



WRITTEN EXAMINATION

WELLINGTON INTENSIVE CARE MEDICINE COURSE 2024

INSTRUCTIONS:

- a) You have 100 minutes to complete this exam.
- b) Do not look at other candidates' papers.
- c) Write your answers in the books provided.
- d) Record your name and/or candidate number on the cover of each book.
- e) Start each answer in a **new book** and indicate the question number.
- f) It is not necessary to rewrite the question in your answer book.
- g) The questions are worth equal marks - you should aim to answer each question in ten minutes.
- h) Hand in all books at the end
- i) If you need more paper, there are spare books available.



GLOSSARY OF TERMS

Critically evaluate: Provide and explain the evidence available relating to a topic.

Outline: Provide a summary of the important points.

List: Provide a list.

Compare & contrast: Provide a description of similarities and differences. You may tabulate your answer.

Assessment: Generic term that implies determining an underlying diagnosis, encompassing; history, clinical examination, and relevant investigations.

Management: Generic term that implies determining an overall management plan, encompassing; resuscitation, definitive treatment, initial and ongoing monitoring with supportive treatment.

Discuss: Explain the underlying key principles. Where appropriate, this may include controversies and/or advantages and disadvantages.

Explain: Make plain, interpret, account for.

NOTE

Where laboratory values are provided, abnormal values are marked with an asterisk (*).

Question 1:

Discuss Hypertriglyceridaemia-induced acute pancreatitis (HTGP) in intensive care under the following headings:

- a) Prevalence (1.5 marks)
- b) Aetiology (1.5 marks)
- c) Pathogenesis (1 mark)
- d) Laboratory Findings (1 mark)
- e) Specific therapies - in your answer, include prognostic features of severity indicating specific therapies. (5 marks)

Question 2:

- a) Provide the definition of 'clinical equipoise' with respect to randomised controlled trials. (2 marks)
- b) Provide the definition of 'deferred consent' with respect to trials in the critically unwell. (2 marks)
- c) List six things that it is important to communicate to patients/surrogate decision makers when seeking deferred consent. (6 marks)

Question 3:

You are contacted by a rural GP-run hospital referring a patient with an acute traumatic brain injury (TBI) after a high-speed motor vehicle accident to your tertiary ICU. They are located 2 hrs by fixed wing aircraft from your hospital. The patient is a 34-year-old male with a TBI with multiple skull fractures, R) subdural haemorrhage and a small amount of pneumocephalus associated with the fractures.

The current GCS is 9 - E2M5V2 having been GCS 13 at the scene E3M6V4. They are not currently intubated. They have some bruising on the chest and abdomen but no other substantial injuries on CT. They also have a Tibia/Fibula Fracture which has been placed in a plaster cast.

- a) Outline your plan for this retrieval (6 marks)
- b) List 3 potential clinical risks for this patient associated with aeromedical retrieval. For each clinical risk outline a strategy to mitigate this risk. (4 marks)

Question 4:

You have taken handover of a day 2 orthotopic liver transplant in a 34-year-old with Primary Sclerosing Cholangitis. The patient remains intubated, has developed new fevers and has escalating doses of vasopressors.

Their Day 2 blood tests are reported as below (reference ranges and Day 0 results given).

	Day 0	Day 2	Reference range
Bilirubin	55µmol/L	270µmol/L	<20µmol/L
Alanine transferase	110 U/L	205 U/L	<35 U/L
Aspartate transferase	45 U/L	95 U/L	<35 U/L
Alkaline phosphatase	150 U/L	790 U/L	30-110 U/L
γ-Glutamyl transferase	60 U/L	340 U/L	<40 U/L
Albumin	22 g/L	24 g/L	35-50g/L
Protein	45 g/L	53 g/L	60-80 g/L
Ammonia	44µmol/L	160µmol/L	<50µmol/L
INR	1.7	3.6	0.9- 1.2
Haemoglobin	102 g/L	74 g/L	120-160g/L
Lactate	2.2	5.4	<1.5 mmol/L
Sodium	137 mmol/L	131 mmol/L	135-145 mmol/L
Potassium	4.2 mmol/L	5.1 mmol/L	3.5-5.2 mmol/L
Bicarbonate	18 mmol/L	12 mmol/L	22-32 mmol/L
Urea	9.0 mmol/L	18.4 mmol/L	3.0 – 8.0 mmol/L
Creatinine	102 mmol/L	315 mmol/L	45 – 90 mmol/L

- a) List possible differential diagnoses of the patient based on the laboratory results and history. (3 marks)
- b) Outline the relevant investigations to determine cause. In your answer state how they will aid the assessment. (4 marks)
- c) Outline the prognostic factors that contribute to graft rejection. (3 marks)

Question 5:

Regarding peri-partum cardiomyopathy:

- a) List the diagnostic criteria for peri-partum cardiomyopathy. (2 marks)
- b) List four differential diagnoses. (2 marks)
- c) Outline your management of peri-partum cardiomyopathy in the ICU. (6 marks)

Question 6:

- a) Explain the rationale for lumbar spinal drain insertion for thoraco-abdominal aortic surgery. (3 marks)
- b) Outline the postoperative management of a lumbar drain in the ICU. Include the following headings in your answer:
 - i) Pressure and drainage targets, (2 marks)
 - ii) Monitoring for complications with use (2 marks)
- c) Outline the management of new neurological deficits postoperatively. (3 marks)

Question 7:

Outline your plan for your Intensive care unit's response to a mass casualty incident. Include in your answer how you would increase resources.

Question 8:

Compare and contrast the differences in trauma assessment in a child compared with an adult.

Question 9:

With regards to uraemia:

- a) List 4 causes of a raised urea. (2 marks)
- b) List 4 clinical manifestations of uraemia. (2 marks)
- c) List 4 risk factors for dialysis disequilibrium syndrome. (2 marks)
- d) List 4 clinical features of dialysis disequilibrium syndrome. (2 marks)
- e) Outline changes to dialysis orders to avoid the potential for dialysis disequilibrium syndrome. (2 marks)



Question 10:

Critically evaluate the use of fibrinogen replacement in the management of major traumatic haemorrhage:

- a) List the methods of fibrinogen replacement available (1 mark)
- b) Outline the rationale for use (2 marks)
- c) Outline the evidence (5 marks)
- d) My practice using fibrinogen replacement (2 marks)