Education of Forensic Medicine and Toxicology 20/20

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Objectives

1- Principles of Egyptian Medical Schools Development 20/20.

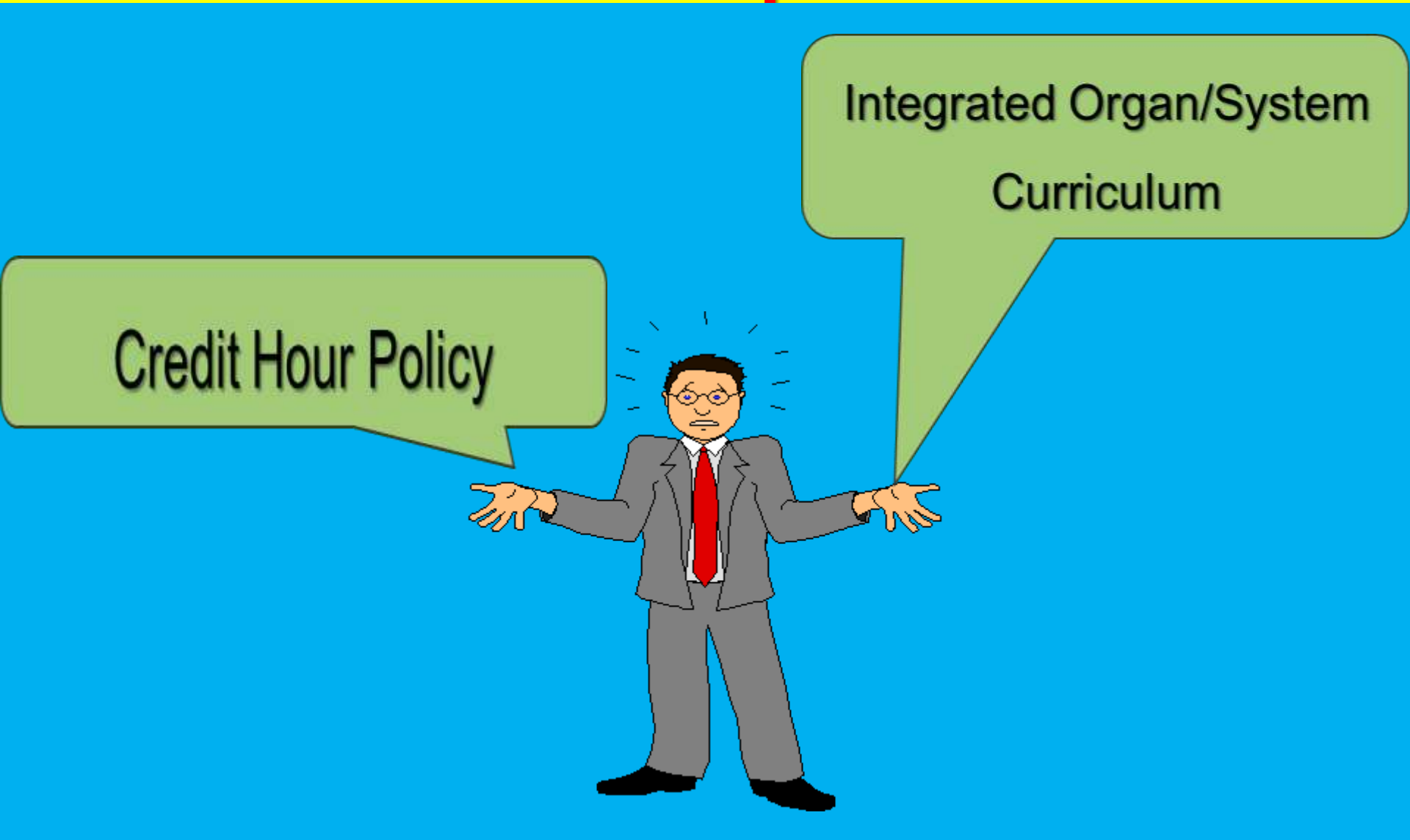
2- How to distribute and integrate Forensic and Toxicology Curriculum ?

3- Blueprint for Forensic and Toxicology Curriculum 20/20 .

4- How to introduce the new curriculum to students?

5- How to assess the students in new Curriculum ?

Principles of Egyptian Medical Schools Development 20/20



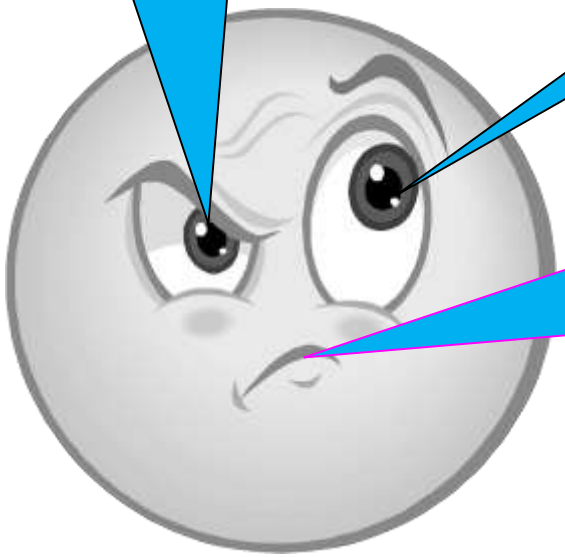
Teaching is

System or

Module-Based

It runs in 5 years

2 years internship



It divides into 2-3

Phases or Spirals

Integrated System Curriculum

Directions of Integration

1- Horizontal Integration:

The integration within basic science subjects or within clinical science subjects of the curriculum.

2- Vertical Integration:

The integration between the basic and clinical science sections of the curriculum.

3- Spiral integration: (Ideal Form)

It is a combination of both horizontal and vertical.

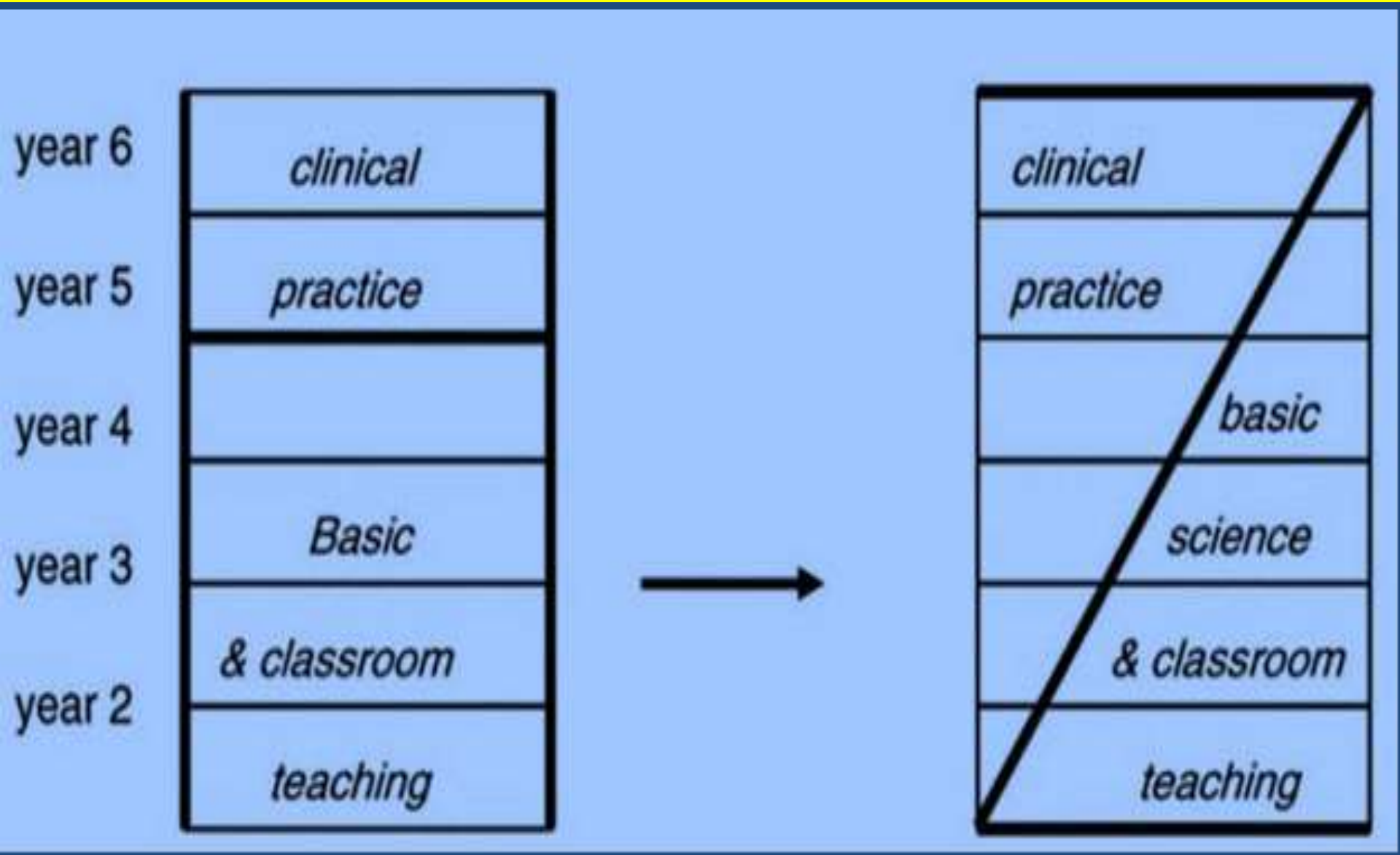
- **First spiral : (1st "2-2.5 years")**

  Basic science (70 %) clinical science (30%)

- **Second spiral:**

  Clinical science (70%) and basic science (30%)

‘H’ shaped curriculum is converted into ‘Z’ shaped curriculum



Phases of integrated system

1- The first phase - foundation “1 year”

Introduction to the basic medical information

2- The second phase “2 years”

It is an organ system modules, applies the basic knowledge to the study of clinical disease.

3- The third phase “2 years”

It is devoted to clinical aspect.

4- Longitudinal Curricular Themes (courses)

It runs within multiple modules (Ethics, Medical Nutrition and Patient Safety) .

5- Internship

Credit Hours System

- Credit hours of the course depend on the unit of the semester credit hour.
- Semester credit hours are based on contact hours.
- Contact hours are the spent time of student with an instructor whether face-to-face or virtual.
- A semester is 15 weeks of instruction + one week for final examinations.
- There are obligatory, elective and pre-requisite courses - university and college requirements.
- Academic monitoring.
- Registration, addition, deletion, withdrawal, postpone

How & When to Integrate and Distribute Forensic and Toxicology Curriculum inside the educational phases and modules?

Rules of Distribution and Integration of Forensic and Toxicology Curriculum

The subject should be :-

1- In agreement with ILOS of educational module.

2- Common forensic and toxic issues in community (general needs assessment).

3- Have an impact on the patient and society.

4- Clarified in cognitive (knowledge), affective (attitude, counseling, communication skills), psychomotor domains.

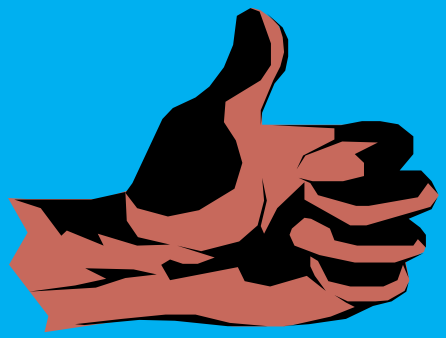
5- In harmony with credit hours policy of module and medical branch.

6- In longitudinal courses if it is missed.

Blueprint

Forensic and Toxicology Curriculum

20/20



Integrated Curriculum

1st year	Module 1st	Anatomy	Biochemistry	Physiology	Histology	Medical terminology
	Module 2nd	Pathology	Pharmacology	Microbiology	Study skills	Medical Statistics
2nd year	Module 1st	Musclo-Skeletal Identification of age & sex	Hematology Blood stains DNA printing	Research Methodology*	Communication Skills*	
	Module 2nd	CVS Death Sudden natural death Digitalis Salicylate	Respiratory Asphyxia Inhalation poisoning Kerosene poisoning Nicotine (smoking) Oph	GIT Food poisoning Corrosives Arsenic Anticholinergic Hepatoxicity	Community Medicine*	
3rd year	Module 1st	Urinary Nephrotoxicity	Reproductive Pregnancy & delivery Abortion	Endocrinology	Medical ethics *	
	Module 2nd	Head and neck Head injuries Neck injuries	CNS Animal poisoning Addiction & drug abuse Opiate & Cocaine Barbiturates Alcohol &Cannabis Strychnine &Aconitine Lead	Special senses	Research ethics*	

Integrated Curriculum

4th year	Module 1st	Medicine 1	Surgery 1	ENT Ototoxicity Barotruma	Dermatology Physical injuries Wounds Firearm
	Module 2nd	Pediatric 1 Infanticide Sudden infant death Common household poisoning Paractamol	Gyn. & Obst . 1 Sexual offences Impotence	Ophthalmology	Patient safety* Medical Malpractice
5th year	Module 1st	Medicine 2	Surgery 2	Family Medicine	Orthopedic Road traffic accident injuries
	Module 2nd	Pediatric 2 Child abuse Childhood lead poisoning	Gyn & obst. 2	Psychiatry Medico-legal approach of psychiatric patient Hallucinogens Tricyclic antidepressants	Emergency General Toxicology & Management of poisoning Cases Toxic Coma
6 -7th years	Internship				

* longitudinal courses

How to introduce the new curriculum to students?

1- Lecture

2- Shared lecture

3- Problem based learning (Group discussion)

4- Seminar (tutorial)

5- Simulation

A- Simulator (manikins)

B- Role play

6- Audiovisual Material (virtual autopsy)

7- Self study (self directed learning)

Integrated Curriculum Defects

Difficult task

Missed of some medical subjects

Dissatisfaction about allotted time & information in the modules

Fragmentation of Learning subjects

100% Integration is not possible

How to assess the students in new Curriculum ?

1- Formative and Summative Assessments.

2- Distribution of questions according to ILOS and the given time to every subject (TOS).

Assessment Methods

A- MCQs, EMQ

B- OSCE

C- OSPE

D- Logbook

E- Portfolio

Table of specification "TOS" (CNS module)

Subject	Dr.	Topics	Hour	Total Qs. No
Histology		Cerebrum		2
Pathology		CNS neoplasm L		4
		vascular diseases of CNS		3
		CNS Infections L		3
		Diseases of myelin L		2
		Poly Neuropathy L		2
Toxicology & Forensic Medicine		Lead poisoning		2
		Organophosphorus poisoning		2
		skull injuries		3
		Brain and meningeal injuries		3
		Diagnosis of Death & PM changes		3
		Neurological manifestation of animal poisons		2
		Toxic coma		2
Shared Lecture		CSF SL		6
		Functional area of brain		6
		Cerebellum		6
		Addiction		6
		CNS imaging		6
Tutorial		Upper & Lower motor neuron disorders		4

Appendix

Problem solving
(Forensic Scenario without Task)

The male patient came to the hospital complaining of a contused scalp wound but he was conscious. He received the first aids and discharged according to the decision of physician. After 6 hours, he returned to the hospital in a deep coma, MRI revealed a mild type of skull fracture and intracranial hemorrhage. He died within three hours.

- **First session**: Brain storming
- **Second session**: Debriefing

Forensic Scenario with Task

Two patients came to Emergency department after a quarrel between them. The first patient had a left black eye and contused wound in his forehead but it simulates cut wound. The second patient had various bruises at different areas of his body. On examination, the physician diagnosed the contused wound of first patient as a cut wound and the bruises of second patient as a pattern bruises with different ages.

Tasks

1- How can you differentiate between the cut wound and contused wound?

2- Mention the mechanism of bruises? How can you identify the age of bruises?

3- Mention the causes of black eye?

4- Mention the complications of wounds?

Toxicological Scenarios

Scenario 1

A 3 year old child had a rapid and deep respiration associated with attacks of convulsions after ingestion a lot of salicylates tablets. Gastric lavage was done after 12 hours from the ingestion. His investigations showed that the plasma salicylates level was 40 mg /dl while Ph of blood was 6.9 and HCO3 was 13 MEq /L

Scenario 2

A 23 year old male, had pin-point pupils, fasciculation, wheeze and crepitation all over the chest. He received atropine until atropiniation manifestations were appeared. After three days of intoxication, he received pralidoxime. His condition was deteriorated and received packed red blood cells transfusion.

MCQs based on Scenario

A patient was admitted to ICU because of hepatic coma. He had an apnea for three minutes without respiratory support. After few hours of the admission, the nurse noticed the clinical ocular sign of death and the bluish red areas on his back. She called the physician who decided that the patient died and wrote a death certificate showing the manner, cause and the mode.

1- The death certificate shows that the mode of death for this patient is

A. Hepatic failure
B. Circulatory failure
C. CNS failure.
D. Respiratory failure
E. CNS, circulatory and respiratory failure

2- According to Harvard criteria , this case was diagnosed as

A- Somatic death
B- Molecular death
C- Persistent vegetative state
D- Brain death
E- Suspended animation

3- Early prominent clinical ocular sign of death is

A. Exaggerated pupil reflex
B. Sluggish corneal reflex
C. Fixed dilated pupil
D. Segmentation of retinal arteries
E. Kinking of retinal veins

4- Time passed since death for this case is approximately

A. Four hours
B. One to two hours
C. Four to eight hours
D. Twelve hours
E. Eight hours

Extended Matching Question (EMQ)

Extended matching question (EMQ)

Option list

A. Throttling
B. Manual strangulation
C. Smothering
D. Hanging
E. Strangulation
F. Choking
G. Drowning
H. Traumatic asphyxia

For each clinical scenario described below, select the most likely diagnosis from the above list of options, each option should be used once.

Scenario 1

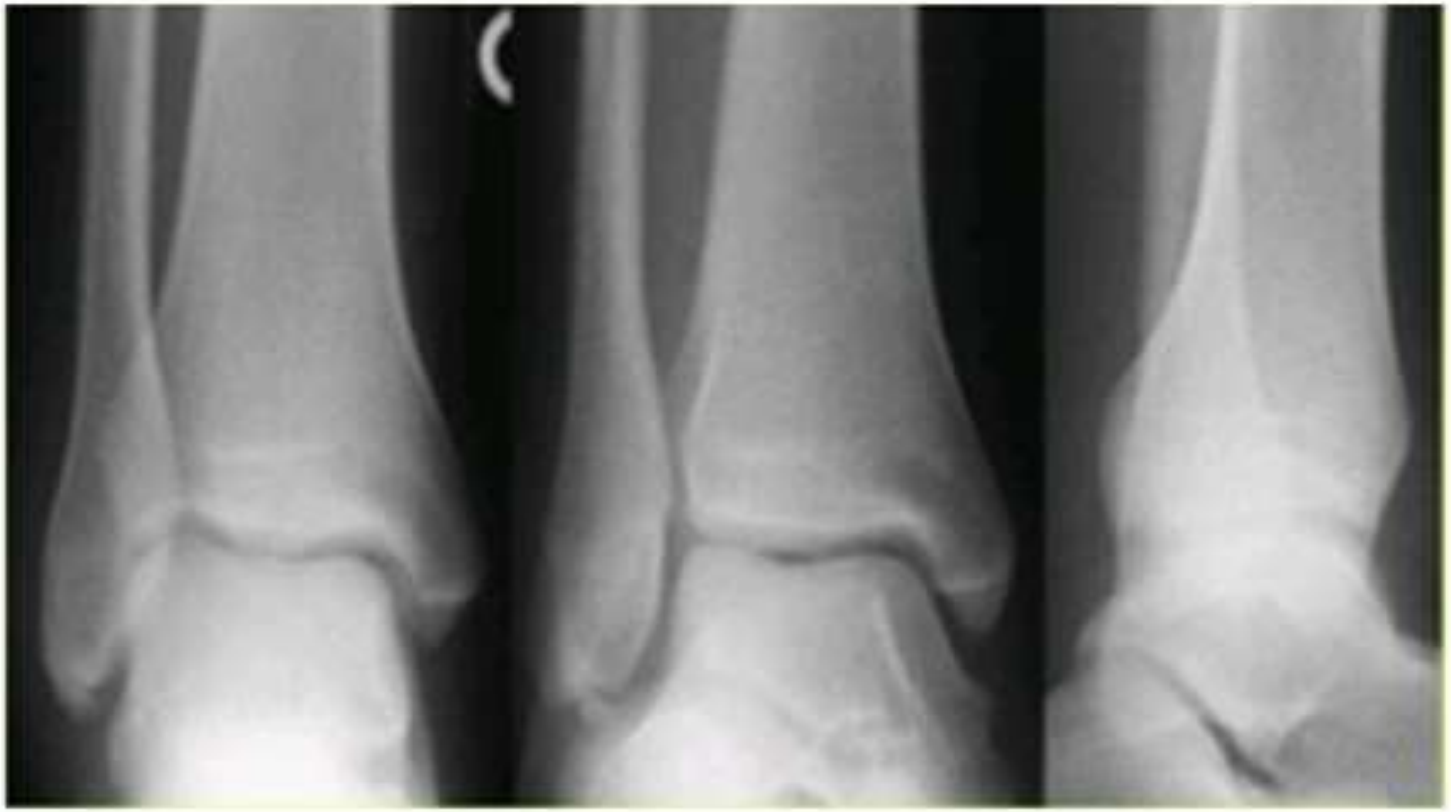
During one of the football games, which was attended by a large crowd, and while scrambling the public out of the stadium after the game, one person was died after he fell on the ground from the intensity of the hustle and large number of people fell on him. During external examination of the body, it is noted the presence of violet discoloration of the face, neck and upper part of the body.

Scenario 2

Guard of residential building discovered dead man in his apartment. He informed the police who called forensic expert to examine the body and diagnose the cause of death. During external examination, forensic expert noticed deep cyanosis and edema of the face, eyes bulging and complete, transverse, circular ligature mark around the neck.

OSPE Station

Father came with his daughter to the forensic medicine organization to obtain the certificate of her age determination for the marriage contract. Forensic medicine expert requested the following radiological investigation for her long bones.



1- What is the most accurate age of his daughter?

OSPE Station

The assailant male person is 21 years old according to the official documents of the government, but he denies his age and claims that his age is less than 18 years old to escape himself from the punishment. Forensic expert decided that many radiological investigations should be done for number of his bones and determine that his age is above 21 years according to the official documents.

1- Mention to the radiological picture that support his decision in the following radiological pictures

1 2 3 4

Portfolio

Components of portfolio (content)

Section 1: Assignments

Section 2: Case studies

Section 3: Project

Section 4: Clinical tutor reports

Section 5: Presentations

Section 6: Log book

Section 7: Attendance of module activities

Section 8: Assessment results (Mid-module exam – Final module exam)

Time table of task achievement

Assessment sheets of portfolio

Thank you