Question 1
A 67-year-old lady presents to the Emergency Department (ED) with a history of increasing Shortness of Breath over the last 2 days. She is brought in by ambulance and was given an anti-emetic on route. She has a past medical history of Diabetes Mellitus, Lung Cancer (NSCLC) and Hypertension

- Observations:

  Blood Pressure 89/60  Respiratory Rate 20/min
  Heart Rate 115  Temperature 37.4 degrees
  Oxygen Saturations 100%  (on 6 litres by Hudson Mask)

Describe and interpret the patient’s Electrocardiogram. (100%)

(Full Size ECG on next page)
Question 1 - ECG
Question 2

A 26-year-old professional cyclist has presented to the ED feeling unwell. He states he has been lethargic, nauseous and had strong smelling urine for the last 24 hours.

He has come by ambulance to the ED but has refused all treatment to this point. He states that he received a cycle of chemotherapy 3 days ago and is noted by triage to be ‘Hyperventilating’.

- Observations:

  Blood Pressure 110/82  
  Respiratory Rate 24/min
  Heart Rate 120  
  Temperature 37.0 degrees
  Oxygen Saturations 97%  
  (on room air)

a) Describe and interpret his blood gas results  (70%)
b) Outline your initial treatment in the ED  (30%)

(Blood Gas Results on next page)
Arterial Blood Gas Results for VAQ Question 2

**ABG – On Room Air**

- pH 7.19  
  (7.35-7.45)
- CO2 21 mmHg  
  (35-45)
- PO2 140 mmHg  
  (80-100)
- HCO3 11 mmol/L  
  (22-28)

- Na+ 135 mmol/L  
  (135-145)
- K+ 7.5 mmol/L  
  (3.6-5.0)
- Chloride 98 mmol/L  
  (94-110)

- Urea 41 mmol/L  
  (2.5-6.5)
- Creatinine 300 µmol/L  
  (45-90)

- BSL = 4.5 mmol/L  
  (3.8-6.8)
Question 3

A 40-year-old lady of South African descent presents to the ED with a history of a rash. She feels otherwise well. The rash is not itchy and is mostly on the anterior aspect of her legs.

She recently gave birth to a child (6 months ago) and is breastfeeding.

She recently returned from a 4 week holiday in Sub-Saharan Africa.

- Observations:
  
  Blood Pressure 130/90      Respiratory Rate 15/min
  Heart Rate 80              Temperature 36.2 degrees
  Oxygen Saturations 98%     (on room air)

  a) Describe and interpret the photo of the patient’s rash  (50%)
  b) Outline a Differential Diagnosis and Investigations  (50%)

(Clinical Photograph on next page)
Clinical Photograph – VAQ Question 3
Question 4

A 14-year-old girl presents to the Emergency Department with her parents complaining of Shortness of Breath.

Her symptoms have gradually worsened over the last 3 days.

Past Medical History includes Recurrent Abdominal Pain and Panic Disorder. Her medications include Citalopram and 'Ritalin'.

She has recently finished a course of antibiotics for a Urinary Tract Infection from her GP.

- Observations:

  - Blood Pressure 140/95
  - Respiratory Rate 20/min
  - Heart Rate 90
  - Temperature 37.2 degrees
  - Oxygen Saturations 99% (on 6L via Hudson Mask)

a) Describe and interpret the Patient’s Blood Results (70%)

b) Outline your Further Investigations (30%)

(Laboratory Results on next page)
Blood Results – VAQ Question 4

Full Blood Count

Haemoglobin 7.1 g/dL  (115-165)
WCC 6.5 x 10⁹/L  (4-11)
Platelets 230 x 10⁹/L  (150-4000)
MCV 102  (82-98)

Clinical Chemistry

Urea 7.1mmol/L  (2.5-6.5)
Creatinine 89 µmol/L  (45-90)
Na 133 mmol/L  (135-145)
K 5.9 mmol/L  (3.6-5.0)
Chloride  (94-110)
Bicarbonate 24 mmol/L  (22-28)

Liver Function Tests

Bilirubin 52 µmol/L  (<15)
AST 12 IU/L  (<35)
ALT 20 IU/L  (<30)
Alk Phos 120 IU/L  (30-110)
GGT 105 IU/L  (<35)
Albumin 42 mmol/L  (35-50)
Question 5

A 60 year old man presents to the Emergency Department with his partner complaining of increasing headache over 2 weeks associated with intermittent confusion and bizarre behaviour.

He has lost 10kg of weight in the last 4 months since returning from a business trip overseas and had a few bouts of loose stool since returning.

Past medical history includes Type II Diabetes (diet controlled) Irritable Bowel Syndrome and Gout treated with Allopurinol 300mg daily. The patient is keen to leave the ED as soon as possible.

- Observations:

<table>
<thead>
<tr>
<th>Blood Pressure 110/95</th>
<th>Respiratory Rate 15/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate 65</td>
<td>Temperature 37.9 degrees</td>
</tr>
<tr>
<td>Oxygen Saturations 98%</td>
<td>(on Room Air)</td>
</tr>
</tbody>
</table>

a) Describe and Interpret the Patient’s CT Head (100%)
ACEM Fellowship Examination – Emergency Medicine
2013-14 Practice Questions
VAQ (Part C)

Question 6

A 50-year-old lady presents to the Emergency Department with a GP letter stating that her “blood tests are abnormal and that she needs further review in hospital”.

She has had increasing shortness of breath for 3 months, on going cough and a single episode of haemoptysis. The GP has tried some Ventolin® with no significant effect.

Past Medical History includes Hypertension and Appendicectomy. She is otherwise well currently working as a secretary and living with her husband and two children who are well.

- Abnormal Blood Result – Calcium 2.92 (Corrected)

- Observations:
  Blood Pressure 120/80  Respiratory Rate 14/min
  Heart Rate 80  Temperature 37.1 degrees
  Oxygen Saturations 93%  (on Room Air)

a) Describe and Interpret the Patient’s Chest X-ray  (100%)

(CXR on next page)
Chest X-ray – VAQ Question 6
Question 7

A 66-year-old man with heavy smoking history and a diagnosis of COPD presents with shortness of breath and palpitations. He has had an increasing cough and sore throat over the last 2 days.

Medications include Tiotropium, Seretide and Salbutamol. The patient is not on home oxygen.

- Observations:
  - Blood Pressure 110/70
  - Respiratory Rate 25/min
  - Heart Rate 120 (irregular)
  - Temperature 37.7 degrees
  - Oxygen Saturations 91% (on Room Air)

Describe and interpret the patient’s 12 lead ECG (100%)

(12 Lead ECG on next page)
12 lead ECG – VAQ Question 7
ACEM Fellowship Examination – Emergency Medicine
2013-14 Practice Questions
VAQ (Part C)

Question 8

A 13-year-old boy presents to the Emergency Department after a sporting injury accompanied by the cricket team coach.

He was hit in the mouth with a cricket ball hit by a batter hitting the ball at him while he was fielding at “silly mid off”.

• Observations – within normal limits
• There are no other injuries

a) Describe and interpret the Clinical Photograph (60%)
b) Outline your immediate management priorities (40%)

(Clinical Photograph on next page)
Clinical Photograph – VAQ Question 8
Suggested Pass Criteria and Relevant Links

• Question 1

• Pericardial Effusion
• ECG showing low voltage complexes and ‘alternans’


TO PASS

1) Recognition of likely Pericardial Effusion with possible Tamponade and at least 3 DDx with PE as another possibility (given the NSCLC)
2) Appropriate Description of ECG – systematic
3) Implications - Critically unwell – Time Dependent Emergency

BONUS

4) Bonus marks for suggesting use of USS and potential Rx (Briefly)

• Question 2

• Tumour Lysis Syndrome


TO PASS

1) Recognition of an important Haematological Emergency
2) Appropriate Description of Bloods – systematic
3) Implications - unwell – admission required – IV fluids ++

BONUS

4) Needs Rasburicase/Allopurinol
• **Question 3**

• Erythema Nodosum


**TO PASS**

1) Recognition of rash – description - systematic

2) Appropriate Differential including Erythema Nodosum

3) Implications – patient is well – likely to resolve within 6 weeks but prob needs observation in hospital and consultation regarding cause

**BONUS**

4) A broad differential diagnosis and appropriate investigations (bedside, imaging and labs)

• **Question 4**

• Acute Haemolysis – broad differential required


**TO PASS**

1) Recognition of haemolysis

2) Appropriate Description of Bloods – systematic

3) Stop antibiotics – Treat underlying cause

**BONUS**

4) Reasonable Differentials – appropriate tests (LDH, Reticulocytes etc.)
• **Question 5**

• CT BRAIN - Ring Enhancing Lesions


• Description - [http://en.wikipedia.org/wiki/Ring-enhancing_lesion](http://en.wikipedia.org/wiki/Ring-enhancing_lesion)

**TO PASS**

1) Recognition of Ring Enhancing Lesions

2) Appropriate Differentials

• **Question 6**

• Hypercalcaemia
• Bilateral Lymphadenopathy
• ?Sarcoidosis


**TO PASS**

1) Recognition of two abnormalities – High Ca and CXR**

2) **Appropriate Description of CXR – Shows Lymphadenopathy**

3) Implications – well but has significant High Ca – differential and work up in ED

**BONUS**

4) Sarcoid as differential and other appropriate causes of CXR and High Ca.
• **Question 7**

  • BBB pattern with tachycardia (irregular) - Likely Multifocal Atrial Tachycardia associated with underlying COPD


  **TO PASS**

  1) Recognition of an irregular tachycardia - need at least 3 differentials

  2) Reference to M.A.T. – treating underlying COPD Exacerbation is important

• **Question 8**

  • Dental Injury – Ellis Class III

  • Avulsions - [http://lifeinthefastlane.com/minor-injuries-004](http://lifeinthefastlane.com/minor-injuries-004)

  • Lecture notes

  **TO PASS**

  1) Recognition of severe dental injury (don’t need to use ‘Ellis Class’)

  2) Naming System for Teeth and Appropriate Description