Bradford Teaching Hospitals NHS
NHS Foundation Trust

BRADFORD TEACHING HOSPITALS

EMERGENCY DEPARTMENT

E- LEARNING MODULES

&

CORE COMPETENCY WORKBOOK

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TABLE OF CONTENT

TABLE OF CONTENT

Work Place Based Assessments Templates

Appendix

INTRODUCTION

The Bradford Emergency Department would like to introduce an innovative, multi-faceted teaching programme for junior doctors. This new programme will launch in August 2009. It consists of three components, E-learning modules, Shopfloor teaching/assessment via Work Place Based Assessment (WPBA) templates and the use of Trust Pathways.

BACKGROUND

Teaching History

In the past we have used the standard weekly teaching to provide junior doctors with further education in emergency medicine. Junior doctor feedback has suggested that many doctors were unable to attend these teachings because of the departmental rotas, courses and holidays. An in-house audit of this process demonstrated a less than 40% attendance over a four month period. The Post Graduate Medical Education and Training Board (PMETB) 2009 feedback has also illustrated junior doctor dissatisfaction with total number of hours of weekly scheduled education activities.

Foundation Training

PMETB has instituted the use of e-portfolios and work placed based assessment with the advent of the 'Foundation Training Program'. This is to ensure that junior doctors are being assessed on a regular basis and that their progress is monitored. Currently, there are no set of WPBA templates that tie this process to college curriculum or competencies. A Bradford Emergency Department audit comparing 'template style' WPBA to standard WPBA has demonstrated a greater trainee satisfaction using this method.

Online Teaching

Online education has become common place. There are thousands of high quality, interactive E-learning modules available from a varied of reliable sources. Many of these are suitable for junior doctor emergency medicine teaching. In the last two years Doctors.net and The College of Emergency Medicine have created a library of such modules. These resources are often overlooked and underused.

E-LEARNING MODULES OVERVIEW

Our choice of e-learning modules is designed to help you cover the core topics of emergency medicine during your time at the Bradford Teaching Hospitals Emergency Department. We have a selected thirteen modules. Theses modules are also relevant for other specialities including The Vocational Training Scheme (VTS). Once a modules is completed, we would like you to print off the certificates, as proof of completion, and attach them to your workbook. Before completing the e-learning modules you will need to obtain a password for the Doctors Net website.

Logging onto Doctors. Net

1) Log onto www.doctors.net.uk
2) Click the education bar at the top of the page.
3) Click onto the College of Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page from which the majority of modules can be selected and completed.

WPBA TEMPLATES OVERVIEW

These templates have been created to focus your educational experience to the most relevant emergency medicine scenarios while at the same time completing your e-portfolio work place based assessments. They all correspond with the online modules. These templates consist of two components, an Objective Structured Clinical Examination (OSCE) section and an Question/Answer Understanding section. The OSCEs are set at the level of membership exams and in part have been directly taken from The College of Emergency Medicine exam scenarios.

The Understanding section is designed to promote, case based, discussion around the topic and is subdivided into Basic Sciences, Applied Sciences and Advanced Sciences. These questions are meant to be difficult and should help you identify areas of strengths and areas for improvement.

PROCESS

1. Every day except weekends/holidays the 7:00 am and the 11:00 am starters will be given one hour and 30 minutes to complete the online module and to have lunch. The computers in the resource room or in clinic area should be used to insure privacy. The 7:00 am starter should be dismissed at 11:00 am and the 11:00 starter at 13:00. They should be back on the shop floor at 12:30 and 14:30 respectively. The only exceptions our the FY-2 doctors on Rota numbers 8, 9 and 10. They will be alloted time at the beginning of their 18:00 - 4:00 shift and should be back on the shop floor at 19:00.
2. After completing the module, print the certificate and attach it to the workbook.
3. The trainee will then choose one of the WPBA templates associated with the module that they have just completed. The doctor must then identify an appropriate patient and a senior doctor (Cons, SpR, ST3, staff grade, or associate specialist) to complete the WPBA. If an appropriate patient is not identifiable another unrelated WPBA from the workbook or WPBA Template bank (found on the intranet) can be used.
4. The patient should be verbally consented and this should be documented in the notes.
5. The senior doctor will then assess the trainee using the WPBA (OSCE) sheet in the doctors workbook and complete the competency form as appropriate.
6. The questions on the back of the templates are designed to promote discussion and one-to-one teaching around the topic and tests the doctors level of understanding. They are not part of the overall competency.
7. There should be feedback on the assessment prior to completion of the trainees e-portfolio online. The type of WPBA (DOPS, CBD, CEX) entry should be obvious from the OSCE type but they have been designed to give a degree of flexibility.
8. The trainee must complete an audit form. The audit forms are located with all the forms in the central area under ‘WPBA Audit’. There is also one in the back of this booklet. The completed audit forms should be left with the secretaries.
9. There may be unforeseeable circumstances that will not allow this process to take place such as staff illness, departmental issues like multiple critically unwell patients, polytrauma etc.

   We will make every effort to ensure that this process is successful.

TIME FOR TEACHING

Our junior doctor rota consists of twenty doctors. We have twelve FY-2s, who are on four month attachments and seven VTS trainees plus one extra who are on 6 month attachments. The FY-2s will get on average 8.75 (range 5-10) time slots plus two days for generic skills teaching and two days for induction. This is approximately 50 hours of dedicated study time in a four month period.

The VTS trainees will get ten allocated time slots plus nine days of VTS Tuesday teachings, two days of induction and they will also be able to apply for short courses. This is over 64 hours of dedicated study time.

GOALS OF NEW TEACHING MODEL

- To achieve a high level of teaching/training/competency by combining E-learning with Template style WPBA and established Trust Pathways.
- To maintain a scheduled time slot for junior doctor teaching.
- To provide one-to-one teaching to junior doctors.
- To focus on the core content of emergency medicine curriculum that correspond to the curriculums of other colleges.
- To be compliant with the NICE competencies for ‘ Recognising and Responding to Acutely Ill Patients in Hospital’ document for junior doctors.
- To give junior doctors ownership and responsibility for their own education.
- To ensure that trust pathways are known about and used properly
- To provide a emergency medicine core competency certificate.

COMPETENCY LIST

1 CHEST PAIN AND ECG

- Module to complete from www.doctors.net.uk
- Complete one on the following WPBAs: ECG Teaching, Cardiovascular Examination, Consent for Thrombolysis History
- Assess and refer a patient with an acute myocardial infarction (AMI) following the Trust AMI Pathway or use the Acute Coronary Syndrome (ACS) Pathway.

2 PARACETOMOL OVERDOSE

- Module to complete from www.doctors.net.uk
- Complete the Paracetamol Overdose WPBA
- Assess and refer a patient with a paracetomol poisoning following the Trust Overdose Pathway.

3 SEPSIS PATIENT

- Module to complete from www.doctors.net.uk
- Complete the ABG Procedure WPBA
- Assess and refer a patient with Sepsis following the Departmental Sepsis Pathway.

4 COLLAPSE/BLACKOUT

- Module to complete from www.doctors.net.uk
- Complete the Syncope WPBA
- Assess and refer a patient with a Syncope using the Departmental Syncope Pathway.

5 ANAPHYLAXIS

- Module to complete from www.doctors.net.uk
- Complete the Anaphylaxis WPBA

6 ASSESSMENT OF THE SERIOUSLY ILL PATIENTS (Adult)

- Module to complete from www.doctors.net.uk
- Complete the ALS WPBA

7 ASSESSMENT OF PAEDIATRIC SERIOUS ILLNESS

- Module to complete from www.doctors.net.uk
- Complete the Paediatric Difficulty Breathing WPBA

8 ASSESSMENT AND MANAGEMENT OF THE PSYCHIATRIC PATIENT

- Module to complete from www.doctors.net.uk
- Complete the Psychiatric History WPBA

9 BASIC CXR INTERPRETATION

- Module to complete from www.doctors.net.uk
- Complete the CXR Interpretation WPBA

10 DIABETIC KETOACIDOSIS

- Module to complete from www.doctors.net.uk
- Complete the ABG Procedure WPBA

11 HEAD INJURY

- Module to complete from www.doctors.net.uk
- Complete the Head Injury AND the Neck Injury WPBAs

12 ACUTE CONFUSIONAL STATE

- Module to complete from www.doctors.net.uk
- Complete Acute Confusional State WPBA

13 ALCOHOL AWARENESS

- Module to complete from www.alcohollearningcentre.org.uk/

COMPETENCY 1

CHEST PAIN AND ECG MODULE

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website .

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the DIAGNOSIS AND MANAGEMENT OF MYOCARDIAL INFARCTION link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

a. Complete a cardiology WPBA template

b. Assess and refer a patient with an acute myocardial infarction (AMI) following the Trust AMI pathway or assess and treat a patient using the ACS trust pathway.

Doctor_____, has completed Part 1, Part 2: a, b, (circle as appropriate) of this competency.

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment: Signature_____ Name_____ Date / /09

COMPETENCY 2

PARACETOMOL OVERDOSE MODULE

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website .

Follow the link below.

Log onto www.doctors.net.uk

1. Click the education bar at the top of the page.
2. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
3. Click on the PARACETAMOL POISONING link
4. Complete the module, print off the certificate and attach to back of this page.

Part 2

a. Complete the paracetamol WPBA template

b. Assess and refer a patient with a paracetomol poisoning following the Trust overdose pathway.

Doctor_____, has completed Part 1, Part 2: a, b, (circle as appropriate) of this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 3

SEPSIS PATIENT

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website .

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the INITIAL MANAGEMENT OF THE SEPTIC PATIENT link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

a. Complete the ABG WPBA template

b. Assess and refer a patient with a sepsis following the departmental sepsis pathway. Copy of pathway in the folder.

Doctor_____, has completed Part 1, Part 2: a, b, (circle as appropriate) of this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 4

COLLAPSE / BLACK OUT

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the COLLAPSE/BLACKOUT link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

a. Complete the syncope WPBA.

b. Assess and refer a patient with a Syncope using the Departmental Syncope Pathway.

Doctor_____, has completed Part 1, Part 2: a, b, (circle as appropriate) of this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 5

ANAPHYLAXIS MODULE

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the ANAPHYLAXIS MODULE link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the Anaphylaxis WPBA template.

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 6

INITIAL ASSESSMENT OF THE SERIOUSLY ILL PATIENTS

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the INITIAL ASSESSMENT OF THE SERIOUSLY ILL PATIENTS link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete one of the ALS WPBA templates.

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 7

ASSESSMENT OF PAEDIATRIC SERIOUS ILLNESS

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the ASSESSMENT OF PAEDIATRIC SERIOUS ILLNESS link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the Paediatric Difficulty Breathing WPBA templates.

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 8

ASSESSMENT AND MANAGEMENT OF PSYCHIATRIC PATIENT

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the link ASSESSMENT AND MANAGEMENT OF AN ABUSIVE PATIENT WITH SELF HARM
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the Psychiatric History WPBA template

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 9

BASIC CXR INTERPRETATION

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Core training Bar on the left side of the page
4. Click on the Radiology link
5. Click on the 'basic cxr interpretation' tab
6. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the CXR Interpretation WPBA

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 10

DIABETIC KETOACIDOSIS

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website .

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the DIABETIC KETOACIDOSIS link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the ABG Procedure WPBA

Assess and refer a patient using the trust DKA pathway.

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 11

HEAD INJURY

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the HEAD INJURY link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the Head Injury and the Neck Injury WPBA template.

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 12

ACUTE CONFUSIONAL STATE

Part 1

Complete the module and print off the certificate of completion from the www.doctors.net.uk website.

Follow the link below.

1. Log onto www.doctors.net.uk
2. Click the education bar at the top of the page.
3. Click onto the Emergency Medicine Bar on the left side of the page and this will take you to the College of Emergency Medicine Enlightenme page.
4. Click on the ACUTE CONFUSIONAL STATE link
5. Complete the module, print off the certificate and attach to back of this page.

Part 2

Complete the Acute Confusional State WPBA template.

Doctor_____, has completed this competency to the level of:

Standard	Comment box
☐ above expectations ☐ meets expectations ☐ below expectations	

Signature _____ Name_____ Date / /09

Follow-up Assessment Signature_____ Name_____ Date / /09

COMPETENCY 13

Alcohol module training module

There is a alcohol awareness programme running in the department as you were made aware at the induction.

You need to complete the online module for this as well

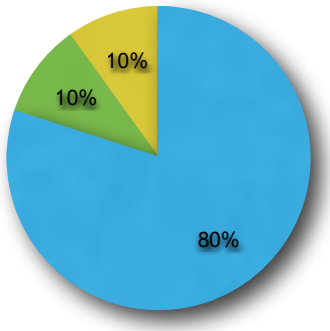
- Go to http://www.alcohollearningcentre.org.uk/
- Click onto the elearning box
- then click onto the IBA elearning course which should lead you the following link http://www.alcohollearningcentre.org.uk/eLearning/IBA.
- Click START LEARNING box

Please complete the module may take up to 90 minutes and print off the certificate and attach it to the back of this page.

Cardiovascular Examination

History: This patient is experiencing chest pain.

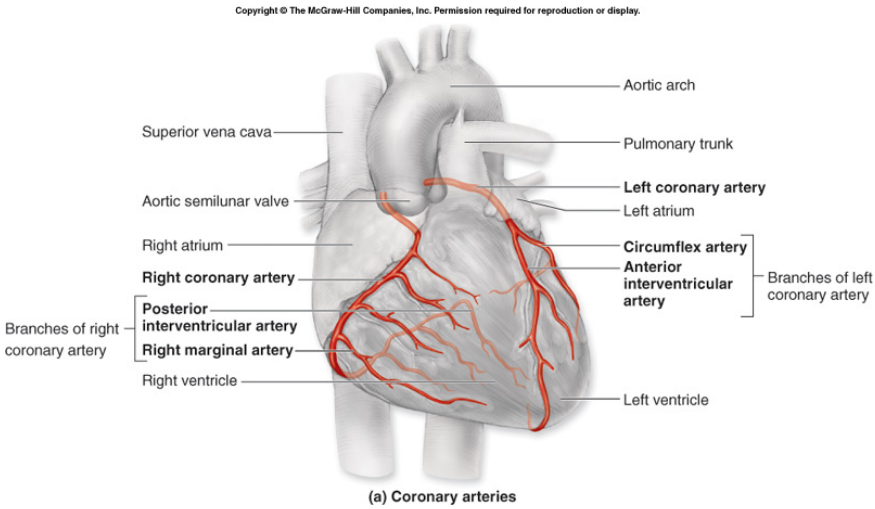
Task: Examine the cardiovascular system, present your findings and suggest further management.



Marking Criteria	Not Completed	Partially Completed	Completed
Washed hands, introduction, confirms patient identity, explanation of process, ensures comfort			
Checks notes, X-rays & ECGs			
Exposes chest			
Inspects chest from end of bed Comments on general appearance – including anaemia, central cyanosis, breathlessness			
Examines both hands and comments on: clubbing, splinter haemorrhages, Koilonychia, nail fold infarcts, Osler's nodes / Janeway lesions, colour, temperature			
Checks radial pulse (rate and rhythm), brachial (character)			
Positions patient at 45 degrees, correctly identifies JVP			
Checks face (Cyanosis, Anaemia, Arcus, Malar flush)			
Checks carotid pulse			
Locates the apex beat (5th ic space mc line)			
Feels for heaves and thrills and correctly relays findings			
Auscultates heart in 4 areas: mitral area, tricuspid area, pulmonary area, aortic area			
Rolls onto left side for Mitral murmur (Axilla)			
Sits forward and listens for aortic murmur at end expiration			
Listens to carotids bruit & murmur			
Listens to back for VSD or PDA murmur			
Percussion and auscultation of lung bases			
Examines abdomen for ascites, hepatomegaly, AA, kidneys, renal artery bruits, sacral oedema			
Checks for ankle oedema/ peripheral pulses			
Helps patient get dressed again			
Thanks patient			
Summarises findings succinctly			
Makes appropriate diagnosis			
Suggests need for BP, ECG, echo, blood cultures, urine dip			
Overall			

Cardiovascular Examination

Level 1 Understanding (basic sciences)
Draw the coronary circulation.



Level 2 Understanding (applied sciences)
Describe the anatomical relationship of the heart in terms of area (inferior, lateral, anterior, etc) with the corresponding arterial and ECG lead locations.

Anterior = LCA = I + aVL

Anteroseptal = LAD = V1-3

Anterolateral = CX = V1-6

Septal = LAD = V2-4 only

Lateral = CX = V4-6, +/- I & aVL

Inferior = RCA = II +III + aVF

Inferolateral = RCA/CX = II + III + aVF + V4-6

Apical = RCA/LAD = II + III + aVL + V2-4

Posterior = RCA = R/S ratio >1 in V1 and V2; T-wave changes (ie, upright) in V1, V8, and V9

Right ventricular = RCA = RV4, RV5

Level 3 Understanding (advanced sciences)

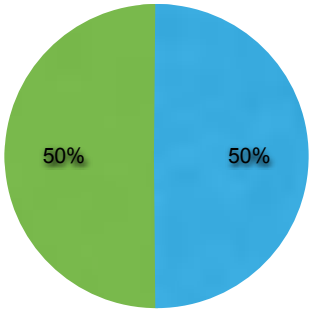
Focused transthoracic echocardiogragraphy is being used more often in the in the acute setting.
What are the advantages and disadvantages of this diagnostic test?
Advantages: noninvasive, goal-directed, repeatable, rapid, direct information about cardiac structure and function
Disadvantage: training, acceptance, not comprehensive, limitations in coronary and pulmonary anatomy

What are the primary indications?
Cardiac arrest, pericardial effusion, massive pulmonary embolism, assessment of left ventricular function, unexplained hypotension, estimation of central venous pressure

ECG Teaching

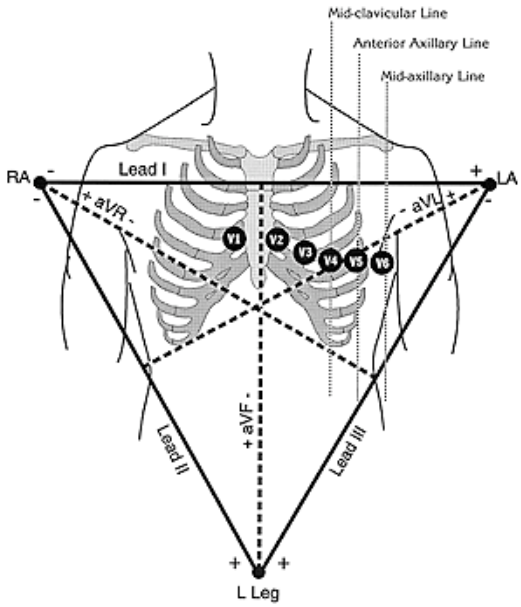
History: This member of staff wishes to understand more about ECGs.

Task: Provide a short teaching on ECG interpretation



Marking criteria	Not Completed	Partially Completed	Completed
Ask for any pertinent history about the patient			
Mentions standard paper and standard speed			
Shows how to assess rate (300/num of big boxes between consecutive R)			
Shows how to assess rhythm (p before each qrs, uses pen and paper assess regularity)			
Shows how to assess axis (normal I, II pos; L axis pos I, neg II; R axis I and II neg)			
If p waves present are they normal size and 1 with each QRS (sinus)			
Define PR interval (atrial contraction, 0.12-0.2 s, 3-5 small squares)			
Discusses significance of PR interval (heart blocks, conduction delays)			
Defines the QRS (ventricular contraction, <0.12 or three small squares)			
Discusses the significance of abnormal QRS (bundle branch blocks)			
Defines QRS amplitude (R wave in V5-6 or S in V2 >35mm)			
Defines Q waves and significance (should not be > one small box or 25% of R)			
Looks for T wave inversion (always abnormal if in I, II, V4-6)			
Discusses significance of T wave inversion			
Looks for ST elevation/depression			
Discusses the significance of ST elevation/depression			
Looks for other findings - delta wave, U wave			
Discusses significance of delta and U waves (hypokalaemia)			
Checks that the student understands what has been explained			
Asks student if they have any questions			
Overall			

ECG Teaching



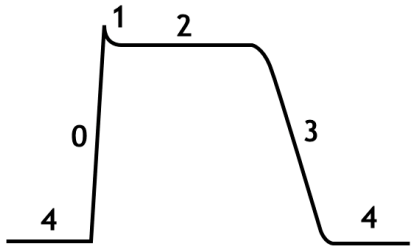
Level 1 Understanding (basic sciences)

Draw Einthoven's Triangle.

What are the positions of the chest electrodes?
V1: right 4th intercostal space
V2: left 4th intercostal space
V3: halfway between V2 and V4
V4: left 5th intercostal space, mid-clavicular line
V5: horizontal to V4, anterior axillary line
V6: horizontal to V5, mid-axillary line

Level 2 Understanding (applied sciences)

Discuss the common lead reversals and their findings.



Right leg and right arm:
- Hardly any signal in lead II.

Right and left arm electrodes:
- reversal of leads II and III
- reversal of leads aVR and aVL

Left arm and left leg:
- reversal of leads I and II
- reversal of leads aVR and aVF
- inversion of lead III

Right arm and left leg:
- inversion of leads I, II and III
- reversal of leads aVR and aVF

Dextrocardia will not show any R wave progression in leads V1-V6, whereas lead reversal will.

Level 3 Understanding (advanced sciences/management)

Draw and Discuss the phases of cardiac action potential.
Phase 4: resting membrane potential, high K permiability
Phase 0: rapid depolarisation, opening of fast Na channels
Phase 1: inactivation of fast Na channels, net outward current of K and Cl
Phase 2: Ca inward movement, K outward
Phase 3: rapid repolarisation, Ca channels close, net outward flow of positive current

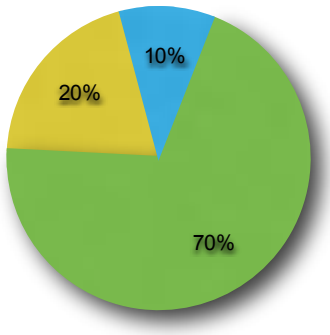
How does amiodarone effect the cardiac action potential?
Class III antiarrhythmic agent, and prolongs phase 3 of the cardiac action potential

The resting membrane potential is caused by the difference in ionic concentrations and conductances across the membrane of the cell during phase 4 of the action potential. This potential is determined by the permeability of the cell membrane to various ions. The membrane is most permeable to K+ and relatively impermeable to other ions. The resting membrane potential is therefore dominated by the K+ equilibrium potential according to the K+ gradient across the cell membrane. The maintenance of this electrical gradient is due to various ion pumps and exchange mechanisms, including the Na+-K+ ion exchange pump, the Na+-Ca2+ exchanger current and the IK1 inwardly rectifying K+ current.

Thrombolysis History

History: This patient has chest pain and ST elevation on the ECG. The PCI lab is full.

Task: Determine this patients' suitability for thrombolysis.



Marking criteria	Not Completed	Partially Completed	Completed
Washed hands, introduction, patient identity			
Reviews notes, ECG, CXR (mediastinum)			
Reviews patient: asks timing of pain			
Offer analgesia			
Establishes patients knowledge			
Warfarin			
Haemophilia			
Severe liver disease			
Thrombocytopenia			
Stroke			
Recent surgery			
Trauma +/- Resuscitation			
Proliferative eye bleeding or vitreous haemorrhage			
Upper & lower GI bleeding			
Serious vaginal bleeding			
Pregnancy			
Hypertension Sys BP >200mmHG, Dia > 120			
History suggestive of Dissection			
Aortic aneurysm			
Previous streptokinase			
Previous allergies			
1-2% Bleed rate			
Asks for questions			
Asks patient her decision?			
Organises treatment			
Thanks patient			
Overall			

Thrombolysis History

Level 1 Understanding (basic sciences)

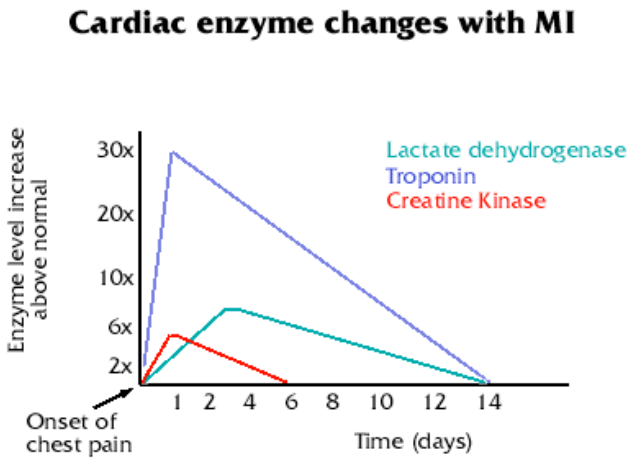
Describe the evolution of a ST elevation (Q wave) myocardial infarction as seen on a ECG in terms of minutes, hours, days.

Minutes to hours: peaked T wave, Hours: ST elevation, Hours to days: T wave inversion and loss of R Wave, Days: Q wave (>0.04 sec in duration and >25% height of total QRS)

In non-ST elevation MI the timing is variable and the ECG shows horizontal ST depression and deep inverted T waves.

Level 2 Understanding (applied sciences)

Draw a graph representing the elevation of three cardiac enzymes in myocardial infarction with relation to time.



Lactate dehydrogenase: rises slowly, peaks at 3 days, remains elevated for 12-14 days

Troponin I: rises quickly, peaks 12 hours, remains elevated for 7-14 days

Creatine kinase: moderate early rise, peaks 24 hours, remains elevated for 2-6 days

AST rises 12 hours, peaks 36 hours, remains elevated for 3 days

LDH1 rises 18 hours, peaks 48 hours, remains elevated for 5 days

Level 3 Understanding (advanced sciences/management)

What is the TIMI score?

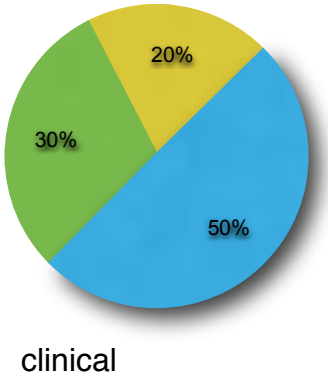
List five components of the TIMI score

TIMI = Thrombolysis in Myocardial Infarction trials. (Age ≥65 years, ≥3 CAD risk factors, Prior CAD (stenosis >50%), Aspirin in last 7 days, ≥2 anginal events in ≤24 hours, ST deviation >/= 0.5mm, Elevated cardiac markers

Score	Risk Factor
0-1	4.7%
2	8.3%
3	13.2%
4	19.9%
5	26.2%
6-7	40.9%

The score (0-7) gives the risk of cardiac events (death, MI or urgent revascularisation) within 14 days in TIMI IIB.

Paracetamol Overdose History



History: This patient has taken an overdose of paracetamol.

Task: Take a history, determine this patients suicide risk and briefly discuss your management plan.

Marking criteria	Not Completed	Partially Completed	Completed
Washes hands, Introduction, Confirms identity of patient			
Establishes rapport			
Asks about events leading up to the suicide attempt			
Determines what has been ingested			
Determines amount/timing/and if staggered			
Asks about past medical history including Liver disease, malnutrition/anorexia, alcoholism, cystic fibrosis and AIDS			
Asks about drug history including enzyme inducing drugs (PCBRAS): phenytoin, carbamazepine, barbiturates, rifampacin, alcohol, St. Johns wart			
Assess patient suicide risk			
Uses SAD PERSON score Sex male (1) Age<19->45 (1) Depression or hopelessness (2) Previous suicide or psychiatric care (1) Excessive alcohol or drug use (1) Rational thinking loss (2) Separated, widowed or divorced (1) Organized or serious attempt (2) No social support (1) Stated future intent (2)			
Interpretation of sad persons score <8 discharge after medically fit and psych consult >8 likely to require hospital admission			
Shows compassion			
Uses open ended questions were appropriate			
Explains to patient need for bloods/treatment (charcoal/NAC) and psychiatric review			
Avoids medical jargon, invites questions, thanks patient			
Overall			

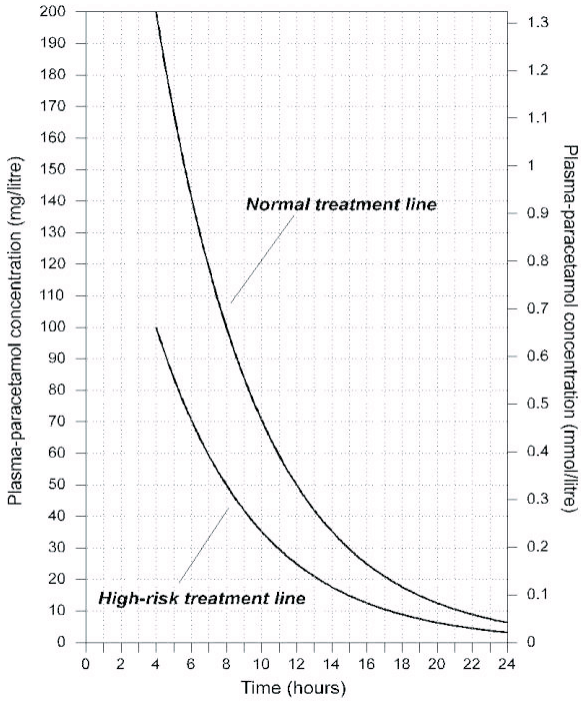
Paracetamol Overdose History

Level 1 Understanding (basic sciences)

Describe the mechanism of paracetamol toxicity:
Paracetamol (Acetomenaphine) is metabolizes by multiple liver enzymes.
Liver toxicity is secondary to overwhelming levels of NAPQI, a metabolite of paracetamol produced by cytochrome P450. This metabolite depletes glutathione stores which can result in liver failure. N-acetyl-cysteine is the central molecule of glutathione.

Level 2 Understanding (applied sciences)

Draw the Rumack-Matthew nomogram:



What are the dose calculations for Parvolex (NAC):
150mg/kg in 200ml 5% Dex over 15min
50mg/kg in 500ml 5% Dex over 4 hours
100mg/kg in 1000ml 5% Dex over 16 hrs

Describe your management plan during the following intervals:
<4hrs: Charcoal (<1hr), 4hr bloods levels
4-8hrs: levels, start NAC if bloods not available at 8hrs & >150mg/kg ingested
>8hrs: start NAC if ingestion is >150mg/kg or 12g

Level 3 Understanding (advanced sciences/management)

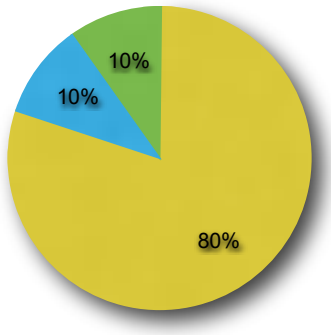
What other antidote is available in paracetamol overdose, when and how is it given?
Methionine may be given to late presenters >12 hours (2-5g every 4hrs to 10g total) not effective post charcoal

In serious untreated overdoses
What symptoms would you expect to see over the next 5 days?
Pain and tenderness over liver >24 hrs, Hypoglycaemia 1-3 days
Jaundice 2-4 days
Hepatic encephalopathy 3-5 days
What are the criteria for referral to the liver unit:
pH <7.3 post resuscitation, PT >100 sec, (INR>6.7), creatinine >300micromole/l with grade 3 or 4 hepatic encephalopathy

Arterial Blood Gas Procedure

History: This patient requires a arterial blood gas.

Task: Perform an arterial blood test.



Marking criteria	Not Completed	Partially Completed	Completed
Washes hands, Introduction, Confirms patient identity			
Discusses procedure with patient / Obtains consent			
Checks concentration of oxygen the patient is breathing, ensure oxygen remains at a constant for 15 minutes prior to sample			
Locates artery of choice by palpation with two fingers (radial, brachial, femoral)			
Allen's test for radial artery: 1. Ensures no surgical shunt or PVD 2. Asks patient to make fist 3. Applies pressure to radial and ulnar arteries 4. Asks patient to open hand (now pale) 5. Releases pressure over ulnar artery Positive test: refill in <4 sec. Negative test: prolonged or no refill			
Cleans area with chlorhexidine solution / allows time to dry / dawns gloves / expresses syringe contents			
Relocate the artery and leave a gap between fingers for insertion of needle into artery (optional)			
Angles needle 30 degrees (60 for femoral) opposite the blood flow and advances needle slowly until flashing pulsation of blood is seen			
If needle advanced to far, withdraws slowly			
If redirection required, withdraws almost to skin surface			
Withdraws 2-3 mls of blood, removes needle quickly and applies pressure with sterile gauze, 5 minutes			
Safely removes and disposes of needle			
Expels air bubbles / caps syringe immediately			
Analysis sample immediately			
Returns to patient to assess puncture site / thanks patient			
Documents procedure in notes, thanks patient			
Overall			

Arterial Blood Gas Procedure

Level 1 Understanding (basic sciences)

Describe the advantages / disadvantages and potential contraindications of arterial blood sampling from the radial brachial and femoral arteries.

Artery	Positioning of patient	Angle of needle to skin (º)	Puncture site	Important anatomical structures in proximity to puncture site	Advantages	Disadvantages	Contraindications
Radial	Arm extended and supported on pillow with wrist extended 20˚	30	Proximal to proximal transverse crease lateral aspect of wrist		Easily accessible Easily compressible, therefore useful if there is known bleeding tendency	Venous sample may be obtained	Buerger's disease Raynaud's disease Arteriovenous dialysis shunt present or imminent Absent ulnar collateral circulation
Brachial	Arm extended and supported on pillow	30	Medial to biceps tendon in antecubital fossa	Median nerve medial	Easily accessible	End artery, therefore theoretical risk of ischaemia. Venous sample may be obtained	Arteriovenous fistula in arm. Elbow fractures
Femoral	Supine	60	Mid inguinal point 2 cm below inguinal ligament	Femoral nerve lateral Femoral vein medial	May be the only quickly accessible artery in the shocked patient	Venous sample more likely than at other sites	Severe peripheral vascular disease. Aortofemoral bypass surgery

List four complications of ABG sampling and outline measures to prevent them.

Haematoma: Adequate pressure post removal of needle;
Arterial occlusion (thrombus / dissection): avoid repeated attempts;
Infection arteritis / cellulitis: wash hands, prep skin, wear gloves, avoid infected areas;
Embolization: express contents of syringe, avoid repeated attempts, apply direct pressure;

Level 2 Understanding (applied sciences)

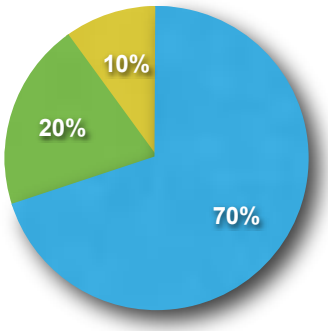
What measurements can be obtained from an ABG?
Partial pressures of carbon dioxide (PaCO2) and oxygen (PaO2), hydrogen ion activity (pH), total hemoglobin (Hbtotal), oxyhemoglobin saturation (HbO2), dyshemoglobins carboxyhemoglobin (COHb) / methemoglobin (MetHb), electrolytes, Lactate

Level 3 Understanding (advanced sciences/management)

What is the calculation for anion gap?
(Na + K) - (HCO + Cl) = (12-16mmol)

What are the causes of an increased gap metabolic acidosis?
MUDPILES
Methanol, Metformin, Uraemia, DKA, Paraldehyde, Isoniazid, Lactate, Ethylene glycol, Starvation, Salicylates, Sulfates

Syncope History



History: This patient has suffered with a collapse.

Task: Take a history, discuss the important features in the examination and suggest the appropriate investigation.

history communication clinical

Marking criteria	Not Completed	Partially Completed	Completed
Washes hands, introduction			
Asks for account of circumstances surrounding episode Precipitant (heat, fatigue, alcohol, pain, emotional) Position (lying, standing, sitting) Activity (rest, exertion, change in posture, coughing)			
Asks about presyncopal symptoms feeling faint or dizziness, vertigo, weakness, sweatiness, nausea, visual changes, paraesthesias, aura			
Asks specifically about headache and chest pain, palpatations, diplopia, neurological deficit			
Asks if patient remembers striking the ground			
Asks about duration of loss of consciousness (seconds arrhythmia, minutes vasovagal)			
Asks about postsyncopal symptoms oral trauma, myalgia, confusion			
Asks specifically about trauma resulting from collapse			
Asks history from witnesses Convulsive activity, duration, post event confusion			
Asks about repeated episodes			
Takes PMH			
Takes Drug history			
Takes Family history			
Explains need for complete cardiovascular exam			
Explains need for ECG, BM, beta HCG, pregnancy test in young females, rectal exam +/- FBC haematocrit			
Summerises findings, avoids medical jargon			
Invites questions, Thanks patient			
Overall			

Syncope History

Level 1 Understanding (basic sciences)

How would you categorize the cases of syncope?

Cardiac: Low output states (valvular, CCF, cardiomyopathy), Ventricular arrhythmias, SVT, WPW, Brugada syndrome, prolonged QT syndrome, Bradyarrhythmias, hypertrophic obstructive cardiomyopathy, MI, aortic dissection, tamponade

Non-cardiac: vasovagal, dehydration, situational syncope, neurologic

Level 2 Understanding (applied sciences)

What are the DVLA guidelines for syncope and driving?

Neurological disorders	Group 1	Group 2
1. Simple Faint Definite provocational factors with associated prodromal symptoms and which are unlikely to occur whilst sitting or lying. Benign in nature. If recurrent, will need to check the 3 "Ps" apply on each occasion (provocation/prodrome/postural).	No driving restrictions. DVLA need not be notified.	No driving restrictions DVLA need not be notified
2. Loss of consciousness/ loss of or altered awareness likely to be unexplained syncope and **low risk** of re-occurrence These have no relevant abnormality on CVS and neurological examination and normal ECG.	Can drive 4 weeks after the event.	Can drive 3 months after the event.
3. Loss of consciousness/ loss of or altered awareness likely to be unexplained syncope and **high risk** of re-occurrence Factors indicating high risk: (a) abnormal ECG (b) clinical evidence of structural heart disease (c) syncope causing injury, occurring at the wheel or whilst sitting or lying (d) more than one episode in previous six months. Further investigations such as ambulatory ECG (48hrs), echocardiography and exercise testing may be indicated after specialist opinion has been sought.	Can drive 4 weeks after the event if the cause has been identified and treated. If no cause identified, then require 6 months off.	NB Cough Syncope as above Can drive after 3 months if the cause has been identified and treated. If no cause identified, then licence refused/revoked for one year.
4. Presumed loss of consciousness/loss of or altered awareness **with** seizure markers The category is for those where there is a strong clinical suspicion of epilepsy but no definite evidence. The seizure markers act as indicators and are not absolutes – unconsciousness for more than 5 mins. -amnesia greater than 5 mins -injury -tongue biting -incontinence -remain conscious but with confused behaviour -headache post attack	1 year refusal/ revocation.	5 years refusal/revocation.
5. Loss of consciousness/loss of or altered awareness **with no** clinical pointers This category will have had appropriate neurology **and** cardiac opinion and investigations but with no abnormality detected.	Refuse/revoke 6 months	Refuse/revoke 1 year

Level 3 Understanding (advanced sciences/management)

Name a syncope scoring system and it's components:

San Francisco Syncope Rule, The mnemonic is CHESS:

- C - History of congestive heart failure
- H - Hematocrit < 30% (packed red cell volume ie anaemia)
- E - Abnormal ECG
- S - Shortness of breath
- S - Triage systolic blood pressure < 90

OESIL Risk Score

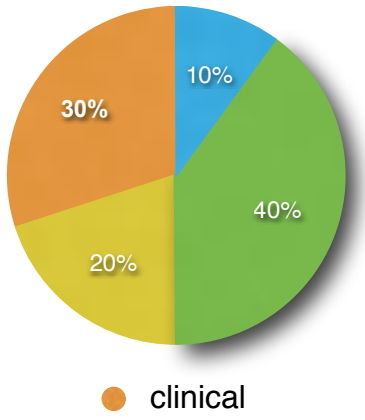
Age >65, history of cardiovascular disease, syncope without prodrome, abnormal ECG

ACP and ACEP also have admission guidelines

Anaphylaxis Examination

History: This patient is having an allergic reaction

Task: take a brief history, perform a physical examination, describe your management plan including drugs and doses.



Marking criteria	Not Completed	Partially Completed	Completed
Washes hands, introduction			
Assesses patient with a ABCDE approach			
Quickly determines severity of reaction and appropriateness of location/current treatment			
Comments on stridor if present			
Comments on facial/oral swellings (lips, tongue, oral phalanx)			
Avoids stimulating the gag reflex			
Applies oxygen			
Palpates the anterior neck, (gently)			
Auscultates the chest			
Checks pulse			
Asks for noninvasive monitoring (ECG, BP, SpO2), and temperature and BM			
Starts treatment immediately if not previously			
Asks for help early			
Obtains IV access +/- fluids			
Exposes patient and looks for urticaria			
Asks for history of events preceding reaction			
Takes a past medical history			
Takes a drug history			
Takes a allergy history			
Explains to patient the condition and avoids medial jargon			
Invites questions			
Summarizes findings and treats patient appropriately			
Comment on need to report drug and vaccine reaction to the Committee on Safety of Drugs			
Invites questions, Thanks patient			
Overall			

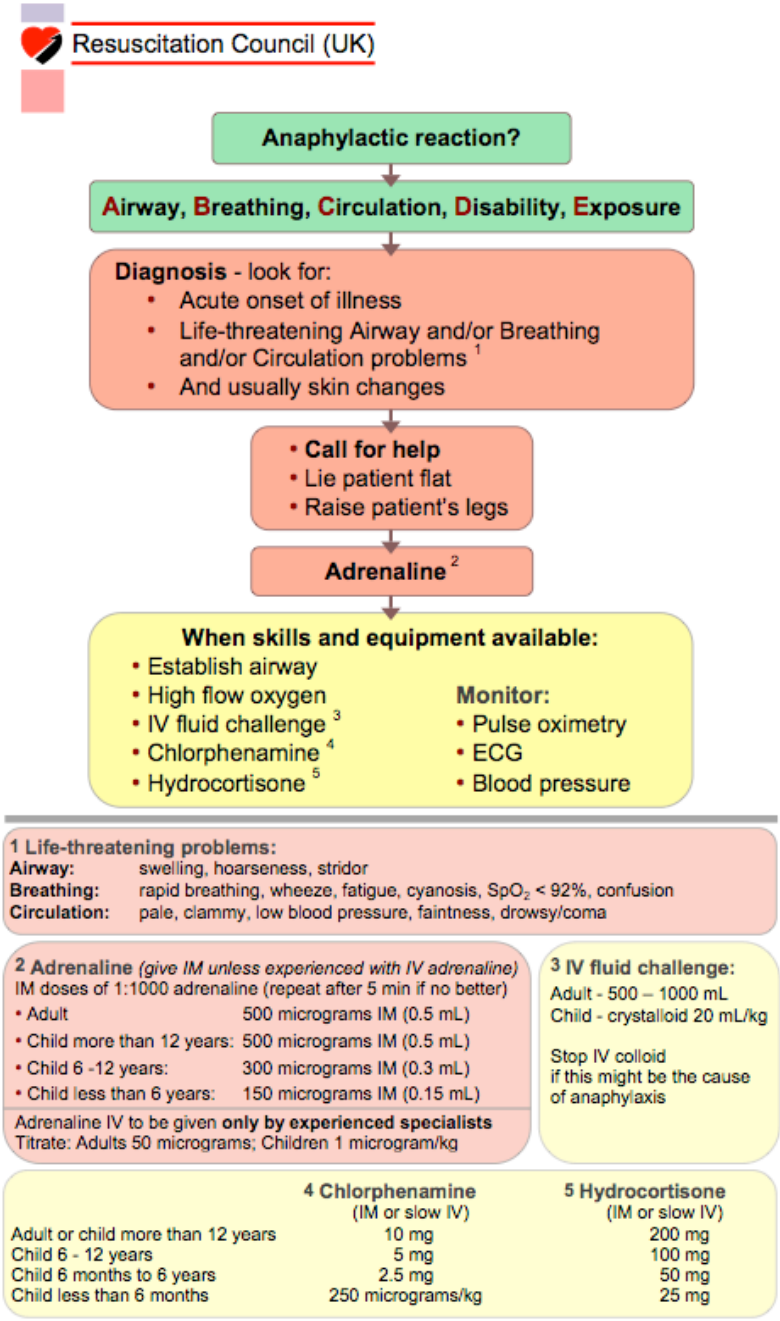
Anaphylaxis Examination

Level 1 Understanding (basic sciences)

What are the four classical mechanisms of hypersensitivity?

1. Crosslinking of two adjacent IgE molecules on mast cells and basophils
2. Reaction of IgG and IgM to cell-surface antigens resulting in complement activation and cytotoxicity
3. Soluble antigen -antibody complexes that activate the complement pathway
4. Activation of T lymphocytes (anaphylatoid), i.e. radiocontrast dyes, muscular depolerizing agents, opiates, dexrans

Non-immune mediated reactions are classed as anaphylactoid but the distinction may be academic as they both cause anaphylaxis.
Other hypersensitivity reactions: aspirin/NSAIDS modulation of cyclooxygenase arachidonic acid metabolism pathways



Level 2 Understanding (applied sciences)

Discuss the Resuscitation Council treatment for anaphylaxis:
See illustration opposite.
There is also evidence for H2 blockers
Cemetidine 300mg adult, 5-10mg/kg paeds

Level 3 Understanding (advanced sciences/management)

What concerns would you have with a patient on a beta blocker, TCA and MAOI who is having an allergic reaction requiring adrenaline?
Unopposed alpha-adrenergic stimulation resulting in severe hypertension

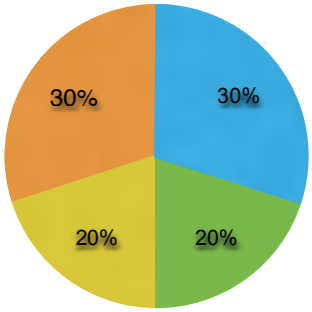
What are the risk factors for hypersensitivity reaction?
Patients with IHD, on beta blocker medication and atopic patients with hay-fever or asthma

In which patients are biphasic reactions more likely?
previous biphasic reaction, Food allergy related and asthmatics

Advanced Life Support

History: This patient has collapsed and had a cardiac arrest.

Task: Assess and treat.



Marking criteria	Not Completed	Partially Completed	Completed
Introduces self and identifies members of present team			
Assigns team members to tasks, (chest compressions, ventilation, defibrillation, IV access, drugs			
As patient arrives: takes hand over from EMT/paramedic and moves patient to trolley quickly (as appropriate)			
Shake and shout			
Opens airway			
Assess breathing and circulation, simultaneously			
Calls for crash team, if not already assembled			
Starts CPR 30:2			
Attaches defibrillator			
Confirms arrest rhythm			
VF/pulseless VT: Applies gel pads, Asks for oxygen to be moved away, Delivers one shock at 360 J or biphasic equivalent, Safe defibrillation, CPR two minutes, Confirms VF delivers second shock at 360J safely, CPR two minutes, Adrenaline 1mg before third shock, Amiodarone before fourth shock			
IV access, bloods taken, ABG, intubation during CPR			
If rhythm change, continues CPR to end of 2 minutes then checks for pulse			
Asystole/PEA: CPR for 2 minutes, Atropine 2mg for Asystole and if PEA with rate <60 b.p.m.			
If ROSC: Asks for full monitoring (pulse, NIBP, pulse OX, RR), Supports ventilations, orders post-arrest investigations and summons appropriate teams			
If ROSC: considers therapeutic hypothermia			
Suggests need speak to family			
Overall			

Advanced Life Support

Level 1 Understanding (basic sciences)

What are the reversible causes of cardiac arrest also known as the four H's and 4 T's.
Hypoxia, hypothermia, hypovolaemia, hyper/hypokalaemia
Tension pneumothorax, cardiac tamponade, thromboembolic, toxic/metabolic,

Level 2 Understanding (applied sciences)

What is the sequence of shocks in relationship to drug administration?
Shock,
Shock,
Adrenaline,
Shock,
Amiodarone,
Shock,
Adrenaline,
Shock,
Shock,
Adrenaline
Shock,
Shock,
Adrenaline
Shock etc.

Level 3 Understanding (advanced sciences/management)

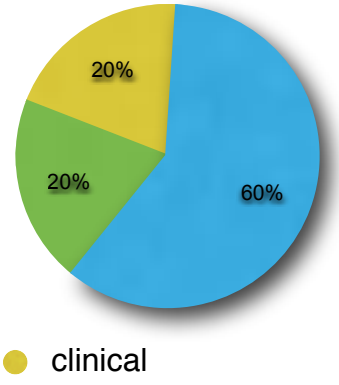
What is the role of non-adrenergic agonists in the cardiac arrest?
In many countries the use of vasopressin is common, it is thought that it may increase coronary perfusion pressure better than pure adrenergic agonists (e.g. adrenaline).

When is thoracotomy and open cardiac compressions indicated?
Penetrating chest trauma with loss of output within 5 minutes of arrival or in the department when a doctor with that skill to provide this procedure is present.

Paediatric Resuscitation (Breathing Difficulty)

History: This paediatric patient has breathing difficulties.

Task: Prepare to receive this patient. Assess and treat the patient.



Marking criteria	Not Completed	Partially Completed	Completed
Assembles ED team			
Briefly checks competency of team present and assigns roles to team members			
Able to calculate WETFAG and uses dosage board or other means to verify dosages			
Takes handover from EMT/paramedic/family			
Demonstrates a ABCDE approach			
Assesses airway (airway manuveoures and airway adjuncts as required)			
Asks for high flow oxygen via non-rebreather mask			
Assess breathing by look, listen and feel (bvm as required)			
Comments on effort, efficacy and effect of breathing Tachypnoea, air entry, chest expansion, recession, accessory muscle use, alar nasae flare, stridor and wheeze			
Assesses circulation (pulse and central capillary refill time)			
Comments on colour, pulse rate			
Asks for monitoring: ECG, SpO2, NIBP			
Assesses disability using the AVPU or paediatric GCS and comments on mental state			
Asks for temperature and blood sugar			
Determines primary disorder and treats appropriately			
Summons help appropriately			
Refers/handovers patient in a clear manner			
Offers explanation to parents and invites questions			
Overall			

Paediatric Resuscitation (Breathing Difficulty)

Level 1 Understanding (basic sciences)

What are the anatomical differences between infants and adult upper airway?

The infant has a more superior in neck

The infant's Epiglottis is shorter, angled more over glottis

Infant Vocal cords are slanted: anterior commissure more inferior

Infant Larynx is cone-shaped: narrowest at subglottic cricoid ring

Infant tissues are Softer, more pliable: may be gently flexed or rotated anteriorly

Infant tongue is relatively larger.

Infant head is relatively larger: naturally flexed in supine position.

Level 2 Understanding (applied sciences)

What are the non-anatomical differences between the paediatric and adult airways?

1. Young infants have relatively less oxygen reserve and a greater oxygen consumption.
2. Young infants (less than approximately 2-3 months) are obligate nose breathers.
3. Young children (especially 12-24 months of age) have a relative propensity to aspirate foreign bodies (food, coins).
4. More prone to Life-threatening infections: croup, epiglottitis, retropharyngeal abscess, bacterial tracheitis
5. Gastroesophageal reflux is quite common in infants.

Level 3 Understanding (advanced sciences/management)

How do you calculate the GCS or infants and children?

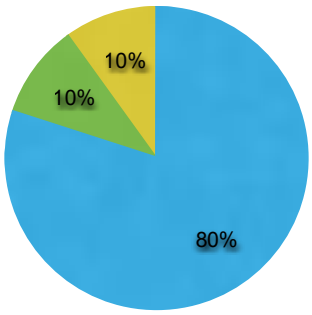
Table 1 **Modified Glasgow coma score**

Score	Response	Response	Response
Eye opening	> 1 year	0–1 year	
4	Opens spontaneously	Opens spontaneously	
3	Opens to a verbal command	Opens to a shout	
2	Opens in response to pain	Opens in response to pain	
1	No response	No response	
Best motor response	> 5 years	2–5 years	0–23 months
5	Oriented and able to converse	Uses appropriate words	Cries appropriately
4	Disoriented and able to converse	Uses inappropriate words	Cries
3	Uses inappropriate words	Cries and/or screams	Cries and/or screams inappropriately
2	Makes incomprehensible sounds	Grunts	Grunts
1	No response	No response	No response
Best verbal response	> 1 year	0–1 year	
6	Obeys command	Spontaneous	
5	Localizes pain	Localizes pain	
4	Flexion withdrawal	Flexion withdrawal	
3	Flexion abnormal (decorticate)	Flexion abnormal (decorticate)	
2	Extension (decerebrate)	Extension (decerebrate)	
1	No response	No response	

Psychiatric Examination

History: This patient is committed self harm +/- aggressive

Task: Assess this patient and determine their suicide risk



Marking Criteria	Not Completed	Partially Completed	Completed
Wash hands, Introduction, confirms identity of patient			
Appropriate interview room, chaperone or security			
Obtains consent			
Considers organic cause and asks for baseline observation including: pulse, blood pressure, respiratory rate, oxygen saturation, blood sugar, temperature			
Obtains history of events, PMH, DH, psychiatric history			
Assesses Appearance / behaviour			
Assesses Speech			
Assesses Mood – depression, biological symptoms, suicidal thoughts			
Asks about Hallucinations			
Assesses Thought disorder			
Assesses Cognitive function if required			
Assesses Insight			
Asks about self harm, suicide, motive, planning			
Uses SAD PERSONS score to assess suicide risk			
Male sex (1)			
Age <19yrs or >45yrs (1)			
Depression or hopelessness (2)			
Previous suicide attempt (1)			
Excessive alcohol or drug use (1)			
Rational thinking loss (2)			
Separated, widowed or divorced (1)			
Organised attempt (2)			
No social support (1)			
Stated future intent (2)			
Invites questions, Thanks patient			
Calculates scores, Summarise findings, and management			
Overall			

Psychiatric Examination

Level 1 Understanding (basic sciences)

In the confused aggressive patient list 6 organic causes of the patient's condition. (If you use, for example, sepsis, UTI, pneumonia, this will count as one mark)
CNS infection (Meningitis / encephalitis)
CNS tumour
Hypoglycaemia
Drugs / alcohol intoxication or withdrawal
Hypoxia
Subarachnoid haemorrhage
Postictal
Acute metabolic/endocrine disturbnce

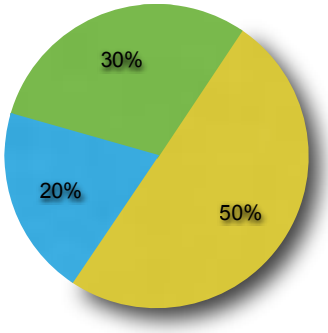
Level 2 Understanding (applied sciences)

According to the NICE violence guidelines, what 4 steps should be taken prior to seeing the patient?
Risk assessment for violence
Use designated interview room – alarm, outward opening door, window, clear of potential weapons
Inform senior member of nursing staff you are seeing patient
Chaperone, or 5 minute checks via window
(arrange for separate quiet room, arrange sufficient help
Consider sedation, Ensure trained staff availability, protect self)

Level 3 Understanding (advanced sciences/management)

In the violent patient which drug is recommended in the NICE guideline for sedation (give dose and route)?
Lorazepam PO as BNF (1-4mg daily in divided doses) or IM or IV (1.5-2.5mg)
+/- haloperidol 5-10mg IM

Chest Roentogram Interpretation

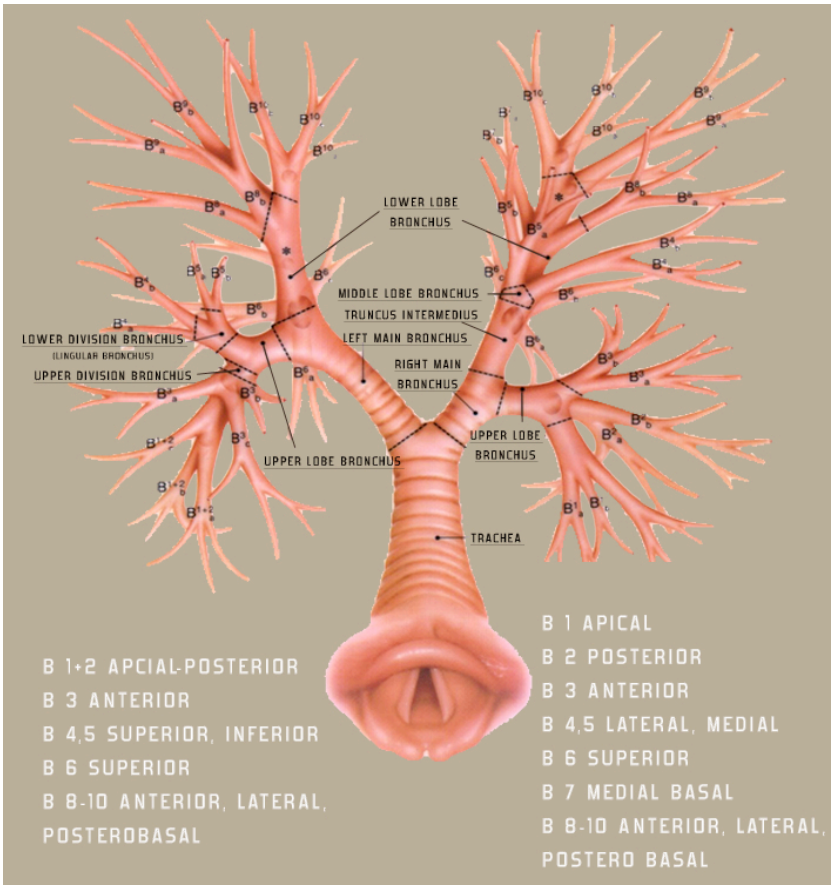


History: This chest x-ray is from a patient who has presented with shortness of breath.

Task: Demonstrate how to interpret this chest x-ray using a systematic approach

Marking criteria	Not Completed	Partially Completed	Completed
Familiarises self with equipment, setting, lighting etc.			
Determines name of patient, date of film, age of patient.			
Asks for a brief history of presentation			
Uses an initial overall review Looks for obvious and expected findings			
Adequacy: comments on the following Borders: entire lung fields visible Penetration: thoracic vertebrae seen behind heart border Rotation: clavicular heads to spinous process distance Inspiration: posterior right 10th/11th ribs visible			
Bones: identifies ribs, shoulders and vertebral column May use finger to trace each bone			
Soft tissues: Heart (cardiothoracic ratio), mediastinum, hila, diaphragm			
Lungs: uses left to right symmetry, compares interthoracic markings at each intercostal space with that of the other side			
Uses a systematic approach while working through CXR			
Able to classify different patterns of increased pulmonary opacifications Focal Airspace Disease: pneumonia, PE, neoplasm Diffuse/multifocal: pulmonary oedema, pneumonia, haemorrhage, neoplasm Fine reticular pattern: Acute: interstitial pulmonary oedema, interstitial pneumonitis; Chronic: lymphangitic metastatic, sarcoid, collegen vascular disease, fibrosing alveolitis, resolving pneumonia Coarse reticular pattern: Honeycomb lung (endstage pulmonary fibrosis), CCF or pneumonia with underlying COPD Reticulonodular pattern: same as reticular Miliary pattern: TB, fungal, Varicella, Silicosis, Sarcoid, Coal workers lung, Eosinophilic granuloma Nodular pattern: (>3cm), neoplasm, fungal or parasitic, septic emboli, Rheumatoid nodules, Wegener's granulomatosis			
Able to form a differential diagnosis based on the history of presentation, age and findings			
Overall			

Chest Rotenterogram Interpretation

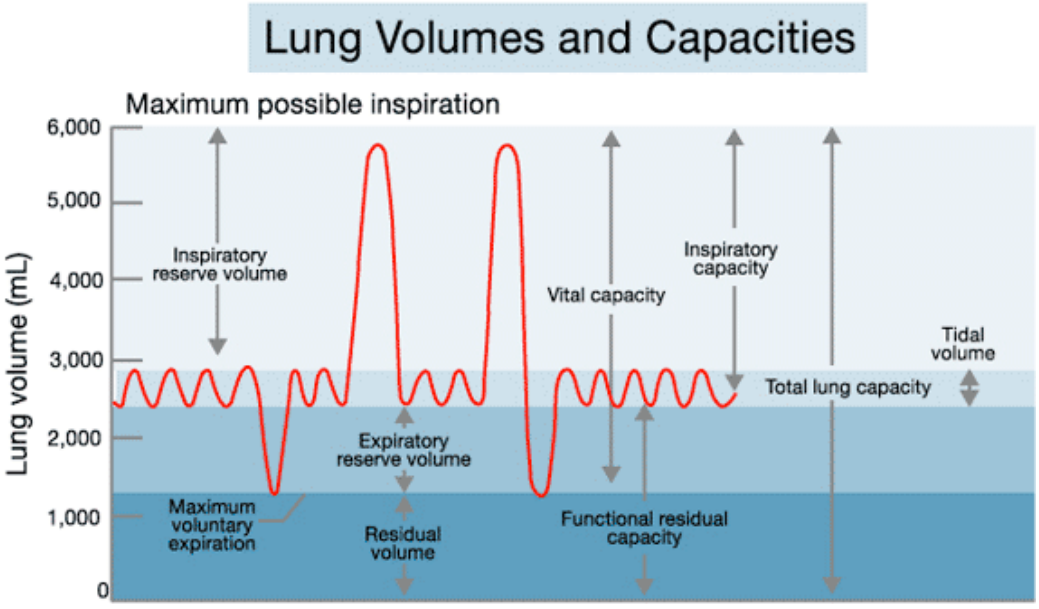


Level 1 Understanding (basic sciences)

What are the lobes of the lungs and the segments of each lobe?
The Right Lung:
Right upper lobe: apical, posterior and anterior
Right middle lobe: lateral and medial
Right lower lobe: apical, anterior basal, medial basal, lateral basal, posterior basal
The Left Lung:
Left upper lobe: apico-posterior, anterior
Lingual: superior, inferior
Left lower lobe: apical, antero-medial basal, lateral basal, posterior basal

Level 2 Understanding (applied sciences)

Draw and Discuss lung volumes and capacities.



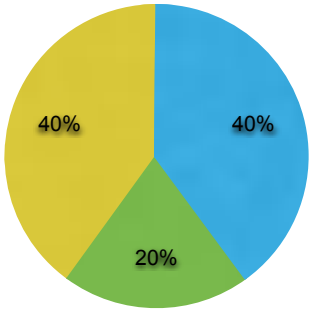
Level 3 Understanding (advanced sciences/management)

What are the respiratory causes of clubbing?
Lung cancer, mainly large-cell (35% of all cases), not seen frequently in small cell lung cancer, Interstitial lung disease, Tuberculosis, Suppurative lung disease (lung abscess, empyema, bronchiectasis, cystic fibrosis), Mesothelioma

Head Injury

History: This patient has suffered a Head Injury

Task: Assess the patient a determine need for investigations and formulate a management plan.



Marking criteria	Not Completed	Partially Completed	Completed
Washes hands, introduction			
Uses a ABCDE approach during primary survey			
Asks for history of events, uses all resources available (patient, witnesses, Ambulance PRF, nursing notes)			
Assess Airway and manages appropriately including need for cervical spine control +/- immobilization			
Assess Breathing and manages appropriately, including oxygen and BVM ventilation			
Assess Circulation and manages appropriately, including IV access bloods and IV fluids			
Determines most appropriate location to manage the patient and asks for patient to be moved as needed			
Assess Disability using the Glasgow coma scale and determines need for intubation (GCS <8)			
Exposes patient as needed			
Asks for temperature and blood sugar			
Asks for history of events with regard to assessing amnesia of events (if not prior)			
Asks about Past medical history (bleeding disorders)			
Asks about drug history (ie warfarin)			
Asks about social history (safe discharge)			
Assesses CNS and PNS as needed			
Assesses neck			
Assess head wound if present			
Formulates a reasonable and safe management plan including investigation (x-ray, CT) and treatment (tet/tox, wound closure)			
Involves other specialities appropriately			
Discharges patient with head injury advise, and forms safety net as appropriate			
Invites questions, Thanks patient			
Overall			

Head Injury

Level 1 Understanding (basic sciences)

What are the layers of the skull?

Skin, Periosteum, Bone, Dura mater, Arachnoid, Pia mater

What are the anatomical differences between the following types of intracranial bleeds?

Subdural haematoma: between the dura and arachnoid mater

Extradural haematoma: between the dura mater and the skull

Subarchnoid haemorrhage: between the arachnoid and pia meningeal layers

Diffuse axonal injury: Damage to White Mater tracts

Level 2 Understanding (applied sciences)

What are the NICE indications for immediate CT Head post trauma?

- GCS less than 13 on initial assessment in the emergency department.
- GCS less than 15 at 2 hours after the injury on assessment in the emergency department.
- Suspected open or depressed skull fracture.
- Any sign of basal skull fracture (haemotympanum, ‘panda’ eyes, cerebrospinal fluid leakage from the ear or nose, Battle’s sign).
- Post-traumatic seizure.
- Focal neurological deficit.
- More than one episode of vomiting.
- Amnesia for events more than 30 minutes before impact.

If loss of consciousness or amnesia

- Age 65 years or older.
- Coagulopathy (history of bleeding, clotting disorder, current treatment with warfarin).
- Dangerous mechanism of injury (a pedestrian or cyclist struck by a motor vehicle, an occupant ejected from a motor vehicle or a fall from a height of greater than 1 m or five stairs).

Level 3 Understanding (advanced sciences/management)

What are the emergency department treatments for raised intracrainial pressure?

Raise the Head of the bed to 30 degrees

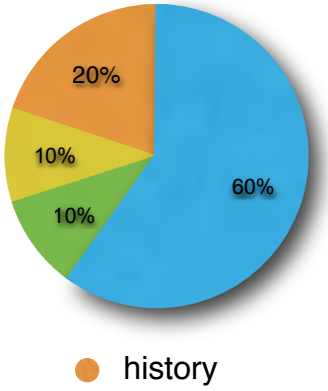
Ventilate to low normal pCO_2

Maintain cerbral perfusion pressure and prevent hypotension

Mannitol 200ml 20%

Transfer to neurosurgical unit

Neck Examination



History: This patient has sustained an injury to the neck and is now complaining of neck pain.

Task: Determine this patients need for cervical spine immobolization, assessment and x-ray. Examine the patients upper limb.

Marking Criteria	Not Completed	Partially Completed	Completed
Washes hands, introduction, confirms patient identity			
Gains verbal consent and explains process of examination			
Establishes mechanism of injury and need for immobilization (Dangerous mechanism of injury: fall from > 1 m or 5 stairs; axial load to head – for example, diving; high-speed motor vehicle collision; rollover motor accident; ejection from a motor vehicle; accident involving motorised recreational vehicles; bicycle collision.)			
Asks about pain and offers analgesia			
Determines if safe to assess neck (Safe assessment can be carried out if patient: was involved in a simple rear-end motor vehicle collision; is comfortable in a sitting position in the emergency department; has been ambulatory at any time since injury and there is no midline cervical spine tenderness; or if the patient presents with delayed onset of neck pain.)			
Maintains in line immobilisation at all times (uses helper and checks they are able to apply in line immobilisation).			
Removes blocks and opens out the collar, (no sudden or excessive movements)			
Inspects neck region for bruising, swelling, wounds etc			
Palpates central C-Spine for tenderness or bogginess and then paravertebral region each side			
Assesses dermatomes (light touch with cotton wool, pain with sharp object): C5 regimental badge, C6 thumb, C7 middle finger, C8 little finger, T1 inner aspect elbow			
Assesses Myotomes (MRC scale 0-5): C5 shoulder abduction, C6 elbow flexion, wrist dorsiflexion, C7 elbow extension, C8 finger flexors, T1 finger abduction			
Assesses reflexes: C5 biceps, C6 supinator, C7 triceps, C8 finger flexors			
Asks patient to rotate head 45 degrees			
Assesses patient appropriately			
Applies immobilization appropriately (if needed)			
Summarises findings and management plan			
Overall			

Neck Examination

Level 1 Understanding

What are the four important anatomical curves of alignment on lateral neck x-ray?
Anterior vertebral line
Posterior vertebral line
Spinolaminar line
Tips of the spinous processes

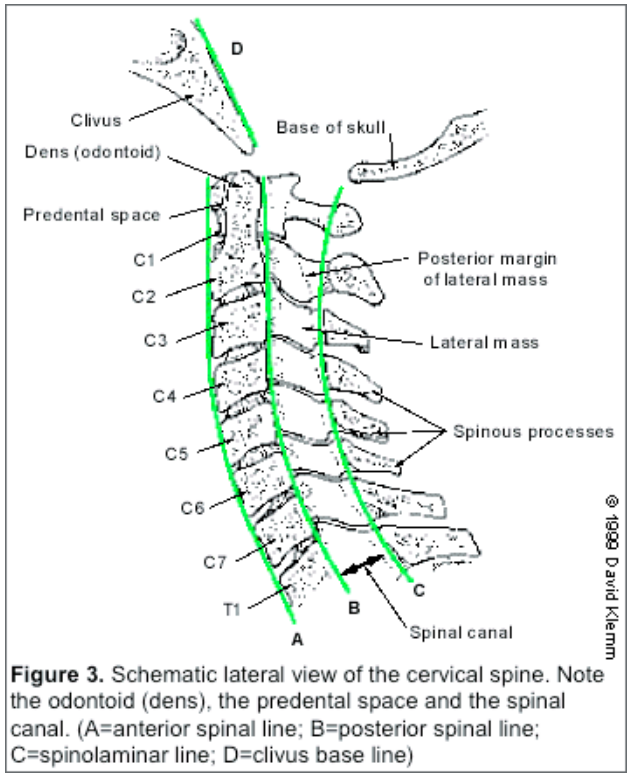


Figure 3. Schematic lateral view of the cervical spine. Note the odontoid (dens), the predental space and the spinal canal. (A=anterior spinal line; B=posterior spinal line; C=spinolaminar line; D=clivus base line)

Level 2 Understanding

What are the indications for cervical spine x-rays?
Patient can not actively rotated the neck 45 degrees
Not safe to assess movement of the neck
Neck pain and midline tenderness plus: age >65 or dangerous mechanism.
To aid in urgent exclusion of c-spine injury

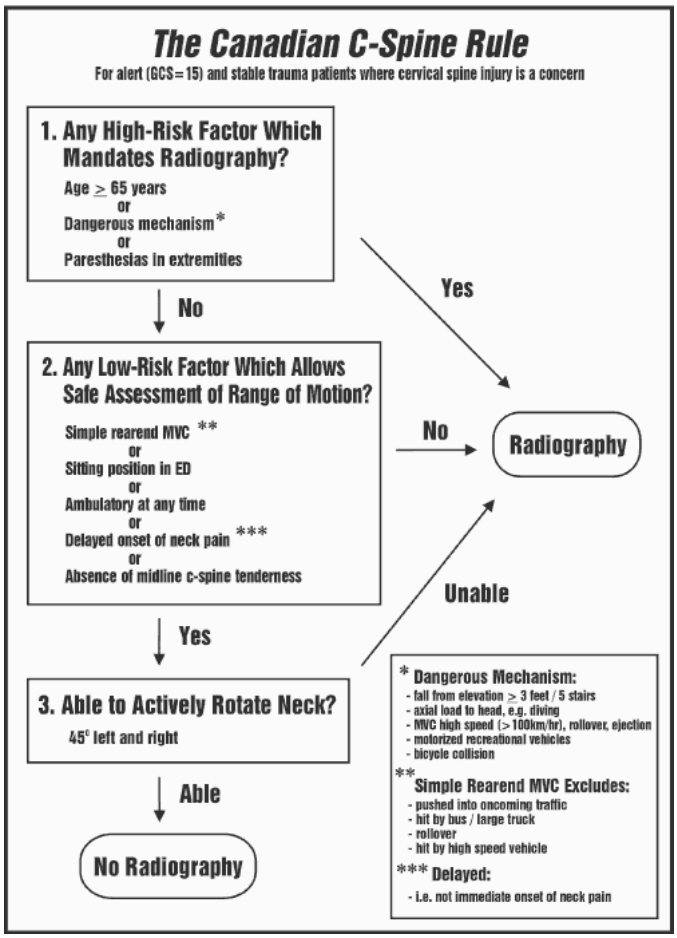
What are the NICE criteria of dangerous injury regarding cervical spine injuries?
Dangerous mechanism of injury: fall from > 1 m or 5 stairs; axial load to head – for example, diving; high-speed motor vehicle collision; rollover motor accident; ejection from a motor vehicle; accident involving motorised recreational vehicles; bicycle collision.

What are the indications for CT of the cervical spine in trauma?
GCS<13, Patient has been intubated, Plain films are inadequate, Continued clinical suspicion despite normal X-rays, Patient is being scanned for multi-region trauma

Level 3 Understanding

What are the NEXUS Low-Risk Criteria for cervical spine radiography?
Cervical spine radiography can be omitted when all the following are present:
No posterior midline tenderness, Normal alertness, No evidence of intoxication, No focal neurological deficit, No painful distracting injuries

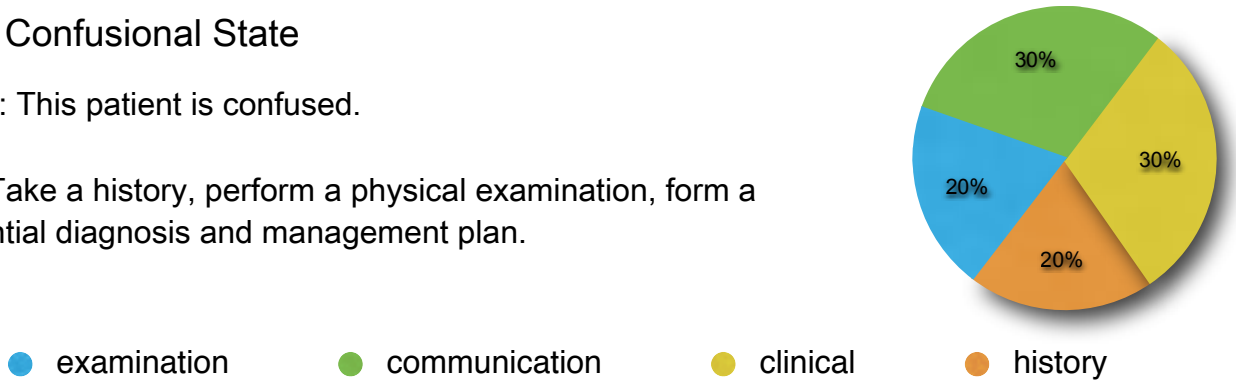
What are the components of the of the Canadian Spine Rule?
See opposite



Acute Confusional State

History: This patient is confused.

Task: Take a history, perform a physical examination, form a differential diagnosis and management plan.



Marking criteria	Not Completed	Partially Completed	Completed
Washes Hands, Introduction			
Performs a rapid assessment of ABCDE			
Asks for baseline OBs			
Asks for Blood Sugar and Temperature			
Treats life threatening elements when found (hypoxia, low BM)			
Assess patient for head injury			
Takes a history of events leading to attendance			
Asks about timing and duration of confusion			
Takes a thorough past medical history			
Takes a thorough Drug history (including alcohol, narcotics, opiates, benzodiazepines and drugs with anticholinergic activity)			
If unable to obtain history, then expresses need to contact General Practitioner/get hospital notes			
Performs a review of systems			
Examines the following as appropriate: Central nervous system, Peripheral nervous system, Cardiovascular system, Respiratory system, Abdomen, Mental state including cognition			
Able to form a differential diagnosis			
Orders investigations as appropriate: ABG for carboxyhaemaglobin and pO2, FBC, U&E, LFT, Calcium, Blood cultures, urinalysis, B12 and TFT in the elderly, drug toxin screen, CT head			
Institutes Treatment as appropriate Oxygen, Dextrose, Thiamine, Sepsis Pathway, drug antidotes, etc..			
Communicates with patient in clear and concise manner			
Overall			

Acute Confusional State

Level 1 Understanding (basic sciences)

What is the difference between delirium and dementia?

Delirium is a sudden or acute (hours to days) disturbance in cognition and a decreased level of consciousness. It is a medical emergency and is treatable. It is also common in patients with dementia.

Dementia is progressive deterioration of cognition with a clear consciousness. It is generally irreversible.

Level 2 Understanding (applied sciences)

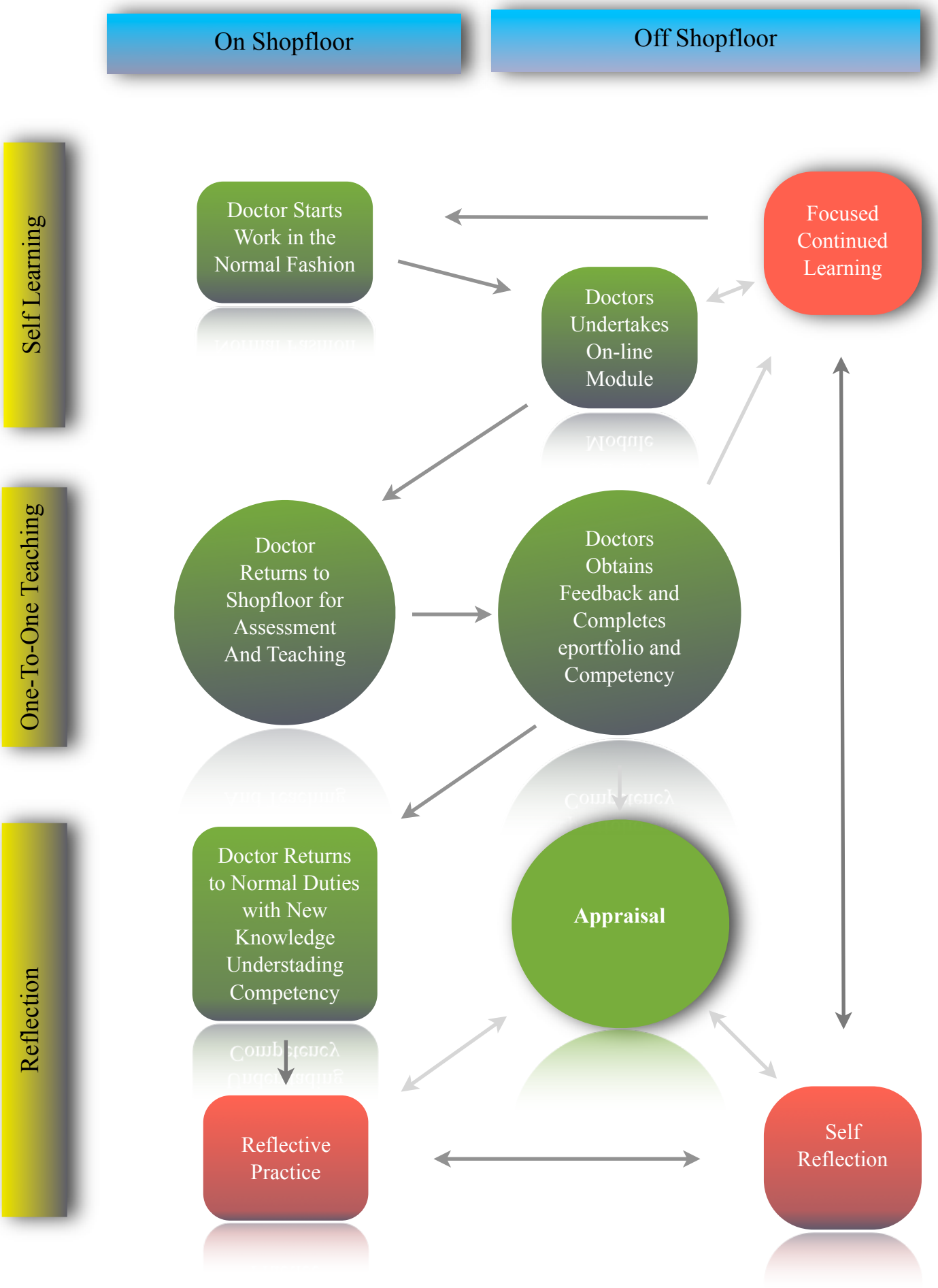
What are the components of the Glasgow Coma Scale?

Glasgow Coma Scale		
Eye Opening	spontaneously to speech to pain none	4 3 2 1
Verbal Response	orientated confused inappropriate incomprehensible none	5 4 3 2 1
Motor Response	obeys commands localises to pain withdraws from pain flexion to pain extension to pain none	6 5 4 3 2 1

Level 3 Understanding (advanced sciences/management)

What are the components of the Abbreviated Mental Test Score?

Abbreviated Mental Test Score
1. How old are you? 2. What time is it? (nearest hour) 3. An address for recall at end of test - to be repeated by the patient, e.g. 42 West Terrace 4. What year is it? 5. What is the name of this place? 6. Recognition of two persons - for example, doctor, nurse, home help etc 7. What is your Date of birth 8. When was the Second World War? 9. How is the present prime minister? 10. Count backwards from 20 to 1
Score 0 or 1 for each, A score of less than 7 or 8 suggests cognitive impairment.


On Shopfloor
Off Shopfloor
Self Learning
One-To-One Teaching
Reflection
Doctor Starts Work in the Normal Fashion
Focused Continued Learning
Doctors Undertakes On-line Module
Doctor Returns to Shopfloor for Assessment And Teaching
Doctors Obtains Feedback and Completes eportfolio and Competency
Doctor Returns to Normal Duties with New Knowledge Understading Competency
Appraisal
Reflective Practice
Self Reflection

Audit Form

1. Which online module did you complete? (Circle one)

Chest pain and ECG Interpretation, Paracetamol Overdose, Septic Patient, Collapse/Blackout, Anaphylaxis, Assessment of the Serious Ill Adult, Assessment of the Seriously Ill Child, Assessment and Management of the Psychiatric Patient, CXR Interpretation, Diabetic Ketoacidosis, Head Injury, Acute Confusional State, Alcohol Awareness

2. Did you have time to complete the online module? (Circle one) Yes No

If no give details:_____

3. How would you rate the online module 1 being poor and 5 excellent? (Circle one)

1 2 3 4 5

4. Which WPBA template did you use? (Circle one)

Cardiovascular Examination, ECG Teaching, Thrombolysis Consent, Paracetamol Overdose, ABG, Syncope, Anaphylaxis, Advanced Life Support, Difficulty Breathing (Paediatric), Psychiatric History, Chest X-ray Interpretation, Head Injury, Neck Injury, Acute Confusion

Other:_____

5. How would you rate the WPBA template 1 being poor and 5 excellent? (Circle one)

1 2 3 4 5

6. How would you rate this type of WBPA compared with your previous WPBA experience?

Worse No Improvement Some improvement Major Improvement

7. Were you able to obtain a competency? (Circle one) Yes No

If no give details:_____

8. How would you rate the this teaching experience compared with your previous teachings?

Worse No Improvement Some improvement Major Improvement

Your opinion matters!
Please use the back of this form to give use any other comments and feedback.

Thank You!