

REPORT OF PAEDIATRIC INTENSIVE CARE FELLOWSHIP EXAMINATION

AUGUST/SEPTEMBER 2005

This report is prepared to provide candidates, tutors and their Supervisors of training with information about the way in which the Examiners assessed the performance of candidates in the Examination. Answers provided are not model answers but guides to what was expected. Candidates should discuss the report with their tutors so that they may prepare appropriately for the future examinations. See also overlapping comments in the report from the adult Intensive Care Fellowship Examination.

This is the final examination in this format. As from 2006, the Paediatric Intensive Care Fellowship Examination format will be identical to that of the adult Intensive Care Examination.

Two candidates presented for this examination. One candidate was successful.

WRITTEN SECTIONS

It is imperative that candidates answer the specific question asked. A structured, orderly response considering all aspects of management is required. Writing should be legible to allow candidates to gain optimal marks.

Feedback from examiners indicated that candidates would have been more likely to pass individual questions if they organised their answer in a way that demonstrated a broader knowledge, clearly demonstrating their priorities and included additional relevant detail. (See also report from General Fellowship Examination).

Short Answer Questions

1. Describe the anatomy of the paediatric tracheobronchial tree, as seen down a bronchoscope inserted via an endotracheal tube.
2. Compare and contrast the clinical and diagnostic features of ascending polyneuritis (Guillain Barre Syndrome), myasthenia gravis and motor neurone disease.
3. Critically evaluate the use and limitations of End-Tidal Carbon Dioxide measurement in Intensive Care practice.
4. Outline your principles of management in the transport of the critically ill paediatric patient.
5. Outline the clinical scenarios in which you would consider instituting dialysis in critically ill paediatric patients.
6. List the potential causes of anaemia in critically ill paediatric patients, and outline how you would determine which factors were contributory.

7. Outline the differences in management of multi-trauma occurring in a 6-year-old child, compared with management of multi-trauma occurring in an adult.
8. Compare and contrast the pharmacology of noradrenaline, vasopressin and phenylephrine when used as vasopressors in the critically ill.
9. Outline the limitations of CT scanning in the assessment of traumatic brain injury.
10. “The absence of evidence of effect does not imply evidence of absence of effect”. Please explain how this statement applies to evaluation of the medical literature.
11. Outline your principles of management of status epilepticus.
12. List the potential adverse effects of endotracheal intubation, and briefly outline how they can be minimised.
13. Outline the principles involved in the care of the paediatric organ donor.
14. Critically evaluate the role of anti-arrhythmic drugs in the management of cardiac arrest.
15. Outline the diagnostic features of pseudomembranous colitis and list the likely causes in patients in Intensive Care.

Long Answer Questions

The questions release information piecemeal and incompletely as in the clinical situation. Candidates should address issues related to the specific setting rather than broad generalities. The examiners apportioned marks according to difficulty and required time within each question. An organised/systematic approach is expected.

QUESTION 1

A 12-year-old male mountain bike rider crashes into a tree, resulting in a neck injury, and fractured lower left ribs. He now presents to hospital with shock and a painful distending abdomen.

- (a) Describe your initial management.
- (b) He returns from the operating theatre after a nephrectomy. He is haemodynamically stable, but little is known of his other injuries. What is your plan for the next 24 hours?
- (c) After another 24 hours it is clinically apparent that he has a complete spinal cord lesion at C4. What signs of this lesion are likely to be present?
- (d) How will you counsel the patient and the family?
- (e) What is your management plan for the patient?

QUESTION 2

A 3-month old baby is referred to you for management from the general ward following a deterioration in clinical respiratory status and an elevated PCO₂ as measured by capillary sample. The patient has bronchopulmonary dysplasia and is oxygen dependant.

Describe your assessment and management of this patient.

The following “GLOSSARY OF TERMS” was provided for both papers:

Critically evaluate:	Evaluate the evidence available to support the hypothesis.
Outline:	Provide a summary of the important points.
List:	Provide a list.
Compare and contrast:	Provide a description of similarities and differences (eg. Table form).
Management:	Generic term that implies overall plan. Where appropriate, may include diagnosis as well as treatment.

ORAL SECTIONS

Investigations section:

A systematic approach to the types of investigations examined was more likely to maximise the candidate's score.

Investigations often required correct identification of the aetiology, and a brief discussion of any treatment that is indicated. Specific investigations that were presented for discussion included:

- ECGs demonstrating Torsades de pointes, hyperkalaemia, WPW, right axis deviation and T wave inversion
- Arterial Blood Gas demonstrating metabolic acidosis
- Parasternal view of transthoracic echocardiogram demonstrating a dilated and poorly contracting LV
- CXR demonstrating pneumonia, and a depressed diaphragm with gastric air
- Electrolytes showing hypokalaemia and a high anion gap
- CT head demonstrating a Sub-Arachnoid Haemorrhage
- CSF cell examination, and an Abnormal Short Synacthen test.

Cross Table Viva Section

There were 2 structured Vivas of thirty minutes each.

Candidates should be able to provide a systematic approach for assessment and management of commonly encountered clinical scenarios. Candidates should also be prepared to provide a reasonable strategy for management of conditions that they may not be familiar with.

Example of topics discussed, with introductory questions include:

Resuscitation from drowning.

- **Introduction:** A 3-year-old girl has just been brought into the emergency department following an immersion. She appeared lifeless when extracted and following advanced ACLS there has been a Return Of Spontaneous Circulation. As you walk into the resuscitation room, having been called in from home, her mother senses you are in charge and asks “what are my child’s chances?” What will you say to her?

Inhalational injuries.

- **Introduction:** A 3-year-old found unconscious in her bedroom following a house fire develops an increasing A-a gradient and hypercarbia over the ensuing 24 hrs. What are the possible causes?

Acute asthma.

- **Introduction:** A 10-year-old known asthmatic girl is brought to your Intensive Care Unit with an acute exacerbation of her asthma. She had a respiratory arrest at home and was intubated by the ambulance officers. They report that she became pulseless on arrival at the hospital. Describe your initial management.

Subarachnoid haemorrhage.

- **Introduction:** A 15-year-old boy is admitted to the Emergency Department with a sudden onset of confusion and severe headache. He has no focal neurological signs but does show nuchal rigidity. CT scan reveals a subarachnoid haemorrhage. What is the likely cause?

Other topics discussed included:

- Indications for and technique for intubation of a patient with croup
- Technique for obtaining central venous access in a 3-month-old child
- Assessment of cardiac output in paediatric patients

The Clinical Section

The Clinical Section was conducted at the Paediatric Intensive Care Unit, at The Children’s Hospital at Westmead, Sydney.

Candidates should listen carefully to the introduction given by the examiners and direct their examination accordingly. Patients were presented as problem solving exercises. For maximal marks, candidates should demonstrate a systematic approach to examination, clinical signs should be demonstrated, and a reasonable discussion regarding their findings should follow. Exposing the patients should be limited to those areas that are necessary for that component of the examination, and in keeping with the modesty requirements of the patients.

Example of hot cases discussed (with some introductory questions) include:

- Eight month-old patient with a tracheostomy
Introduction: “Can you examine this patient with a view to understanding why he might need a tracheostomy and why he is on the ventilator?”
- Pneumonia in a 4-year-old.
Introduction: “This is a 4-year-old with a past TOF repair, who now presents with respiratory distress needing ventilation. Please examine her respiratory system.”

- Five month old child with cutaneous haemangioma and hepatomegaly presenting with increasing respiratory distress

Cases encountered as cold cases (with some introductory questions) included:

- 11 yr-old-girl with von Recklinghausen's disease
Introduction: "This 11-year-old girl presents in pre-anaesthetic clinic. She is scheduled for a liver biopsy. Please examine her with regard to her fitness for anaesthesia".
 - 12-year-old boy with congenital heart disease.
Introduction: "This is a 12-year-old boy who presented with fever and lethargy. We would like you to examine his cardiovascular system."
 - 7-month-old child hydrocephalus.
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**Chairman, Court of Examiners,
Chairman, Fellowship Examination Committee**

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