally inappropriate. In some instances, the responsible individual should be held accountable.(in case of negligence or recklessness)
- Recently , the a **'just' culture** has been adapted which means : balancing the 'blame' and 'no blame' approaches

# Patient safety culture



## Example

- If a patient is found to have received the wrong medication and suffered a subsequent allergic reaction,

- **Blame culture:** we look for the individual student, pharmacist, nurse or doctor who ordered, dispensed or administered the wrong drug and blame that person for the patient's condition care at the time of the incident and hold them accountable

- **Just Culture:** we look for the system defect such as communication , protocols and processes for medication management , in addition to investigate the negligence or recklessness of the worker

# Living a Just Culture Video

- https://www.youtube.com/watch?v=yWhb4vLIegM

# The concept of Clinical incident:





## Definition:

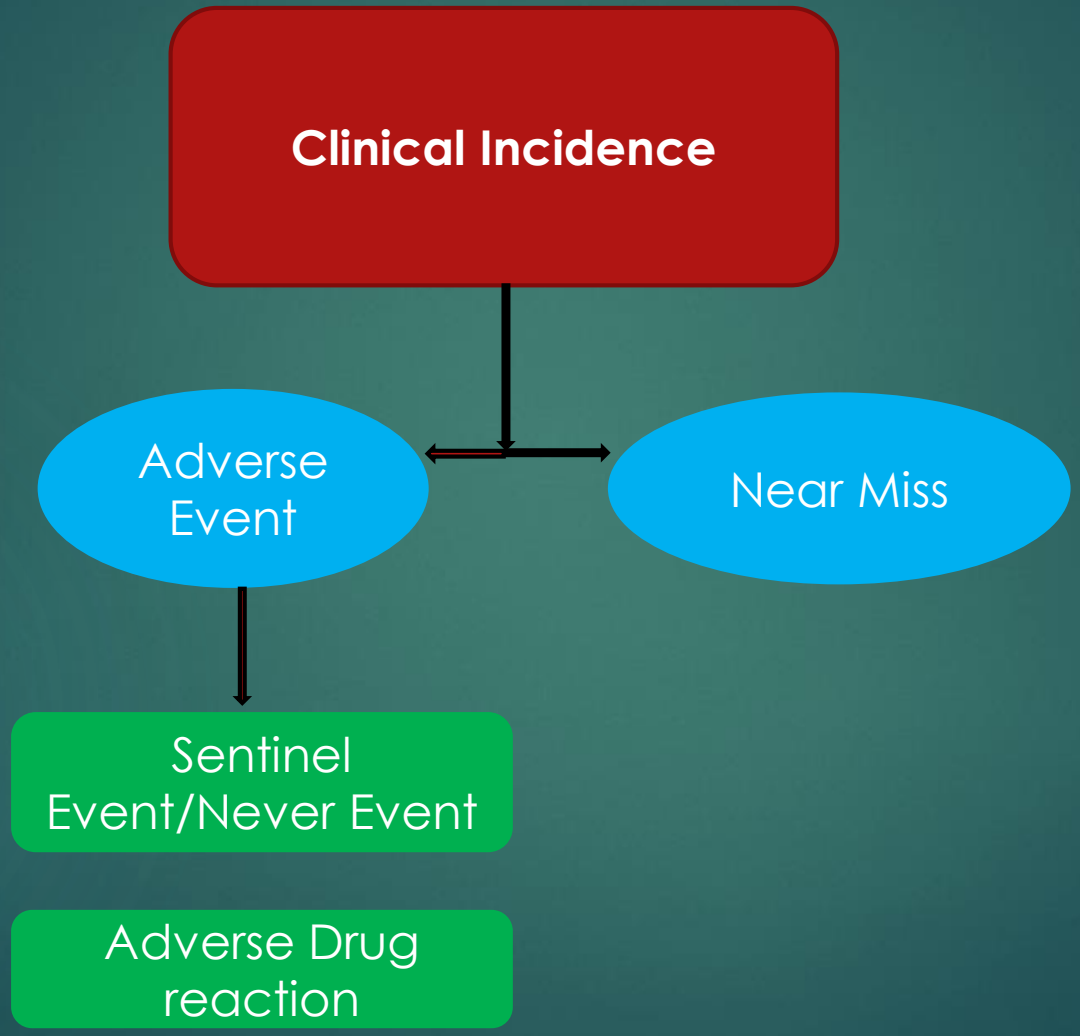
- A clinical incident is an event or circumstance resulting from health care which could have, or did lead to unintended harm to a person, loss or damage, and/or a complaint. (deviation from standard of care and safety )

## Examples:

- Medication errors (e.G. Wrong medication, omission, overdose);
- Patient falls;
- Intended self harm or suicidal behaviour;
- Therapeutic equipment failure;
- Contaminated food;
- Problems with blood products;
- Documentation errors;
- Delayed diagnosis;
- Surgical operation complications;
- Hospital acquired infection;

# Types of Clinical incident





# Types of Clinical incident



- **Adverse Event:**

  An adverse event is an unintended injury or complication which results in disability, death or prolonged hospital stay, and is caused by health-care management

  Example : *Medication errors*

- **Sentinel events:**

  A sentinel event is an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Serious injury specifically includes loss of limb or function.

  **Example:**

  - Hemolytic transfusion reaction involving administration of blood or blood products having major blood group incompatibilities

# Types of Clinical incident



- **Never Events:**

  Events are should never happen while in a hospital, and can be prevented in most cases.  Example:

  - Infant discharged to the wrong person
  - Wrong surgical procedure performed on a Patient
  - Patient death or serious disability associated with a medication error

- **Near miss:**

  Is any situations that did not cause harm to patients (that did not reach the patient) , but could have done.

# Types of Clinical incident



- **Adverse drug reaction:**

  A response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis, or therapy of disease, or for the modifications of physiological function'.( WHO,1972)

# Seven levels of safety



- **Patient factors:** such as personality, language and psychological problems may also be important as they can influence communication with staff.
- **Task factors:** The design of the task, the availability and utility of protocols ….
- **Individual factors:** include the knowledge, skills and experience of each member of staff
- **Team factors:** The way an individual practices, and their impact on the patient, is influenced by other members of the team and the way they communicate and support each other.

# Seven levels of safety



- **Working conditions:** These include the physical environment, availability of equipment and supplies and the light, heat, interruptions and distractions that staff endure.
- **Organizational factors:** The team is influenced in turn by management actions and by decisions made at a higher level in the organization. These include policies, continuing education, training and supervision and the availability of equipment and supplies.
- **External environment factors:** The organization itself is affected by financial constraints, external regulatory bodies and the broader economic and political climate.

# The physician's role in patient safety



- Standardization, such as the use of order sets, protocols, and reminders.
- Designing safe systems and implementation of technology.
  - use smart intravenous pumps that detect medication errors,
  - barcoding to ensure the five rights of medication administration (right patient, right route, right dose, right time, right medication).
- Teamwork
- Communication:
  - poor communication can delay diagnosis, create confusion regarding the plan of care, and increase the cost of care through repeated tests.
  - Lack of effective communication creates frustration with patients and families and increases their anxiety

# The physician's role in patient safety



- Involve yourself in measuring, monitoring, and improving quality.
- Avoid blaming when an error occurs.
- Practice evidence-based care.
- Detect adverse events: report and Disclose errors to patients and their families.
- Adhere and follow the National **Patient Safety Goals.**

# ROP-Patient Safety Goals





- Adverse reporting
- Client verification
- Medication reconciliation
- Dangerous abbreviations
- Transfer of client information at transition points
- Control of concentrated electrolytes
- Infusion pumps training
- High-alert medications
- Hand hygiene
- Antibiotic prophylaxis during surgery
- Falls prevention strategy
- Pressure ulcer prevention
- Venous thromboembolism prophylaxis
- Safe injection practices
- Safe surgical practices
- Preventive maintenance program

# Case Study - 1


**Medication Safety Alert!**
**Department of Pharmacy**
*Medication Safety Unit*

جامعة الملك سعود
King Saud University

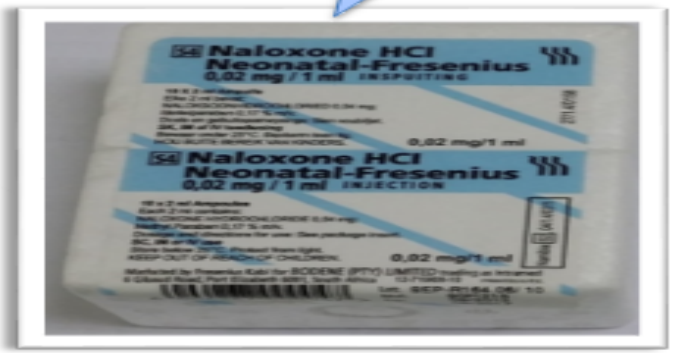
## Medication Safety Alert!

The purpose of this alert is to educate **health care professionals** and **administrators** about incidents that have the potential to cause serious harm to the patients.

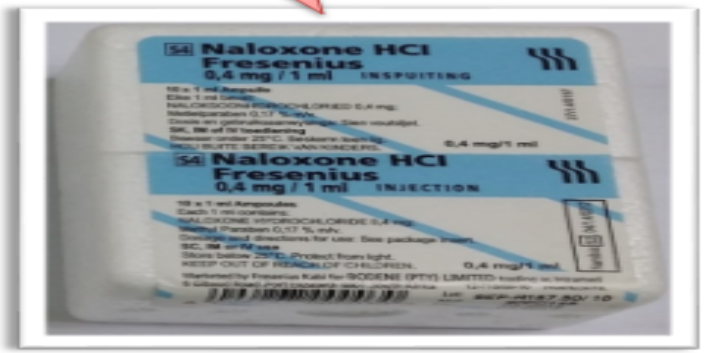
**ATTENTION: Please make sure to read this and be able to answer the following questions!**

- ☐ WHAT HAPPENED?
- ☐ WHY IT HAPPENED?
- ☐ HOW TO REDUCE THE LIKELIHOOD OF RECURRENCE?

0.02 mg / ml




0.4 mg / ml




### *CASE STORY*

A 21 years old drug addict male patient was admitted to ER at the Resuscitation Area.

He was prescribed 20 mg of *Naloxone* diluted in One liter of Normal Saline.

In Pharmacy; Technician opened only one Ampoule of *Naloxone* 0.4 mg / ml and 49 Ampoules of *Naloxone* 0.02 mg / ml (by mistake).

Upon checking, this mistake was discovered and the whole preparation was discarded and new accurate preparation was prepared.

# Case Study – 1 Recommended actions:

- Pharmacists / Technician should READ / CHECK carefully the label of each medication they prepare.
- DOUBLE CHECKING is essential tool to avoid such mistakes
- Look Alike medications should be stored separately with proper labeling to avoid such mistakes
- To change the brand the hospital purchases of either drugs if possible

# Case Study - 2

- A 38-year-old woman comes to the hospital with 20 minutes of itchy red rash and facial swelling; she has a history of serious allergic reactions
- A nurse draws up 10 mls of 1:10,000 adrenaline (epinephrine) into a 10 ml syringe and leaves it at the bedside ready to use (1 mg in total) just in case the doctor requests it
- Meanwhile the doctor inserts an intravenous cannula
- The doctor sees the 10 ml syringe of clear fluid that the nurse has drawn up and assumes it is normal saline

# Continue…. case study - 2

- There is no communication between the doctor and the nurse at this time
- The doctor gives all 10 mls of adrenaline (epinephrine)through the intravenous cannula thinking he is using saline to flush the line.
- The patient suddenly feels terrible, anxious, becomes tachycardia and then becomes unconscious with no pulse
- She is discovered to be in ventricular tachycardia, is resuscitated and fortunately makes a good recovery
- Recommended dose of adrenaline (epinephrine) in anaphylaxis is 0.3 - 0.5 mg IM, this patient received 1mg IV

# Can you identify the contributing factors for this error?

# Can you identify the contributing factors to this error?

- Lack of communication
- Inadequate labeling of syringe
- Giving a substance without checking and double checking what it is
- Lack of care with a potent medication

# How could this error have been prevented?

# How could this error have been prevented?

- Never give a medication unless you are sure you know what it is; be suspicious of unlabeled syringes
- Never use an unlabeled syringe unless you have drawn the medication up yourself
- Label all syringes
- Communication - nurse and doctor to keep each other informed of what they are doing e.g. nurse: "I'm drawing up some adrenaline"
- Develop checking habits before administering every medication … go through the 5 Rse.g doctor: "What is in this syringe?"

# Conclusion



- The field of patient safety has emerged in response to a high prevalence of avoidable adverse events
- Patient safety is the avoidance, prevention and amelioration of harm from healthcare
- Two approaches to the problem of human fallibility exist: the person and the system approaches
  - The person approach focuses on the errors of individuals, blaming them for forgetfulness, inattention, or moral weakness
  - The system approach concentrates on the conditions under which individuals work and tries to build defences to avert errors or mitigate their effects
- Some errors cause harm but many do not

# Conclusion



- Blaming and then punishing individuals is not an effective approach for improving safety within the system
- Adverse events often occur because of system breakdowns, not simply because of individual ineptitude prompted the change computerized prescribing reduces medication error but is not a panacea
- Patient, task, individual, team, environment, organizational and institutional context factors may all influence incidents and accidents
- Standardizing and simplifying clinical processes is a powerful way of improving patient safety

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# Video



- https://www.youtube.com/watch?v=BJP2rvBchnE
- https://www.youtube.com/watch?v=BFd54Yzg-vo