Human Factors & Patient Safety

Objectives

- **After completing this lecture you should:**
  - Define and describe the Human Factors and its relation to patient safety
  - Recognize the importance of applying human factors in healthcare
  - Summarize the impact of Human Factors on people's health and patient safety
  - Differentiate between the different types of Medical Errors
  - Describe several specific Actions to reduce medical errors as related to Humans Factors

What are Human Factors

Human factors refer to environmental, organizational and job factors, and human and individual characteristics which influence behavior at work in a way which can affect health and safety.

What are Human Factors?

Human factors can be defined as anything that affects an individual's performance.

What are Human Factors

A simple way to view human factors is to think about three aspects:

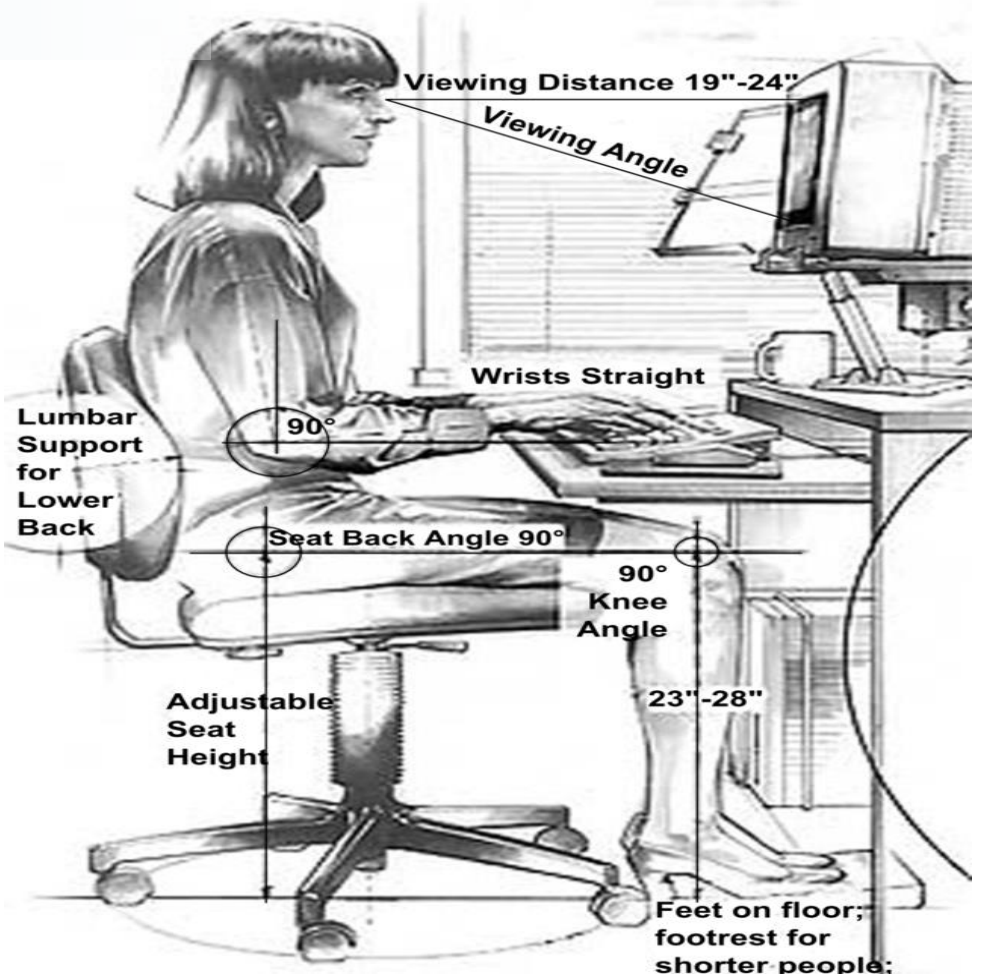
1. The job
2. The individual
3. The organization

1 The job

Including :

- Nature of the task
- Workload
- Working environment

❖ This includes matching the job to the physical and the mental strengths and limitations of people.



2 The individual

Including:

- Competency
- Skills (changeable)
- Personality, attitude(fixed)
- Risk perception
- Sleep deprivation

❖ Individual characteristics influence behavior in complex ways.

3 The organization

Including:

- The culture of the workplace, resources Communications
- Leadership and so on.

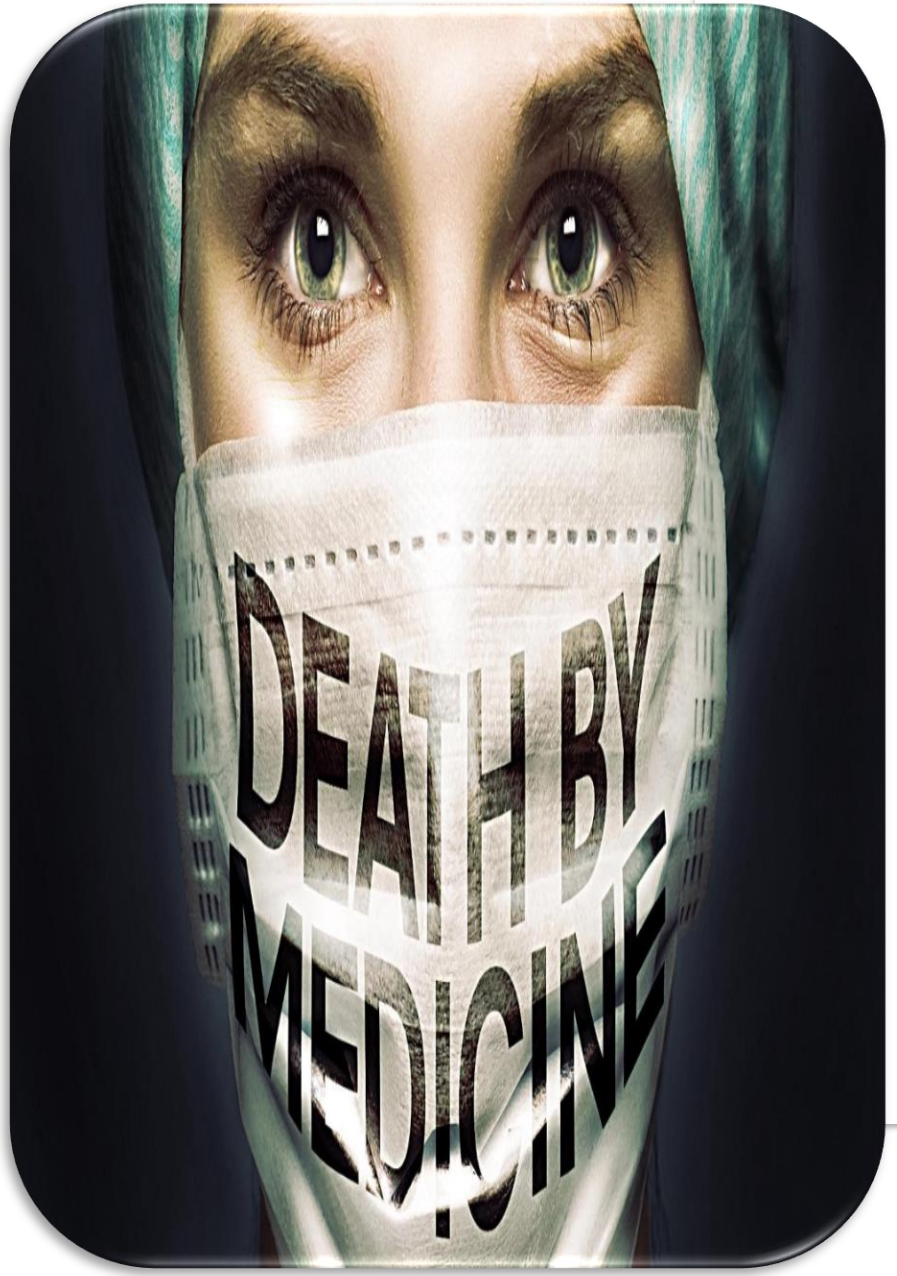
The Benefits of Applying Human Factors in Healthcare

Awareness of human factors can help you to:

To prevent Medical Errors.
Understand why healthcare staff make errors.
Identify ‘systems factors’ threaten patient safety.
To prevent occupational accidents and ill health.

Medical errors

Failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim

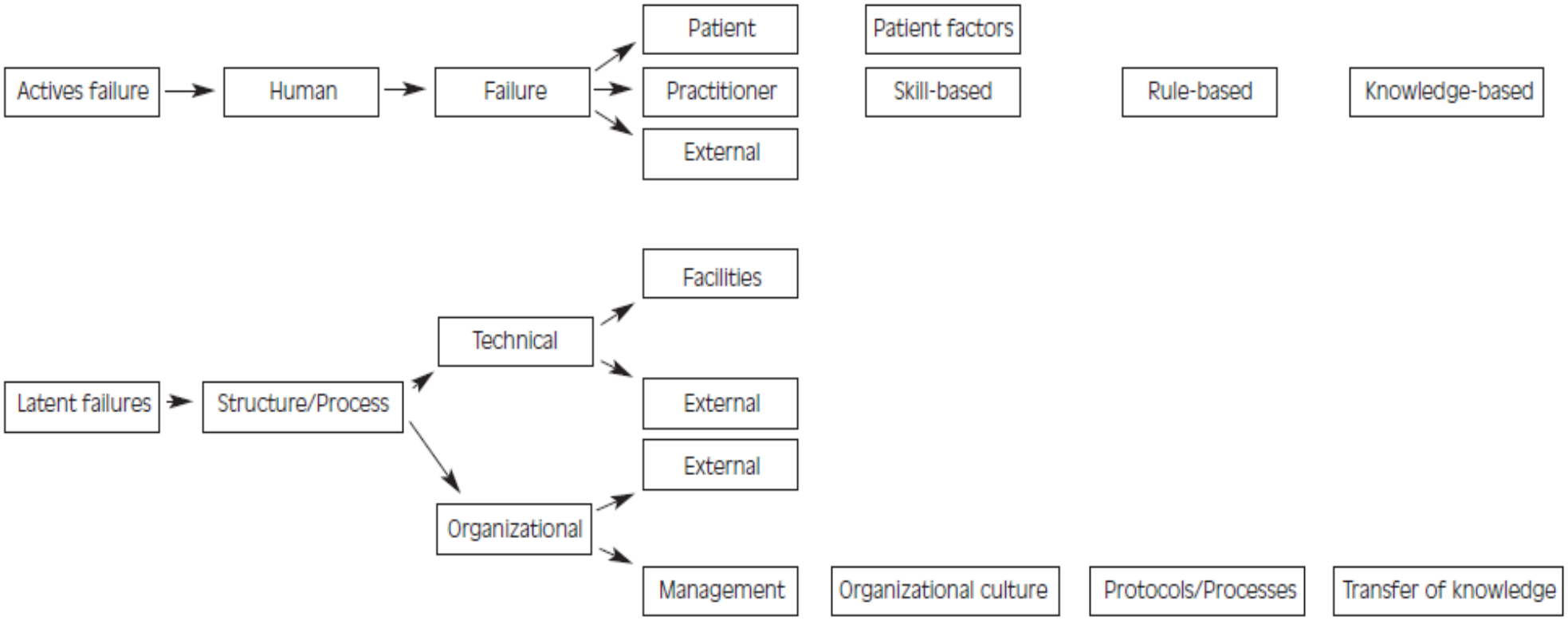


Medical Errors

- Expired medication dispensed
- Un planned hysterectomy
- Wrong Sponge counting
- Self extubation
- Wrong patient ID , went to wrong procedure
- Wrong medication delivered
- Wrong dose administered

Sources of Error

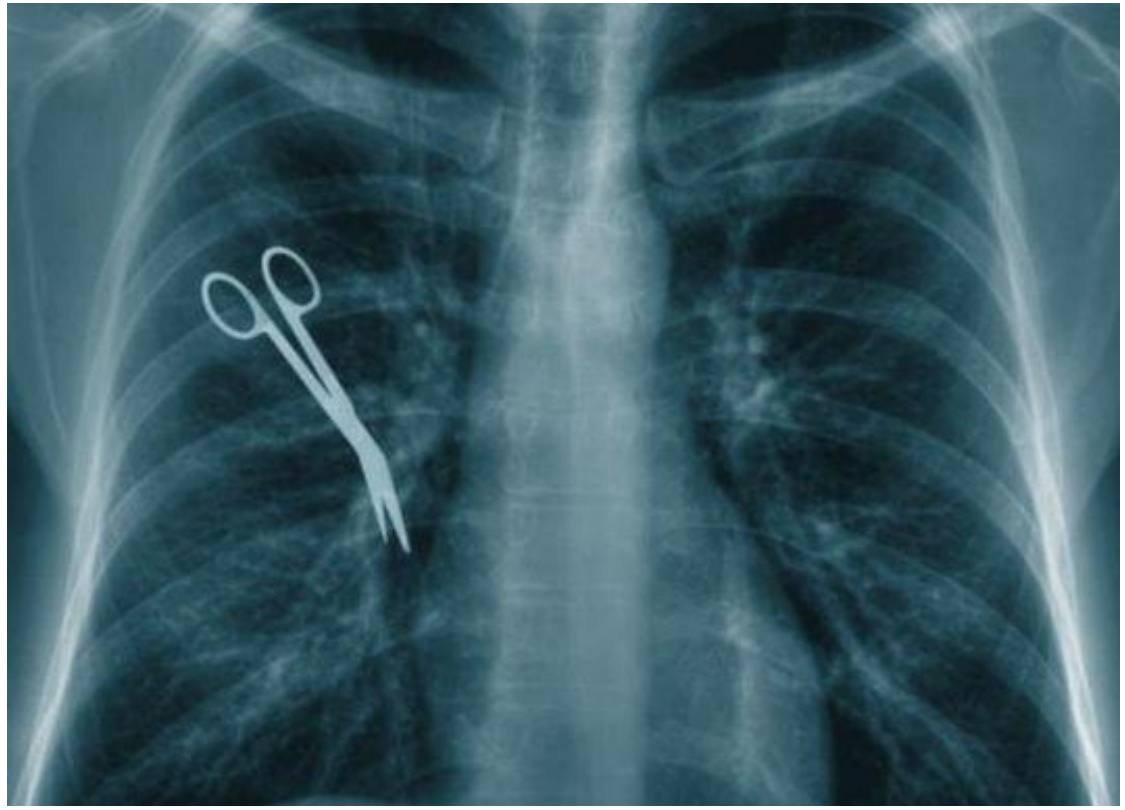
Table I. Classification of causes (JCAHO - Joint Commission on Accreditation of Healthcare Organizations).



Modified from Chang et al., 2005 [5].

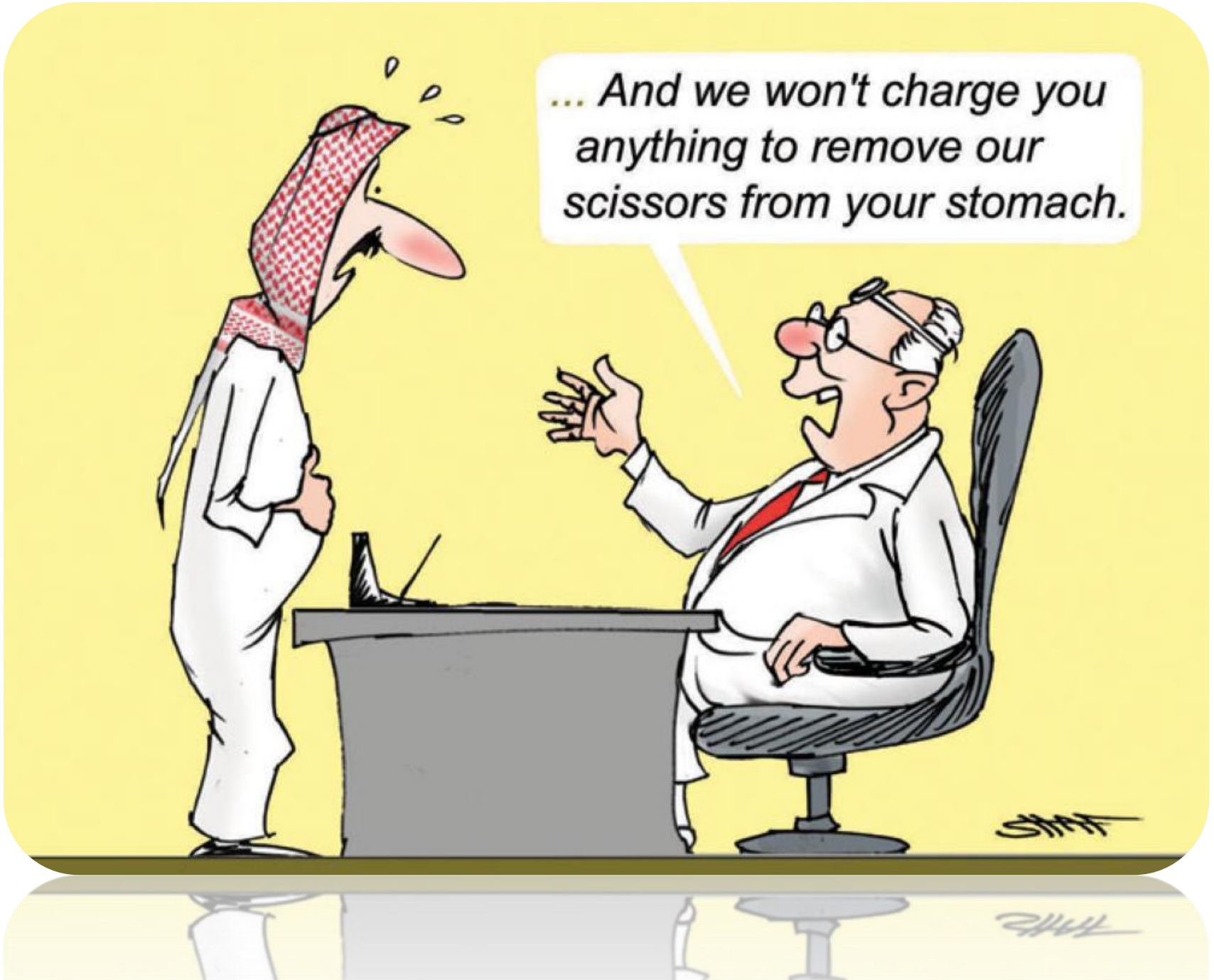
The Most Common Medical Errors

- Wrong site surgery (13.4%)
- Patient suicide (11.9%)
- Operative and post operative complication (10.8%)
- Delay in treatment (8.6 %)
- Medication error (8.1 %)
- Patient fall (6.4 %)



Burden of the Medical Errors

- How many of you know or had come cross any Medical Error?


... And we won't charge you anything to remove our scissors from your stomach.

Causes of Medical Errors ?

- Healthcare Complexity
- System and Process Design
- Environmental factors
- Infrastructure failure.
- Human Factors and Ergonomics

How Does the Team Communicate?

Causes of Medical Errors

1- Healthcare Complexity

- Complicated technologies
- Drugs interaction.
- Intensive care
- Prolonged hospital stay.
- Multidisciplinary approach

Healthcare Complexity

2- System and Process Design

Inadequate communication,

Unclear lines of authority

System and Process Design

Cont:

3- Environmental factors.

- Over crowded services
- Unsafe care provision areas
- Areas poorly designed for safe monitoring

Environmental factors

4- Infrastructure failure.

- Lack of documentation process
- Lack of continuous improvement process

Infrastructure failure.

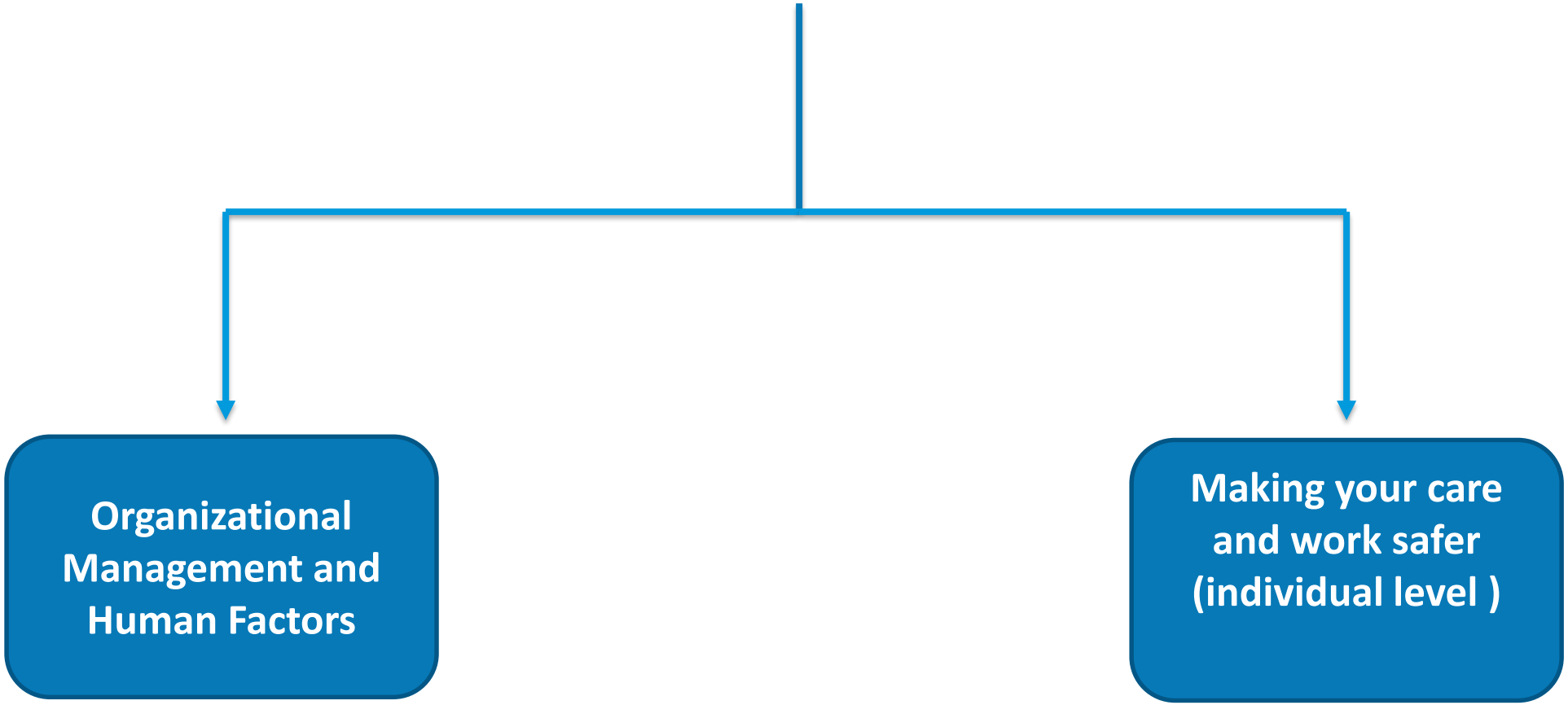
Cont:

Human Factors and Ergonomics

5- Human Factors and Ergonomics

- Hungry
- Angry/ Emotions
- Late/ lazy
- Tired/fatigue/sleep less
- lack of skilled workers.
- Lack of training.

Actions to Reduce Medical Errors as Related to Humans Factors

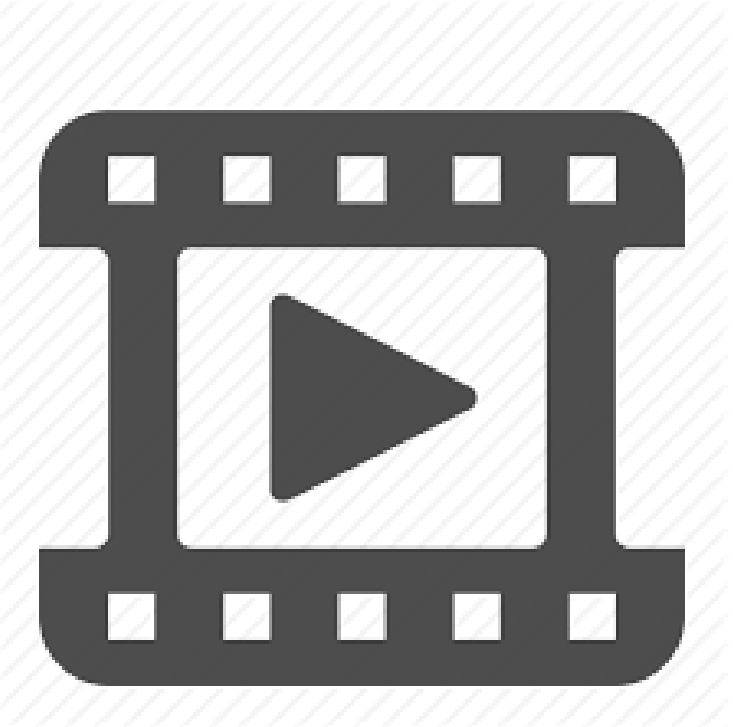


Organizational Management and Human Factors	Making your care and work safer (individual level)
Developing a positive safety culture Just culture Reporting culture (e-OVR Reporting system) Learning culture(Morbidity and mortality review process)	**Stress** • Focus first on the tasks that are high risk or where it is particularly important • In emergency situations : use algorithms and protocols • Quickly allocate a clear leader • Consider if there is a way of running a simulation with your team
Human factors training in healthcare	**Complex calculations** • Find out if there is a pre-calculated list available in your area • Before you start the task, think about ways of managing or avoiding distractions. For example, ask a colleague to take your bleep for a minute • Look at the dose strengths of ampoules in your drug cupboard • Double check with your colleague
Develop Clinical Practice Guidelines , protocols , algorithms.. etc	

Organizational Management and Human Factors	Making your care and work safer (individual level)
	Storage Look at the products you use and have stored. E.g Look-alike packaging
	Physical demands Physical tiredness :get enough sleeping before your duty Demands exceeding capability : Most people at some time overestimate their abilities or underestimate their limitations.
	Teamwork Briefing and debriefing can help teams develop a shared mental model of a planned procedure or a patient's clinical status SBAR (Situation, Background, Assessment, Recommendation)
	+ Poor lighting: Look at the lighting in the areas where you need to +perform detailed or complex tasks

Watch the video

https://www.youtube.com/watch?v=aGZz3w5Hy8Y




Case
Study

A child with a known penicillin allergy was prescribed and administered an intravenous dose of an antibiotic of the penicillin class2

A child was due to have a pacemaker fitted. On pre-admission an allergy to penicillin was recorded. This was noted on both the nursing admission assessment form and the anesthetic record chart. Prior to operation, the allergy was discussed with the specialist pediatric cardiology registrar, the consultant pediatric anesthetist, anesthetic specialist registrar and the cardiology consultant. However, following the procedure the patient's plan included intravenous and oral penicillin.

- **Do you think** the outcome could be quite different if human factors had been taken into account?

- **How we can prevent** such error by applying human factors in healthcare?

OVR(Occurrence Variance Reporting) or IR(Incident Reporting)

- **Occurrence :**An Occurrence is defined as any event or circumstance that deviates from established standards of care & safety.

- **OVR :**an internal form/system used to document the details of the occurrence/event and the investigation of an occurrence and the corrective actions taken.

OVR Sample :

- http://medicinequality.ksu.edu.sa/ContentData/QualityPolicies/en_2044-37-689042734-OVR%20Annual%20Report%202012.pdf

THANK YOU
FOR LISTENING

ANY QUESTIONS ?

NO?
GREAT!