

FEx Net 2022 Collated SAQs:

Orthopaedics - Questions

1. Ankle
2. Back
3. Clavicle
4. C-spine
5. Elbow
6. Foot
7. Foot Drop
8. Forearm
9. Hand
10. Hand Infection
11. Hip
12. Knee
13. Leg
14. Paed Cspine
15. Paed Elbow
16. Pelvis
17. Red Elbow
18. Red Knee
19. Shoulder
20. Wrist

Question 1 (10 Marks)

A 23 year old woman presents having fallen 5m off a balcony. She has landed on her feet and is complaining of ankle pain.

1. What are the **3** indications for an ankle X-Ray as described by the Ottawa ankle rules?(2 marks)
2. What are the **3** indications for a foot X-Ray as described by the Ottawa foot rules? (2 marks)





3. Describe **2** abnormalities in the X-Rays above (2 marks).

4. List **4** other injuries associated with falls from a height if landing on the feet (4 marks).

iii) List the most important immediate investigation and the most important treatment if this condition is confirmed (2 marks)

iv) List the most common cause, and 2 other causes for cauda equina syndrome (3 marks)

Question 3 (10 marks)

A 16 year old male presents after falling from his push-bike. He has a sore shoulder but no other injuries.



1. Describe the injury seen in the X-Ray (1 mark).
2. List **4** complications for each of the types of clavicular injury in the table (4 marks).

Posterior sterno-clavicular dislocation	Mid-shaft clavicle fracture

3. List **3** absolute & **3** relative indications for operative fixation of mid-shaft clavicle fractures.
(3 marks)

Absolute	Relative

4. List **4** complications of ORIF for a displaced mid-shaft clavicle fracture (2 marks).

Question 4 (16 marks)

A 32 year old man is involved in an amateur mixed martial arts bout and is slammed onto the ground, complaining of immediate neck pain as well as being unable to move his hands or feet.

His vital signs are:

T 35.8 P 48 BP 75/40 RR 24 SaO₂ 96% RA

He has clinical evidence of a spinal cord injury on examination

A single image from his CT cervical spine is attached.



Describe 2 abnormal findings on this CT scan (2 marks)

What is the likely diagnosis? (1 mark)

Name 5 unstable C spine fracture patterns (5 marks)

Compare the clinical features of spinal and neurogenic shock (4 marks)

Spinal Shock	Neurogenic Shock

Above what spinal level is neurogenic shock likely to occur? (1 mark)

Describe the supportive care (and targets) in neurogenic shock (3 marks)

Question 5 (15 marks)

A 7 year old boy presents to your ED with an injury to his right elbow after a fall. The elbow is obviously deformed and swollen.

- i. What are the immediate issues that need to be addressed (3 marks)

- ii. Describe the X-ray findings (3 marks)

AN XRAY IS SHOWN below

- iii. List 4 potential implications of this injury (4 marks)

- iv. Describe the course of the ulnar nerve at the elbow (2 marks) and list the forearm and hand muscles potentially affected by ulnar nerve injury (3 marks)



Question 6 (12 Marks)

A 25 year old man presents with foot pain after falling off a ladder on to his left foot.

His Xray is shown.



1. Describe the abnormalities on the Xray. (5 marks)

2. List 2 important early complications of this injury. (2 marks)

3. List 5 management steps. (5 marks)

Question 7 (10 marks)

A 40 year old woman presents with symptoms of a common peroneal nerve injury of her left leg following an ankle sprain.

- i. Describe the sensory and motor disturbance features of a common peroneal nerve injury (4 marks)

- ii. Where is the commonest site of injury (1 mark)

- iii. List 4 general causes of common peroneal nerve injury other than high ankle sprain (4 marks)

- iv. How is this peripheral nerve lesion differentiated from an L5 radiculopathy (1 mark)

Question 8 (13 Marks)

A 20 year old man has presented to the ED after falling off a wall on to his right hand. The x-ray of his right forearm is provided below

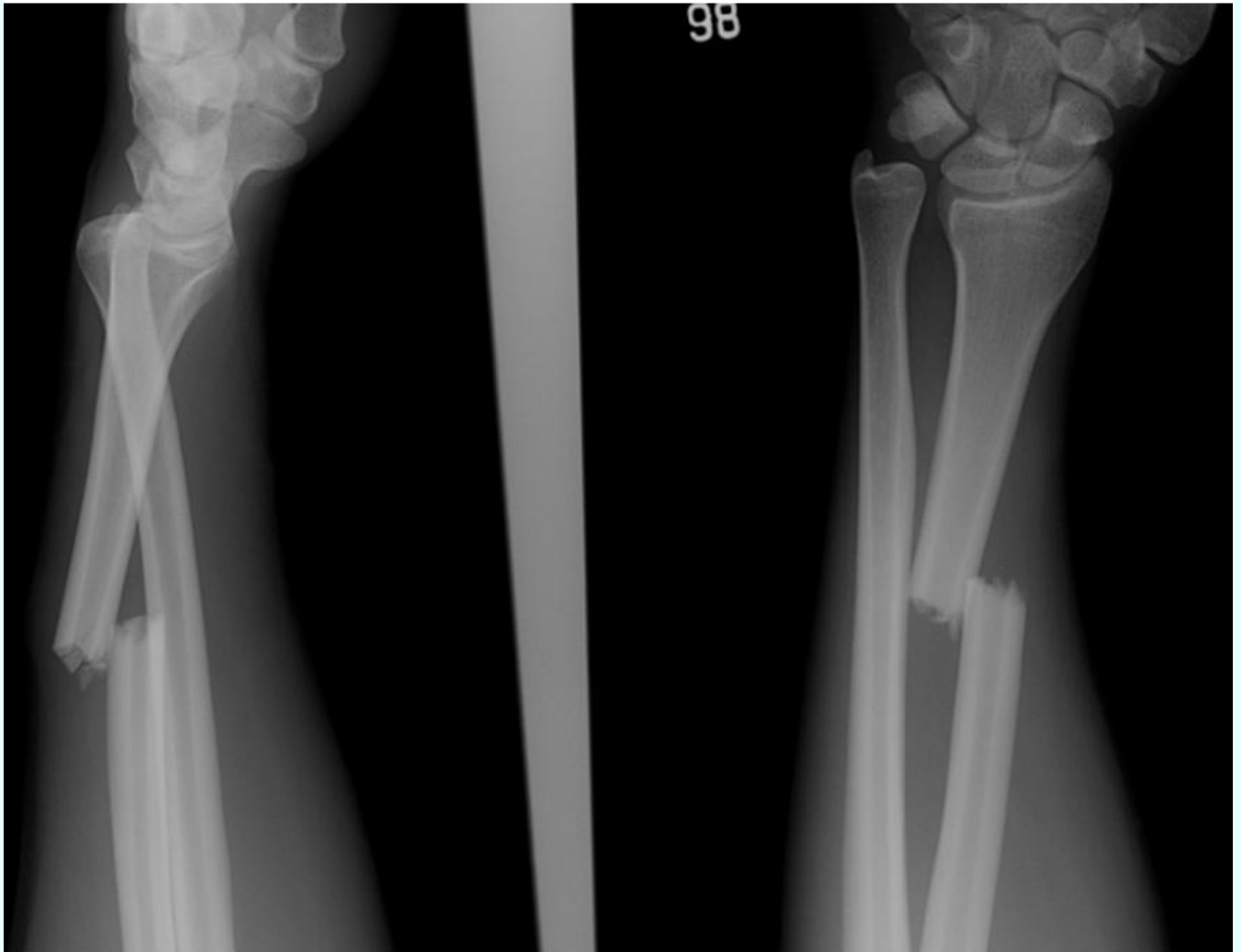
1. List the abnormalities on the x-ray. Include **detailed radiological descriptions** of each problem. (8 marks)

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Question 8 cont

A 20 year old man has presented to the ED after falling off a wall on to his right hand.

The x-rays of his right forearm are provided.



2. State four management steps for this injury. Include drug doses where appropriate. (5 marks)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Question 9 (10 marks)

A 22 year old man presents with a hand injury after coming off a motorbike. He is complaining of pain in his left wrist and has no other injuries.

An xray is taken and is shown below.



Question 9 continued

1. Describe his xray giving three (3) relevant findings.

2. List 3 short term and 3 long term complications of this injury.

3. Describe four (4) steps in your management.

Question 10 (13 marks)

A 14 year old boy has presented to the ED with a painful right hand. He injured his index finger 2 days prior while climbing a tree. The patient has type 1 diabetes mellitus.

A clinical photograph of the right hand is provided in the **PROPS BOOKLET**.

1. List 4 abnormalities in the photograph. (4 marks)

1) _____

2) _____

3) _____

4) _____

2. List the most likely diagnosis. (1 mark)

A 14 year old boy has presented to the ED with a painful right hand. He injured his index finger 2 days prior while climbing a tree. The patient has type 1 diabetes mellitus.

A clinical photograph of the right hand is provided below.



3. List and justify 3 investigations you would perform. (3 marks)

Investigation	Justification

The patient's vital signs are:

Temperature 38.5 degrees

Pulse 90 /min

BP 110/75 mmHg

- 4. State 5 steps in your management of this patient. Include doses and end-points where relevant. (5 marks)**

Question 11 (11 Marks)

A 47 year old father was enjoying his daughter's birthday at a trampoline park when he fell awkwardly on to his right knee. He is complaining of right hip pain.

His pelvic x-ray is provided below

- 1. State the main pathology demonstrated. (1 mark)**

- 2. List 2 imaging modalities that could be used to identify associated complications of this injury. List 2 complicating injuries you would seek for each modality. (6 marks)**

Imaging modality	Associated injury

A 47 year old father was enjoying his daughter's birthday at a trampoline park when he fell awkwardly on to his right knee. He is complaining of right hip pain.

His pelvic x-ray is provided **BELOW**.



- 3. You elect to provide urgent management of this injury in the ED. State 4 biomechanical principles in your management of the injury. (4 marks)**

Question 12 (6 marks)

A 23 year old man comes to the ED after a direct blow to the right knee complaining of significant pain. His lateral knee Xray is below.



Please outline the abnormalities on this Xray (3 marks)

Name 3 indications for operative fixation for this type of injury (3 marks)

Question 13 (14 Marks)

You have been called to see a patient in your department who is awaiting orthopaedic admission for a complex lower leg fracture requiring operative fixation. Your registrar has placed the patient in an above knee cast which has been split laterally. The nurses are worried that the patient has increasing pain and distress. The orthopaedic registrar has been repeatedly delayed due to theatre cases.

The initial x-ray (prior to immobilisation) is provided below.

- 1. List 6 radiological abnormalities on this image. (6 marks)**

- 2. Apart from increasing pain, list 4 features of your examination that would suggest the development of compartment syndrome in the leg. (4 marks)**

Q13

You are called to see a patient in your department who is awaiting orthopaedic admission for a complex lower leg fracture requiring operative fixation. Your registrar has placed the patient in an above knee cast which has been split laterally. The nurses are worried that the patient has increasing pain and distress. The orthopaedic registrar has been repeatedly delayed due to theatre cases.

The initial xray (prior to immobilisation) is provided below.



Your assessment is highly concerning for compartment syndrome. The orthopaedic registrar is unable to leave the operating theatre for at least another hour.

3. State 4 immediate management priorities in this situation.

(4 marks)

Question 14 (11 Marks)

A 6 year old boy has been brought to the ED after falling off a swing. He landed on his head and was initially unconscious for a brief period. He complained of neck pain and hence an x-ray of his cervical spine was performed.

The image is given below.



1. Give your overall interpretation of the xray. Include the findings that support your interpretation. (2 marks)

2. List 3 possible clinical indications for further imaging of this child's cervical spine. (3 marks)

The child is mildly confused on initial examination (GCS 14).

3. List 6 features of your examination that would warrant investigation with a CT head scan. (6 marks)

Question 15 (23 marks)

A 4 year old girl is brought to the ED after a fall. She has complained of left elbow pain since the accident. She weighs 16kg.

(i) State two (2) important findings on the two (2) elbow x-rays provided (2 marks)

i)

ii)

(ii) List the typical order of ossification on a paediatric elbow x-ray (6 marks)

Ossification Centre	Answer(s)
1st	
2nd	
3rd	
4th	
5th	
6th	

(iii) List two (2) nerves that may sustain a neuropraxia as a complication of this injury (2 marks)

i)

ii)

Question 15 - PROP (Elbow x-rays)



(iv) List three (3) pharmacological agents, other than ketamine, that you would consider for initial analgesia in this child. Include dose and route of administration. (3 marks)

Pharmacological Agent	Dosing and Route

(v) To facilitate the placement of a long arm back slab sedation is required. Complete the following table regarding the use of ketamine in paediatric procedural sedation (10 marks)

	Intramuscular (IM)	Intravenous (IV)
Initial dose		
Peak effect		
Duration of action		
Two (2) advantages of the stated route of administration	(1) _____ (2) _____	(1) _____ (2) _____

Question 16 (13 marks)

A 51 year old man is brought in by ambulance having fallen onto his back from 10 metres. He has no significant past medical history, and is on no medications.

His observations on arrival are:

GCS 15, P 110, SBP 70, RR 20, SaO₂ 99% 6L Hudson mask

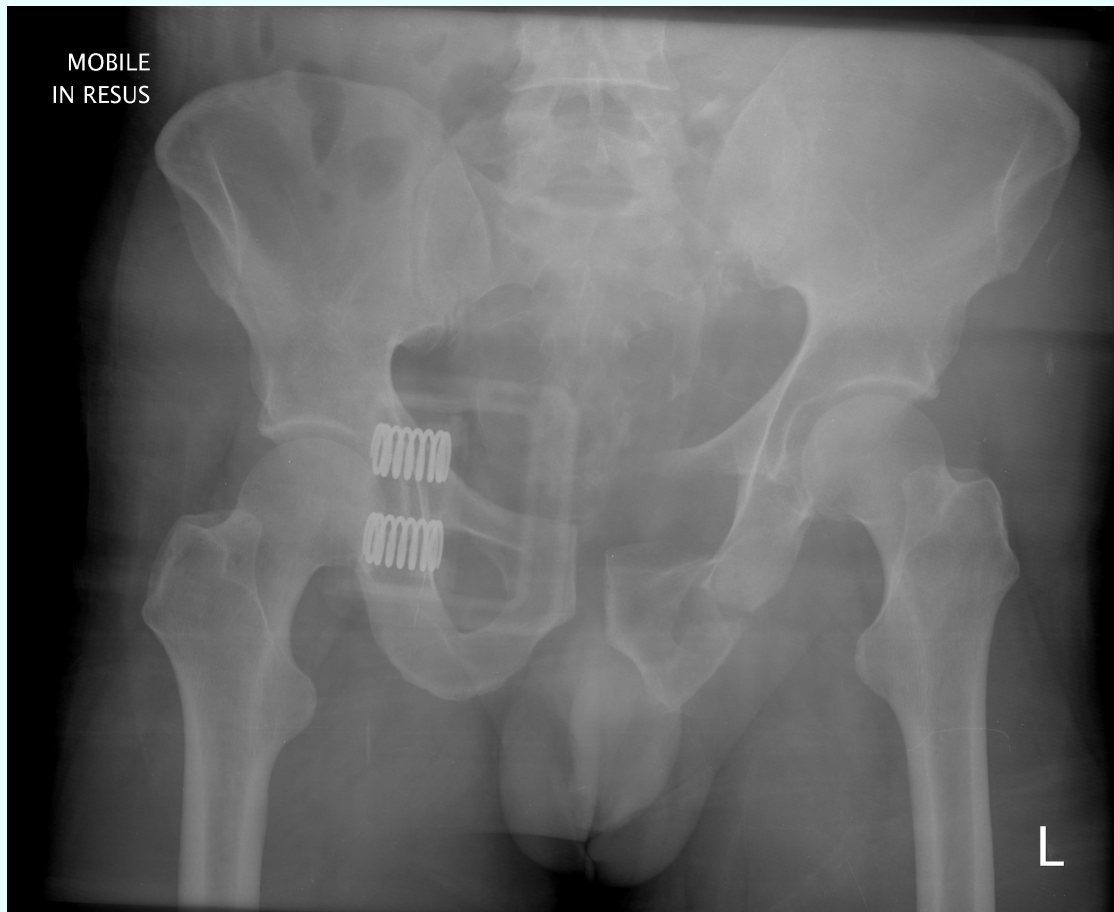
- i. List the 3 most important findings on the portable pelvic Xray (3 marks)

AN XRAY IS SHOWN below

- ii. What is the Young classification of injury (1 mark)

- iii. List 5 treatment priorities in this patient (5marks)

QUESTION 16



- iv. Describe 4 essential elements of a massive transfusion protocol (4 marks)

Question 17 (10 Marks)

A 63 year old man presents to the emergency department with left elbow pain and redness. He thinks he may have had minor trauma a week ago but there are no wounds or bruising on examination. He feels generally well and has normal vital signs. He has reduced range of movement and global joint tenderness and arthrocentesis is performed.

What factors should be covered in consent for this procedure (5 marks)

A sample is obtained and sent to the laboratory (report below)

Appearance	Turbid
CELL COUNT / WET PREPARATION (per HPF)	
White Cells	137200 $\times 10^6/L$
Red Cells	140 $\times 10^6/L$
Wet Film	+ Urate crystals
GRAM STAIN (per OIF) / WET PREPARATION (per OIF)	
Pus cells	+++
Gram Positive Cocci	Nil
Gram Positive Bacilli	Nil
Gram Negative Cocci	Nil
Gram Negative Bacilli	Nil
Yeast	Nil

Please interpret the results and give your provisional diagnosis (2 marks)

Outline your management of this patient (3 marks)

Question 18 (10 Marks)

A 57 year old male is referred in by his GP with a hot, tender, painful left knee.

His vitals are as follows:

Pulse 96
BP 120/70
Temp 37.6

1. List **5** diagnostic categories and one example of each as a cause for this hot red knee (5 marks)

i. Category: _____

Example: _____

ii. Category: _____

Example: _____

iii. Category: _____

Example: _____

iv. Category: _____

Example: _____

v. Category: _____

Example: _____

2. List **5** investigations you might perform and **1** pro and con for each (5 marks).

i. Investigation: _____

Pro: _____

Con: _____

ii. Investigation: _____

Pro: _____

Con: _____

iii. Investigation: _____

Pro: _____

Con: _____

iv. Investigation: _____

Pro: _____

Con: _____

v. Investigation: _____

Pro: _____

Con: _____

Question 19 (11 Marks)

A 45 year old man has presented to the ED with right shoulder pain after falling on to his right arm while playing basketball.

His right shoulder x-ray is provided below

- 1. List 4 radiological abnormalities to describe the above injury. (4 marks)**

- (1) _____
- (2) _____
- (3) _____
- (4) _____

You plan to manage this injury in the ED prior to outpatient specialist referral.

The patient weighs 80kg and has no other medical problems.

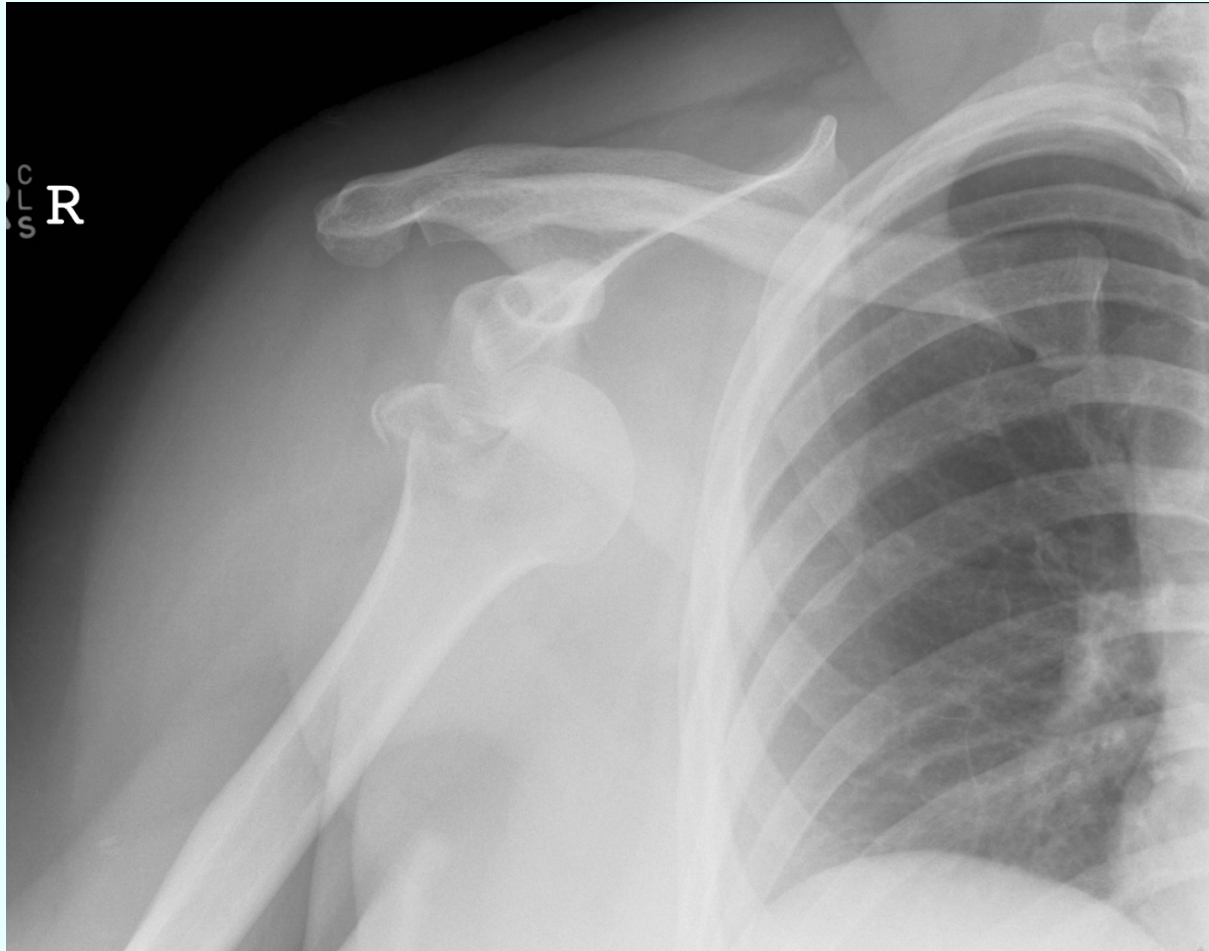
- 2. List 3 techniques for correction of this problem in the ED. (3 marks)**

- (1) _____
- (2) _____
- (3) _____

Q19

A 45 year old man has presented to the ED with right shoulder pain after falling on to his right arm while playing basketball.

His right shoulder x-ray is given below.



3. List 4 different regimes for sedation and analgesia to facilitate your management.

(4 marks)

(1) _____

(2) _____

(3) _____

(4) _____

Question 20 (12 marks)

A 35 year old man has a fall onto his out-stretched right hand after a fall down several steps. He has an isolated right wrist injury. The following Xrays are taken.



Please outline the abnormalities on this Xray (4 marks)

With the exception of neurovascular compromise, please outline 4 indications for closed reduction of this fracture type/pattern, include with specific targets (4 marks)

You chose to perform a Biers block to facilitate closed reduction. Name 4 contraindications to performing this procedure (4 marks)
