

ID NUMBER:

**University Hospital, Geelong
Emergency Medicine
Trial Fellowship Exam
Short Answer Questions (SAQ)
Week 25**

DIRECTIONS TO CANDIDATE

1. Answer each question in the space provided in this question paper.
2. Do not write your name on this question paper.
3. Enter your examination number in the space below.
4. Cross out any errors completely.
5. Do not begin the exam until instructed to do so.
6. Do not take examination paper or materials from this room.
7. The booklet binder may be removed during the exam.

**QUESTION & ANSWER
BOOKLET**

Question 1 (18 marks)

a. Define psychosis. (1 mark)

b. List the five (5) DSM IV criteria for the diagnosis of Schizophrenia. (5 marks)

1.

2.

3.

4.

5.

Question 1 (continued)

You are providing medical assistance at triage on a busy Sunday night. A 34 year old man presents to triage. He appears intoxicated, agitated and has pressure of speech. He requests excision of a lesion on his forehead that has been present for over 20 yrs. During the discussion, he suddenly pulls out a knife and declares that if we don't cut out this thing, he'll do it himself. The triage nurse has requested he hand over the knife and he states "You will have to fight me for it".

c. Define this situation. (1 mark)

d. List five (5) features of his presentation that raise concerns about immediate violence. (5 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

Question 1 (continued)

The patient is disarmed and requires physical and chemical restraint to allow assessment.
No drug/medication history is available.

e. List your preferred initial pharmacological treatment with dose range and route of administration in the case of:

i. Patient being compliant with medication administration: (3 marks)

Drug/s (1 mark)	Route (1 mark)	Initial dose (1 mark)

ii. Patient being non-compliant with medication administration: (3 marks)

Drug/s (1 mark)	Route (1 mark)	Initial dose (1 mark)

Question 2 (12 marks)

With respect to head injury in the Adult trauma patient:

a. List four (4) risk factors that would lead you to obtain an urgent CT brain (ie within the first 1 hour). (4 marks)

1. _____

2. _____

3. _____

4. _____

b. List four (4) risk factors that would lead you to obtain a semi-urgent CT Brain (ie within the first 8 hours). (4 marks)

1. _____

2. _____

3. _____

4. _____

Question 2 (continued)

With respect to head injury in the Paediatric trauma patient:

c. List four (4) variations when compared to Adult guidelines, in terms of risk factors for which CT Brain is recommended for the Paediatric patient within the first 1 hour. (4 marks)

1. _____

2. _____

3. _____

4. _____

Question 3 (12 marks)

a. What is Perichondritis of the ear? (1 mark)

b. List three (3) causes of perichondritis of the ear. (3 marks)

1.

2.

3.

c. Other than analgesia, list three (3) key components to the management of perichondritis of the ear. (3 marks)

1.

2.

3.

Question 3 (continued)

d. What is Chondritis of the ear? (1 mark)

e. What clinical feature differentiates perichondritis of the ear from chondritis of the ear? (1 mark)

f. State three (3) differences in the management of Chondritis of the ear, as compared to Perichondritis of the ear. (3 marks)

1. _____

2. _____

3. _____

Question 4 (12 marks)

A 46 year old woman presents with chest pain.

Her vital signs are:

BP	130/60	mmHg
RR	22	/min
Temperature	36.5	°C
GCS	15	

An ECG is taken- refer to the prop booklet page 2.

- a. What is a unifying diagnosis for this patient, based on this ECG? (1 mark)

- b. List three (3) abnormalities shown in this ECG that support this diagnosis. (3 marks)

1. _____

2. _____

3. _____

Question 4 (continued)

- c. List four (4) key investigations that you would perform. State one (1) justification for each choice. (8 marks)

	Investigation (4 marks)	Justification (4 marks)
1.		
2.		
3.		
4.		

Question 5 (12 marks)

A 25 year old woman presents following a sting from an unknown animal whilst camping.

- a. List three (3) clinically relevant differences between wasp stings and bee stings.
(6 marks)

	Feature of sting (3 marks)	Wasp (1.5 marks)	Bee (1.5 marks)
1.			
2.			
3.			

Question 5 (continued)

b. List three (3) clinical features of a bull ant bite. (3 marks)

1. _____

2. _____

3. _____

c. List three (3) clinical features of an Australian scorpion sting. (3 marks)

1. _____

2. _____

3. _____

Question 6 (12 marks) (same patient as question 5)

a. What is the clinical definition of anaphylaxis? (1 mark)

b. In general, list two (2) indications for a patient to use their own EpiPen. (2 marks)

1. _____

2. _____

c. Other than the indications for use, list four (4) instructions that you would give a patient with respect to the technique of EpiPen use. (4 marks)

1. _____

2. _____

3. _____

4. _____

Question 6 (continued)

The patient experiences anaphylaxis. She has IV access. Adrenaline is given in appropriate doses. She fails to respond to maximum adrenaline therapy.

d. List five (5) additional medications that you could initiate in this situation. (5 marks)

1. _____

2. _____

3. _____

4. _____

5. _____

Question 7 (12 marks)

During your routine pathology result checking you notice a MSU result of a patient seen by another doctor in your emergency department two days ago.

MSU result - refer to the prop booklet page 3.

The patient records show:

35 year old woman, 15 weeks pregnant with left flank pain and dysuria.

No allergies.

Rx trimethoprim. F/U prn.

- a. Other than a confirmed UTI, state four (4) clinical problems with this patient. (4 marks)

1. _____
2. _____
3. _____
4. _____

Question 7 (continued)

- b. List 4 (4) key steps that you would undertake in this case. State one (1) justification for each step. (8 marks)

	Step (4 marks)	Justification (4 marks)
1.		
2.		
3.		
4.		

Question 8 (14 marks)

A 34 year old man presents left ankle pain following a fall at a BBQ.

Three Xrays are taken- refer to the prop booklet page 4 and 5.

a. State four (4) abnormal findings in these xray. (4 marks)

1. _____
2. _____
3. _____
4. _____

He had been drinking beer for several hours prior. He has a Past History of chronic lower back pain. He takes buprenorphine patches for chronic pain. He takes no other regular medications. You have IV access. He has an isolated ankle injury. His PBT is 0.25.

b. State four (4) issues in your approach to his analgesic regime for the first 1 hour. (4 marks)

1. _____
2. _____
3. _____
4. _____

Question 8 (Continued)

It becomes apparent that the patient is a famous footballer.

- c. State four (4) techniques that you could employ to maintain the patients' privacy. (4 marks)

1. _____

2. _____

3. _____

4. _____

Question 9 (18 marks)

A 3 year-old boy is brought to your department by his mother with abdominal pain and vomiting. The mother is concerned that the child may have ingested some of her Iron (*Ferrogradumet*) tablets. She is sure that there are more than 10 tablets missing from the bottle. Each *Ferrogradumet* tablet contains 105mg of elemental Iron.

- a. List three (3) historical or examination features that you would seek to assess the risk of toxicity. (3 marks)

1. _____

2. _____

3. _____

Question 9 (continued)

b. What is the role of Serum Iron levels in the treatment of this patient? State (3 points in your answer. (3 marks)

1. _____
2. _____
3. _____

c. List four (4) key investigations for this child that will assist with an estimation of severity of toxicity. (4 marks)

1. _____
2. _____
3. _____
4. _____

Question 9 (continued)

d. What decontamination may be of benefit in this ingestion? (1 mark)

e. List three (3) indication/s for this decontamination. (3 marks)

1. _____

2. _____

3. _____

f. What specific antidote that may be of benefit in this ingestion? (1 mark)

g. List three (3) indications for the use of antidote in this patient. (3 marks)

1. _____

2. _____

3. _____

University Hospital, Geelong- Fellowship Exam Short Answer Questions
Week 25

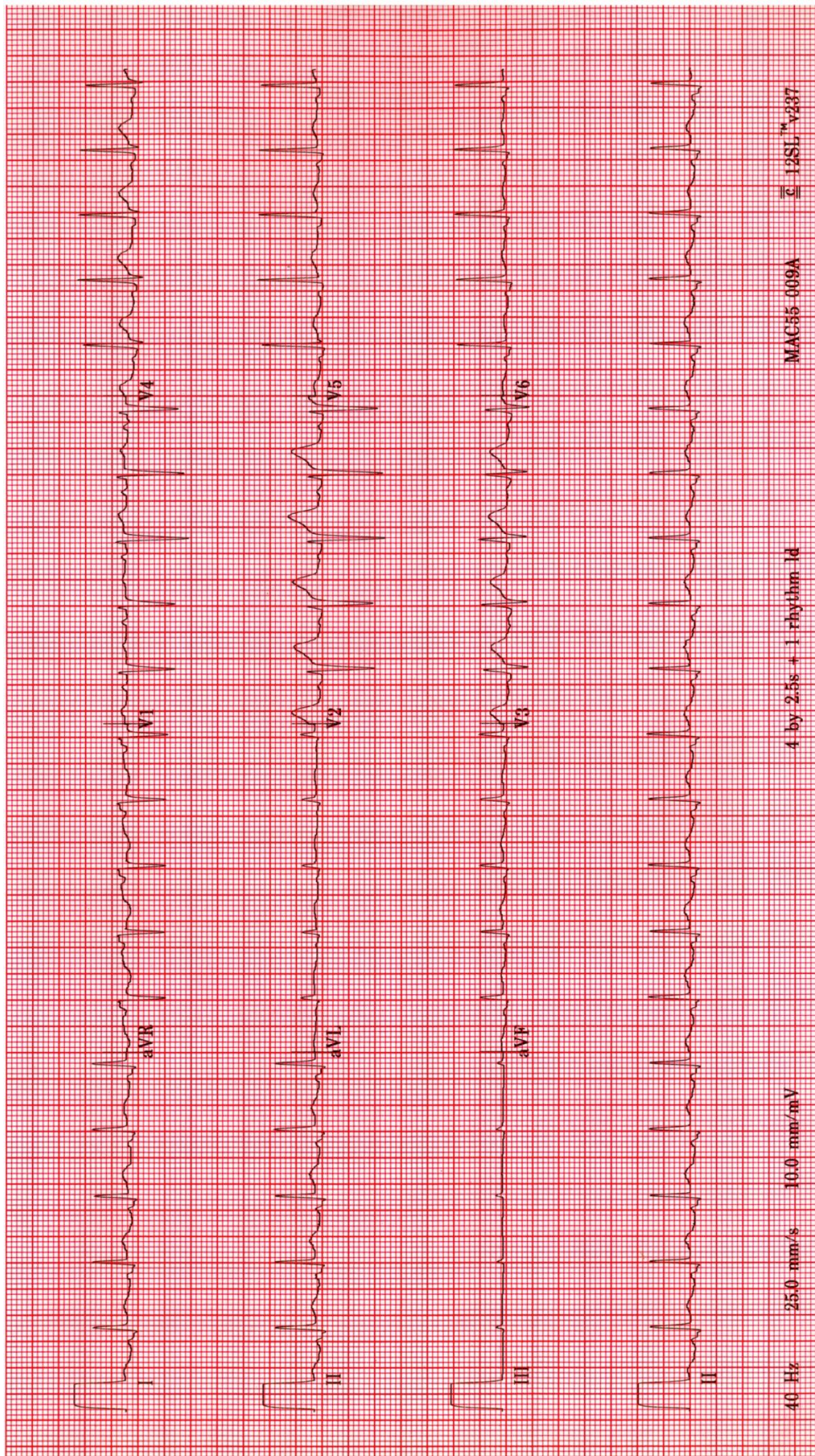
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**University Hospital, Geelong
Emergency Medicine
Trial Fellowship Exam
Short Answer Questions (SAQ)
Week 25**

PROP BOOKLET

Question 4



Question 7

MICROSCOPY

Leucocytes	> 1000	x 10 ⁶ /L	(<2x10 ⁶ /L)
Red Blood Cells	220	x 10 ⁶ /L	(<13x10 ⁶ /L)
Squamous Epithelial Cells		+	

STANDARD BACTERIAL CULTURE

1. Escherichia coli >10⁹ cfu/L

SENSITIVITIES: 1

Ampicillin	S
Augmentin	S
Cefotaxime	S
Cephalothin	S
Cotrimoxazole	S
Gentamicin	S
Nitrofurantoin	S
Trimethoprim	R

Question 8

Xray 1

Xray 2



Question 8 continued

Xray 3



"List" = 1-3 words

"State" = short statement/ phrase/ clause

**UNIVERSITY HOSPITAL, GEELONG
FELLOWSHIP WRITTEN EXAMINATION**

WEEK 25– TRIAL SHORT ANSWER QUESTIONS Suggested answers

PLEASE LET TOM KNOW OF ANY ERRORS/ OTHER OPTIONS FOR ANSWERS

Please do not simply change this document - it is not the master copy !

Question 1 (18 marks)

- a. Define psychosis. (1 mark)
- **Distortion/ loss of contact with reality**
 - **Without any clouding of consciousness**
- b. List the five (5) DSM IV criteria for the diagnosis of Schizophrenia. (5 marks)
- **Symptoms involving at least 2 of:**
 - **Delusions**
 - **Hallucinations**
 - **Grossly disorganised or catatonic behaviour**
 - **Disorganised speech**
 - **Negative symptoms**
 - **Social/ occupational dysfunction**
 - **Duration > 6 months**
 - **Exclusion of Schizoaffective/ mood disorder**
 - **Exclusion of substance abuse/ medical cause**

You are providing medical assistance at triage on a busy Sunday night. A 34 year old man presents to triage. He appears intoxicated, agitated and has pressure of speech. He requests excision of a lesion on his forehead that has been present for over 20 yrs. During the discussion, he suddenly pulls out a knife and declares that if we don't cut out this thing, he'll do it himself. The triage nurse has requested he hand over the knife and he states "You will have to fight me for it".

- c. Define this situation. (1 mark)
- **Code Black or armed threat**
- d. List five (5) features of his presentation that raise concerns about immediate violence. (5 marks)
- **Agitation- motor**
 - **Agitation- verbal**
 - **intoxication**
 - **Pressure of speech- indicator of Mental Health disorder**
 - **Knife**
 - **Stated threat to use knife**
 - **Attitude to assistance**

The patient is disarmed and requires physical and chemical restraint to allow assessment.

- e. List your preferred initial pharmacological treatment with dose range and route of administration in the case of:
- i. Patient being compliant with medication administration: (3 marks)
NB: appears intoxicated- doses must be safe
- **Olanzapine 5- 10 mg orally**
 - **Diazepam 5- 10 mg orally**
- ii. Patient being non- compliant with medication administration: (3 marks)
NB: appears intoxicated- doses must be safe
- **Midazolam 5-10mg IM or IV**
 - **Lorazepam 1-2 mg IM or IV**

- Haloperidol 5-10mg IM or IV
- Droperidol 5-10mg IM or IV
- Ziprasidone 10-20mg +/- lorazepam 1-2mg IM

Question 2 (12 marks)

With respect to head injury in the Adult trauma patient:

- a. List four (4) risk factors that would lead you to obtain an urgent CT brain (ie within the first 1 hour). (4 marks)

NB: factor should relate specifically to indications for CTB in CHI- not relating to other significant injuries requiring urgent CT

- GCS < 13 on arrival
 - GCS < 15 at 2/24
 - Suspected open/ depressed skull #
 - Sign of BOS#
 - Post traumatic seizure
 - Focal neurological deficit
 - 1 episode of vomiting
- b. List four (4) risk factors that would lead you to obtain a semi-urgent CT Brain (ie within the first 8 hours). (4 marks)
- LOC/ Amnesia + Age ≥ 65
 - LOC/ Amnesia + Hx of bleeding/ clotting disorders
 - LOC/ Amnesia + Dangerous mechanism, (Ped/ cyclist vs car, ejection from MVC, fall > 1m / 5 stairs)
 - LOC/ Amnesia + 30 min retrograde amnesia of events immediately before CHI

With respect to head injury in the Paediatric trauma patient:

- c. List four (4) variations when compared to Adult guidelines, in terms of risk factors for which CT Brain is recommended for the Paediatric patient within the first 1 hour. (4 marks)

- NAI suspicion
- GCS < 14 or < 1 yr old < 15
- Tense fontanelle
- < 1 yr - > 5 cm bruise/ swelling/ lac
- ≥2 of: ≥ 3 vomiting episodes/ LOC > 5 min/ dangerous mechanism/ abnormal drowsiness/ Amnesia > 5min

You should be familiar with the following: APHIRST, NICE, Canadian CTB, New Orleans, CHALICE, CATCH and PECARN. Dunn has a very good summary of each- the original articles are below.

You must achieve expert, evidence based practice in this area.

Click on the image below to view the entire PDF (& print/save if necessary)

See next page for summaries of each

1. APHIRST
2. NICE
3. Canadian
4. New Orleans
5. Comparison
6. CHALICE
7. CATCH
8. PECARN

STUDY PROTOCOL

Open Access

A prospective observational study to assess the diagnostic accuracy of clinical decision rules for children presenting to emergency departments after head injuries (protocol): the Australasian Paediatric Head Injury Rules Study (APHIRST)

Franz E Babi^{1,2,3,4*}, Mark D Lyttle^{1,5,6}, Silvia Bressan^{1,2,7}, Meredith Borland⁸, Natalie Phillips⁹, Amit Kochar¹⁰, Stuart R Dalziel^{11,12}, Sarah Dalton¹³, John A Cheek^{12,14}, Jeremy Fuyk¹⁵, Yuri Gilhotra¹⁶, Jocelyn Neutze¹⁷, Brenton Ward², Susan Donath^{2,3}, Kim Jachno^{2,3}, Louise Crowe^{2,3}, Amanda Williams^{2,3}, Ed Oakley^{1,2,3}
On behalf of the PREDICT research network

Abstract

Background: Head injuries in children are responsible for a large number of emergency department visits. Failure to identify a clinically significant intracranial injury in a timely fashion may result in long term neurodisability and death. Whilst cranial computed tomography (CT) provides rapid and definitive identification of intracranial injuries, it is resource intensive and associated with radiation induced cancer. Evidence based head injury clinical decision rules have been derived to aid physicians in identifying patients at risk of having a clinically significant intracranial injury. Three rules have been identified as being of high quality and accuracy: the Canadian Assessment of Tomography for Childhood Head Injury (CATCH) from Canada, the Children's Head Injury Algorithm for the Prediction of Important Clinical Events (CHALICE) from the UK, and the prediction rule for the identification of children at very low risk of clinically important traumatic brain injury developed by the Pediatric Emergency Care Applied Research Network (PECARN) from the USA. This study aims to prospectively validate and compare the performance accuracy of these three clinical decision rules when applied outside the derivation setting.

Methods/design: This study is a prospective observational study of children aged 0 to less than 18 years presenting to 10 emergency departments within the Paediatric Research in Emergency Departments International Collaborative (PREDICT) research network in Australia and New Zealand after head injuries of any severity. Predictor variables identified in CATCH, CHALICE and PECARN clinical decision rules will be collected. Patients will be managed as per the treating clinicians at the participating hospitals. All patients not undergoing cranial CT will receive a follow up call 14 to 90 days after the injury. Outcome data collected will include results of cranial CTs (if performed) and details of admission, intubation, neurosurgery and death. The performance accuracy of each of the rules will be assessed using rule specific outcomes and inclusion and exclusion criteria.

(Continued on next page)

* Correspondence: fran.z.babi@rch.org.au
¹Department of Emergency Medicine, Royal Children's Hospital, Flemington Rd, Parkville, Vic 3052, Australia
²Murdoch Childrens Research Institute, Parkville, VIC, Australia
Full list of author information is available at the end of the article



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University Hospital, Geelong- Fellowship Exam Short Answer Questions

Week 2F

Table 1. Findings used by 7 clinical decision rules for CT scanning in mild traumatic brain injury.

Clinical Finding	Canadian	NCWFNS	New Orleans	NEXUS-II	NICE	Scandinavian
GCS score	<15 At 2 h	<15	<15	Abnormal alertness, behavior	<15 At 2 h	<15
Amnesia	Retrograde >30 min*	Any	Antegrade	—	Retrograde >30 min	Any
Suspected fracture	Open, depressed, basal	Any	Any injury above clavicles	Any	Open, depressed, basal	Basal, depressed, confirmed
Vomiting	Recurent ≥65	Any	Any	Recurent ≥65	Recurent ≥65	—
Coagulopathy	—	Any	—	Any	Any	Any
Focal deficit	—	History	Any	Any	Any	Any
Seizure	—	—	—	—	—	—
LOC	If GCS=14	Any	Any	—	—	—
Visible trauma	—	—	Above clavicles	—	—	Multiple injuries
Headache	—	Any	Severe	—	—	—
Injury mechanism	Dangerous**	—	—	—	Dangerous**	—
Intoxication	—	—	—	—	—	—
Previous neurosurgery	—	Yes	—	—	—	Shunt

NCWFNS, Neurotraumatology Committee of the World Federation of Neurological Societies; NICE, National Institute of Clinical Excellence; —, Indicates the item is not considered an indication for CT scanning by author(s) of the rule; LOC, loss of consciousness.
 *Used to determine medium risk for the Canadian Rule.
 **CT scan only if also loss of consciousness or any amnesia.
 †Dangerous injury mechanism—ejected from motor vehicle, pedestrian struck by motor vehicle, fall of >3 feet or 5 steps.

Canadian CT Head Rule

CT head is only required for minor head injury patients with any one of these findings:

High Risk (for Neurological Intervention)

- GCS score < 15 at 2 hrs after injury
- Suspected open or depressed skull fracture
- Any sign of basal skull fracture*
- Vomiting ≥ 2 episodes
- Age ≥ 65 years

Medium Risk (for Brain Injury on CT)

- Amnesia before impact ≥ 30 min
- Dangerous mechanism ** (pedestrian, occupant ejected, fall from elevation)

***Signs of Basal Skull Fracture**

- Nonoccluding "raccoon" eyes, CSF otorrhea/otorrhea, Battle's sign

****Dangerous Mechanism**

- pedestrian struck by vehicle
- occupant ejected from motor vehicle
- fall from elevation ≥ 3 feet or 5 stairs

Rule Not Applicable if:
 • Severe trauma
 • GCS < 13
 • Age < 16 years
 • Coagulopathy or bleeding disorder
 • Known open skull fracture

Scott KL, et al. The Canadian CT Head Rule for Patients with Minor Head Injury. *Lancet* 2001;357:1391-96.

Table 13. New Orleans Criteria

Head CT is required for blunt trauma patients with loss of consciousness, GCS 15, a normal neurological examination any of the following:

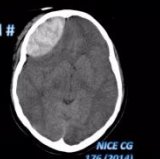
- Headache
- Vomiting
- Age over 60 years
- Drug or alcohol intoxication
- Deficits in short-term memory
- Physical evidence of trauma above the clavicles
- Seizure

*Normal cranial nerves and normal strength and sensation in arms and legs, as determined by a physician on the patient's arrival at the emergency department

NICE

Adults: scan <1 hour if:

- GCS <13 on arrival
- GCS <15 at 2h
- Suspected open/depressed #
- Signs of base of skull #
- Post traumatic seizure
- Focal neurology
- >1 episode of vomiting




NICE CG 176 (2014)

Adults: scan within 8 hours if:

- "Some" LOC/amnesia and one of:
- Age 65+
- History of bleeding/clotting disorders
- Dangerous mechanism*
- >30mins retrograde amnesia (for events before the head injury)

*pedestrian/cyclist hit by car, ejection from car or fall >1m (5 stairs)



NICE CG 176 (2014)

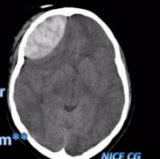
Paeds:

NICE

Children: scan <1 hour if:

- Suspicion of NAI
- Post traumatic seizure (no h/o epilepsy)
- GCS <14 on arrival*
- GCS <15 at 2h
- Signs of base of skull #
- Focal neurology
- Suspected open/depressed # or tense fontanelle
- Swelling/bruise/laceration >5cm**

*<15 if <1yr **<1yr

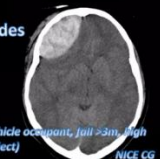


NICE CG 176 (2014)

Children: scan <1 hour if MORE THAN ONE of:

- Witnessed LOC >5mins
- Abnormal drowsiness
- 3+ discrete vomiting episodes
- Dangerous mechanism*
- Amnesia >5mins**

*high speed RTC (pedestrian, cyclist, vehicle occupant, fall >3m, high speed injury from projectile or other object)
 **anterograde or retrograde



NICE CG 176 (2014)

CHALICE

The children's head injury algorithm for the prediction of important clinical events rule

A computed tomography scan is required if any of the following criteria are present.

- History**
 - Witnessed loss of consciousness of >5 min duration
 - History of amnesia (either antegrade or retrograde) of >5 min duration
 - Abnormal drowsiness (defined as drowsiness in excess of that expected by the examining doctor)
 - ≥ 3 vomits after head injury (a vomit is defined as a single discrete episode of vomiting)
 - Suspicion of non-accidental injury (NAI, defined as any suspicion of NAI by the examining doctor)
 - Seizure after head injury in a patient who has no history of epilepsy

- Examination**
 - Glasgow Coma Score (GCS) <14, or GCS <15 if <1 year old
 - Suspicion of penetrating or depressed skull injury or tense fontanelle
 - Signs of a basal skull fracture (defined as evidence of blood or cerebrospinal fluid from ear or nose, panda eyes, Battle's sign, haemotympanum, facial crepitus or serious facial injury)
 - Positive focal neurology (defined as any focal neurology, including motor, sensory, coordination or reflex abnormality)
 - Presence of bruise, swelling or laceration >5 cm if <1 year old
- Mechanism**
 - High-speed road traffic accident either as pedestrian, cyclist or occupant (defined as accident with speed >40 m/h)
 - Fall of >3 m in height
 - High-speed injury from a projectile or an object

If none of the above variables are present, the patient is at low risk of intracranial pathology.

CATCH

Box 1: Canadian Assessment of Tomography for Childhood Head injury: the CATCH rule

CT of the head is required only for children with minor head injury* and any one of the following findings:

High risk (need for neurologic intervention)

- Glasgow Coma Scale score < 15 at two hours after injury
- Suspected open or depressed skull fracture
- History of worsening headache
- Irritability on examination

Medium risk (brain injury on CT scan)

- Any sign of basal skull fracture (e.g., hemotympanum, "raccoon" eyes, otorrhea or rhinorrhea of the cerebrospinal fluid, Battle's sign)
- Large, boggy hematoma of the scalp
- Dangerous mechanism of injury (e.g., motor vehicle crash, fall from elevation ≥ 3 ft [≥ 91 cm] or 5 stairs, fall from bicycle with no helmet)

PECARN

Table 1 Comparison of predictor variables [11,15-17]

CATCH	CHALICE	PECARN <2 years	PECARN ≥2 years
Mechanism of injury Dangerous mechanism of injury (eg MVC, fall from elevation ≥3 ft [≥91 cm] or 5 stairs, fall from bicycle with no helmet)	High speed RTA as pedestrian, cyclist, occupant (>40 miles/h or >64 km/h). Fall of >3 m in height. High speed injury from projectile or object.	Severe mechanism of injury (MVC with patient ejection, death of another passenger or rollover; pedestrian/bicyclist without helmet struck by motorized vehicle falls >0.9 m; head struck by high impact object)	Severe mechanism of injury (MVC with patient ejection, death of another passenger or rollover; pedestrian/bicyclist without helmet struck by motorized vehicle falls >1.5 m; head struck by high impact object)
History	Witnessed LOC >5 min. Amnesia (antegrade or retrograde) >5 min. 23 vomits after head injury (agitation, somnolence, repetitive questioning, slow response to verbal communication). Suspicion of NAI. Seizure in patient with no history of epilepsy.	LOC ≥5 seconds. Altered mental status. Not acting normally per parent.	Any/suspected LOC. Altered mental status. History of vomiting.
History of worsening headache	Examination GCS <15, 2 hr after injury. Irritability on examination.	GCS <15	GCS <15
Suspected open or depressed skull fracture.	Suspicion of penetrating or depressed skull injury, or tense fontanelle.	Other signs of altered mental status (agitation, somnolence, repetitive questioning, slow response to verbal communication)	Other signs of altered mental status (agitation, somnolence, repetitive questioning, slow response to verbal communication)
Any sign of basal skull fracture (eg hemotympanum, "raccoon" eyes, otorrhea/rhinorrhea of CSF, Battle's sign).	Signs of basal skull fracture.	Palpable or unwell skull fracture.	Clinical signs of basilar skull fracture.
Large boggy hematoma of the scalp.	Presence of bruise, swelling or laceration >5 cm if <1 yr old.	Occipital, parietal or temporal scalp hematoma.	

Reproduced from Lytle M, et al. [15] Copyright 2012, with permission from BMJ Publishing Group Ltd. In each of the three clinical decision rules (CDRs) the absence of all of the above predictor variables indicates that cranial computed tomography is unnecessary. Note: while the predictor variables are reproduced verbatim, the order in which the variables from each CDR are presented has been altered to match the CATCH rule.

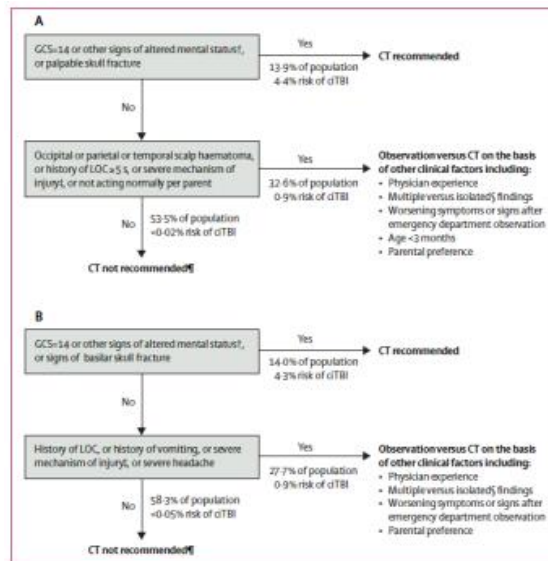


Figure 3. Suggested CT algorithm for children younger than 2 years (A) and for those aged 2 years and older (B) with GCS scores of 14-15 after head trauma
 GCS—Glasgow Coma Scale. tTBI—clinically important traumatic brain injury. LOC—loss of consciousness. *Data are from the combined derivation and validation populations. †Other signs of altered mental status: agitation, somnolence, repetitive questioning, or slow response to verbal communication. ‡Severe mechanism of injury: motor vehicle crash with patient ejection, death of another passenger, or rollover; pedestrian or bicyclist without helmet struck by a motorized vehicle; falls of more than 0.9 m (3 feet) (or more than 1.5 m [5 feet] for panel B); or head struck by a high-impact object. §Patients with certain isolated findings (ie, with no other findings suggestive of traumatic brain injury), such as isolated LOC, † isolated vomiting, † isolated scalp haematoma, and certain types of isolated scalp haematomas in infants older than 3 months, † have a risk of tTBI substantially lower than 1%. ¶Risk of tTBI exceedingly low, generally lower than risk of CT-induced malignancies. Therefore, CT scans are not indicated for most patients in this group.

Question 3 (12 marks)

- a. What is the Perichondritis of the ear? (1 mark)
 - **Infection of the auricular soft tissue overlying the cartilage**

- b. List three (3) causes of perichondritis of the ear. (3 marks)
 - **Trauma**
 - **Lacerations**
 - **Burns**
 - **Ear piercing**
 - **Surgical wound**

- c. Other than analgesia, list (3) key components to the management of perichondritis of the ear. (4 marks)
 - **Hot soaks**
 - **Oral Abs- *Dunns says Fluclox , generally need to cover Pseudomonas- Cipro***
 - **Review in 24-48/24**

- d. What is Chondritis of the ear? (1 mark)
 - **Infection involving the auricular cartilage**

- e. What clinical feature differentiates perichondritis of the ear from chondritis of the ear? (1 mark)
 - **Deformity of the external ear (auricle)**

- f. List three (3) differences in the management of Chondritis of the ear, as compared to Perichondritis of the ear? (3 marks)
 - **IV abs required- fluclox vs tazocin**
 - **Admission required**
 - **Surgical drainage**

This resource is produced for the use of University Hospital, Geelong Emergency staff for preparation for the Emergency Medicine Fellowship written exam. All care has been taken to ensure accurate and up to date content. Please contact me with any suggestions, concerns or questions.

Dr Tom Reade (Staff Specialist, University Hospital, Geelong Emergency Department)

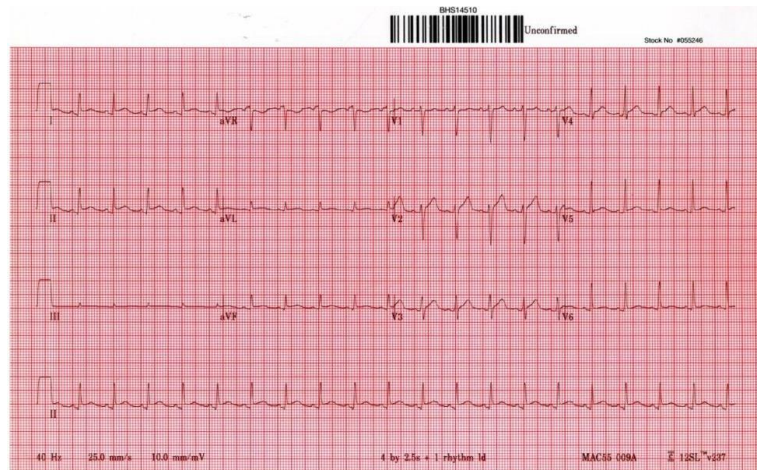
Email: tomre@barwonhealth.org.au

November 2017

Question 4 (12 marks)

A 46 year old woman presents with chest pain.

Her vital signs are: BP 130/60 mmHg RR 22 /min Temperature 36.5°C GCS 15



- What is a unifying diagnosis for this patient, based on this ECG? (1 mark)
 - Pericarditis**
- List three (3) abnormalities shown in this ECG that support this diagnosis. (3 marks)
 - Sinus tachycardia- rate 110**
 - PR depression**
 - Widespread STE**
 - (STD aVr)**
- List four (4) key investigations that you would perform. State one (1) justification for each choice. (8 marks)

Investigation	Justification
ECHO	<ul style="list-style-type: none"> Demonstrate amount of pericardial fluid Demonstrate thickened pericardium Assess for evidence of cardiac tamponade (Localised wall motion abnormalities)
FBE	<ul style="list-style-type: none"> Lymphocytosis suggests viral cause WCC <4 > 15 suggests bacterial cause
U+E	<ul style="list-style-type: none"> Uraemia as a cause
Troponin	<ul style="list-style-type: none"> Dx Pancarditis Dx Myocarditis
ESR or CRP	<ul style="list-style-type: none"> Raised levels support inflammatory process Levels can be used to follow disease progress

Question 5 (12 marks)

A 25 year old woman presents following a sting from an unknown animal whilst camping.

- a. List three (3) clinically relevant differences between wasp stings and bee stings. (6 marks)

Feature of sting	Wasp	Bee
Frequency of bites	Much less common	More common
Frequency of anaphylaxis	Much less common	More common
Number	Multiple	1 sting
Serum sickness	N	Y
Massive envenomation:		
Number of stings	> 50 stings	> 20 stings
Haemoglobinuria	N	Y
Rhabdomyolysis	N	Y
Multiple organ failure	N	Y
Haemolysis	Y	N
Myocarditis	Y	N
Hepatitis	Y	N
Death (both due to anaphylaxis)	Much less common	More common

- b. List three (3) clinical features of a bull ant bite. (3 marks)

- Repeated stings
- Local wheal & flare
- Anaphylaxis
- Death - associated with- prior stings & ACE inhibitor use

- c. List three (3) clinical features of an Australian scorpion sting. (3 marks)

- Night time
- Uncommon
- Minor local effects:
 - pain localised, several hrs
 - inflammation
 - oedema
 - paraesthesia
 - hyperalgesia

- **numbness/ tingling several days**
- **Systemic effects uncommon**
 - **nausea, vomiting, malaise, tachycardia**
- **Not life threatening**

Question 6 (12 marks) (same patient as question 5)

- a. What is the clinical definition of anaphylaxis? (1 mark)
3 components:
- **severe/ life threatening**
 - **generalised/ systemic**
 - **hypersensitivity/ allergic reaction**
- b. In general, list two (2) indications for a patient to use their own EpiPen. (2 marks)
- **Cutaneous symptoms**
+
 - **Sign of another system involvement:**
 - **dizziness/ faintness**
 - **SOB**
 - **chest tightness**
 - **oral swelling/ lump**
 - **voice change**
 - **nausea/ vomit**
- c. Other than the indications for use, list four (4) instructions that you would give a patient with respect to the technique of EpiPen use. (4 marks)
- **How to open**
 - **Identify correct end for application**
 - **Appropriate site (lateral thigh is recommended)**
 - **Force required**
 - **Duration of holding in (10 sec)**
 - **Call 000 ASAP after EPIPEN use**

The patient experiences anaphylaxis. She has IV access. Adrenaline is given in appropriate doses. She fails to respond to maximum adrenaline therapy.

- d. List five (5) additional medications that you could initiate in this situation. (5 marks)
- **Steroids** (*although of little benefit acutely, use early as duration of anaphylaxis cannot be predicted*)
 - **Salbutamol**
 - **H1 antagonists**
 - **H2 antagonists**
 - **Glucagon** (*if pt taking BBLOCKERS*)
 - **MgSO4 IV** (*for refractory bronchospasm*)

- **Ketamine** (*induction agent may improve bronchospasm*)

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REVIEW ARTICLE

Anaphylaxis: Clinical concepts and research priorities

Simon GA Brown
Discipline of Emergency Medicine, The University of Western Australia and Fremantle Hospital, Fremantle, Western Australia, Australia

See also pp. 101–102

Abstract

Anaphylaxis is a severe immediate-type hypersensitivity reaction characterized by life-threatening upper airway obstruction bronchospasm and hypotension. Although many episodes are easy to diagnose by the combination of characteristic skin features with other organ effects, this is not always the case and a workable clinical definition of anaphylaxis and useful biomarkers of the condition have been elusive. A recently proposed consensus definition is ready for prospective validation. The cornerstones of management are the supine position, adrenaline and volume resuscitation. An intramuscular dose of adrenaline is generally recommended to initiate treatment. If additional adrenaline is required, then a controlled intravenous infusion might be more efficacious and safer than intravenous bolus administration. Additional bronchodilator treatment with continuous salbutamol and corticosteroids are used for severe and/or refractory bronchospasm. Aggressive volume resuscitation, selective vasopressors, atropine (for bradycardia), inotropes that bypass the β -adrenoreceptor and bedside echocardiographic assessment should be considered for hypotension that is refractory to treatment. Management guidelines continue to be opinion- and consensus-based, with retrospective studies accounting for the vast majority of clinical research papers on the topic. The clinical spectrum of anaphylaxis including major disease subgroups requires clarification, and validated scoring systems and outcome measures are needed to enable good-quality prospective observational studies and randomized controlled trials. A systematic approach with multicentre collaboration is required to improve our understanding and management of this disease.

Key words: *aetiology, anaphylaxis, classification, diagnosis, drug therapy, physiopathology.*

Introduction

Anaphylaxis is a severe reaction within the spectrum of generalized immediate-type hypersensitivity, characterized in its most critical form by life-threatening

upper airway obstruction bronchospasm and hypotension. Most episodes are easy to diagnose clinically; however, case definition has been problematic for researchers and clinicians alike and acute management is based largely on extrapolation and anecdote.¹ The

Correspondence: Associate Professor Simon GA Brown, Department of Emergency Medicine, Fremantle Hospital, Alma Street, Fremantle, WA 6160, Australia. Email: simon.brown@uwa.edu.au

Simon GA Brown, B Med Sci, MB BS, DA(UK), FACEM, PhD, Associate Professor of Emergency Medicine.

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Question 7 (12 marks)

During your routine pathology result checking you notice the following result of a patient seen by another doctor in your emergency department two days ago.

The patient records show:

35 year old woman, 15 weeks pregnant with left flank pain and dysuria. No allergies.

Rx trimethoprim. F/U prn.

MICROSCOPY

Leucocytes	> 1000	$\times 10^6/L$ ($< 2 \times 10^6/L$)
Red Blood Cells	220	$\times 10^6/L$ ($< 13 \times 10^6/L$)
Squamous Epithelial Cells	+	

STANDARD BACTERIAL CULTURE

1. Escherichia coli $> 10^9$ cfu/L

SENSITIVITIES:

Ampicillin	S
Augmentin	S
Cefotaxime	S
Cephalothin	S
Cotrimoxazole	S
Gentamicin	S
Nitrofurantoin	S
Trimethoprim	R

- a. State four (4) clinical problems with this patient. (4 marks)
- **Clinical features of pyelonephritis + pregnancy = admission and IV Abs in most cases**
 - **CI to chosen Abs given (category C) → adverse event**
 - **Organism cultured not sensitive → needs Abs change and urgent review**
 - **Inappropriate follow up- Should have plan for MSU follow up (not "prn")**
 - **Pregnancy with delayed Rx incurs ↑ risk of miscarriage**
 - **E Coli associated with significant complications (Gram -ve sepsis is bad)**

- b. List four (4) key steps that you would undertake in this case. State one (1) justification for each step. (8 marks)

NB: this is one time where I would group the "medical care" as one step, seeing there are numerous other steps to cover- ie. Not: 1. Recall pt 2. IV abs 3. IV fluids 4. Admit

Step	Justification
Contact patient	<ul style="list-style-type: none"> • Return ASAP for RV and appropriate Mx
Open disclosure	<ul style="list-style-type: none"> • Best practice • Optimise pt understanding of situation • Reduce future legal process relating to presentation
Clinical reassessment with view to urgent IV abs and admission	<ul style="list-style-type: none"> • Rapid medical admission to delay further adverse effects
Obstetric review	<ul style="list-style-type: none"> • With respect to possibly teratogenic antibiotic- close specialist follow up required
QI- Root cause analysis	<ul style="list-style-type: none"> • ↓ similar future events

Debrief with Dr involved	<ul style="list-style-type: none">• Identify knowledge gaps/ educate/ support/ supervise
Documentation	<ul style="list-style-type: none">• Optimise ongoing care for patient/ Legal implications to case

Question 8 (12 marks)

A 34 year old man presents left ankle pain following a fall at a BBQ.



a. State four (4) abnormal findings in these xrays. (4 marks)

- **Comminuted distal fibula fracture (Weber C)**
- **Disruption of the distal tib/fib syndesmosis**
- **Medial malleolar #**
- **Later subluxation of the talus**

He had been drinking beer for several hours prior. He has a Past History of chronic lower back pain.

He takes buprenorphine patches for chronic pain. He takes no other regular medications. You have IV access. He has an isolated ankle injury. His PBT is 0.25.

b. State four (4) issues in your approach to his analgesic regime for the first 1 hour. (4 marks)

NB: Not PCA in 1st hour

- **PBT 0.25- Care with haemodynamics & reduction in GCS**
- **As a result of Bup. Patches → Will be relatively resistant to IV narcotics/ will require high dose morphine**
- **Close/careful observation required post IV analgesia**
- **Strong analgesia will be required- IV 2.5 mg bolus Morphine/ Ketamine IV boluses**
- **Employ non medicinal techniques to ↓ analgesic requirements ASAP- splint/ reduce/ elevate**

It becomes apparent that the patient is a famous footballer.

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- c. State four (4) techniques that you could employ to maintain the patients' privacy. (4 marks)
- **Alias/ de-identify on computer system**
 - **Use cubicle in discrete area**
 - **Keep curtain/ door closed**
 - **Inform direct RN staff and RN in charge and direct to minimise discussion/ not discuss presence widely at work and when left from work**
 - **Inform media liaison officer**
 - **Expediate Rx without compromising care to other pt's**
 - **Staff training in ethics and pt privacy**

Question 9 (18 marks)

A 3 year-old boy is brought to your department by his mother with abdominal pain and vomiting. The mother is concerned that the child may have ingested some of her Iron (*Ferrogradumet*) tablets. She is sure that there are more than 10 tablets missing from the bottle. Each *Ferrogradumet* tablet contains 105mg of elemental Iron.

- a. List three (3) clinical features that you would seek to assess the risk of toxicity. (3 marks)
- **Weight**
 - **1000mg minimum ingestion assumed**
 - **likely weight ~ 15 kg → 65mg/ kg, if 10 kg → 100mg/kg if 20kg → 50mg/kg**
 - **< 20 mg/kg: asymptomatic**
 - **20-60 mg/kg: GIT**
 - **60- 120 mg/kg: systemic**
 - **120 mg/kg: potentially lethal**
 - **Symptoms of GIT phase (onset 30min- 6/24)**
 - **vomiting (vomiting is the most sensitive marker of serious toxicity)**
 - **diarrhoea**
 - **abdo pain**
 - **H+M**
 - **Indicators of shock**
- b. What is the role of Serum Iron levels in the treatment of this patient? State (3) points in your answer. (3 marks)
- **Confirm ingestion**
 - **Peak at 4-6/24**
 - **No clear correlation with level and toxicity**
 - **Peak levels > 90 micromol/L thought to be predictive of systemic toxicity**
- c. List four (4) key investigations for this child that will assist with an estimation of severity of toxicity. (4 marks)
- NB: "List" only required- no justification or explanation requested therefore none required*
- **ABG (AG Metabolic acidosis in severe, metabolic alkalosis from upper GIT losses)**
 - **AXR (Tablets in stomach → indication for WBI)**
 - **Glucose (Per Dunn: > 8 correlates well with toxic serum levels- Tox HB says does not correlate with toxicity)**
 - **WCC (Per Dunn: > 15 correlates with systemic toxicity- Tox HB says does not correlate with toxicity)**
 - **Erect CXR (if abdominal perforation suspected)**
 - **Clotting (Dunn: ↑ INR/ ↑ APTT, Tox HB- no mention)**
 - **LFT (Dunn: hepatotoxicity, Tox HB- no mention)**
- d. What decontamination may be of benefit in this ingestion? (1 mark)
- **WBI**
- e. List three (3) indication/s for this decontamination. (3 marks)
- **Symptomatic**
 - **> 60 mg/kg (Dunn says > 20 mg/kg)**
 - **AXR shows tablets**
- f. What specific antidote that may be of benefit in this ingestion? (1 mark)
- **Desferrioxamine**
- g. List three (3) indications for the use of antidote in this patient. (3 marks)
- **Systemic toxicity**
 - **Altered conscious state**

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- ↓ BP
- ↑ PR
- ↑ RR
- Serum > 90 micromol/l at 4-6/24 post