Sunshine Coast Hospital and Health Service

ACEM Written Fellowship Exam Preparation Course Handbook

April 2017

Contents

Acknowledgments

This Handbook was created by Dr. Julia Haire for the SCHHS Fellowship Preparation Course. Parts of this handbook have been adapted from the Princess Alexander Hospital Fellowship Examination Handbook Written Component written by Dr. Johnathan Isoardi and Dr. Darren Powrie.

General Tips

- **The exam will require AT LEAST 12 months study time**
    - Everyone studies at their own rate and has their own study techniques BUT this is an exam that tests the WHOLE of Emergency Medicine. It takes time to learn that.
    - How long YOU need to study for the exam depends on what study you have already done, what your study technique is and what other commitments you have.
    - The Fellowship Exam Preparation Course goes for 6 months but this is really a revision course that is getting you ready for the exam. You need to have already done a lot of the book learning before you do this course.
- **Pick which exam you will sit and stick to it**
    - Committing to an exam and studying for that exam is the most successful approach to passing the exam. Winging it and deciding to "give this exam a go" is the best way to fail the exam. Failing an exam can be a demoralising experience even if you were half-hearted about sitting it in the first place and as of 2018 after 3 attempts at an exam you will have to leave the training program.
    - Pick which exam you are going to sit and tell your DEMT and the Fellowship Exam Coordinator and everyone else who will care to listen.
- **KNOW the exam**
    - Understand what the exam entails and the structure of the exam questions BEFORE you start studying. This will make a difference. It will make a difference in how you study. If you know what is likely to be asked and in what format then you will know what to concentrate on in your study.
    - So READ the ACEM information on how the exam is written before you start studying. I have included that information in this handbook – ACEM Item Writing Handbook
    - READ all the information relevant to the exam on the ACEM website and everything you are sent by ACEM when you apply for the exam. There is a lot of good information there which will help you understand the exam and the process. Also things change and YOU MAY BE THE FIRST TO KNOW (do not rely on us or others)
- **Have a study plan and structure**
    - The exam is based on the Fellowship Exam Learning Processes and the Curriculum Framework. There will be more detail on this further on in the manual but you need to be familiar with both these documents and our recommendation is that you base your exam study structure around these documents.
- **Have a study group**
    - It is much easier to undertake this exam with others. A study group is great for motivation, keeping you on track and also lessening the work by sharing resources.

- **Use the available resources**
    - There are great resources out there for this exam with more and more being developed all the time. There are great online resources and courses that are worth doing. However, beware that some resources have questions that are not up to date with the exam format BUT if you have a good understanding of the exam structure you will be able to pick those.
- **Try and get the rest of your life sorted out so you can achieve this goal BUT do it in such a way that you don't do irreparable damage to the rest of your life**
    - Try to structure your life when studying so that you have enough time for family and friends, exercise and your own mental health. You need time OFF from study and work during this process.
    - Remember this is just an exam. An exam you need to pass for work. Work that you do to LIVE. Don't sacrifice the rest of your life for this exam. If you are having trouble with study, work, family, life or anything at all **PLEASE ASK FOR HELP**. That is what we are here for.

Eligibility

Candidates for the FEx (Written) must meet the following criteria:

- They must be a registered and financial trainee of the College
- They must hold current registration to practice medicine in Australia or in New Zealand
- They must have progressed to Late Phase Advanced Training in the ACEM training program, having successfully completed the 'Early-Phase' WBA requirements, which includes completion of at least 12 months (of the 30 month minimum) of accredited ED time in Advanced Training (excluding any required remediation time).

Candidates must have met these eligibility criteria, as per official College records, by the relevant application closing date.

Application

The Application Process

To apply for the Fellowship examination, you will need to complete and return the forms by the relevant application closing date.

The application must reach the College by close of business on the closing date specified.

Unacceptable Applications

An application will NOT be accepted in the following circumstances:

- If it is not received at the College by close of business on the specified closing date; or
- If it is incomplete in any way (including hand signatures where indicated); or
- If, at the application closing date for the examination in question, any outstanding fees of whatsoever nature have not been paid in full.

Resources

Recommended Texts

ACEM has an official list of recommended texts that are included later in this handbook. All the exam questions need to be referenced and most are referenced from this list of recommended texts. However, it is not possible to read all of these in their entirety in your study for the exam. Most candidates pick one main text and then use the others as reference for some areas.

The 2 main texts that are used as the base text are either *Tintinalli JE (ed), Emergency Medicine: a comprehensive study guide* or *Rosen P (ed-in-chief), Emergency Medicine: concepts and clinical practice Mosby.* However they are both US text books and therefore care needs to be taken as some practice points do differ. *Cameron P et al (eds), Textbook of Adult Emergency Medicine Churchill Livingstone* and *Cameron P et al (eds), Textbook of Paediatric Emergency Medicine Churchill Livingstone* are not detailed enough to study from alone but provide a good introduction to the subject and are needed to provide an Australian perspective. *Dunn R et al (eds), The Emergency Medicine Manual Venom Publishing* is written in note form, draws out the main points and gives an Australian perspective.

Murray L et al (eds), Toxicology Handbook Churchill Livingstone is the text to study for toxicology as it Australian and gives a both good structure and detail for toxicological cases. *Chan T et al (eds), ECG in Emergency Medicine and Acute Care Elsevier Mosby* is a comprehensive ECG text. *Roberts JR, Hedges JR (eds), Clinical Procedures in Emergency Medicine WB Saunders Company* is the go to book for procedures. *Talley N, O'Connor S, Examination Medicine – a Guide to Physician Training MacLennan & Petty* is the text for physical examination.

Journals

There is an extensive list of Journals in the recommended text. It is not expected that you are able to site journal articles in your answers (although that would be impressive) but it is important that you know of the sentinel articles in EM and be particularly aware of the recent sentinel articles that have been published as those topics are likely to come up.

Web-based Resources

The most important web-based resource is the ACEM site. Under the Education and Training tab is the Fellowship Exam tab. Please have a good look through this. It goes over the structure of the exam, the application process, dates etc. and has a lot of resources including a module on how to approach the exam and examples of questions.

There are many Web-based EM resources out there that can be used to study. http://lifeinthefastlane.com/ is a large Australian based site that is comprehensive, has exam preparation information on it as well and is good place to start.

There are many sites that are dedicated to preparation for the ACEM Fellowship Exam and they are well worth looking at for more practice questions, tips and general resources. A few of them are:

- acemfex.adelaideemergencyphysicians.com is the Fellowship Exam resource site for the Adelaide network of EPs and has a lot of exam questions and adelaideemergencyphysicians.com is their main education site with lots of resources. You need to register for access
- http://www.gcs16.com/ has a lot of questions and other resources
- http://topendexam.com/
- http://www.edexam.com.au/
- http://www.edcentral.com.au/
- https://emergencypedia.com/facem-exams-page/

Please let us know your thoughts on how useful these sites are and if there are any more that you are aware of.

Courses

We would recommend that you do a separate exam preparation course. Any extra resources and input you can get will benefit your exam preparation. The ones that we are aware of are:

- Advanced Fellowship in Emergency Medicine (AFEM) Revision Course which is run in Brisbane http://www.afemrevision.com/
- Advanced Paediatric Emergency Medicine (APEM) Course which has a Fellowship Exam preparation course day the day before the general course and run at the Gold Coast http://www.apemaustralia.com/
- TEEMWORK run a Fellowship course http://teemwork.com.au/
- http://www.fellowshipexam.com/ is a 6 month online preparation course
- The Kamikaze course is a one day course that is based in Bundaberg http://www.resus.com.au/kamikaze-fellowship-review-course/

Please let us know how you find these courses.

Know the Exam

The exam is usually held at the Cliftons Learning Centre in Brisbane. It consists of 2 sessions with a break in the middle. There is no additional reading time.

You will be sent a Candidate Handbook prior to your exam with all the details of YOUR exam and how it will run. Read this carefully as the exam structure will change over time.

Structure

The written exam consists of 2 papers:

1) Select Choice Questions
    - 180 minutes long
    - Up to 120 questions
    - This part of the exam is conducted online
    - Questions are **Multiple Choice Questions (MCQs)** or **Extended Match Questions (EMQs)**
2) **Short Answer Questions (SAQs)**
    - 180 minutes long
    - Up to 30 questions
    - This part of the exam is paper based. You are usually given question and answer booklets (which you write on) and then another booklet with better quality printed visual prompts.

The Questions

Multiple Choice questions

These consist of a stem and 4 alternate options which consist of the correct response and 3 distractors. The Candidate is to choose the BEST option.

The MCQs in the new exam are quite different to the old exam. Please read the requirements of the MCQs as outlined in ACEM's Item Writing Handbook (included in this document). They should be clinically based and often present a clinical vignette or problem and test the application of knowledge in the clinical context rather than recall of random facts. The distractors should all be similar and you should be able to arrive at the answer without seeing the options.

Please read the Item Writing Handbook and look at the example questions on the ACEM site in the "Resources" section of the ACEM Fellowship Exam.

There are a lot of practice MCQs out there but you will find that most of them are in the old format and do not comply with the same standards as required for the new exam. They are still worth doing for revision purpose but be aware that the MCQs in the exam will be more clinically orientated and require application of knowledge rather than factual recall.

Extended Match Questions

Each EMQ has a theme (e.g. a particular presentation, diagnosis, treatment) and then a list of options that are all similar in some way (e.g. a list of diagnoses). There are then a number of stems are you are to select the option that best fits with that stem.

The EMQs also have a number of requirements when they are being written which are outlined in the Item Writing Handbook.

Again they will assess the application of knowledge around a clinical problem. The answer should be able to be arrived at without looking at the options and the option list should all be similar. It is possible to have the same answer for more than one stem.

Again there are examples of EMQs on the ACEM website as above.

There is not a set number of MCQs vs EMQs in the exam so you may have a majority of one or the other and the split between the 2 formats will differ in each exam.

Short Answer Questions

These are short and specific answers to a question. They are also designed to test applied clinical knowledge but may also ask you to recall factual information. Usually they are set around a clinical vignette. The answers will require a few words or a short phrase or they will ask you to fill out a table or provide a short list. There is space provided to put down your answer.

When you are asked to list a number of things they will specify the number of things to list. There is no point listing more than that number as they will disregard anything beyond the number they have specified. This is designed to test your prioritisation so be aware that you need to list the most important things first.

It is advised to try to write something for all the questions. There is no negative marking.

If you make an error of commission (as in you write something that is incorrect) or omission (you do not write something essential) that is a fatal error (it would result in harm to the patient in real life) you may receive 0 marks for that section.

You are usually given 4 booklets in the exam. 3 of them are question and answer booklets and 1 of them is a props booklet with better quality printed props (like clinical photos etc.).

Note that each SAQ is not of an equal mark. The marks are indicated on each question.

Usually every 2 pages requires about 6 minutes and ever booklet 1 hour. This may differ between exams and this information is usually given to you in the Candidate Handbook that you receive before your exam. You will be pushed for time in this exam. So work out your timings based on this information and stick to it. It is better to have attempted all the questions rather than that get perfect answers for some questions and nothing for others.

Again please read the Item Writing Handbook to get a good idea of how the SAQs are constructed and look the example SAQs on the ACEM website.

All of the written questions may include a visual prompt. These can be clinical photos, x-rays, CTs, ECGs, lab test etc. These are usually given to you again in a separate paper with better quality printing.

A Suggested Approach

Everyone approaches the exam differently so this is merely a *suggested* approach.

1. **Commit**
    - Work out how long you will need to sit the exam and then pick the exam you want to sit
    - Tell your DEMT and the Fellowship Exam Coordinator.

2. **Know the Exam**
    - Familiarise yourself with the exam structure and the questions
        - ACEM website – structure of exam and example questions
        - Item Writing Handbook

3. **Know the material**
    - Familiarise yourself with the Fellowship Exam Learning Processes and the Curriculum Framework. Looking at these resources will give you an idea of the amount of study that is entailed and the sections to concentrate on.
    - Curriculum Framework - the most relevant parts are the:
        - Investigations List
        - Procedures List
        - Presentations List
        - Modifiers List

    The Investigations and Procedures list have a Mastery Level to indicate the degree of knowledge required.

    - Fellowship Exam Learning Processes
        - This sets out the subjects needed to be known for the exam
        - Against each subject is a description of the level of knowledge needed for that subject – Expert, High or General
        - I have also modified that list and colour coded it to make it easier to see the more important subject – Learning Processes Colour Coded

4. **Have a plan**
    - Have a structured approach so that you cover all the material
    - Construct a study timetable to give yourself time to cover all the subject areas. Remember the Fellowship Exam Preparation Course is designed as a revision course so the study plan you have for yourself should be at least 12 months.
    - Also come up with a day to day study plan (i.e. how many hours you will study on work days, on days off etc.) and schedule in time for relaxation, family and friends etc.

5. **Form a study group**
    - Motivation
    - Sharing resources

6. **Practice lots of questions**
    - Write questions for each other as well
    - Practice questions in real time

7. **Do practice exams**

The SCHHS Fellowship Exam Preparation Course

The course is designed not to teach content but to help you in prioritising the areas of the content that are important, clarify areas of the content, give you example questions and answers and give you feedback on your answers.

Structure
Each week there is a 3 hour Fellowship Exam Written Session from 8-11 am on Education Day. As only half the registrars will go to teaching each week, this tutorial is repeated the week after.

The ACEM curriculum is divided into 13 modules so that all the subjects are covered (as best as can be) over a 6 month period. Each week we will cover a particular module.

In each module we will go over:

- The answers to questions that candidates will be given the week before and are expected to prepare for the tutorial
- There will be 3 talks given by candidates sitting the exam. These are SHORT (10 minutes) talks on a subject. The talks are designed to go over the aspects about that subject that are likely to be examined and in what format and as a means to share resources (e.g. a good or sentinel article about the subject, a site that explains it well etc.)
- Discussion about any contentious or difficult aspects of that weeks' subjects
- If time allows candidates sitting the exam will be presented with a selection of new questions to sit in real time and then given the answers either in the tutorial or to take home PLEASE DO NOT SHARE THESE QUESTIONS WITH ANYONE – THEY ARE DESIGNED TO HELP YOU PRACTICE AND TEST YOUR KNOWLEDGE FOR THE EXAM AND GIVING THEM TO OTHERS WILL REDUCE THEIR EDUCATIONAL VALUE

It is hoped that eventually the modules will be available on the SCHHS Emergency website http://schhsemergency.health.qld.gov.au/

Fellowship Education Group

We have put tougher this course and hope that it helps you with your study and leads to a successful exam!

Dr. Julia Haire - Coordinator
Dr. Ashwini Amaratunga – Coordinator
Dr. Dean Powell
Dr. Logan Stuckey
Dr. Donna Mills
Dr. Barrie Field
Dr. Sarah Davidson
Dr. Rob Giles
Dr. Suneth Jayasekara
Dr. Kathryn Woolfield
Dr. Ruth Attard
Dr. Henry Huang

Any problems, questions or feedback please do not hesitate to email me or give me a call:

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GOOD LUCK!!!!!

Disclaimer

The information in this Handbook has been put together in good faith to provide advice for candidates sitting the ACEM Fellowship Exam. It is based on the best information we have at the time of writing and the opinions of the Fellowship Exam Education Group. It is not a comprehensive guide to passing the Fellowship Exam and should be used in conjunction with information from other sources. It does not represent opinions and was not written or sanctioned by the Australasian College of Emergency Medicine

SCHHS Fellowship Exam Preparation Course Timetable Outline

WEEK	Fellowship Exam Written Module
1	Intro & Legal/Clinical Risk Management/Administration/Education/Research
2	Intro & Legal/Clinical Risk Management/Administration/Education/Research
3	Resus & Anaesthetics
4	Resus & Anaesthetics
5	Trauma (incl. burns)
6	Trauma (incl. burns)
7	Cardiovascular
8	Cardiovascular
9	Tox/Acid Base/Metabolic
10	Tox/Acid Base/Metabolic
11	Paeds
12	Paeds
13	Resp/Renal/Endocrine/Rheum
14	Resp/Renal/Endocrine/Rheum
15	Neuro/Gastro/ID/Derm/Immunology
16	Neuro/Gastro/ID/Derm/Immunology
17	Heam/Onc/O&G
18	Heam/Onc/O&G
19	Surgery (Abdo/Thoracic/Vascular/Urology/NeuroSx/Wounds/Plastics/Breast) and Radiology
20	Surgery (Abdo/Thoracic/Vascular/Urology/NeuroSx/Wounds/Plastics/Breast) and Radiology
21	Ortho/MaxFax/Ophth/ENT
22	Ortho/MaxFax/Ophth/ENT
23	Psych/Environmental/Pre-hosp/Disaster
24	Psych/Environmental/Pre-hosp/Disaster
25	Revision
26	Revision

ACEM CURRICULUM FRAMEWORK

How to read this Framework

An **example outline** of the framework is shown in **grey**.

Instructions are shown in **green**.

Each Domain starts on a new page and is color-coded to the logo.

Increasing level of mastery

The framework is divided into the **Stages of Training**, with the Domain Descriptions and Learning Outcomes written for the transition point between each stage. Learning may commence at any time, but the expected level must be reached at the end of the indicated stage. All aspects of the ACEM Training Program (including teaching/learning resources and assessments) will be blue-printed to the Learning Outcomes at the relevant Stage of Training.

Learning Outcomes	*End PT*	*End AT 1*	*End AT 2*	*End AT 3*
Stages of Training	**Provisional Training**	**Advanced Training Stage 1**	**Advanced Training Stage 2**	**Advanced Training Stage 3**
Indicative Descriptor	Provisional Trainee	Junior Registrar	Registrar	Senior Registrar
Minimum Training Time	One Year	Four Years		
Minimum ED Time	6 months	12 months	18 months	

Increasing level of detail

The framework is divided into eight Domains of practice. Each **Domain** has a **Definition**, followed by a **Description** of the expected level of mastery, at each of the four stages of ACEM training. Each Domain is then further divided into several **Topic** areas, each with related **Learning Outcomes**. Each row represents a set of learning outcomes (sub-topics), which are in order of increasing expected level of mastery.

DOMAIN Definition of domain.			
Description of domain, at the level expected upon completion of **Provisional Training**.	Description of domain, at the level expected upon completion of **Advanced Training Stage 1**.	Description of domain, at the level expected upon completion of **Advanced Training Stage 2**.	Description of domain, at the level expected upon completion of **Advanced Training Stage 3**.

DOMAIN	On completion of **Provisional Training,** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Topic				
Sub-topic	Learning outcome. Learning outcome.	Learning outcome.	Learning outcome. Learning outcome.	Learning outcome
Sub-topic		Learning outcome. Learning outcome.	Learning outcome.	

MEDICAL EXPERTISE LISTS

Following the Domains and Learning Outcomes, a further level of detail is provided for the Domain of Medical Expertise in the form of **Lists**. These Lists describe the patient presentations and modifiers, as well as the procedures and investigations, which comprise contemporary Emergency Medicine practice in Australasia. Expected levels of mastery in procedural skills and the use of investigations are provided for each Stage of Training.

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THE DOMAINS

MEDICAL EXPERTISE Medical expertise is the core of a FACEM's professional work, and provides the foundation for all of the other domains of practice.			
On completion of **Provisional Training** the trainee will be able to independently assess and manage patients presenting with single system problems, whilst seeking advice from seniors on the assessment and management of patients with unfamiliar, complex, and critical presentations. They will be able to recognise an unstable patient and a patient that deteriorates from a stable condition; they will be able to initiate resuscitation in these patients. This will be achieved through the integration of the basic sciences into their practice, and through the use of clinical knowledge and skills acquired to date.	On completion of **Advanced Training Stage 1,** the trainee will be able to independently assess and manage a single patient who presents with either a complex or multi-system problem. They will seek assistance in the management of a patient who presents with both complex and multi-system problems. They will have developed a systeatic approach for the assessment and management of the stable patient with an unfamiliar presentation. They will be able to resuscitate and manage a critically ill or injured patient who responds to first-line therapy and will seek assistance for those patients who do not respond.	On completion of **Advanced Training Stage 2**, the trainee will be able to independently assess and manage a single patient who presents with complex multi-system problems and with unfamiliar problems, they will also seek advice and assistance while managing multiple patients. They will be able to resuscitate and safely manage a critically ill or injured patient, including those who are unresponsive to first-line therapy. In all these instances they will continually self-monitor to ensure they seek assistance when it is required.	On completion of **Advanced Training Stage 3**, a FACEM will use their medical knowledge and skills to deliver safe and effective care to any patient in the emerency medical setting.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Pre Emergency Medicine Encounter				
Collecting information		Gather and seek relevant information prior to an expected patient's arrival.	Interpret gathered information prior to an expected patient's arrival.	Consider departmental and hospital activity when accepting a patient transfer.
Preparation	Activate the appropriate predetermined hospital response prior to a patient's arrival.		Prepare to accept and resuscitate an expected patient.	
Advice	Acknowledge the risks of providing telephone advice. Redirect incoming callers appropriately as required.	The trainee will be able to provide appropriate advice regarding site-specific limitations in patient care delivery.	Dispense clear, simple guidance for patients phoning for advice, including appropriate time critical instructions. Advise on the need for a medical escort.	Direct a patient transfer from the pre-hospital environment to the most appropriate health care facility. Incorporate knowledge of the caller's local health resources when giving advice to off-site clinicians. Advise off-site clinicians on resuscitative measures and further management. Advise on the appropriate mode of transport for a patient transfer.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Initial Emergency Medicine Care				
Initial assessment	Identify high-risk features during initial patient assessment. Assess a patient in order to select and arrange appropriate preliminary investigations.	Perform a targeted risk assessment based on identified high-risk features.	Briefly assess a patient in order to select and arrange time critical investigations.	Rapidly determine the required investigations based on minimal information.
Clinical streaming	Describe the use of triage systems in the Emergency Department. Identify patients that should be managed in the resuscitation room.	Recognise the appropriate location within the Emergency Department for ongoing care.	Describe the benefits and limitations of triage systems in the Emergency Department. Allocate patients according to clinical streaming principles. Activate transfer of a patient to the resuscitation room.	Determine the most appropriate location for each patient within the Emergency Department
Diagnostic reasoning	Formulate a differential diagnosis based on the patient presentation.	Apply a problem solving approach to patient care when a provisional diagnosis cannot be determined.	Synthesise clinical information found on initial assessment to form both a provisional diagnosis and a differential diagnosis.	Generate a differential diagnosis from minimal information, with an inherent focus on the life and limb threatening conditions.
Initial interventions	Escalate care when high-risk features have been identified. Treat common symptoms with appropriate simple medical, physical and psychological therapies.	Initiate appropriate time critical interventions.	Initiate appropriate supportive treatment for any presenting problem.	Rapidly determine the need for time critical interventions based on minimal information obtained during initial patient assessment. Utilise an increased range of medical and physical therapies to provide initial targeted management.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Resuscitation and Stabilisation				
General principles	Explain the link between the basic sciences and common resuscitative treatments. Commence and follow appropriate resuscitation protocols and algorithms. Understand that resuscitation has a defined endpoint.	Commence a systematic concurrent assessment and resuscitation using first line therapeutic interventions. Understand that resuscitation should have defined treatment goals.	Continue and complete a systematic concurrent assessment and resuscitation using a broader range of therapeutic interventions. Arrange appropriate ongoing supportive management during and after resuscitation. Proactively search for life threatening conditions and perform lifesaving interventions as required. Recognise scenarios where ongoing resuscitation may be futile.	Adapt resuscitation skills to any patient presentations of any complexity. Define the treatment goals for resuscitation. Recognise and expedite any specific intervention essential to resuscitation. Cease resuscitation when a defined endpoint is reached. Demonstrate knowledge of organ donation principles and methods to facilitate this. Use knowledge of clinical injury and illness outcomes when counselling and debriefing after resuscitation.
Airway and ventilation	Assess adequacy of airway and ventilation. Recognise the patient whose airway and/or ventilation are compromised or at risk. Support airway and/or ventilation using basic interventions.	Demonstrate an approach to the management of abnormalities in airway and/or ventilation.	Secure a definitive airway and successfully ventilate the patient. Demonstrate an approach to the “can’t intubate, can’t ventilate” scenario. Anticipate and act to prevent complications in the management of airway and/or ventilation.	Definitively manage the “can’t intubate, can’t ventilate” scenario.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Circulation	Recognise shock and pre-shock states in patients and initiate basic circulatory resuscitation. Define types of shock and institute targeted first line circulatory resuscitation.	Demonstrate an approach to the management of severe abnormalities in circulation.	Establish the likely aetiology of the shocked state. Initiate advanced circulatory resuscitation targeted at defined treatment goals. Anticipate and prevent complications from shock and its treatment.	Adapt management of any circulatory emergency.
Disability / Neurological	Perform a brief neurological assessment. Initiate simple interventions to optimise and support the patient's neurological function.	Perform a focused neurological assessment specifically aimed at detecting or ruling out specific pathologies.	Initiate treatments specific to neurological pathologies. Anticipate and act to prevent secondary neurological injury.	Incorporate definitive neurological interventions within a resuscitative management plan.
Environment and exposure	Describe the importance of temperature regulation in resuscitation. Initiate appropriate non-invasive temperature control measures. Identify patients that may require decontamination.	Demonstrate an approach to the management of temperature trends in resuscitation. Initiate basic invasive temperature control measures targeted at a defined treatment goal.	Anticipate and act to prevent the potential complications of body temperature control and management. Initiate specific decontamination measures.	Initiate advanced invasive temperature control measures.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Core Emergency Medicine Care: Focused Assessment				
Clinical assessment	Use universal precautions when performing any assessment. Demonstrate consistent use of the focused assessment as the standard approach. Recognise that a structured ABCDE approach to the critically ill or injured patient is an example of a focused assessment. Describe the importance of history taking and how it forms the basis of the diagnostic process. Demonstrate the presence or absence of relevant physical signs in an appropriate examination. Perform a detailed subsequent systematic assessment in patients with more complex presentations.	Complete a focused clinical assessment while simultaneously looking for evidence of time critical diagnoses. Recognise inconsistencies within elements of the focused assessment that require clarification. Seek collateral history to support clinical findings.	Complete an accurate focused clinical assessment of an undifferentiated patient within a limited timeframe. Tailor assessment style to both the patient and the situation. Complete a focused clinical assessment of a patient to clarify the findings of a junior clinician.	Adapt the focused clinical assessment to situations with a paucity of clinical information. Conduct a fragmented focused assessment which becomes whole over time.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Diagnostic reasoning	Develop a problem list for a patient presentation. Generate a differential diagnosis to match each problem. Explain the link between the basic sciences and natural progression of disease to the patient's presenting complaint. Act on time critical investigations results as they arise.	Formulate a provisional diagnosis to match the immediate issues. Incorporate the concepts of likelihood and severity of disease into the differential diagnosis. Incorporate investigation results into the diagnostic reasoning process.	Refine the provisional diagnosis as more information comes to hand.	Summarise and prioritise the key issues that must be addressed during and following the emergency encounter.
Investigations	Use the basic sciences to describe and analyse raw information from investigations. Demonstrate mastery of the investigations as outlined in the Investigations List.	Perform rational investigation selection after completing a patient's clinical assessment. Demonstrate mastery of the investigations as outlined in the Investigations List.	Create a focused investigation plan that concentrates on confirming or excluding time critical diagnoses. Demonstrate mastery of the investigations as outlined in the Investigations List.	Justify investigation selection based on the patient's presentation, pre-test probability, risk-benefit ratio and resources of the local health service. Demonstrate mastery of the investigations as outlined in the Investigations List.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Core Emergency Medicine Care: Treatment				
General principles	Recognise treatments that fall outside the scope of Emergency Medicine care.		Understand the limitations of Emergency Medicine care.	Describe the scope of practice of Emergency Medicine.
Creating treatment plans	Integrate knowledge of basic sciences into treatment choices. Create a basic treatment plan according to the patient's provisional diagnosis.	Implement a definitive treatment plan once the diagnosis is determined. Demonstrate family-centred care when creating a treatment plan.	Modify the initial treatment plan in response to newly discovered clinical information. Tailor the treatment to the individual patient and situation.	Adapt standard therapies to any patient presentation of any complexity. Rectify sub-optimal treatment plans.
Procedures and monitoring	Select an appropriate procedure where required, after synthesis of clinical information. Incorporate the basic sciences when describing how to perform a procedure. Describe the equipment needed to perform a procedure. Complete all preparations prior to performing a procedure. Demonstrate mastery of the procedures as outlined in the Procedures List.	Demonstrate the safe use of common procedural equipment. Demonstrate mastery of the procedures as outlined in the Procedures List.	Demonstrate the safe use of critical care monitoring equipment. Anticipate and manage common complications during and after a procedure. Demonstrate mastery of the procedures as outlined in the Procedures List.	Demonstrate an approach for dealing with unforeseen complications when performing a procedure. Demonstrate mastery of the procedures as outlined in the Procedures List.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Core Emergency Medicine Care: Reassessment and Observation				
Reassessment	Re-assess the patient to evaluate response to treatment. Recognise and respond to a deteriorating patient by escalating patient care.	Create an appropriate ongoing reassessment and management plan. Modify the diagnosis and treatment plan as more information comes to hand.	Identify patients at risk of deterioration and escalate the level of observation and treatment accordingly. Use invasive monitoring to enhance the reassessment of complex and critically ill and injured patients.	Reassess and manage patients under the direct care of other staff when needed.
Observational medicine	Describe the general principles of observational medicine as applied to Emergency Medicine practice.	Generate an observational medicine management plan for identified patients.	Identify patients that require further observation and treatment prior to discharge.	Recognise and define the purpose and endpoint of observational medicine in the care of appropriate emergency patients.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Core Emergency Medicine Care: Documentation and Handover				
Documentation content	Demonstrate knowledge of the detail required for adequate, concise and legally sound documentation in Emergency Medicine. Use clinical notes to reflect the sequence of events during a patient encounter. Record clear discharge or admission orders. Understand the purpose of a discharge letter. Document handover of patient care.	Record performance of procedures including consent and management of complications with a clear understanding of the unique requirements for documenting information in the Emergency Department. Write a discharge letter that summarises important, relevant information for community health professionals.	Produce succinct patient records and convey clinical reasoning when documenting a patient encounter. Ensure clear documentation of the purpose and findings of a requested patient review. Record advanced care orders, limitations of treatment, and their reasons.	Write a pithy and accurate summary of the key issues in any patient's care.
Handover content	Transfer clinical information in a structured format during handover.	Clearly transfer unfinished assessment and management tasks during handover. Clarify outstanding tasks when receiving a handover.	Extract the salient points about the patient's care and present these in a structured manner during handover. Reassess and review management of the handover patient.	Ensure that outstanding tasks handed over are relevant to the current emergency encounter. Clarify and focus the clinical reasoning of the clinician providing information during handover.

MEDICAL EXPERTISE	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Patient Disposition				
Discharge planning	Create a safe and clear discharge plan for a patient. Provide understandable instructions for the patient on discharge, including the likely progression of their clinical course, and reasons to return for review. Provide the necessary discharge documentation.	Predict and facilitate ongoing treatment after the emergency encounter. Identify risk factors associated with patients wanting to cease their emergency care prematurely.	Identify the vulnerable patient who will require further support on discharge. Implement strategies to prevent a patient ceasing their emergency care prematurely.	Decide which delayed results prompt a recall of a patient to the Emergency Department for assessment. Create a plan that matches the level of risk for a patient who has ceased their emergency care prematurely.
Patient transfer		Escort a stable patient within a hospital to a high dependency level unit.	Transfer a critically unwell patient for further investigation and/or definitive care within a hospital. Prepare a stable patient for transfer to another hospital for definitive care.	Prepare a critically unwell patient for transfer to another hospital for definitive care. Arrange the transfer of a patient to another hospital. Perform an emergency escort of an unstable patient for definitive management when required.
Admission	Write an admission plan which addresses immediate and ongoing interim care.	Clearly define the transition between emergency care and inpatient care in the patient journey.	Decide and rationalise the admission of a patient to a specific inpatient unit based on a provisional diagnosis and expected clinical course.	Confirm and enhance admission plans created by more junior clinicians working within the Emergency Department.

PRIORITISATION AND DECISION MAKING In Emergency Medicine, safe patient care requires timely and medically appropriate decision making, often based on limited but evolving information.			
On completion of **Provisional Training**, the trainee will be able to independently prioritise a set of decisions, tasks, and referrals for a single patient, and will seek assistance when prioritising for several patients, and also their general workload. The trainee will begin to implement strategies that influence their decision making, which will result in safe patient care and work practices.	On completion of **Advanced Training Stage 1**, the trainee will be able to independently make and prioritise timely decisions regarding the care of multiple patients with a single system problem. They will have begun to recognise the factors that impinge on safe and effective decision making. They will have developed basic situational awareness and can adapt their work practices in response.	On completion of **Advanced Training Stage 2**, the trainee will be able to seek assistance when appropriate in order to make and prioritise timely decisions regarding the care of multiple patients with complex or multi-system problems. They will be able to accommodate a range of factors that impact on their own performance. They will have heightened situational awareness relating to both department and patient management, and respond accordingly.	On completion of **Advanced Training Stage 3**, a FACEM will be able to independently prioritise and make decisions regarding the care of any patient with any level of case complexity, whilst working in dynamic circumstances.

PRIORITISATION AND DECISION MAKING	On completion of **Provisional Training,** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Prioritisation of Patient Management				
The single patient	Apply accepted algorithms to prioritise treatment of a patient.	Prioritise the assessment and management of a patient with a simple presentation.	Prioritise the assessment and management of a patient with a complex or critical presentation.	Prioritise the essential components of care of any patient in the Emergency Department.
Workload	Conduct concurrent tasks, prioritised with guidance from their supervisor.	Adapt workload priorities in response to deterioration in a patient's circumstance or condition.	Adapt workload priorities in response to changes in departmental needs.	Delegate specific tasks from their own workload appropriately, according to departmental needs.
Multiple patients	Manage more than one patient at a time, with guidance.	Simultaneously assess and manage multiple patients with simple presentations.	Simultaneously assess and manage multiple patients with complex presentations.	Simultaneously assess and manage multiple patients with critical presentations.
Surge and disaster management	Respond to a surge of patient presentations or disaster code by altering work rate.	Respond to a surge of patient presentations or disaster code by accepting redeployment to different areas of the department.	Respond to a surge of patient presentations or disaster code by reprioritising workload.	Recognise a disaster situation and activate the appropriate organisational response. Apply modified risk stratification and prioritisation processes during patient surges and disasters. Apply clinical reasoning to justify patient care during patient surges and disasters.

PRIORITISATION AND DECISION MAKING	On completion of **Provisional Training,** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Clinical Risk				
Risk stratification	Understand the triage principles in the emergency setting. Identify high-risk features in a clinical assessment that increase the likelihood of a particular diagnosis. Define risk stratification in relation to diagnosis and prognosis.	Use a structured risk assessment tool or pathway, which is appropriate for the presentation, to create an investigation plan. Use a structured risk stratification tool or pathway to create a safe treatment and disposition plan.	Describe the advantages and disadvantages of applying triage scales. Use an appropriate structured risk assessment tool or pathway to estimate the likelihood of a particular diagnosis.	Describe the advantages and disadvantages of applying risk stratification tools and pathways. Use clinical acumen to individualise the risk assessment of a patient. Use clinical acumen to estimate the level of risk to a patient who has ceased their emergency care prematurely. Advise colleagues on risk stratification and prioritisation processes applied to clinical Emergency Medicine.
Patient safety	Understand the principles of patient safety in the emergency setting. Identify high-risk events that increase the likelihood of an adverse patient outcome.	Identify the human and departmental factors that may impact on patient care. Describe common barriers to safe and timely decision making. Identify the risks of clinical handover. Adopt behaviours to minimise the risk of error and suboptimal care.	Understand how human and departmental factors may contribute to error and suboptimal patient care. Recognise clinical handover as an opportunity to increase safety and accuracy in decision making.	Use effective strategies to minimise the risk of error and suboptimal care for any patient in the emergency setting. Use effective strategies to overcome barriers to safe and timely decision making.

PRIORITISATION AND DECISION MAKING	On completion of **Provisional Training,** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Decision Making				
General principles	Acknowledge clinical reasoning as a cognitive step in diagnosis and management.	Understand how analytical thinking and pattern recognition influence decision making.	Describe the cognitive steps in the clinical reasoning process. Describe causes of decision-making errors that occur in emergency settings. Incorporate input from colleagues to inform decisions.	Apply clinical reasoning to justify a decision that is made. Reflect on the clinical reasoning process to clarify why a decision is made. Explain the decision to limit assessment and treatment.
Initiating patient care	Decide to initiate resuscitation when a patient is recognised as critically ill or deteriorating.	Decide to commence an appropriate clinical treatment pathway matched to the patient presentation.	Decide appropriately what treatment to commence when supplied with incomplete and uncertain information.	Decide to recruit specific additional staff and resources to initiate time critical patient care.
Key decision making	Demonstrate an understanding that decisions must be made in order to progress patient care.	Identify distinct moments in the patient journey where a decision must be made in order to progress patient care. Make safe and timely decisions for a simple patient presentation.	Make safe and timely decisions for a complex or critical patient presentation. Facilitate early decision making by others to expedite patient care.	Justify own decisions as they occur and make timely corrections. Review the decisions of others to seek and address situations where either no decision or an incorrect decision has been made. Incorporate input from peers to inform shared decision-making for a complex critical patient where there is no clear course of action.

PRIORITISATION AND DECISION MAKING	On completion of **Provisional Training,** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Situational awareness	Define the principles of situational awareness. Recognise cause and effect of clinical events retrospectively. Closely monitor one obvious potential problem.	Recognise cause and effect of slowly evolving or predictable events as they occur. Manage the most immediate problem whilst remaining vigilant for other potential problems.	Anticipate and prepare for likely events in the near future. Manage multiple problems simultaneously whilst remaining vigilant for other potential problems. Filter crucial factors from the available information, and recognise when available information is incomplete.	Anticipate and prepare for multiple potential problems. Demonstrate continued situational awareness with increased task loading. Evaluate the integrity of the available information.
Disposition decision making	Justify the decision to admit a patient with a simple presentation.	Justify the decision to admit a patient with a complex non-critical presentation to a particular inpatient unit, based on a clear diagnosis. Justify the decision to admit a patient with a non-complex presentation to a critical care unit based on a clear diagnosis. Justify the decision to discharge a patient with a simple presentation.	Justify the decision to admit a patient with a complex presentation to a particular inpatient unit, based on provisional diagnosis. Justify the decision to admit a complex patient to a critical care unit based on expected clinical course. Justify the decision to discharge a stable patient with a complex presentation and a clear plan.	Negotiate referral of a patient to multiple specialities. Justify the decision to discharge a patient with a complex presentation after a prolonged period of observation. Justify the decision to transfer a patient to another health care facility. Specify the resources that will be required to address ongoing post-disposition patient needs.

COMMUNICATION Effective communication is particularly challenging in Emergency Medicine where multiple exchanges occur with different people in a busy environment.			
On completion of **Provisional Training**, the trainee will be proficient in communicating clearly and accurately with patients and colleagues in uncomplicated situations. The trainee will begin to learn strategies to communicate in difficult situations. The trainee will also demonstrate accurate and concise written communication skills.	On completion of **Advanced Training Stage 1**, the trainee will be able to rapidly and effectively establish rapport and trust through their communication skills. They will be able to focus their communication to meet the needs of different people and circumstances. They will recognise, stabilise, and seek further advice in difficult communication situations including the delivery of bad news with empathy.	On completion of **Advanced Training Stage 2**, the trainee will maintain effective professional and patient-centred communication in a complex environment. They will have an expanded skill repertoire to adapt their communication in most circumstances. The trainee will be able to use their communication skills to resolve difficult situations and to deliver bad news in most situations whilst recognising when to also involve others.	On completion of **Advanced Training Stage 3**, a FACEM will establish optimal rapport and be able to communicate effectively in complex circumstances, with speed and accuracy.

COMMUNICATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Principles of Effective Communication				
Foundations of good communication	Identify the key types of communications that occur in Emergency Medicine. Describe all components of good communication. Describe the key principles and outcomes of active listening in the Emergency Medicine context. Identify whether communicated information has been understood.	Demonstrate the ability to establish rapport. Interpret the non-verbal cues of others. Identify the risks associated with ineffective communication. Adapt communication style to minimise errors in patient assessment and management.	Tailor communication style to the needs of the individuals involved. Display the use of verbal and non-verbal communication skills to assist in the de-escalation of conflict. Display the use of active listening to explore a patient's concerns and expectations.	Demonstrate a diverse range of strategies that enhance effective communication within the workplace. Adapt communication effectively during complex and time critical events.
Health Literacy	Define health literacy and how it impacts on the exchange of information in the clinical setting.	Identify strategies for assessing and improving health literacy.	Convey clear information about diagnosis, risk/benefit considerations, and treatment options to a patient, tailored to their age, cultural background and health literacy. Implement strategies for assessing and improving health literacy.	Demonstrate the ability to reach a negotiated understanding of the individual patient's situation and create a shared management plan.

COMMUNICATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Barriers to effective communication	Identify barriers to effective communication within the Emergency Medicine context. Identify the key aspects of communicating with patients who have medical conditions that affect their ability to communicate. Recognise situations where working with an interpreter is appropriate.	Apply strategies to overcome communication barriers within the Emergency Department context. Recruit and use additional resources to communicate with patients with extra communication needs. Demonstrate ability to work effectively with professional interpreters.	Effectively negotiate the risks involved when required to communicate through non-professional interpreters.	Provide skills, advice and resources to overcome communication barriers and minimise risk to patient care.
Conveying bad news	Describe factors that may cause information to be interpreted as bad news by a patient or carer. Recognise that the way bad news is delivered can have long term effects on a patient or carer.	Prepare an appropriate environment to convey bad news. Communicate bad news clearly and sensitively to a patient and/or carer, and convey acceptance of their reaction. Empathise with and support a patient and/or carer when conveying bad news.	Demonstrate an understanding of the diverse range of expressions of bereavement and grief. Develop strategies to professionally manage the emotional reactions invoked when conveying bad news. Recognise when the patient and/or carer will require further opportunities and support to fully comprehend the information delivered.	Demonstrate a broad range of communication strategies to facilitate discussions around sensitive issues with patients, families and other staff.

COMMUNICATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Effective written communication	Create clear, accurate, legible and timely patient records. Create a discharge or referral letter that summarises the current patient episode and any outstanding issues. Ensure that the handover of care is appropriately documented.	Operate electronic patient management systems to update patient's management status regularly. Demonstrate effective use of electronic communication with primary health clinicians and community health agencies.	Demonstrate an understanding of the benefits and risks associated with electronic patient management systems. Write a concise discharge or referral letter that clearly outlines the ongoing management issues for a patient with multiple and complex post-discharge needs. Use available handover tools to document the transfer of clinical care.	Record concise clinical summaries that clarify patient care plans. Support junior staff in writing effective discharge letters that highlight key issues succinctly.
Intercultural communication	Describe the key principles of intercultural communication. Describe the impact of cultural and linguistic differences on effective communication and patient outcomes. Describe culturally diverse communication styles. Recognise importance of asking all patients about their ethnic or cultural identity.	Recognise cultural influence on own communication styles. Recognise cultural difference in non-verbal cues and symptom expression. Demonstrate awareness of linguistic diversity, including Indigenous language use. Collaborate with Indigenous health care workers and other cultural support staff to optimise communication.	Integrate intercultural knowledge into all communications within the emergency medical setting. Identify when cultural differences can lead to miscommunication within the emergency medical setting. Recognise culturally diverse communication styles and adapt communication style appropriately.	Demonstrate proficiency in intercultural communication within the context of Emergency Medicine.

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Communication with Patients, Carers and the General Public				
Communicating with patients	Elicit a thorough, relevant and accurate medical history. Obtain collateral history from carers and witnesses. Communicate the likely diagnosis and treatment plan to a patient. Provide clear discharge information to a patient, including written material where appropriate.		Elicit a history in a focused and timely manner, while acknowledging the patient's other expressed concerns. Elicit the beliefs, wishes, expectations and concerns of the patient, with regard to their problem(s), diagnosis and treatment plan.	Demonstrate effective communication with patients in any situation.
Communicating with paediatric patients	Identify the key aspects of communication with paediatric patients and their families or carers.	Describe in broad categories the developmental stages of paediatric communication, from the pre-verbal age to adolescence. Utilise age appropriate communication with paediatric patients.	Elicit the beliefs, wishes and expectations of a paediatric patient's parent or carer, with regard to their child's problem(s), diagnosis and treatment plan. Convey clear information about diagnosis, risk/benefit considerations, and treatment options to a paediatric patient and their parent or carer. Balance the communication needs of a paediatric patient with those of their parent or carer.	Adapt communication style to effectively engage a paediatric patient and their parent or carer.

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Communication with the general public and local media	Apply local media relation policies and refer enquiries appropriately.		Identify clinical situations which may trigger a media enquiry and communicate this to senior clinicians.	Create responses to media enquiries with the aid of standard hospital communication processes.
Communicating with Colleagues				
Communication during handover	Present a thorough, accurate verbal handover of a single patient, to another team member. Acknowledge acceptance of the responsibility for the clinical care of a patient.	Communicate clear, succinct, and focused information at patient handover to members of a multidisciplinary team. Clarify the management plan, and any assigned specific tasks to be completed, when accepting clinical care of a patient.	Highlight the priorities and potentially time critical points of care for an individual patient during handover. Accept responsibility of a number of outstanding clinical tasks for multiple patients at a shift handover.	Facilitate a formal handover to an incoming multidisciplinary team. Clarify and prioritise the issues in unstable patients at a formal handover. Provide clear succinct information about the overall condition of the Emergency Department during handover. Adapt own personal communication style to fit with local practice of handover.

COMMUNICATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Communication for referrals	Accurately convey the assessment findings, provisional diagnosis, management plan, and reason for referral, when referring a patient to a professional colleague for consultation, admission, or follow-up. Demonstrate effective telephone communication skills.	Apply structured referral techniques to effectively communicate to colleagues.	Adapt communication skills to enhance the exchange of clinical information with a colleague. Accurately highlight the immediate care needs and management priorities during referral. Adapt communication style to ensure effective telemedicine communication and consultations.	Apply the principles of appropriate, professional communication when making a referral to another specialist which is challenging Demonstrate effective communication skills when leading a telemedicine consultation.
Communication in the resuscitation setting	Effectively communicate the need to activate a resuscitation team. Effectively communicate that a patient has deteriorated. Contribute to a resuscitation team's information exchange.	Identify when other team members require assistance with their role, and communicate this to the team leader. Demonstrate the ability to use graded assertiveness to communicate patient safety issues to the team leader.	Deliver pertinent, clear, concise and explicit instructions when giving orders as a resuscitation team leader. Seek verbal confirmation from team members, to ensure instructions are understood as a form of closed loop communication. Provide a clinical update to other medical staff without interrupting the resuscitative efforts of the team.	Demonstrate a broad range of communication styles to confirm leadership in a resuscitation team. Employ active listening as a resuscitation team leader. Provide positive messages to other team members to encourage their best performance.

COMMUNICATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Communication within the extended team	Inform other team members of relevant patient care issues in a timely fashion. Summarise a patient's assessment and management plan to another team member.	Seek relevant information from colleagues and peers in the process of patient assessment and delivery of care.	Clearly communicate with all stakeholders to ensure safe patient discharge.	Clearly communicate with other health professionals in any Emergency Medicine situation.
Communication and feedback	Use questions to clarify relevant points when receiving feedback.	Identify the key communication principles for delivering effective immediate and formal feedback.	Provide effective immediate constructive feedback to peers and junior medical staff.	Provide effective immediate constructive feedback to any professional colleagues.

TEAMWORK AND COLLABORATION Teamwork and collaboration in Emergency Medicine is of pivotal importance both within and beyond the Emergency Department.			
On completion of **Provisional Training**, the trainee will be able to participate as an effective team member to treat all emergency patients. The trainee will be able to co-ordinate an initial team to resuscitate patients until senior clinicians arrive. The trainee will also be able to collaborate and consult with patients, family members, and other health professionals to enact patient management plans.	On completion of **Advanced Training Stage 1**, the trainee will have begun to develop a range of skills that enable them to assume different roles in a team context. They will be able to undertake an increasing number of appropriately designated roles. The trainee will be able to act as a team leader in a straightforward clinical scenario with support and in a complex clinical scenario under supervision. They will collaborate across interprofessional teams and in these exchanges predominantly rely on the contribution of team members to provide effective patient care.	On completion of **Advanced Training Stage 2**, the trainee will be able to demonstrate confidence and flexibility in adapting to any team member role as directed to treat any emergency patient. The trainee will be able to function as an effective team leader in most clinical scenarios. The trainee will be able to collaborate with patients, family members and other health professionals on issues beyond the immediate clinical scenario.	On completion of **Advanced Training Stage 3**, a FACEM will be effective at both managing and participating in an interprofessional team, particularly at times of high stress and medical emergency.

TEAMWORK AND COLLABORATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Principles of Teamwork				
The function of a team	Describe the benefits of good teamwork when working in an emergency setting. Demonstrate an understanding of the risks for patient care and health care outcomes if inadequate teamwork is not recognised or addressed.	Describe the features of good teamwork. Describe how communication and personality affect team performance.	Integrate teamwork principles into daily practice relevant to optimal care of individual patients. Describe potential strategies for addressing ineffective teamwork in an Emergency Department environment. Reflect on their performance within a team for the purpose of ongoing improvement.	Actively apply teamwork strategies to maintain optimal patient care across the range of situations in an Emergency Department. Identify gaps, anomalies and strategies to improve team processes and functions. Intervene when suboptimal teamwork is observed in order to minimise errors in patient care. Use immediate conflict resolution strategies to optimise teamwork as required. Reflect upon overall team performance and promote processes which will support ongoing improvement.

TEAMWORK AND COLLABORATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Working with a team	Demonstrate an understanding of the scope of practice of all staff working in the Emergency Department. Demonstrate an understanding of the scope of practice of pre-hospital health care staff.	Describe the members needed for an effective multidisciplinary Emergency Department team. Integrate the knowledge and skills of other clinicians involved to arrive at an optimal plan for patient care Incorporate the patient and other appropriate carers as team members when deciding and providing patient care.	Perform as a member of a well-functioning team with all other clinicians in the immediate patient encounter. Support the performance of other team members to produce optimal teamwork.	Provide support as required for fellow team members during and after the patient encounter.
The Effective Emergency Department Team				
Team member	Contribute effectively to one team role assigned by a supervisor/lead clinician. Seek help from a senior emergency clinician to perform the team member role to guarantee best patient care. Demonstrate self-awareness and insight into own and others competence and confidence when performing different team roles.	Take on different roles within a team during a patient encounter, and during a shift. Utilise good communication skills to enhance their function as a team member.	Use all principles about good teamwork to ensure effective functioning as a team member. Proactively assist junior colleagues in the assessment and management of their patients. Demonstrate ability to alert a team leader to issues arising within the department.	Encourage, assist and promote effective team work with any clinician who works in the emergency setting.

TEAMWORK AND COLLABORATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Team leader	Recognise and collaborate with the allocated medical team leader during a shift in the Emergency Department.	Describe the characteristics of a good team leader on a shift. Commence team leader duties by assisting junior colleagues with their clinical patient care.	Perform as a good team leader in a variety of Emergency Department settings. Assemble effective clinical teams in different Emergency Department contexts.	Support junior members in a team leader role (for less complex resuscitations). Provide immediate debriefing to team members when required.
Collaboration within the Emergency Department team	Use the collective knowledge of fellow Emergency Medicine clinicians on duty to ensure the creation of appropriate patient care plans. Use the knowledge and skills of pre-hospital medical and paramedical clinicians and other emergency services personnel to optimise the care of emergency patients. Actively collaborate with emergency allied health staff to enhance patient care.	Collaborate with fellow Emergency Medicine clinicians for the purposes of education, informal debriefing, and informal peer review.	Collaborate with other Emergency Medicine professionals for the purposes of contributing to the creation of best practice guidelines. Resolve conflict between Emergency Department team members to ensure ongoing optimal patient care.	Collaborate with other Emergency Medicine professionals for the purposes of research, clinical governance, formal debriefing and formal peer review.
The Effective Resuscitation Team				
The resuscitation team	Demonstrate an understanding of effective teamwork principles when assigned to a resuscitation team role.	Undertake a variety of different resuscitation team roles. Demonstrate flexibility and adaptive behaviours when working in a team.	Demonstrate effective teamwork principles when working in teams of various numbers and skill levels.	Perform any resuscitation team roles effectively, including team leader.

TEAMWORK AND COLLABORATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Team Leader	Undertake the role of team leader during an initial resuscitation with the use of basic resuscitation skills until senior colleagues can assist.	Undertake the role of team leader during a routine resuscitation which responds to first line therapy. Respond appropriately to questions asked by team members during a resuscitation.	Allocate and brief a resuscitation team prior to the arrival of a critical patient. Undertake the role of team leader during a resuscitation which requires more advanced therapeutics. Step in and out of the team leader role without disrupting the functioning of the team as required.	Lead resuscitation in any scenario. Support junior staff in routine team leader roles.
Debriefing in resuscitation	Reflect on own performance, and that of the team as a whole, with guidance from the team leader.	Demonstrate reflection and provide constructive feedback to other team members during a debriefing.	Lead a team debrief after a straightforward resuscitation. Prompt team members to provide constructive feedback during a debriefing.	Lead a team debrief after a complex resuscitation. Recognise the need for additional resources to aid in debriefing, particularly in highly emotional resuscitation scenarios. Contribute to ongoing quality improvement as a result of a debriefing session.

TEAMWORK AND COLLABORATION	On completion of **Provisional Training** the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Collaboration in Emergency Medicine				
Multidisciplinary collaboration	Describe the role of each member of the multidisciplinary team. Perform the necessary tasks in standard multidisciplinary clinical pathways for appropriate patients. Collaborate effectively with the patient's primary health care provider to ensure best outcomes in patient care. Collaborate in a culturally appropriate way with Indigenous health care workers and other cultural support staff to optimise cultural safety.	Demonstrate the ability to make an appropriate referral to a member of the multidisciplinary team. Incorporate knowledge from non-emergency clinicians to refine the differential diagnosis. Use a multidisciplinary approach to create clear ongoing patient care plans with other hospital clinicians.	Proactively access community services to aid in providing supportive care in the community. Resolve conflict between multidisciplinary teams to ensure ongoing patient care.	Contribute to improving hospital systems to support best patient care through multidisciplinary collaboration. Demonstrate skills to allow collaboration with clinicians outside Emergency Medicine for interprofessional education. Promote collaboration with Indigenous health care workers and other cultural support staff to improve cultural safety through furthering knowledge and respect of the cultural background of patients.
Collaboration with the patient and family members/carers	Collaborate with patients and family members/carers to create and enact patient management plans for the immediate encounter.		Collaborate with patients and family members/carers on issues of patient care beyond the immediate clinical encounter.	Collaborate with the family/carers, the patient, and the health system to produce family centred and patient-centred care.

LEADERSHIP AND MANAGEMENT A FACEM is skilled in management of self, multidisciplinary teams and the operational requirements of their workplace.			
On completion of **Provisional Training**, the trainee will be able to lead by being a positive role model to junior staff. They will be effective in obtaining assistance, as required, when managing their workload. They will also contribute to the operations of their working environment with the support of their DEM and DEMT, including the participation in departmental quality improvement activities.	On completion of **Advanced Training Stage 1**, the trainee will be able to effectively multitask to manage their individual workload. They will be able to manage a department when they are the most senior clinician on duty, and recognise when to devolve their responsibility to a more senior clinician. They will have begun to contribute to the broader functioning of the Emergency Department by engaging in the supervision of competent junior clinicians.	On completion of **Advanced Training Stage 2**, the trainee will comfortably manage an Emergency Department with remote senior support, and will be able to clearly identify when and how to activate support systems. The trainee will be able to supervise the clinical work of all junior clinicians working on their shift. The trainee will understand the role of the Emergency Department within the whole hospital system, and the contribution of these systems to patient safety.	On completion of **Advanced Training Stage 3**, a FACEM will be able to lead, supervise, and manage care within the emergency medical setting to ensure optimal patient safety and outcomes.

LEADERSHIP AND MANAGEMENT	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Human Resource Management				
Workplace obligations	Abide by the rules and obligations as determined by their employer.		Assist in performing local credentialing processes required for junior clinicians to continue working.	Ensure junior medical staff comply with local policies and procedures that define their place of work.
Conflict resolution	Describe how and why conflict occurs and its impact on patient care. Identify observed strategies that prevent and resolve conflict. Resolve conflict that arises with another colleague with assistance of a third party.	Recognise signs of potential conflict. Recognise clinical situations that may lead to conflict. Apply basic strategies to manage conflict.	Recognise the importance of an approved process for reporting conflict incidents to a supervisor. Evaluate methods to prevent and/or resolve conflict escalation with peer support. Recognise and work through conflict with other staff members. Demonstrate creative and flexible thinking in problem solving.	Resolve conflict between junior staff members in the workplace. Support junior medical staff and other colleagues to manage and resolve conflict. Negotiate an acceptable outcome to conflict, either individually or through leading a team.
Shift work	Acknowledge the need to adhere to workplace regulations regarding shift work.	Identify the common challenges and stresses involved when participating in shift work. Identify potential strategies to minimise and eliminate risks associated with providing a 24-hour service.		Describe the principles of shift work, rolling rosters and industrial work force requirements to ensure ongoing clinical cover.

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Operational Management in the Emergency Department				
Key performance indicators	Show an awareness of the existence and purpose of departmental key performance indicators.	Collect data for key performance indicators.	Describe the purpose of key performance indicators. Analyse and review data obtained for key performance indicators.	Make recommendations based on results obtained for key performance indicators.
Service gap	Define the term 'service gap' as it applies to the Emergency Department.	Identify a service gap within their Emergency Department.	Explore possible solutions with their seniors for filling an identified service gap.	Describe examples of how a service gap is related to gaps in the whole health system and how this affects patient care.
Change management	Describe observations which show how different problem solving approaches can achieve the same result within the clinical environment.	List the principles of change management.	Identify areas and processes where departmental function can be improved. Explain how change management can effectively manage an introduction of a new policy or process.	Describe how to be a departmental advocate for change within a broader organisational change management project.
Finance and Emergency Medicine	Understand that there are cumulative and relative costs for tests and treatments when creating patient care plans.	Describe briefly how the principles of cost benefit analysis are used when developing definitive management plans for patient care.	Create and justify cost-effective testing and treatment plans when performing patient care.	Outline the cost of health care to both the consumer and the hospital. Add elements of a business case when drafting a proposal for change.

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Infection control	Describe the principles of barrier care. Describe some of the reasons behind creating infection control regulations.	Integrate infection control principles into daily clinical practice.	Facilitate contact tracing and follow up conducted by external public health authorities.	Contribute to the development of policy and procedures on infection control and barrier care. Develop and implement changes resulting from quality activities associated with infection control. Adapt infection control procedures to successfully manage disasters.
Leadership				
Leadership	List some skills in leadership and management that may be needed to run a shift.	Describe the differences between the characteristics of a leader and a manager.	Apply the concepts of leadership to daily clinical practice. Apply the knowledge and skills of being a good manager to daily clinical practice. Be a role model for junior clinicians as an example of leadership.	Effectively lead the staff of an Emergency Department during a shift. Able to participate in simple management tasks as directed by their direct line manager. Represent the Emergency Department and be a champion for its priorities.
Emotional intelligence	Define emotional intelligence. Observe and reflect on some examples of how it might apply to clinical practice.	Describe the application of emotional intelligence to the management of patients and families.	Apply understanding of emotional intelligence to the management of patients and families. Apply understanding of emotional intelligence to working in a team.	Acknowledge and understand differences between the personalities of peers. Demonstrate a capacity to understand and manage emotions in a professional and effective manner.

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Roles and Responsibilities in the Emergency Department				
Organisational structure	Define what an Emergency Department does. Describe the organisational structure of their Emergency Department and its interdepartmental links.	Describe the concept of reporting lines and direct line managers.	Describe how an organisational structure can aid in delivering emergency health care. Demonstrate an understanding of the gatekeeper role of the Emergency Department with respect to patient access to the health care system.	Effectively use the organisational structure of their workplace to deliver emergency health care. Identify different models of care used by different Emergency Departments. Describe a range of models of care used by emergency services.
Roles and responsibilities	Describe their role, responsibilities and accountabilities in the Emergency Department.	Describe the purpose of different roles and clinical support tasks in an Emergency Department.	Explore the range of roles and responsibilities that represented managers perform in different types of Emergency Departments and services.	Take on a key clinical support portfolio. Contribute to Emergency Department decision making and accountability systems.
Formal appraisal	Describe the purpose of a formal appraisal.	Describe the components of a formal appraisal. Contribute information, when asked, for a formal appraisal of junior staff.	Advise which domains need to be addressed in a formal appraisal process for junior staff and associated strategies	Undertake a formal appraisal of a junior clinician.

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Medico-legal reports	Write a medico-legal report on a patient with assistance. Demonstrate an understanding of the purpose and format of a police or coronial report. Present evidence in court after pre-review by senior clinicians.	Write a medico-legal report autonomously and submit it for review. Complete accurate police statements.	Critique examples of medico-legal reports and revise as needed. Create an accurate notification report to the coroner. Present a summary of recommendations from medico-legal reports to a forum of peers to identify potential improvements in service delivery.	Oversee the submission of a medico-legal report in a timely manner.
Operational Management of the Floor				
Clinical supervision	Describe the concept and purpose of clinical supervision. Reflect on their clinical practice to ascertain their required level of clinical supervision.	Supervise the clinical work of junior clinicians. Describe the types of clinical supervision performed on the floor.	Identify and report an underperforming staff member.	Supervise any clinical activity during a shift. Provide time critical counselling for an underperforming junior staff member. Demonstrate a variety of supervisory strategies in the workplace.

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Patient flow and departmental workload	Describe the components of the patient journey through the Emergency Department. Reflect on their clinical practice to improve the speed of processing a patient.	Demonstrate an understanding of department overcrowding and access block. Describe the effect of access block and overcrowding on patient care and clinical outcomes. Function efficiently in clinical teams that follow prescribed models of care. Demonstrate the utility and application of Emergency Department information systems and its role in patient flow.	Identify clinical management processes that can be used to streamline the patient's journey through the Emergency Department. Demonstrate efficient work practices. Assist junior staff on more efficient patient processing. Describe how the layout of an Emergency Department can impact the patient's journey. Demonstrate knowledge of the components of a hospital and/or Emergency Department escalation plan. Recognise when local resources are overwhelmed and activate the escalation policy when appropriate. Adopt techniques used to manage patient surges.	Manage the Emergency Department at times of patient surge. Analyse and manage staffing allocations to improve patient flow. Collaborate with other inpatient services to improve patient flow during patient surges. Use data on patient flow in the Emergency Department to improve patient care. Make suggestions to improve Emergency Department information systems to complement patient care.

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Mass casualty incidents	Define the mass casualty incident.	Locate and show familiarity with the local policy for mass casualty incidents.	Participate in hospital escalation and exercises for mass casualty incidents.	Manage the Emergency Department when a disaster code is activated, in collaboration with local mass casualty incident managers. Demonstrate knowledge of how to participate in clinical teams in the field during mass casualty incidents.
Patient Safety and Quality Management				
Patient safety	Describe the process of patient safety. Understand that errors occur in health care.	Describe the relationship between human factors, systems and patient safety and apply to a patient's care.	Review errors and adverse events to improve patient safety. Demonstrate an awareness of patient safety principles in the management of patients.	Demonstrate an awareness of patient safety principles in the management of an Emergency Department.
Quality management	Describe the purpose of quality improvement activities.	List different types of quality improvement activities and measures.	Identify opportunities for quality improvement within the Emergency Department.	Describe the concept of clinical governance. Describe the elements of Quality Management prescribed within the national health care standards.

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Data collection	Contribute to the collection of data for a quality review.	Understand the principles behind the methodology for the collection of data for quality activities.	Participate in an Emergency Department quality review project. Demonstrate an awareness of the major national clinical data registers and reporting systems in Australia and New Zealand.	Lead a team to collect data for quality assurance, clinical audit and other risk management activities.
Audits	Describe the function of clinical audits. Participate in the collection of data for clinical audits.	Describe the types of clinical audits done in their workplace.	Conduct a simple clinical audit.	Lead a team to conduct a clinical audit. Collate, analyse and present audit data to their peers. Create recommendations based on an audit analysis.
Incident reports	Demonstrate an understanding of the purpose of incident reporting processes.	List types of incidents that require reporting.	Write a workplace incident report independently.	Write a report for the Clinical Director in response to a workplace incident. Stratify Risk and manage any clinical incidents.

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Morbidity and Mortality review	Describe the purposes of a departmental Morbidity and Mortality review. Attend departmental Morbidity and Mortality meetings. Present a case as part of a Morbidity and Mortality meeting with assistance.	Identify learning outcomes from sentinel events presented at Morbidity and Mortality meetings. Constructively engage in and learn from the discussion at a Morbidity and Mortality meeting.	Lead a Morbidity and Mortality presentation session in the workplace. Appropriately implement recommendations from a Morbidity and Mortality meeting.	Manage the process of a departmental Morbidity and Mortality meeting and its application in the quality cycle. Represent the Emergency Department in a larger hospital wide quality improvement activity. Implement system changes to improve patient care as a result of an investigation into a sentinel patient care event.
Systems failure	Describe the system errors identified when presented in departmental Morbidity and Mortality meetings.	Understand the different types of error and system failures that commonly occur in Emergency Medicine.	Perform a review of errors leading to adverse outcomes and identify how such a review can lead to improvements in patient safety.	Instigate a review of a system error using a Root Cause Analysis approach.

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Patient Complaints				
Bedside response to complaints	Listen and document the patient's immediate complaint. Refer the complaint in real time to their shift supervisor.	Respond to simple patient complaints at the bedside.	Recognise and manage the immediate effects of any complaint on any team member during a clinical shift.	Support junior clinicians in responding to a complaint.
Complaints procedure	Describe the local regulations pertaining to the patient's code of rights. Recognise the rights of patients, family members and carers to make a complaint. Demonstrate an awareness of the local patient complaints procedure. Proactively seek assistance in responding to requests for statements regarding a complaint. Provide timely, accurate written responses to complaints, with assistance, when required.	Demonstrate an awareness of the profile of complaints and their management within the Emergency Department and service. Identify the root cause of a patient's complaint. Contribute to the creation of a written response to a complaint. Field and refer a complaint to appropriate shift/department managers in real time. Review own role in the episode that lead to the complaint and respond appropriately, with assistance.	Recognise all factors likely to lead to complaints (i.e. poor communication). Manage simple patient complaints. Provide evidence for case reports in response to an investigation into patient care.	Define the basic principles, policy and procedures for managing local patient complaints. Manage a complaint in a timely manner to deliver an action plan. Write case reports in response to an investigation into patient care. Lead a Root Cause Analysis process in response to a complaint.

HEALTH ADVOCACY In Emergency Medicine there are multiple opportunities to advocate for those who are vulnerable, and to address disparities.			
On completion of **Provisional Training**, the trainee will advocate for the best immediate outcome for their patients in relation to accessing available health resources. The trainee will also have an awareness of factors, such as the social determinants of health, which affect their patients outside of their Emergency Department encounter.	On completion of **Advanced Training Stage 1**, the trainee will regularly screen for factors that affect health outcomes in emergency patients. The trainee will be able to utilise local available resources and intervene to improve health outcomes. They will advocate for a patient's best interests from presentation to the safe discharge from the Emergency Department.	On completion of **Advanced Training Stage 2**, the trainee will systematically screen and intervene to protect and advance the health and well-being of all patients within the Emergency Department. When managing a patient the trainee will integrate the broad range of factors which affect that patient beyond their Emergency Department encounter. The trainee will proactively engage in health promotion.	On completion of **Advanced Training Stage 3**, a FACEM will be able to use their expertise and influence to protect and advance the health and well-being of any individual patients, communities and populations.

HEALTH ADVOCACY	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Principles of Health Advocacy				
General principles	Define patient-centred care. Recognise the duty of the medical professional to act as a patient advocate.	Deliver patient-centred care within an individual presentation. Define health advocacy in relation to Emergency Medicine.	Balance patient autonomy with best clinical practice in patient encounters. Demonstrate knowledge of patient rights and consumer advocacy guidelines as they apply to Emergency Medicine.	Exhibit health advocacy systematically in patient care Use consumer advocacy resources to advise patients on issues relating to Emergency Medicine.
Access to emergency care	Describe the socio-economic, organisational, geographical, psychological, and cultural factors that influence the likelihood of a patient accessing health care. Identify local resources available to address barriers to accessing health care.	Utilise relevant allied health and patient support staff to address barriers to accessing health care.	Proactively identify barriers to accessing health care within an individual presentation and develop tailored strategies to address these.	Advocate systematically for improved access to health care at an Emergency Department level.
Screening	Participate in the collection of illness and injury data. List and explain the risk factors for common illnesses and injuries, addiction, abuse, neglect and violence. Explain the rationale for screening, immunisation and contact tracing.	Routinely screen for recognised risk factors in patients presenting with common illnesses and injuries. Screen patients systematically for risk factors for addiction, abuse, neglect and violence. Initiate emergency care, advice and referral for patients in whom screening identifies risk factors.	Explain the use of illness and injury data. Provide appropriate emergency care, advice and referral to patients in whom screening identifies risk factors.	Screen patients in a focused manner according to knowledge about societal trends and current public health surveillance data. Respond actively to common public health initiatives that impact on Emergency Medicine.

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Health promotion	Identify the interaction between mental, physical and social well-being in relation to health. Provide basic health promotion and immunisation when requested.	Opportunistically promote healthy lifestyle choices and provide simple health promotion messages to all patients.	Contribute to the creation of management plans that include health promotion for all ED patients	Contribute to the creation of tailored management plans with a focus on complex recurrent patients. Systematically develop management plans that include health promotion.
Cultural Competence				
Culture and Emergency Medicine	Demonstrate willingness to learn about other cultures. Demonstrate an awareness of the diversity of languages, customs and values of their patients and colleagues. Demonstrate understanding of the risks of stereotyping people from other cultures. Recognise that Emergency Medicine has its own culture, which may be unfamiliar to a patient.	Reflect on their own culture and their attitudes towards cultural differences. Identify and challenge their own assumptions about people from other cultures. Explain how cultural factors may influence expectations regarding illness, emergency care and the health care system in general. Describe cultural factors that might create conflicting priorities between patient and clinician.	Demonstrate the skills required to deliver patient-centred care to people from diverse cultural backgrounds. Display empathy and respect towards people from other cultures. Describe the impact of the culture of the Emergency Department on delivering patient-centred care.	Care for patients of any cultural background without prejudice, assumptions or judgement of cultural differences and with respect to culturally-mediated priorities and choices. Define the term cultural safety and advocate for the delivery of culturally safe emergency care. Challenge individual and systemic forms of discrimination within the Emergency Department and health care service.

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Culturally appropriate services	Identify and utilise resources that are locally available for culturally diverse patients in the Emergency Department. Identify and liaise with local culturally appropriate primary health care services.	Recognise the culturally diverse roles of family in decision making and service utilisation.	Tailor emergency care to the specific cultural needs of the patient. Identify and collaborate with appropriate family members of patients, taking into account cultural preferences for decision making and care roles.	Advocate for the provision of appropriate resources for culturally diverse patients within the Emergency Department, hospital and community. Promote and sustain relationships with external organisations to improve the delivery of health care to culturally diverse patients.
Health Advocacy for Specific Groups				
Vulnerable patients	Define the vulnerable patient as being a person who is at greater risk of adverse events within the emergency health care system. Recognise patients who are clearly vulnerable due to factors such as age, physical or mental disability, poor health literacy or adverse social determinants of health. Understand that vulnerable patients are likely to have complex management issues that require senior staff input.	Routinely assess for vulnerability factors as part of the emergency assessment. Identify and utilise resources that are locally available for vulnerable patients in the Emergency Department. Recognise that vulnerability factors can lead to patients using the Emergency Department as their primary method of accessing health care.	Tailor emergency care and disposition decisions to account for the presence of vulnerability factors. Integrate emergency care with the involvement of appropriate support services to provide holistic care to a vulnerable patient. Proactively supervise junior staff managing a vulnerable patient.	Advocate for the provision of appropriate resources for vulnerable patients within the Emergency Department, hospital and community. Promote and sustain relationships with external organisations to improve the delivery of health care to vulnerable patients. Contribute to the creation of a tailored management plan for a vulnerable patient with recurrent presentations to the Emergency Department.

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Indigenous health	Routinely ask patients about Indigenous status. Recognise an Indigenous person as someone who identifies themselves as Indigenous, and is accepted as Indigenous by their community. Identify and utilise resources that are locally available for Indigenous patients, including local Indigenous primary health care services. List the health disparities commonly experienced by the Indigenous populations of Australia and New Zealand.	Recognise the common characteristics of Indigenous populations, including self-identification as a distinct cultural group, historical continuity with pre-colonial societies, strong links to ancestral territories and non-dominant status in Australia and New Zealand. Display general knowledge about the social and political history of the Indigenous populations of Australia and New Zealand.	Incorporate knowledge about medical conditions known to affect local Indigenous populations disproportionately when formulating a diagnosis for an Indigenous patient. Integrate emergency care with the involvement of appropriate Indigenous support services to provide holistic care for an Indigenous patient. Explain the socio-economic and colonial context that contributes to health disparities within Indigenous populations.	Advocate for the provision of appropriate resources for Indigenous patients within the Emergency Department, hospital and community. Promote and sustain relationships with external organisations to improve the delivery of health care to Indigenous patients.
Refugee health	Display general knowledge about international situations that may lead people to seek asylum or refugee status in Australia and New Zealand.	List and explain the health disparities commonly experienced by people who seek asylum or are refugees. Enquire sensitively about refugee status where appropriate to a patient's emergency problem.	Incorporate knowledge about medical conditions known to affect refugee populations disproportionately when formulating a diagnosis for a refugee patient. Integrate emergency care with the involvement of appropriate refugee support services to provide holistic care for a refugee patient.	Promote and sustain relationships with external organisations to improve the delivery of health care to refugee patients.

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End of Life Care				
Assessment of the dying patient	Locate existing previous information about a patient's functional status and their expressed goals and wishes around medical treatment.	Define medically futile treatment. Recognise clinical situations where end of life care must be discussed.	Recognise scenarios where ongoing resuscitation may be futile.	Assess the impact of an acute illness or injury on the chronic state of a patient, and identify when the goals of emergency care should become palliative. Limit monitoring and investigations appropriately where the goals of emergency care are palliative.
Communication about dying	Document end of life decisions clearly in the medical record.	Initiate discussion in the Emergency Department with a patient and their family and/or carers about their values, goals and wishes around medical treatment. Advocate for a patient by Initiating discussion about end of life care with inpatient clinicians and community health professionals.	Record discussions and decisions about end of life care clearly in the medical record. Advocate by communicating the expressed wishes of a patient and their family and/or carers around medical treatment to the inpatient clinicians. Complete the required notifications and documentation after a death in the Emergency Department.	Explain the decisions around medical management and the goals of end of life care, to a patient and their carers. Lead the discussion with patients and their carers regarding the medical decisions and goals for end of life care. Advocate by liaising with inpatient clinicians and community health professionals to promote holistic end of life care.

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Management of the dying patient	Recognise that the Emergency Department is not an ideal environment in which to manage a dying patient. Recognise that circumstances may lead to a dying patient being managed in the Emergency Department.	Identify and utilise resources that are locally available for a patient who is dying in the Emergency Department. Advocate for the provision of an appropriate environment for a patient who is dying in the Emergency Department.	Take responsibility for ceasing resuscitation appropriately in a simple presentation. Manage dyspnoea and pain in the dying patient. Facilitate the provision of cultural and spiritual support to the dying patient and their family/carers.	Take responsibility for ceasing resuscitation appropriately in a complex presentation. Decide on appropriate goals of care and limitation of medical treatment for a dying patient. Deliver appropriate end of life palliative care to a patient who is dying in the Emergency Department.
Organ donation	Identify a patient as a potential organ donor according to recognised medical criteria.	Notify the organ donation service and inpatient critical care clinicians appropriately.		Sensitively elicit patient and carer wishes around organ donation where appropriate in the Emergency Department.

SCHOLARSHIP AND TEACHING A FACEM maintains and enhances their professional activities through a lifelong commitment to education and research			
On completion of **Provisional Training**, the trainee will be able to direct their immediate and future learning with their DEMT, informed with reflective practice and role model influences. They will take responsibility for self-directed learning and participating in departmental teaching to further their clinical knowledge and skills. They will have the ability to retrieve clinical references to guide both self-education and patient care. They will be able to actively teach junior staff the clinical skills expected of a novice clinician.	On completion of **Advanced Training Stage 1**, the trainee will be able to proactively identify their own learning needs and respond appropriately. Their daily patient care will incorporate established evidence-based practice. The trainee will acknowledge that they have a responsibility to contribute to clinical research, which advances emergency patient care. They will be involved in teaching both colleagues and patients in the clinical and other environments, and provide effective role modelling to junior staff.	On completion of **Advanced Training Stage 2**, the trainee will be independently driven to undertake learning focused on attaining mastery at the level of a new FACEM. They will use evidence-based practice as the foundation for their clinical care and systematically evaluate its relevance. They will create and address meaningful research questions. They will routinely seize the teachable moment and accept that providing education is an integral component of Emergency Medicine practice.	On completion of **Advanced Training Stage 3**, a FACEM will be able to make sound judgements regarding the creation, translation, application and dissemination of medical knowledge. They will be committed and able to independently advance and maintain their own professional skills and knowledge, as well as contributing to teaching others.

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Finding and Critically Appraising the Evidence				
Finding the evidence	Locate academic medical information in an educational environment. Locate written and electronic medical information in the workplace to inform Emergency Medicine practice.	Select appropriate medical information that could inform Emergency Medicine practice.	Independently search for information to perform a limited literature review to define and justify standards of clinical practice. Locate appropriate published literature to support clinical decisions.	Regularly search for a range of literature relevant to Emergency Medicine.
Reviewing the evidence		Describe the role of research in maintaining and advancing clinical best practice in Emergency Medicine.	Describe the clinical relevance of a published article as applied to Emergency Medicine practice.	Review the results acquired from a literature review for effectiveness and relevance in local Emergency Medicine practice.
Critical appraisal		Critically appraise a published article with quantitative and qualitative data to address a clinical question. Assess the validity of a study, taking into consideration potential confounders and biases. Assess the significance of the results taking into account its magnitude and applicability to patients under consideration. Describe the role of publication bias in influencing literature published in an Emergency Medicine context.	Identify and match a research methodology for a proposed study to answer a relevant research question. Describe the design concepts which enhance or detract from the relevance of published literature as applied to Emergency Medicine. Highlight deficiencies in research study results which suggest further scholarly enquiry is warranted. Critically appraise a published article with qualitative data.	Critically appraise, without the use of a template, a published article with quantitative data. Critically appraise the evidence that informed a published standard or guideline for applicability to local Emergency Medicine practice.

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Statistical analysis		Describe and use common terms to communicate statistical information as applied to clinical research.	Evaluate quoted quantitative statistical results to validate findings in a published clinical article. Objectively evaluate qualitative research for its relevance and applicability to Emergency Department practice.	
Applying Academic Knowledge to Emergency Medicine Practice				
Applying evidence-based medicine	Describe the role and limitations of evidence-based medicine as it applies to the daily practice of Emergency Medicine. Locate and integrate newly published evidence delivered from teaching activities into their daily Emergency Medicine practice.	Integrate academic reading with sentinel workplace events to improve their Emergency Medicine practice with the aid of senior medical staff.	Independently evaluate a broad range of academic reading to improve their Emergency Medicine practice with the aid of senior medical staff. Integrate newly published research to improve their Emergency Medicine practice with the aid of senior medical staff.	Systematically integrate broad academic reading with self-reflection to improve their Emergency Medicine practice.

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Applying guidelines	Locate and apply local and regional guidelines to patient care plans for Emergency Medicine presentations.	Modify the application of standard clinical guidelines to a patient's presentation, with the aid of senior medical staff.	Critically appraise and compare clinical guidelines in the context of Emergency Medicine. Justify variance of clinical practice from clinical guidelines after incorporating critically appraised, newly published research. Independently modify the application of standard clinical guidelines to the patient's presentation.	Combine critically appraised literature and local expert practice to amend a local clinical guideline or protocol. Participate in the evaluation of locally developed and applied clinical guidelines as applied to Emergency Medicine practice. Participate in the revision of core clinical protocols and guidelines as applied to Emergency Medicine practice.
Basic Elements of Creating Research: Academic Writing and Research Participation				
Research design and analysis	Identify areas of practice where research is merited. Describe various research methodologies.	Determine appropriate research question in a range of contexts appropriate for Emergency Medicine	Match research methodology to question appropriately across the breadth of Emergency Medicine practice	Appropriately analyse and critique research design including strengths and limitations of approach taken.
Academic writing	Describe the referencing standards applied to academic literature in an Emergency Medicine context.	Write about a clinical topic or practice in simple academic style, with assistance.	Apply the principles of research and referencing to write an evidence-based article.	
Patient consent to research	Describe the principles of privacy, confidentiality, consent and disclosure of information for research undertaken in Emergency Medicine.	Apply the principles of privacy, confidentiality, consent and disclosure of information to a simple clinical research project conducted in an Emergency Medicine context.	Apply the principles of privacy, confidentiality, consent and disclosure of information to a complex clinical research project conducted in an Emergency Medicine context.	Supervise and monitor the application of principles of privacy, confidentiality, consent and disclosure of information to clinical research projects conducted in an Emergency Medicine context.

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Participation in research	Identify potential research participants and demonstrate a willingness to recruit patients for active research studies in the workplace. Understand the role of ethics submission and approval in the creation of clinical research in an Emergency Medicine context.	Demonstrate an understanding of the process to formally recruit participants for clinical research. Understand the role of informed consent in the recruitment of participants for clinical research.	Recruit participants into active research studies in an Emergency Department. Apply ethics principles and adhere to local regulations in recruitment of participants into research studies. Identify the principles of participation management in research studies conducted in the workplace.	Advocate for appropriate clinical research to be conducted in Emergency Departments.
Ongoing Learning Skills				
Creating learning plans	Develop and document a personalised education plan, in consultation with an allocated supervisor. Systematically plan to maintain consistent and continual development of knowledge and skills.	Identify and prioritise strengths and weaknesses in current level of practice by conducting regular needs analyses. Integrate self-reflection and constructive feedback to plan ongoing improvement of clinical practice with guidance from an allocated supervisor.	Independently develop a learning plan to complete Emergency Medicine training.	Independently develop a practical and realistic learning plan to aid in continuing professional development.

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Using learning resources	Locate and access learning activities relevant to their educational plan. Utilise written and electronic learning resources to improve their clinical practice. Use experienced colleagues as a learning resource by observing them and seeking both formal and informal feedback from them.	Integrate written and electronic learning resources into daily clinical practice while ensuring the content is applicable to Emergency Medicine practice. Actively seek feedback from colleagues after clinical encounters and teaching sessions.		Critically analyse key written and electronic learning resources to ensure validity, quality, and alignment of them to training and clinical practice.
Simulation medicine	Describe the benefits and limitations of simulation medicine. Utilise available simulation medicine with a focus on skill development.	Utilise available simulation medicine with a focus on development of teamwork, communication skills and maintaining patient safety.	Understand the benefits and limitations of low and high fidelity in simulation medicine and participate accordingly.	Demonstrate the ability to participate in simulation of any fidelity as if in clinical practice. Commit to developing learned skills in clinical practice.
Learning and the reflective clinician	Identify and apply a learning style to optimise their study and the learning of knowledge and skills. Demonstrate an awareness that self-reflection is a key component to creating relevant individualised learning goals. Regularly participate in performance reviews to demonstrate reflection and an ability to apply feedback.	Demonstrate ability to maintain motivation to learn after a high stakes examination. Identify gaps in current knowledge and skills by performing guided self-reflection with a clinical supervisor. Use guided reflection of clinical experiences to identify significant points to learn.	Apply other learning styles to enhance their study of Emergency Medicine. Evaluate and reflect on significant personal clinical experiences to learn new knowledge and skills in Emergency Medicine.	Routinely critically appraise own total practice through self-reflection and self- assessment to demonstrate growth as a professional Emergency Medicine clinician.

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Learning in the workplace	Utilise the available range of patient presentations in the Emergency Department as an opportunity to increase clinical experience and learning.	Identify learning points arising from patients seen in the emergency environment. Integrate knowledge and skills gained from supervisors with existing knowledge to increase level of clinical expertise.	Identify learning points from any experiences during a shift that will enhance Emergency Medicine practice. Integrate learning points arising from all patients seen during the shift.	Identify any cases when working in an environment which could be used as teaching and learning opportunities, including cases they supervise.
Learning from assessment and feedback	Demonstrate the ability to accept feedback on strengths and weaknesses from workplace-based assessments.	Demonstrate the ability to utilise feedback from assessment to enhance self-assessment and focus future learning.	Actively seek opportunities to improve practice through workplace-based assessments.	Understand the principles of conducting a workplace-based assessment.
Teaching Skills				
Tutorial room teaching	Identify a patient presentation as an appropriate case for teaching Emergency Medicine to pre-vocational clinicians. Present a case or topic to a small audience as a teaching activity for pre-vocational clinicians. Utilise a diverse range of visual, auditory and electronic aids to facilitate learning.	Integrate basic principles of adult learning to proficiently deliver a teaching session to a small audience. Integrate audience participation and discussion when teaching a small audience.	Appropriately match a teaching method to the audience and subject matter.	Lead a case presentation and follow-up discussion with fellow clinicians. Effectively deliver a teaching session which teaches procedural skills and use of equipment. Integrate simulation aids when delivering teaching as appropriate

SCHOLARSHIP AND TEACHING	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Bedside teaching	Facilitate bedside teaching to pre-vocational clinicians. Deliver bedside teaching of basic procedural skills to pre-vocational clinicians, while maintaining awareness of and sensitivity to the patient who is the subject of the lesson.	Engage in opportunistic bedside teaching whenever the potential arises.	Describe and integrate basic adult learning principles to enhance the delivery of clinical bedside teaching.	Proactively seize and utilise identified teaching opportunities in the Emergency Department environment.
Giving feedback	Deliver positive feedback to colleagues to reinforce good Emergency Medicine practice. Describe good features of observed constructive feedback when delivered by senior colleagues.	Describe a structured approach to the delivery of constructive feedback. Deliver constructive feedback to junior medical staff about Emergency Medicine practice.	Deliver constructive feedback to junior medical staff and peers.	Deliver constructive feedback to senior colleagues. Deliver appropriately timed feedback based on opportunities arising in the Emergency Department environment.

PROFESSIONALISM Professionalism means demonstrating ethical practice, high personal standards of behaviour and adhering to a profession's regulations and duties.			
On completion of **Provisional Training**, the trainee will strive to always demonstrate high standards of behaviour and ethical practice to their patients and colleagues, whilst continuing to learn how to improve them. The trainee will begin to appreciate mechanisms to protect themselves from the detrimental effects of work related stress. The trainee will also comply with their professional responsibilities and obligations.	On completion of **Advanced Training Stage 1**, the trainee will engage in reflective practice on an increasingly independent basis, focusing on self-improvement with regards to their professional ethics and standards of behaviour. In challenging circumstances the trainee will utilise basic strategies that enable continued professional behaviour that is in the best interests of their patients and colleagues.	On completion of **Advanced Training Stage 2**, the trainee will independently reflect on their professional ethics and standards of behaviour for the purpose of ongoing self-development. In times of clinical complexity and in the challenging Emergency Department environment, the trainee will routinely adapt their behaviour to perform professionally and in the best interests of their patients and colleagues. This will be aided by maintaining a healthy work-life balance.	On completion of **Advanced Training Stage 3**, a FACEM will express, through application of learned professional attributes, a responsibility to themselves, their patients, their colleagues, and to the community as a whole.

PROFESSIONALISM	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Professional Conduct and its Regulation				
Professional behaviour	Describe the role and function of codes of conduct within Emergency Medicine. Identify the key skills and attributes associated with the professional conduct of medical staff. Behave professionally when performing clinical duties.	Apply professional codes of conduct to other duties and research performed in Emergency Medicine. Behave professionally performing all duties within Emergency Medicine. Apply known professional standards when using any communication modality.	Apply professional codes of conduct to examples of behaviour observed in the workplace. Describe the principles of dealing with misconduct. Identify and refer incidents of misconduct to senior medical staff.	Proactively support and encourage colleagues to comply with medical regulations. Maintain competent and current practice.
Regulatory agencies	Maintain registrations with appropriate medical regulatory agencies and professional organisations.	Describe the role and function of national medical regulatory agencies and professional organisations.		Describe the role and function of medical regulatory agencies in addressing misconduct.
Medico-legal Frameworks Impacting on Clinical Practice				
Medico-legal frameworks	Adhere to applicable medico-legal frameworks in Emergency Medicine practice.	Describe how medico-legal frameworks apply to duty of care, competency and mental health. Describe how medico-legal frameworks apply to child protection, notifiable diseases and occupational health and safety.	Know the medico-legal Acts that govern clinical Emergency Medicine practice. Describe how medico-legal frameworks apply to life-threatening situations and death, guardianship and medical power of attorney, and consent to treatment.	Describe how medico-legal frameworks apply to natural justice or procedural fairness in relation to patient complaints, and clinical supervision.

PROFESSIONALISM	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Informed consent	Describe the elements of valid informed consent. Define the concept of the capacity to make informed decisions. Obtain informed consent from patients for simple interventions.	Obtain informed consent from patients for complex interventions. Define presumed consent and recognise situations in which the use of presumed consent is appropriate. Identify patients with limited or no capacity to make informed decisions about their medical treatment.	Obtain informed consent from patients for life saving procedures in critical situations. Recognise situations in which the provision of treatment without the informed consent of the patient, next of kin, person responsible or legal guardian is appropriate. Justify decisions to waive consent for life saving procedures in critical situations.	Obtain informed consent from patients for complex and high-risk interventions. Describe the legal and ethical obligations of clinicians when caring for a patient without the capacity to make informed decisions. Provide care for patients without the capacity to make informed decisions. Identify and communicate with the correct person for decision making when caring for a patient without the capacity to make informed decisions.
Mandatory reporting	Identify mandatory reporting requirements for Emergency Medicine.	Complete mandatory reporting requirements in simple situations.	Describe the reasons for mandatory reporting legislation and the potential consequences of mandatory reporting.	Complete mandatory reporting requirements in any circumstances.

PROFESSIONALISM	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Ethics and Professionalism				
Ethical principles	Provide equitable and non-discriminatory care to all patients. Show awareness of the existence of national codes of ethics.	Describe the ethical principles of autonomy, beneficence, non-maleficence, and distributive justice in relation to Emergency Medicine practice. Describe the ethical principles of futility, dignity, and honesty in Emergency Medicine practice. Seek advice from senior medical staff to resolve ethical dilemmas.	Identify conflicts of interest in Emergency Medicine practice. Recognise and act upon complex ethical dilemmas arising at work.	Appropriately manage conflicts of interest in Emergency Medicine practice. Balance ethics, culture, patient autonomy and clinical needs to create optimal patient care. Communicate with team members to clarify and move forward from complex ethical dilemmas arising from conflicting professionalism and clinical judgements.
Confidentiality	Define patient confidentiality. Apply the principles of patient confidentiality to practice and documentation.	Identify situations in which principles of confidentiality may differ across cultural groups. Recognise situations that put patient confidentiality at risk and act to prevent loss of confidentiality.	Recognise situations when it is necessary to breach patient confidentiality and act accordingly.	Apply strategies to address risk factors in patient confidentiality.

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Responsibility to Patients and Society				
Responsibility to patients	Demonstrate an ability to treat all patients with respect. Work within a legal and ethical framework and practice patient-centred care within an individual presentation.	Apply legal and ethical principles when delivering patient care.	Demonstrate an understanding of the complexities in patient-centred care that may require external legal or ethical opinion.	Justify resolutions of conflicts between legal and ethical care, evidence-based medicine and presumed best practice in delivering patient care. Explain the legal and ethical principles of sharing clinical information with colleagues.
Responsibility to society as a representative of Emergency Medicine	Adhere to professional standards as an Emergency Medicine clinician.	Represent self and colleagues as professional Emergency Medicine clinicians to the general public.		Provide clear and effective information about the role of Emergency Medicine to the general public. Provide society with a positive perception of Emergency Medicine clinicians through own professional behaviour.
Responsibility to Profession and Self				
Mentoring	Address their learning needs through the support of a mentor. Provide appropriate support and assistance to peers. Demonstrate a belief in supporting others to grow and develop and offer feedback to peers in an appropriate manner.	Describe the principles of effective mentoring to support the ongoing performance of medical colleagues. Engage in peer mentoring relationships in order to develop own and other's practice.	Demonstrate effective mentorship techniques. Use a range of feedback, listening and questioning techniques to constructively challenge the mentee and facilitate insight.	Adapt mentorship techniques in response to the mentee's needs, stage of development and the situation. Reflect, review and seek feedback on own mentoring skills in order to improve mentoring practice.

PROFESSIONALISM	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
Professional relationships	Build and maintain supportive professional relationships.	Recognise and describe situations where professional relationships may be compromised. Utilise basic strategies to aid in the maintenance of professional relationships in more challenging situations.	Provide clear and effective information about the role of Emergency Medicine to peers, colleagues and health other medical specialties.	Role model and advocate for the Emergency Medicine profession through own professional standards. Utilise advanced strategies to aid in the maintenance of professional relationships in more challenging situations.
Self-reflection	Modify clinical practice and behaviour as a result of feedback received. Modify self-care behaviours as a result of feedback received.	Use guided reflection to analyse own clinical practice, conduct, and attitude. Acknowledge needs identified within feedback and develop strategies to respond.	Independently analyse own clinical practice, conduct and attitude, and put in place corrective strategies to modify behaviour when necessary	Continually analyse own standards of practice, clinical decisions, and professional behaviour. Routinely participate in ongoing continuing professional development.
Workplace challenges	Recognise own responses to experiences in the Emergency Department such as situations of violence, abuse, illness, suffering and trauma. Recognise the challenges of working with diverse and vulnerable patients in emergency contexts.	Reflect with guidance on own responses to experiences in the Emergency Department that evoke strong emotional reactions such as death, dying and grief. Determine strategies to monitor emotional reactions and seek assistance when necessary.	Proactively seek support for dealing with responses to challenging experiences. Utilise strategies to respond to the challenges of working with vulnerable patients in emergency contexts.	Maintain awareness of own response to experiences in the Emergency Department and employ a variety of strategies for dealing with those responses. Identify and implement strategies to assist junior staff in dealing with challenging workplace situations.

PROFESSIONALISM	On completion of **Provisional Training**, the trainee will be able to…	On completion of **Advanced Training Stage 1**, the trainee will be able to…	On completion of **Advanced Training Stage 2**, the trainee will be able to…	On completion of **Advanced Training Stage 3**, the FACEM will be able to…
The impaired clinician	Describe the factors that can lead to impairment in a clinician and the symptoms of burnout and stress.	Identify signs and symptoms of impaired ability in self and proactively seek the assistance of mentors, senior staff or support personnel as appropriate.	Identify signs of burnout and stress. Identify signs and symptoms of troubled or impaired medical staff and refer to senior medical staff appropriately. Demonstrate an understanding of the policies, procedures and support services available for medical practitioners.	Identify and refer clinicians to disciplinary processes in relation to medical malpractice. Provide immediate support to the impaired clinician in order to maintain patient safety. Monitor professional competence and currency of junior medical staff.
Interaction with ACEM	Recognise the role of ACEM in training and regulating Emergency Medicine	Discuss the objectives of ACEM as a professional organisation. Identify opportunities to participate in ACEM activities and processes.	Balance contributing to ACEM activities with maintaining progression in own training and work-life balance.	Contribute and feed back to ACEM about its role and support to its members and the speciality of Emergency Medicine.
Work-life balance	Identify the key features of work-life balance. Proactively seek assistance from mentors, peers and senior staff to prioritise and organise an appropriate work-life balance. Show awareness of the concept of burnout and factors in the practice of Emergency Medicine that may contribute to this.	Reflect on work-life balance in order to function optimally as an Emergency Medicine clinician. Identify and implement protective mechanisms to maintain a work-life balance.	Identify factors that contribute to the maintenance and deterioration of own work-life balance.	Systematically prioritise and organise an appropriate work-life balance. Promote values of work-life balance to mentees and junior clinicians. Integrate mechanisms to protect against burnout. Consider opportunities for diversifying future career progression.

MEDICAL EXPERTISE LISTS

Investigations List

This is a comprehensive list of investigations that an Emergency Medicine trainee will be expected to encounter during the training program. The purpose of this list is to provide guidance to trainees, trainers and assessors about:

a. ***which investigations*** are considered by ACEM to be part of emergency medical expertise; and

b. regarding the use of these investigations, ***what level of competence is expected*** at each stage of training.

With regard to a trainee learning to use investigations, the following learning outcomes describe what they will learn to do:

1. The trainee will be able to perform rational test selection after completing a patient's clinical assessment (part of diagnostic reasoning).
2. The trainee will be able to demonstrate an appropriate level of mastery during training with regard to the description and analysis of investigation results (this means to identify and describe relevant imaging findings or patterns, to evaluate results, and to list possible causes for a result).
3. The trainee will be able to incorporate investigation results in order to refine a patient's differential diagnosis and management plan (which includes acting on time critical investigation results, again part of diagnostic reasoning).

This document provides more detail for the second learning outcome (above). The learning outcomes for the other processes are covered elsewhere in the *ACEM Curriculum Framework*.

A Mastery Key has been created and a mastery level has been assigned to each stage of training for each investigation. It is expected that as a trainee progresses, each successive Mastery Level builds on the previous levels. Please note:

- The Levels of Mastery assigned to each investigation are matched to the top level descriptors in the Medical Expertise domain. This means a trainee can independently assess/manage the following types of patient presentations at the end of the following stages:
    - End PT: Common low acuity low complexity presentations (or initiate resuscitation).
    - End AT Stage 1: Common high acuity low complexity presentations OR common low acuity high complexity presentations.
    - End AT Stage 2: High acuity high complexity presentations.
    - End AT Stage 3: Any emergency presentations.
- The Levels of Mastery are minimum levels of competence.
    - All trainees should have achieved the assigned level of mastery by that stage of training.
    - It is acknowledged that levels may change (become higher OR lower) if the trainee trains in specific types of EDs- e.g. paediatric only, rural, trauma centre, etc. The trainee should access learning resources to ensure that they achieve the assigned levels of mastery by the end of training regardless of where they have trained.
- Some investigations are within the scope of Emergency Medicine, but it is not essential to be able to describe and analyse the actual results or images. These investigations have been assigned lower levels of mastery, but trainees should note that they are still expected to be able to incorporate a formal results report into their diagnostic reasoning, as specified elsewhere in the *ACEM Curriculum Framework*.
- As a trainee attains increased experience and mastery, they will convert from preferentially using cognitive analytical skills to more perceptual skills. It is not always possible to attain the highest Mastery Level during training. It is expected that further experience after training will allow the FACEM to continue to progress to the highest level.

- There are learning outcomes that describe teaching and supervision skills in other domains within the *ACEM Curriculum Framework*. The subject matter of what a trainee should supervise/teach should match Mastery Level 4.

Mastery Levels

Code	Mastery Level	Description
1	The trainee will have theoretical **knowledge** of investigations.	The trainee will be able to: • describe indications for using these investigations • describe the theoretical accuracy of these investigations using knowledge of statistics • describe how the investigation is performed, incorporating their knowledge of the basic sciences • incorporate the formal report of this investigation's result into their patient care, including if the formal report is provided by another specialist
2	The trainee will be able to describe and analyse investigations **under direct supervision**.	The trainee will demonstrate a reasonable degree of accuracy in describing and analysing the investigation in critical cases; this accuracy is increased through their supervisor. The trainee will frequently supplement their knowledge of the investigation with the use of references and the experiences of their supervisor.
h3	The trainee will be able to **independently** describe and analyse investigations.	The trainee will demonstrate a reasonable degree of accuracy in describing and analysing the investigation in all cases, which is confirmed through limited supervision. The trainee will supplement their knowledge of the investigation with the use of references and/or assistance from their colleagues.
4	The trainee will be able to **proficiently** describe and analyse investigations.	The trainee will demonstrate a high degree of accuracy in describing and analysing the investigation in all cases. The trainee will sometimes need to supplement their knowledge of the investigation with the use of references and/or assistance from their colleagues.
5	The trainee will be able to **expertly** describe and analyse investigations.	The trainee will demonstrate an expert degree of accuracy in describing and analysing the investigation in all cases. The trainee will not need to supplement their knowledge of the investigation.

INVESTIGATIONS	MASTERY LEVELS **1:** knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
	END PT	**END AT 1**	**END AT 2**	**END AT 3**
12 lead ECG patterns or patterns on ECG rhythm strip				
ECG: screening in asymptomatic adult patient *Recognition of a normal adult ECG, artefact, paced rhythm and lead misplacement*	3	4	5	5
ECG: screening in asymptomatic paediatric patient *Recognition of a normal paediatric ECG*	1	2	3	4
ECG: identification of obvious cause of chest pain/SOB *e.g. localised ST segment elevation or depression indicative of acute ischaemia*	3	4	5	5
ECG: identification of other cause of chest pain/SOB *e.g. ischemia related syndromes (Wellen's Syndrome), pathological Q waves, atypical ischaemic patterns, left or right ventricular hypertrophy, PR depression, acute right ventricular strain, ischaemia mimics*	2	3	4	5
ECG: identification of obvious cause of syncope/palpitations *e.g. cardiac arrest rhythms, ventricular tachycardia or atrial tachyarrhythmia, prolonged QT interval*	3	4	5	5
ECG: identification of other cause of syncope/palpitations *e.g. 1st, 2nd or 3rd degree heart block, bundle branch blocks, fascicular blocks, Brugada syndromes, pacemaker problems-issues*	2	3	4	4
ECG: identification of non-obvious cause of syncope/palpitations *e.g. re-entry pathways, different types of VT*	2	2	3	4
ECG: identification of life-threatening electrolyte or toxicology abnormalities *e.g. hypekalemia, tricyclic anti-depressant*	3	3	4	5
ECG: identification of other medical problems *e.g. temperature, calcium, digoxin*	2	3	4	4
Bedside functional investigations				
Spirometry/ Peak Flow Meter measurement	3	3	4	4
pH testing of eye tears	2	3	4	5
Other functional investigations				
Formal respiratory function test	2	2	3	3
Cardiac exercise stress test	1	1	2	2
Cardiotocography (CTG)	1	1	2	2
Nerve conduction studies	1	1	2	2
Plain radiology images				
CXR (all views)	3	3	4	4
Cervical Spine	3	3	4	4

INVESTIGATIONS	MASTERY LEVELS **1:** knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
	END PT	**END AT 1**	**END AT 2**	**END AT 3**
Pelvis	3	3	4	4
AXR (all views)	3	3	4	4
Paediatric CXR/AXR/Cervical Spine/ Pelvis	2	2	3	4
Extremities – long bones, clavicle, scapula, patella	2	3	4	4
Extremities – small bones	2	2	4	4
Paediatric extremities	2	2	3	4
Thoracolumbar Spine	2	2	4	4
OPG	2	3	4	4
Facial (all other views)	1	2	3	4
Soft tissue neck	1	2	3	4
Other plain radiology films *e.g. skeletal survey, skull, bowel series*	1	1	2	2
CT images				
CT head (plain): life-threatening cause of abnormal neurology *e.g. Haemorrhage, mass effect, skull fracture*	2	3	4	5
CT head (+/- contrast): other acutely important findings *e.g. Mass lesion, hydrocephalus, pneumocephalus, radiological signs of increased intracranial pressure*	2	2	3	4
CT face and orbits *e.g. Fracture or orbital entrapment*	1	2	3	4
CT thorax (+/- contrast) – acutely important findings *e.g. Fracture, pneumothorax, haemothorax, infiltrative process, effusion or consolidation, major vessel aneurysm, dissection, rupture or occlusion*	1	2	3	4
CT Spine *e.g. Identification of fracture or disc prolapse*	1	2	3	3
CT kidneys, ureters, bladder *e.g. identification of calculus, signs of obstruction, AAA*	2	3	4	4
CT abdomen/pelvis *e.g. Identification of organ perforation/laceration, mass lesion, inflammatory process, major vessel dissection or rupture*	1	2	3	3
CT other bones (neck of femur, foot, ankle) *e.g. Identification of fracture or mass lesion, or disrupted anatomy*	1	2	3	3
CT Aortogram, CTPA *e.g. Identification of massive pulmonary embolus or obvious aortic dissection*	1	2	3	4
Images obtained by another FACEM credentialed to perform ED sonography				
Cardiac Arrest Echocardiogram	1	2	3	4

INVESTIGATIONS	MASTERY LEVELS **1:** knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
	END PT	**END AT 1**	**END AT 2**	**END AT 3**
Identification of cardiac activity during resuscitation				
EFAST ultrasound *Identification of intraperitoneal free fluid, haemothorax, pneumothorax or cardiac tamponade*	1	2	3	4
AAA ultrasound *Identification and localisation of abdominal aortic aneurysm*	1	2	3	4
Chest ultrasound *Identification of plural/ pulmonary pathology*	1	1	2	3
First Trimester ultrasound *Presence or absence of intrauterine pregnancy*	1	1	2	2
Soft Tissue Ultrasound *Presence or absence of foreign body or abscess*	1	1	2	3
Images from nuclear medicine, MRI, or formal ultrasound investigations				
VQ scan	1	1	2	2
Bone Scan	1	1	2	2
Stress Thallium/Sestamibi scan	1	1	1	2
MRI Brain and spinal cord	1	1	2	2
MRI Bones	1	1	1	2
MRI Soft Tissues	1	1	1	2
Echocardiogram	1	1	2	2
Hepatobiliary ultrasound	1	1	2	2
Doppler for DVT	1	1	1	2
Doppler of carotid arteries	1	1	1	2
Ultrasound for ruptured tendons and joints	1	1	1	2
Pregnancy/gynae pelvic ultrasounds	1	1	2	2
Renal Ultrasound	1	1	2	2
Laboratory investigations ***(analysis of numbers and performance of appropriate calculations, with access to normal ranges)***				
Blood Gas Analysis (arterial and venous)	2	3	4	4
Full Blood Count (Hb, MCV, WCC and diff, Plt)	3	4	4	4
Blood film, including malaria thick and thin films	3	3	4	4
Reticulocyte count, Bleeding time	3	3	4	4
INR, APTT, D-Dimer	3	3	4	4
Fibrinogen, Fibrinogen degradation products	2	3	4	4
Blood Glucose (bedside and formal)	3	4	5	5
Electrolytes, Urea, Creatinine	3	4	4	5
Creatinine Kinase	3	3	4	4

INVESTIGATIONS	MASTERY LEVELS **1:** knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
	END PT	**END AT 1**	**END AT 2**	**END AT 3**
Calcium, Magnesium, Phosphate	3	4	4	4
Erythrocyte sedimentation rate and C-reactive protein	2	3	4	4
Cardiac enzymes	3	3	4	4
Quantitative bHCG	2	3	3	4
Serum osmolality	2	3	3	4
Serum Lactate	2	3	4	4
Liver Function Tests, Amylase, Lipase	3	3	4	4
Thyroid Function Tests, Iron studies, HbA1c, Drug Levels, Serum/RBC folate	2	3	3	3
Paracetamol levels	3	3	4	4
Other drug levels	2	2	4	4
Cholinesterase levels for toxicology monitoring	1	1	2	2
Urine Dipstick and bHCG	3	3	4	5
Urine osmolality, urinary sodium	1	2	3	4
Microbiology culture results	3	3	4	4
Microbiology specific antigen results (PCR), Malaria detection tests	2	3	4	4
Viral serology tests (EBV, CMV, Hepatitis, HIV, varicella)	2	3	3	4
Snake venom detection kit tests	1	1	3	3
Body fluid analysis (csf, joint, pleural, peritoneal)	2	3	3	4
Fasting lipids	2	2	2	2
Advanced inflammatory markers (Rh Factor, ANA, ANCA)	1	2	2	2
Parathyroid hormones, cortisol/ACTH/Synacthen test	1	2	2	2
Tests for inborn errors of metabolism (urine and serum)	1	1	1	1
Tumour markers	1	1	1	1
Histopathology	1	1	1	1
Cytology	1	1	1	1

Procedures List

This is a comprehensive list of procedures that an Emergency Medicine trainee will be expected to encounter and learn during the training program.

The trainee is expected to develop their ability as follows:

1. The trainee will be able to decide to conduct the procedure during their clinical assessment of the patient's presentation.
2. The trainee will be able to prepare the patient and equipment for the procedure, which includes consent and patient education.
3. The trainee will be able to technically perform the procedure.
4. The trainee will be able to manage any complications if they arise.

This document provides more detail for the third learning outcome (above). The learning outcomes for the other processes are covered elsewhere in the *ACEM Curriculum Framework*.

A mastery key has been created and a mastery level has been assigned to each stage of training for each procedure. It is expected that as a trainee progresses, each subsequent mastery level builds on the previous levels. Please note:

- The Levels of Mastery assigned to each procedure are matched to the top level descriptors in the Medical Expertise domain. This means a trainee can independently assess/manage the following types of patient presentations at the end of the following stages:
    - End PT: Common, low acuity, low complexity presentations (or initiate resuscitation).
    - End AT 1: Common, high acuity, low complexity OR common, low acuity, high complexity presentations.
    - End AT 2: Common, high acuity, high complexity presentations.
    - End AT 3: Any emergency presentations.
- The Levels of Mastery are minimum levels of competence.
    - All trainees should have achieved the assigned level of mastery by that stage of training.
    - It is rarely possible to assign the highest level of mastery in this list. It is expected that further experience after training will allow the FACEM to continue to progress to the highest level.
    - Certain procedures may start at a relatively high Level of Master (e.g. cannulation).
    - It is acknowledged that levels may change (become higher OR lower) if the trainee trains in specific types of EDs for example paediatric only, rural, trauma centre, etc. The trainee should access learning resources to ensure that they achieve the assigned level of mastery by the end of training regardless of where they have trained.
- It is acknowledged that these assigned mastery levels are based on the performance in non-challenging situations. Performance in challenging situations will alter the assigned mastery level.
- There are some procedures where a theoretical knowledge of the procedure is within the scope of Emergency Medicine but further mastery, although desirable, is not essential for core Emergency Medicine practice. For these procedures, the trainee only needs to reach the first mastery level on completion of training.
- With regard to progression through successive stages of training:
    - The Levels of Mastery are NOT an implied hierarchy of procedural importance.
    - Procedures that are life/limb/sight saving are listed and trainees are expected to achieve mastery level at least in simulation if real life opportunities to practice this procedure are rare. Level 4/5 equates to multiple opportunities in real life and in simulation to practice this skill. Level 3 equates to multiple opportunities to practice the skill in simulation. Level 2 equates to very few opportunities to practice the skill in simulation.
    - Progression through the Levels of Mastery does NOT need to be linear. Some procedures may not need intermediate Levels of Mastery.

Categories

C = this procedure occurs **commonly** enough for the trainee to achieve competence in the clinical situation by the end of training.

LS = this procedure is **life/limb/sight saving** and should be mastered, even if only in simulation.

Mastery Levels

Code	Mastery Level	Description
1	The trainee will have theoretical **knowledge** of these procedures.	The trainee will be able to describe a procedure and its indications, contraindications and complications, and incorporate their knowledge of the basic sciences. The supervisor will perform the procedure with trainee observing or assisting.
2	The trainee will be able to perform these procedures **under direct supervision**.	The trainee will be able to perform the procedure with the supervisor observing or assisting. The trainee will plan consciously and deliberately before performing the procedure, and will follow standardised rules and routines.
3	The trainee will be able to **independently perform** these procedures.	The trainee will be able to perform the procedure without direct supervision. The trainee will be able to perform a single approach for the procedure.
4	The trainee will be able to **proficiently perform** these procedures.	The trainee will be able to perform more than one approach for the procedure. They will apply discrimination and discretion in selecting an appropriate approach for the situation. The trainee will occasionally draw on the experience or assistance of peers and check written or online resources as backup.
5	The trainee will be able to **expertly perform** these procedures.	The trainee will perform the procedure independently in all situations without any need for peer or written/online resource backup, and will also be able to adapt their technique when performing in non-ideal situations.

GROUP	PROCEDURE	CATEGORY		MASTERY LEVELS **1**: knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
		Prevalence **C** common in EM	**Importance** **LS** life/limb/ sight saving	**End PT**	**End AT AT 1**	**End AT AT 2**	**End AT3**
Infection Control	Aseptic and sterile technique	C		3	4	5	5
Airway	Simple airway manoeuvres (chin lift, jaw thrust, head tilt, positioning) in an adult or a child	C	LS	3	4	5	5
Airway	Insertion of oropharangeal or nasopharyngeal airway	C	LS	3	3	5	5
Airway	Insertion of a laryngeal mask airway	C	LS	2	3	4	4
Airway	Direct laryngoscopy, Insertion of oral ETT, use of RSI technique (including drugs, stylet, bougie)	C	LS	1	3	4	4
Airway	Video laryngoscopy	C	LS	1	2	3	4
Airway	Use of other rescue difficult airway device		LS	1	2	3	3
Airway	Securing and caring for ETT including during transport	C	LS	1	3	4	4
Airway	Insertion of cricothyroid needle and jet insufflation of oxygen, in an adult or a child		LS	1	1	2	3
Airway	Perform a cricothyroidotomy		LS	1	1	2	3
Airway	Emergency replacement of blocked or dislodged tracheostomy tube		LS	1	1	2	3
Airway	Extubation			1	1	3	3
Airway	Indirect laryngoscopy (use of dental mirror to examine for FB)			1	1	3	3
Airway	Use of other types of ETT (nasal, double lumen)				1	1	2
Breathing	Spirometry and Peak Flow measurement	C		2	3	3	4
Breathing	Use of oxygen delivery devices	C	LS	3	3	4	5
Breathing	Use of self-inflating bag for ventilation	C	LS	3	4	4	5
Breathing	Use of a non-self-inflating bag for ventilation				1	2	3
Breathing	Use of adult non-invasive ventilation device	C	LS	1	3	4	4
Breathing	Use of paediatric non-invasive ventilation device		LS		1	1	3
Breathing	Setting up a transport ventilator	C	LS	1	2	4	4
Breathing	Decompression needle/finger thoracostomy	C	LS	1	2	4	5
Breathing	Pleurocentesis	C		1	2	4	4
Breathing	Tube thoracostomy	C	LS	1	2	4	4
Circulation	Adult, Paediatric and Infant External Chest Compressions	C	LS	3	3	5	5
Circulation	Defibrillation	C	LS	3	4	4	5

GROUP	PROCEDURE	CATEGORY		MASTERY LEVELS **1**: knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
		Prevalence **C** common in EM	**Importance** **LS** life/limb/ sight saving	**End PT**	**End AT AT 1**	**End AT AT 2**	**End AT3**
Circulation	DC Cardioversion	C	LS	1	2	3	5
Circulation	External pacing		LS	1	2	3	3
Circulation	Venepuncture	C		4	5	5	5
Circulation	Adult peripheral intravenous access	C	LS	4	4	5	5
Circulation	Paediatric peripheral intravenous access	C	LS	2	3	4	4
Circulation	Insertion of a rapid infusion catheter		LS	1	3	3	4
Circulation	Intraosseous access	C	LS	2	3	4	5
Circulation	Arterial puncture for blood sampling	C		3	3	4	4
Circulation	Arterial line insertion	C		1	2	4	4
Circulation	Preparation & operation of transport monitoring equipment	C		1	3	4	4
Circulation	Insertion of a central venous line	C		1	1	3	4
Circulation	Emergency pericardiocentesis		LS	1	1	3	3
Circulation	Resuscitative thoracotomy		LS	1	1	1	3
Circulation	Insertion of a temporary pacing wire				1	1	1
Fluids	Preparation of an intravenous fluid or blood product line	C		3	4	4	4
Fluids	Insertion of a nasogastric tube or orogastric tube	C		3	4	4	4
Fluids	Insertion of an adult urinary catheter (female and male)	C		3	4	4	4
Fluids	Insertion of an infant urinary catheter (female and male)	C		1	2	4	4
Fluids	Suprapubic aspiration of urine in an infant	C		1	2	3	3
Fluids	Insertion of a suprapubic catheter			1	1	3	3
Fluids	Replacement of a suprapubic catheter	C		2	3	3	4
Fluids	Abdominal paracentesis and insertion of drain	C		2	3	4	4
Fluids	Insertion of oesophageal & gastric balloon devices		LS	1	1	3	3
Fluids	Emergency replacement of a dislodged gastrostomy tube	C		2	2	3	4
Disability (Neuro & Ortho)	Sizing and application of a rigid cervical collar	C	LS	3	3	4	5
Disability (Neuro & Ortho)	In-line cervical spine immobilisation	C	LS	3	3	4	5
Disability (Neuro & Ortho)	Full spinal immobilisation, log roll, and transfer	C	LS	3	3	4	5

GROUP	PROCEDURE	CATEGORY		MASTERY LEVELS **1**: knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
		Prevalence **C** common in EM	**Importance** **LS** life/limb/ sight saving	**End PT**	**End AT AT 1**	**End AT AT 2**	**End AT3**
Disability (Neuro & Ortho)	Emergent Fracture / Dislocation Reduction	C	LS	2	3	4	4
Disability (Neuro & Ortho)	Joint reduction - Digits	C		3	3	4	4
Disability (Neuro & Ortho)	Joint reduction – Shoulder, elbow, patella	C	LS	2	3	4	4
Disability (Neuro & Ortho)	Joint reduction – Ankle	C	LS	2	2	3	4
Disability (Neuro & Ortho)	Joint reduction – Hip, knee		LS	1	2	3	3
Disability (Neuro & Ortho)	Fracture/Joint immobilisation - Removable Splint application	C		3	4	4	4
Disability (Neuro & Ortho)	Fracture/Joint immobilisation – Backslab application	C		3	3	4	4
Disability (Neuro & Ortho)	Fracture/Joint immobilisation – Circumferential casts application	C		2	3	4	4
Disability (Neuro & Ortho)	Application of sling/ collar and cuff	C		3	4	4	4
Disability (Neuro & Ortho)	Insertion of a fascial intra-compartmental monitor				1	1	2
Disability (Neuro & Ortho)	Application of a pelvic binding device	C	LS	2	3	4	4
Disability (Neuro & Ortho)	Application of traction splinting devices	C	LS	2	3	4	4
Disability (Neuro & Ortho)	Arthrocentesis (knee)	C		2	3	4	4
Disability (Neuro & Ortho)	Arthrocentesis (other joints)			2	3	3	3
Sedation delivery	Administration of procedural sedation	C		1	2	3	5
Sedation delivery	Administration of chemical restraint	C		2	3	3	5
Regional Anaesthesia	Use of topical anaesthesia	C		3	4	4	5
Regional Anaesthesia	Direct infiltration of local anaesthetic	C		3	4	5	5
Regional Anaesthesia	Digital Nerve Block	C		3	4	5	5
Regional Anaesthesia	Femoral or Fascia iliaca block	C		2	3	4	4
Regional Anaesthesia	Additional regional nerve blocks				1	1	3
Regional Anaesthesia	Haematoma block				1	1	3
Regional Anaesthesia	Intravenous regional anaesthesia and Biers Blocks				1	1	3
Wounds	Basic skin suturing techniques	C		3	4	5	5
Wounds	Alternate skin closure (eg. tissue adhesive, staples)	C		3	3	4	4

GROUP	PROCEDURE	CATEGORY		MASTERY LEVELS **1**: knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
		Prevalence **C** common in EM	**Importance** **LS** life/limb/ sight saving	**End PT**	**End AT AT 1**	**End AT AT 2**	**End AT3**
Wounds	Advanced suturing techniques	C		2	3	4	4
Wounds	Wound exploration, cleaning, irrigation, and debridement	C		2	3	4	4
Wounds	Superficial open wound dressing	C		3	3	4	4
Wounds	Open wound packing	C		2	3	3	4
Burns	Burn first aid	C		3	3	5	5
Burns	Debridement of burns	C		2	3	4	4
Burns	Primary burn dressing	C		3	3	4	4
Burns	Escharotomy		LS	1	1	3	3
Minor Surgical	Removal of superficial & subcutaneous foreign bodies	C		3	3	4	4
Minor Surgical	Incision and drainage of simple, superficial abscesses	C		2	3	4	4
Minor Surgical	Drainage of a paronychia	C		2	3	4	4
Minor Surgical	Drainage of a subungual haematoma	C		1	3	3	4
Minor Surgical	Incision and drainage of a thrombosed external haemorrhoid	C		1	3	3	3
Minor Surgical	Drainage of peritonsillar abscess				1	1	2
Minor Surgical	Nail bed repair	C			1	2	2
Minor Surgical	Proctoscope insertion	C			1	1	3
O&G	Vaginal speculum insertion	C		3	3	4	4
O&G	Removal of products of conception from cervical os	C	LS	2	2	3	4
O&G	Use of foetal doppler	C		1	2	3	3
O&G	Spontaneous vaginal delivery		LS	2	2	3	3
Microbiology	Collection of blood culture	C		3	3	5	5
Microbiology	Lumbar Puncture and measurement of CSF opening pressure	C		2	3	4	4
Microbiology	Paediatric non-invasive urine collection	C		2	3	4	4
Microbiology	Collection of swabs	C		3	3	4	4
Microbiology	Nasopharyngeal aspirate collection	C		2	3	3	3
ENT	Removal of nasal foreign bodies	C		2	3	4	4
ENT	Removal of aural foreign bodies	C		2	3	4	4
ENT	Removal of laryngeal foreign bodies	C		1	2	3	3
ENT	Nasal speculum insertion	C		3	3	4	4
ENT	Nasal cautery	C		2	3	4	4
ENT	Anterior nasal packing	C	LS	3	3	4	4
ENT	Posterior nasal packing		LS	1	1	3	3
ENT	Aural toilet	C		2	3	3	3

GROUP	PROCEDURE	CATEGORY		MASTERY LEVELS **1**: knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
		Prevalence **C** common in EM	**Importance** **LS** life/limb/ sight saving	**End PT**	**End AT AT 1**	**End AT AT 2**	**End AT3**
ENT	Aural wick insertion	C		3	3	4	4
Eyes	Removal of corneal foreign bodies	C		2	3	4	4
Eyes	Direct ophthalmoscopy	C		3	3	3	4
Eyes	Indirect ophthalmoscopy				1	1	2
Eyes	Use of a slit lamp in the eye examination	C		2	3	4	4
Eyes	Tonometry	C		2	3	3	3
Eyes	Eye irrigation	C	LS	3	3	4	4
Eyes	Application of an eye pad or shield	C		2	3	4	4
Eyes	Lateral canthotomy		LS	1	1	1	3
Dental	Joint reduction: Temporo-mandibular joint	C		2	2	3	4
Dental	Enlocation avulsed / extruded / intruded / laterally injured tooth	C		1	2	3	3
Dental	Temporary stabilisation of injured tooth	C		1	2	3	3
Dental	Haemostasis following dental extraction	C		1	2	3	3
Ultrasound	Detection of cardiac activity in cardiac arrest	C		1	2	4	4
Ultrasound	Performance of Focused Assessment with Sonography for Trauma (FAST) or EFAST	C		1	2	3	4
Ultrasound	Pneumothorax / haemothorax detection	C		1	2	3	3
Ultrasound	Detection & characterisation of an abdominal aortic aneurysm	C		1	2	3	3
Ultrasound	Guided Peripheral Vascular Access	C		1	1	3	3
Ultrasound	Guided Central Vascular Access	C		1	1	3	4
Ultrasound	Ultrasound guided nerve blocks			1	1	2	2
Ultrasound	Identification of distended bladder	C		1	2	3	4
Ultrasound	Soft Tissue Ultrasound				1	1	1
Ultrasound	1st Trimester Pregnancy Ultrasound				1	1	1
Ultrasound	Hepatobiliary Ultrasound				1	1	1
Ultrasound	Application of haemodynamic assessment protocols				1	1	1
Toxinology	Pressure immobilisation Bandage	C	LS	3	3	5	5
Toxicology	Gastric decontamination		LS	1	1	3	3
Toxicology	Whole Bowel Irrigation		LS	1	1	3	3
Environmental	Basic cooling techniques (external and IV fluids)	C	LS	3	4	4	4

GROUP	PROCEDURE	CATEGORY		MASTERY LEVELS **1**: knowledge; **2:** under direct supervision **3:** independent; **4:** proficient; **5:** expert			
		Prevalence **C** common in EM	**Importance** **LS** life/limb/ sight saving	**End PT**	**End AT AT 1**	**End AT AT 2**	**End AT3**
Environmental	Advanced cooling techniques		LS	1	2	3	3
Environmental	Basic warming techniques (external and IV fluids)	C	LS	3	4	4	4
Environmental	Advanced warming techniques		LS	1	2	3	3

Presentations List

This list represents the vast majority of what an Emergency Medicine clinician sees in daily clinical practice. The purpose for the creation of this list is to explicitly state that the core business for Emergency Medicine clinicians is the assessment of patients with undifferentiated clinical presentations.

It is expected that trainees and educators will use this list to guide training, and that trainees will link these presentations to diagnoses through the integration of clinical experience and theoretical knowledge.

The list is categorised to reflect real clinical practice. An Emergency Medicine clinician screens for life / limb / sight threatening symptoms in all patients before performing their formal assessment, and thus presentations that are more indicative of a life / limb / sight threatening diagnosis are listed first. It is recognised that some presentations may also be not immediately threatening, so to reflect that some are listed in more than one category in the list.

These presentations may affect only one anatomical or physiological system, or multiple systems. This list does not attempt to define presentations in different systems separately. However, if the presentation affects multiple systems (for example, multi-trauma) the presentation should be considered of increased complexity (see modifiers list).

Presentation classification	Presentations
Cardiorespiratory (ABC)	Abdominal pain without injury Airway compromise/ stridor Apnoea Cardio respiratory arrest Chest pain without injury Dyspnoea Haemorrhage Hypotension Major limb injury Major torso (neck/chest/abdomen/pelvis) injury Palpitations
Neurological and behavioural	Acute altered sensation Acute dizziness Acute confusion/disorientation Acute headache Acute pain Acute weakness Agitation/ aggression Altered conscious state Hallucination Major head/spinal injury Missed essential therapy (e.g. dialysis, medications) Syncope Seizure
Environmental and Exposure	Bite/ sting by venomous creature Hyperthermia Hypothermia Major burn Toxic ingestion or exposure
Alphabetical list of other presentations	Abdominal pain/distension Abnormal test result Altered behaviour Altered motor function Altered mood

Presentation classification	Presentations
	Altered sensation Anxiety Behaviour Disturbance Bite/sting Bleeding Breathing difficulty Burn Collapse Complication of treatment/procedure Confusion/disorientation Constipation Contusion Cough Deformity Dehydration Delusion Diarrhoea Discharge/exudate Dizziness Drug/Medication related presentation Erythema Falls/unsteadiness Feeding problems Fever Foreign body Headache Hypertension Infection/ infestation Injury (other) Jaundice Lethargy Limp Lump Minor limb injury Mobility/Movement Problems Pain Pregnancy Poisoning Rash Skin lesion Situational crisis Social crisis Speech disturbance Sprain/Strain Swelling/oedema Urinary dysfunction Visual loss/disturbance Vomiting Weakness Weight loss Wound

Modifiers List

There are many different types of patients that present with an Emergency Medicine problem. Most of these patients have an undifferentiated presentation that must be assessed, processed, and managed.

Some of these presentations are simple, whereas others are complex. This list is designed to suggest modifying factors which transform a patient's presentation from simple to complex. There may be more than one factor involved in a single presentation, which creates increasing levels of complexity for that case. This is the challenge of Emergency Medicine; to identify all the problems in that patient's presentation, and to summarise them into key issues that must be managed, whilst concurrently and dynamically formulating a differential diagnosis and management plan.

There are many examples within the categories of modifiers, with suggested explanations. This list does not intend to be an exhaustive list of examples, but has enough detail to guide the trainee in how to conceptualise why a presentation is complex. The trainee is advised to consider and synthesise all these modifying factors when assessing a patient, in order to produce a safe and appropriate management and disposition plan.

For example – "A 20 year old healthy thin tall man presents with sudden onset pleuritic chest pain, dyspnoea and normal vital signs" would be considered a simple presentation. Compare this with the following scenario – "A 50 year old man who is a chronic smoker with a known history of bronchiectasis, presents with sudden onset pleuritic chest pain and dyspnoea. He is known to be on warfarin for previous pulmonary embolus. On examination his RR is 36, SaO2 90% on room air, HR 120 and BP 95/60." This would be considered a complex presentation due to the presence of modifiers.

Category	Modifiers	Examples
Demographics (Physical factors)	Neonatal age	Alternate list of causes for presentation– e.g. E coli meningitis, Apparent Life-Threatening Events (ALTE) and hypocalcaemia
	Paediatric age	Need for procedural sedation for painful procedures – e.g. Suturing
	Elderly age	Limited physiological reserve – e.g. cardiac failure due to viral respiratory infection
	Overweight/underweight	Altered drug dose – e.g. suxamethonium
Demographics (Home factors)	Family/Relationship status	Increased risk of abuse – e.g. arguing family members
	Culture/Religion	Expectations and beliefs of health systems – e.g. Jehovah's Witness and blood transfusion
	Financial status	Ability to purchase medications and treatments – e.g. crutches
	Legal status	Requires collaboration with other patient stakeholders – e.g. dementia patients
	Home supports	Available resources to support discharge – e.g. family to do groceries for a patient with broken ankle
	Home	Affects patients with altered mobility – e.g. double storey home
	Homeless	Safety for discharge – e.g. mod severity pneumonia
	Distance from home to hospital	Ease of returning in the event of deterioration – e.g. acute asthma

Category	Modifiers	Examples
Demographics (Lifestyle factors)	Smoking	Altered ED management – e.g. agitated patient with nicotine addiction.
	Pets	Alternative cause of presentation – e.g. allergy to cats
	Traveller	Different arrangements for follow up care – e.g. burn dressings
	Alcohol/ Illicit drug use	Clinical assessment more complex – e.g. alcohol and suicide risk
	Occupation	Ability to return to work – e.g. fractured finger in musician
Clinical Assessment (Communication)	Receptive/ expressive difficulties	Increased requirement for collateral assessment – e.g. stroke patient
	Language	Ability to communicate clear and unambiguous discharge information and instructions – e.g. asthma management plan
Clinical Assessment (Behaviour)	Mental health status	Consideration of medical and/or psychiatric cause of presentation – e.g. temporal lobe epilepsy
	Psycho-emotional distress	Prioritisation of safety prior to assessment – e.g. domestic violence victim
Clinical Assessment (Time)	Time of year	Surges in presentations – e.g. bronchiolitis
	Time of presentation onset	Unclear cause and effect – e.g. headache and herpes zoster ophthalmicus
	Delayed presentation	Increased risk of disease severity – e.g. perforated appendix in abdominal pain
Clinical Assessment (Presentation details)	Multiple complaints	Need to identify and prioritise problems – e.g. patient with DKA and hyperkalaemia
	Re-presentation	Increased risk of diagnosis bias – e.g. collapsed patient with vasovagal or TIA diagnosis.
Clinical Assessment (Injury details)	Multiple sites	Requires prioritisation and multiple referrals – e.g. multi-trauma
	Mechanism	Different management – e.g. blunt versus penetrating, accidental versus self-inflicted
	Type	Different management – e.g. open versus closed fracture
	Site	Requires specialised services – e.g. perineal trauma
Clinical Assessment (Medications)	Polypharmacy	Drug interactions – e.g. High INR due to warfarin and antibiotic
	Allergies	Choice of investigation/treatment – e.g. iodine allergy
Clinical Assessment (Pre-existing health)	Pregnancy	Altered differential diagnosis and management – e.g. antibiotics safe in pregnancy
	Immunosuppressed	Occult pathology – e.g. Transplant patients and sepsis
	Existing medical condition	Interrelated comorbidities – e.g. Chronic renal disease

Category	Modifiers	Examples
	Congenital condition	Altered management – e.g. Cystic Fibrosis
	Infectious status	Protection of self and others – e.g. Active tuberculosis
Clinical Assessment (Clinical Findings)	Abnormal vital signs	Severity of presentation – e.g. hypotension
	Key features ("red flags") found	Sentinel diagnosis – e.g. thunderclap headache
	Inconsistent findings	Red flag for a missed diagnosis – e.g. Munchausen's Disease
Clinical Assessment (Investigations)	Unexpected abnormal result	Clinical data synthesis is altered – e.g. liver metastases on CT scan for investigation of abdominal pain
	Equivocal result	Altered patient management – e.g. Intermediate V/Q result
	Time of day/ date	Limited access to CT imaging – e.g. night shift, public holiday
Clinical Treatment	Failure to respond to first-line interventions	Septic shock not responsive to inotropes
Performance of Procedures	Contraindication	Selection of alternative procedures – e.g. 'awake' intubation in predicted difficult airway
	No consent	Recognition of life/limb/sight threatening procedures – e.g. urgent fracture reduction
Management Considerations (Discharge Factors)	Community resources available	Follow up after discharge – e.g. timely access to a GP
	Communicable disease	Contact tracing requirements – e.g. measles
	Mandatory notification	Increased responsibilities for reporting – e.g. child at risk, fitness to drive
Management Considerations (Admission Factors)	Time/date	Admit overnight for safety – e.g. elderly patient post fall
	Protocols/guidelines	Presence/absence of dedicated clinical pathway for a presentation – e.g. STEMI
	ED workload	Availability of resources – e.g. patient surges
	Hospital resources	Affects decisions regarding care/transfer – e.g. rural vs. metro, ED observation ward
	Multiple team liaisons	Discerning and co-ordinating the hierarchy of emergent needs – e.g. anaesthetic vs. surgical

AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

EXAMINATION HANDBOOK

Fellowship Examination

Last revised: Mar-12
Version: v02

LEARNING & EXAMINATION PROCESSES

Contents

Paediatric Topics

It should be noted that there is no separate section on paediatric topics. Instead, topics relevant to the paediatric age group are integrated throughout the topic list. This in no way diminishes the importance of paediatric emergency medicine either in practice or in examinations.

COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

DIS - Diseases/Injuries/Symptoms	D - Pharmacological & toxicological agents	
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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

		Columns LO	LP
1.	**PRINCIPLES OF EMERGENCY MEDICINE**		
1.1	**Definitions and Background**		
	Demonstrate knowledge of the following definitions		
a)	Emergency medicine	S	Ex
b)	Emergency department	S	Ex
c)	Emergency physician	S	Ex
1.2	**History of Emergency Medicine**		
	Demonstrate knowledge of history of emergency medicine in Australia and New Zealand	S	H
	Demonstrate knowledge of history of emergency medicine in other countries	S	G
1.3	**Triage**		
	Demonstrate knowledge of the principles of the following		
a)	Definition	S	Ex
b)	Philosophy of triage	S	Ex
c)	Australasian Triage Scale	S	Ex
d)	Potential limitations of triage	S	Ex
1.4	**Epidemiology**		
	Demonstrate knowledge of common patterns of attendances in adults and children to an ED	S	H
1.5	**Patient encounters**		
	Demonstrate capacity to effectively identify and explore issues to be addressed in an emergency patient encounter, including the patient's context and preferences	S	Ex
	Demonstrates capacity to effectively seek out and integrate relevant information from other sources, such as a patient's family, caregivers and other professionals	S	Ex
	Demonstrate capacity to effectively deliver information to a patient and family, colleagues and other professionals in a humane manner and in such a way that it is understandable, and culturally appropriate	S	Ex
	Demonstrate effective clinical problem solving and judgment to address a patient's emergency problems, including interpreting available data and integrating information to generate differential diagnoses and management plans	S	Ex
	Demonstrate capacity to implement an effective emergency management plan in collaboration with a patient and their family	S	Ex
1.6	**Community Liaison**		
	Demonstrate knowledge of the principles of liaison between the ED and the following:		

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		Columns LO	LP
a)	General practice	S	H
b)	Community agencies	S	H
c)	Disease prevention		
Demonstrate knowledge of the principles and practice of disease prevention as it relates to emergency medicine		S	G

1.7 Crisis Management

Demonstrate knowledge of how to manage the effects of the following events on patients, their friends and relatives, and staff			
a)	Deceased patients	NCI	Ex
b)	Violence	NCI	Ex
c)	Victim management	NCI	G
d)	Child and elder abuse		
i)	Neglect, failure to thrive	NCI	H
ii)	Physical abuse	NCI	H
iii)	Sexual abuse	NCI	H
iv)	Psychological abuse	NCI	H

2. RESUSCITATION

2.1 Airway

a)	Basic airway maintenance techniques	P	Ex
b)	Oxygen delivery systems	Eq	Ex
c)	Bag mask ventilation	P	Ex
d)	Intubation and rapid sequence induction	P	Ex
e)	Alternative/different airway techniques	P	Ex
i)	laryngeal mask		
ii)	other		
f)	Needle/surgical cricothyroidotomy	P	Ex
g)	Tracheostomy	P	H
h)	Tracheal suctioning	P	Ex

2.2 Airway Management

a)	Elective intubation	P	Ex
b)	Confirming endotracheal tube position	P	Ex
c)	Laryngeal mask airway	P	Ex
d)	Capnography	I	Ex
e)	Pulse oximetry	I	Ex
f)	Extubation	P	Ex
g)	Ventilators		

		Columns LO	LP
i)	Used in EDs	Eq	Ex
ii)	Other	Eq	H
h)	Non-invasive ventilation	Eq	Ex

2.3 Life Support

a)	Cardiac arrest	DIS	Ex
b)	Basic life support	P	Ex
c)	ACLS drugs and algorithms	M	Ex
d)	Defibrillation	P	Ex
e)	Special arrest situations		
i)	Paediatric	M	Ex
ii)	Trauma	M	Ex
iii)	Hypothermia	M	Ex
iv)	Out-of-hospital	M	Ex

2.4 Vital sign measurement

a)	Clinical vital signs (BP, pulse, RR, temp)	I	Ex
b)	Non-invasive electronic monitoring	I/P	Ex
c)	Invasive monitoring	P	H

2.5 Shock

a)	Intravenous fluid composition and therapy	M	Ex
i)	High volume intravenous infusion techniques	P	Ex
ii)	Autotransfusion	P	G
b)	Peripheral venous access	P	Ex
i)	Accessing indwelling vascular devices	P	Ex
ii)	Vascular access techniques in infants & children	P	Ex
c)	Central venous access		
i)	Subclavian	P	Ex
ii)	Internal jugular	P	Ex
iii)	Femoral	P	Ex
iv)	Cubital	P	Ex
d)	Central venous pressure measurement	I	Ex
e)	Alternative venous access		
i)	Intraosseus	P	Ex
ii)	Peripheral venous cutdown	P	H
f)	Inotropes	D	Ex
g)	Pressors	D	Ex
h)	Arterial puncture and cannulation	P	Ex
i)	Endotracheal drug delivery	M	Ex
j)	MAST suit	P	G

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		Columns LO	LP
2.6	**Coma**		
a)	Care of the comatose patient	M/I	Ex
b)	Brain death	DIS	H
2.7	**Age-specific differences**		
	Be able to describe the anatomical and physiological differences that might affect resuscitation in the following groups		
a)	Neonatal	T	Ex
b)	Infant	T	Ex
c)	Paediatric	T	Ex
d)	Elderly	T	Ex
3.	**ANAESTHETICS**		
3.1	**General Anaesthetic Techniques**		
a)	Intravenous induction and maintenance agents	D	Ex
b)	Muscle relaxants i) Depolarising ii) Non-depolarising	D	Ex
c)	Inhalational anaesthetic agents (including nitrous oxide)	D	H
d)	Drugs for conscious sedation	D	Ex
3.2	**Local Anaesthetic Techniques**		
a)	Local anaesthetic pharmacology and toxicity	D	Ex
b)	Regional nerve blocks i) Digital ii) Wrist iii) Brachial plexus iv) Femoral v) Facial vi) Foot	P	H
c)	Intravenous regional anaesthesia	P	Ex
d)	Local anaesthetic adjuncts and alternatives	D	H
3.3	**Pain Management**		
a)	Acute pain management i) Drugs ii) Methods of delivery iii) Adjucts	M/I	Ex
b)	Chronic pain management	T	G
c)	Pain scores	T	Ex

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		Columns LO	LP
3.4	**Procedural Analgesia and Sedation**	**P**	**Ex**
4.	**MEDICINE**		
4.1	**Cardiovascular**		
a)	Clinical examination of the cardiovascular system	E	H
b)	Interpretation of symptoms and clinical signs of the cardiovascular system	E	Ex
c)	Acute coronary syndromes (ACS)		
i)	Approach to the patient with chest pain	DIS	Ex
ii)	Prehospital management	S	H
iii)	Low-risk chest pain	I/S	H
iv)	Stable angina	DIS	H
v)	Unstable angina	DIS	H
vi)	Myocardial infarction	DIS	Ex
vii)	Right ventricular myocardial infarction	DIS	H
viii)	Thrombolysis in myocardial infarction	M	Ex
ix)	Left ventricular failure and cardiogenic shock in the setting of myocardial infarction	DIS	H
x)	Interventional cardiology in acute coronary syndromes	M/P	G
xi)	Pharmacological agents used in acute coronary syndromes	D	H
xii)	Interpreting the ECG in the setting of acute coronary syndromes	I	Ex
xiii)	ST elevation in the absence of myocardial infarction	I	Ex
xiv)	An understanding of the major trials in acute coronary syndromes	T	H
xv)	Current research in ACS	T	H
xvi)	Chest pain pathways	M/S	H
xvii)	Chest pain units	M/S	H
d)	Syncope	DIS	H
i)	Differential diagnosis		
ii)	Identification of at-risk groups		
iii)	Management and disposition		
e)	Congestive cardiac failure	DIS	H
f)	Valvular disorders		
i)	Aortic	DIS	H
ii)	Mitral	DIS	H
iii)	Tricuspid	DIS	G
iv)	Pulmonary	DIS	G
v)	Conditions that are associated with valvular disorders	DIS	G
g)	Disorders of the myocardium		
i)	Cardiomyopathy	DIS	G
ii)	Aneurysm	DIS	G
iii)	Atrial septal defect	DIS	G
iv)	Ventricular septal defect	DIS	G
v)	Dextrocardia	DIS	G
h)	Disorders of the pericardium		
i)	Acute pericarditis	DIS	H

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		Columns LO	LP
	ii) Constrictive pericarditis	DIS	G
	iii) Pericardial effusion	DIS	G
	iv) Pericardial tamponade	DIS	H
	v) Pericardiocentesis	P	H
i)	Cardiogenic shock	DIS	H
j)	Hypertension		
	i) Urgencies	DIS	H
	ii) Emergencies	DIS	Ex
	iii) Pharmacological agents used to treat hypertension	D	H
k)	Disturbances of cardiac rhythm		
	i) Mechanisms of arrhythmias	T	H
	ii) Bradycardias		
	i. sinus bradycardia	DIS	Ex
	ii. heart block	DIS	Ex
	iii. other bradycardias	DIS	Ex
	iii) Tachycardias	DIS	Ex
	i. narrow complex regular	DIS	Ex
	ii. narrow complex irregular	DIS	Ex
	iii. wide complex regular	DIS	Ex
	iv. wide complex irregular	DIS	Ex
	v. torsade des pointes	DIS	Ex
	vi. ventricular fibrillation	DIS	Ex
	iv) Ectopy		
	i. narrow complex	DIS	Ex
	ii. wide complex	DIS	Ex
	v) Accessory pathways		
	i. Wolff-Parkinson-White syndrome	DIS	Ex
	ii. other	DIS	H
	vi) Electrophysiological testing	I	G
	vii) Drugs associated with cardiac arrhythmias	D	Ex
	viii) Pharmacological agents used to treat arrhythmias	D	Ex
	ix) International guidelines for the management of arrhythmias	D	Ex
l)	Implantable cardiac devices (ICDs)		
	i) Implantable pacemakers	Eq	G
	ii) Implantable defibrillators	Eq	G
	iii) Complications of ICDs	Eq/T	G
m)	External and internal emergent cardiac pacing	Eq/P	H
n)	Disorders of the peripheral vasculature		
	i) Deep venous thrombosis	DIS	H
	ii) Pulmonary embolism	DIS	H
	iii) Mesenteric ischaemia	DIS	H
o)	Cardiac transplantation	DIS	G
p)	Endocarditis	DIS	H
q)	Tumours	DIS	G
r)	Congential heart disease	DIS	G

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		Columns LO	LP
	i) Cyanotic heart disease	DIS	H
s)	Rheumatic fever	DIS	H

4.2 Respiratory

a)	Clinical examination of the respiratory system	E	H
b)	Interpretation of symptoms and clinical signs of the signs of the respiratory system	E	Ex
c)	Respiratory failure	DIS	H
d)	Upper airway obstruction	DIS	Ex
e)	Infectious diseases		
	i) Croup	DIS	H
	ii) Bronchitis	DIS	H
	iii) Pneumonia	DIS	H
	iv) Empyema	DIS	H
f)	Aspiration	DIS	H
g)	Acute lung injury/respiratory distress syndrome	DIS	H
h)	Asthma	DIS	Ex
i)	Pneumothorax	DIS	Ex
j)	Intercostal catheter insertion	P	Ex
k)	Pneumomediastinum	DIS	H
l)	Chronic obstructive pulmonary disease	DIS	H
m)	Pleural effusions	DIS	H
n)	Needle thoracocentesis	P	H
o)	Haemoptysis	DIS	H
p)	Cavitating lung lesions	DIS	G
q)	Isolated “coin” lesions on chest x-ray	DIS	G
r)	Disorders of the chest wall	DIS	G
s)	Disorders of the mediastinum	DIS	G
t)	The respiratory effects of obesity	DIS	G
u)	Sleep apnoea	DIS	G
v)	Lung transplants	DIS	G
w)	Neoplastic disorders	DIS	G
x)	Congenital/neonatal		
	i) Bronchopulmonary dysplasia	DIS	G
	ii) Cystic fibrosis	DIS	G

4.3 Gastrointestinal

a)	Clinical examination of the gastrointestinal system	E	H

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		Columns LO	LP
b)	Interpretation of the symptoms and clinical signs of the gastrointestinal system	E	H
c)	Gastrointestinal bleeding	DIS	H
	i) Indications for urgent gastroscopy	M	Ex
	ii) Techniques used with gastroscopy to control haemorrhage	P	G
	iii) Pharmacological agents used in management toxicological agents	D	H
	iv) Oesophageal varices	DIS	H
	v) Balloon tamponade of gastro-oesophageal varices	P	G
	vi) Peptic ulceration	DIS	H
	vii) Angiodysplasia of the colon	DIS	G
d)	Oesophageal disorders		
	i) Infectious disorders	DIS	G
	ii) Oesophagitis	DIS	G
	iii) Gastroesophageal reflux	DIS	G
	iv) Motor abnormalities	DIS	G
	v) Mallory-Weiss syndrome	DIS	H
	vi) Stricture and stenosis	DIS	G
	vii) Tracheo-oesophageal fistula	DIS	G
	viii) Neoplastic disorders	DIS	G
e)	Peptic ulcer disease and gastritis	DIS	H
f)	Feeding tube management	DIS	H
g)	Inflammatory bowel disease	DIS	G
h)	Irritable bowel syndrome	DIS	G
i)	Infectious disorders and gastroenteritis	DIS	G
j)	Hepatic disorders		
	i) Jaundice	DIS	G
	ii) Interpretation of liver function tests	I	H
	iii) Hepatic failure	DIS	G
	iv) Hepatitis	DIS	G
	v) Other infectious disorders of the liver	DIS	G
	vi) Vascular disorders	DIS	G
	vii) Liver transplant patient	DIS	G
	viii) Alcoholic liver disease	DIS	G
	ix) Hepato-renal syndrome	DIS	G
	x) Portal hypertension	DIS	G
k)	Abdominal paracentesis	P	H

4.4 Neurological

a)	Clinical examination of the neurological system	E	H
b)	Interpretation of symptoms and clinical signs of the neurological system	E	H
c)	Disorders of the cranial nerves		
	i) Facial nerve paralysis	DIS	H
	ii) Other	DIS	G
d)	Headache and facial pain		

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		Columns LO	LP
	i) Pharmacological agents	DIS	H
	ii) Indications for imaging (CT, MRI)	I	H
	iii) Migraine	DIS	H
	iv) Cluster headache	DIS	H
	v) Tension headache	DIS	H
	vi) Raised intracranial pressure	DIS	H
	vii) Temporal arteritis	DIS	H
	viii) Neuralgia	DIS	G
	ix) TMJ syndrome	DIS	G
e)	Cerebrovascular accident (CVA)		
	i) Transient ischaemic attacks	DIS	H
	ii) RINDS	DIS	H
	iii) Thrombotic CVA	DIS	H
	iv) Embolic CVA	DIS	H
	v) Haemorrhagic CVA	DIS	H
	vi) Cerebellar CVA	DIS	H
	vii) Thombolysis in CVA	M	H
	viii) CVA and hypertension	DIS	G
	ix) Syndromes of CVA	DIS	G
	i. Anterior cerebral artery	DIS	G
	ii. Middle cerebral artery	DIS	G
	iii. Posterior inferior cerebellar artery syndrome	DIS	G
	iv. Lacunar syndrome	DIS	G
	v. Midbrain, pontine and brainstem syndromes	DIS	G
	x) Stroke units	S	G
f)	Altered mental state		
	i) Coma	DIS	Ex
	ii) Acute brain syndrome	DIS	H
	iii) Dementia	DIS	G
	iv) Memory disorders	DIS	G
g)	Approach to ataxia and gait disturbances	DIS	G
h)	Seizures	DIS	H
i)	Status epilepticus	DIS	Ex
j)	Dystonic reactions	DIS	H
k)	Lumbar puncture	P	Ex
l)	Interpretation of CSF fluid biochemistry, cell count and microbiology	I	H
m)	Infectious disorders of the CNS and PNS		
	i) Meningitis	DIS	H
	ii) Encephalitis	DIS	H
	iii) Abscess	DIS	H
	iv) Tuberculosis	DIS	G
	v) Toxoplasmosis	DIS	G
	vi) Cryptococcal infection	DIS	G
	vii) HIV	DIS	G
n)	Guillain-Barré syndrome	DIS	G

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		Columns LO	LP
o)	Multiple sclerosis	DIS	H
p)	Myasthenia gravis & Eaton-Lambert syndrome	DIS	G
q)	Botulism	DIS	G
r)	Diphtheria	DIS	G
s)	Tetanus	DIS	H
t)	Motor neurone disease	DIS	H
u)	Peripheral neuropathy	DIS	G
v)	Disorders of the peripheral nervous system		
	i) Peripheral nerve lesions	DIS	H
	ii) Brachial plexus syndrome	DIS	G
w)	Myopathy	DIS	G
x)	Periodic paralysis	DIS	H
y)	Parkinson's disease	DIS	G
z)	Hydrocephalus	DIS	H
aa)	Complications of the central nervous system devices	DIS	G
ab)	Disorders of the spinal cord	DIS	G
ac)	Medical problems in the spinally-injured patient	DIS	H
ad)	Paraneoplastic disorders of the CNS and PNS	DIS	G

4.5 Endocrine

a)	Clinical examination of the endocrine system	E	H
b)	Interpretation of symptoms and clinical signs of the endocrine system	E	H
c)	Hypoglycaemia	DIS	Ex
d)	Diabetic ketoacidosis	DIS	Ex
e)	Diabetic with unstable blood glucose	DIS	H
f)	Alcoholic ketoacidosis	DIS	H
g)	Hyperosmolar hyperglycaemic nonketotic syndrome	DIS	Ex
h)	Adrenal disorders		
	i) Acute adrenal insufficiency (adrenal crisis)	DIS	H
	ii) Congenital adrenal insufficiency	DIS	G
	iii) Cushing's disease	DIS	G
	iv) Conn's syndrome	DIS	G
	v) Phaeochromocytoma	DIS	G
i)	Thyroid disorders		
	i) Urgencies associated with thyroid disorders	DIS	H
	ii) Thyroid storm	DIS	H
	iii) Hypothyroid crisis	DIS	H
j)	Pituitary disorders	DIS	G
	i) Panhypopituitarism	DIS	G
k)	Parathyroid disorders	DIS	G

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		Columns LO	LP
4.6	**Haematological**		
a)	Clinical examination of the haematological system	E	H
b)	Interpretation of symptoms and clinical signs of the haematological system	E	H
c)	Interpretation of haematological investigations	I	H
d)	Anaemia	DIS	H
e)	Abnormal haemoglobins	DIS	G
f)	Disorders of haemostasis and coagulation	DIS	H
g)	Anticoagulant agents	D	H
h)	Antiplatelet agents	D	H
i)	Neutropenia	DIS	H
j)	Thrombocytopenia	DIS	H
k)	Thrombocytosis	DIS	G
l)	Disorders of white cells	DIS	G
m)	Myelodysplastic disorders	DIS	G
n)	Paraproteinaemia	DIS	G
o)	Blood transfusion and component therapy	D/S	Ex
p)	Transfusion reactions	DIS	H
4.7	**Oncology**		
a)	Clinical examination in patients suspected of having a malignancy	E	H
b)	Interpretation of symptoms and clinical signs associated with malignancy	E	H
c)	Complications of chemotherapeutic agents	D	G
d)	Complications related to local tumour involvement		
	i) Acute spinal cord compression	DIS	H
	ii) Upper airway obstruction	DIS	H
	iii) Malignant pericardial effusion	DIS	G
	iv) Superior vena cava syndrome	DIS	G
	v) Pancoast's syndrome	DIS	G
e)	Hyperviscosity syndrome	DIS	G
f)	Complications related to myelosuppression	DIS	G
	i) Febrile neutropenia	DIS	G
	ii) Immunosuppression and opportunistic infections	DIS	G
	iii) Thrombocytopaenia and haemorrhage	DIS	G
g)	Malignancies specific to organ systems	DIS	G
h)	Paraneoplastic syndromes	DIS	G
4.8	**Renal**		
a)	Clinical examination of the renal system	E	H
b)	Interpretation of symptoms and clinical signs of the renal system	E	G

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		Columns LO	LP
c)	Pyuria	I	H
d)	Interpretation of urine dipstick results	I	H
e)	Interpretation of urine microscopy and culture	I	H
f)	Infectious disorders		
	i) UTI	DIS	H
	ii) Prostatitis	DIS	H
	iii) Pyelonephritis	DIS	H
	iv) Infected obstructed kidney	DIS	H
g)	Acute renal failure	DIS	H
h)	Chronic renal failure	DIS	G
i)	Hyperkalaemia in renal failure	DIS	Ex
	j) Renal dialysis		
	i) Peritoneal	M	G
	ii) Intermittent haemodialysis	M	G
	iii) Continual renal replacement therapies	M	G
	iv) Complications of renal dialysis	M	G
k)	Renal transplant	DIS	G
l)	Haemolytic uremic syndrome	DIS	G
m)	Rhabdomyolysis	DIS	H
n)	Polycystic kidney disease	DIS	G

4.9 Rheumatology

a)	Clinical examination of the rheumatological system	E	H
b)	Interpretation of symptoms and signs of the rheumatological system	E	G
c)	Arthrocentesis	P	Ex
d)	Rheumatoid arthritis	DIS	G
e)	Osteoarthritis	DIS	G
f)	Crystal arthopathies	DIS	H
g)	Urgencies and emergencies in systemic rheumatic disease	DIS	H
h)	Thoracic and lumbar pain	DIS	H
i)	Neck pain	DIS	G
j)	Shoulder pain	DIS	G
k)	Tunnel syndromes		
	i) Carpal tunnel	DIS	G
	ii) Ulnar tunnel	DIS	G
	iii) Tarsal tunnel	DIS	G
l)	Complications of drugs used on rheumatic disease	D	G

4.10 Dermatology

a)	Clinical examination of the dermatology system	E	H

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

		Columns LO	LP
b)	Interpretation of symptoms and clinical signs of the dermatological system	E	G
c)	Examination and description of a lump, lesion ulcer of the skin, or rash	E	H
d)	Dermatitis and eczema	DIS	G
e)	Urticarial and allergic rashes	DIS	H
f)	Viral exanthems	DIS	G
g)	Macular rashes	DIS	G
h)	Maculopapular lesions		
	i) Erythema multiforme	DIS	H
	ii) Erythema nodosum	DIS	G
	iii) Others	DIS	G
i)	Papular and nodular rashes	DIS	G
j)	Petechial and purpuric rashes	DIS	G
k)	Vesicular and bullous rashes		
	i) Pemphigus	DIS	G
	ii) Pemphigoid	DIS	G
	iii) Staphylococcal scalded skin syndrome	DIS	H
	iv) Stevens-Johnson syndrome	DIS	H
	v) Toxic epidermal necrolysis	DIS	H
	vi) Herpetic infections	DIS	H
	vii) Others	DIS	G
l)	Ulceration	DIS	G
m)	Cellulitis	DIS	H
n)	Dermatological manifestations of underlying systemic disease	DIS	G
o)	Dermatological manifestations of neoplastic disorders	DIS	G

4.11 Infectious disorders

a)	Clinical examination in patients with infectious disease	E	H
b)	Interpretation of symptoms and signs in patients with infectious disease	E	H
c)	Blood cultures	P	Ex
d)	Universal and standard precautions	S	H
e)	Protection of staff from infectious disease	S	H
f)	Isolation of patients with infectious disease	S	H
g)	Infection control in the ED	S	Ex
h)	Body fluid exposure	S	Ex
i)	Vaccination in the ED	M/D/S	H
j)	Infectious disease surveillance	S	G
k)	Infectious disease outbreaks	DIS	H
l)	Reportable communicable diseases	S	H
m)	Contact management of patients with serious infectious disease	T/S	H
n)	Antibiotic use in the ED	D	Ex

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
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		Columns LO	LP
o)	Outpatient antibiotic therapy	M/D/S	H
p)	Febrile infant management		
	i) Bacteraemia	DIS	H
q)	Systemic inflammatory response syndrome	T	H
r)	Sepsis, severe sepsis and septic shock	T	H
s)	Multiple organ dysfunction	DIS	H
t)	Toxic shock syndrome	DIS	H
u)	Infections in the returned traveller		
	i) Malaria	DIS	G
	ii) Dengue fever	DIS	G
	iii) Haemorrhagic fevers	DIS	G
	iv) Typhoid	DIS	G
	v) Others	DIS	G
v)	Bacterial		
	i) Food poisoning	DIS	G
	ii) Meningococcaemia	DIS	H
	iii) Disseminated gonococcal infection	DIS	H
	iv) Tuberculosis and other mycobacterial infections	DIS	G
	v) Gas gangrene	DIS	H
	vi) Necrotising fasciitis	DIS	H
	vii) Fournier's gangrene	DIS	H
	viii) Diphtheria	DIS	G
	ix) Haemophilus influenzae	DIS	G
w)	Sexually transmitted infections	DIS	H
x)	Viral		
	i) HIV	DIS	H
	ii) Infectious mononucleosis	DIS	G
	iii) Influenza/parainfluenza	DIS	G
	iv) Herpes simplex	DIS	H
	v) Herpes zoster	DIS	H
y)	Mycoplasma infections	DIS	H
z)	Fungal infections	DIS	G
aa)	Protozoal infections	DIS	G
ab)	Tick-borne infections	DIS	G
ac)	Infection from a marine source	DIS	H
ad)	Infection in the burns patient	DIS	G
ae)	Biologic weapons	D/S	H

4.12 Immunology

a)	Clinical examination of the patient with a suspected immunological disorder	E	G
b)	Interpretation of symptoms and signs of the immunological systems	E	G
c)	Hypersensitivity		

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COLUMN "LP" – LEVELS OF PRACTICE

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		Columns LO	LP
i)	Allergic reactions	DIS	H
ii)	Anaphylactoid reactions	DIS	H
iii)	Anaphylaxis	DIS	Ex
iv)	Angioedema	DIS	Ex
v)	Drug allergies	DIS	H
d)	Collagen vascular disease		
i)	Raynaud's syndrome	DIS	G
ii)	Reiter's disease	DIS	G
iii)	Scleroderma	DIS	G
iv)	Systemic lupus erythematosus	DIS	G
e)	Vasculitis		
i)	Polyarteritis nodosa	DIS	G
ii)	Wegener's granulomatosis	DIS	G
f)	Kawasaki's disease	DIS	G
g)	Sarcoidosis	DIS	G
h)	Complication of immunosuppressant agents	D	G

4.13 Metabolic

a)	Volumes and composition of the		
i)	Total body water	T	H
ii)	Intracellular fluid	T	H
iii)	Extracellular fluid	T	H
iv)	Plasma	T	H
v)	Blood	T	H
b)	Electrolytes		
i)	Hypokalaemia	DIS/I	Ex
ii)	Hyperkalaemia	DIS/I	Ex
iii)	Hyponatraemia	DIS/ I	Ex
iv)	Hypernatraemia	DIS/I	Ex
v)	Hypocalcaemia	DIS/I	G
vi)	Hypercalcaemia	DIS/I	G
vii)	Hypermagnesaemia	DIS/I	G
viii)	Hypomagnesaemia	DIS/I	H
ix)	Hyperphosphataemia	DIS/I	G
x)	Hypochloraemia	DIS/I	H
xi)	Hyperchloraemia	DIS/I	H
xii)	Inappropriate ADH syndrome	DIS/I	H
xiii)	Interpretation of the electrocardiograph in electrolyte disturbance	I	Ex

4.14 Acid Base Disorders

a)	Interpretation of arterial blood gases	I	Ex
i)	Alveolar gas equation	I	H
ii)	A-a gradient	I	H
b)	Metabolic acidosis	I	H
c)	Metabolic alkalosis	I	H

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COLUMN "LP" – LEVELS OF PRACTICE

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		Columns LO	LP
d)	Respiratory acidosis	I	H
e)	Respiratory alkalosis	I	H
f)	Anion gap	I	Ex
g)	Osmolar gap	I	H
h)	Indications for the administration of sodium bicarbonate	D	H

4.15 Neonates and Infants

a)	Apnoea of prematurity	DIS	G
b)	Hyperbilirubinaemia	DIS	G
c)	Feeding problems	DIS	G
d)	Congenital heart disease	DIS	G
e)	Diaphragmatic hernia	DIS	G
f)	Congenital syndromes	DIS	G
g)	Gastroesophaegeal reflux	DIS	G
h)	Metabolic disease	DIS	G
i)	Necrotising enterocolitis	DIS	G
j)	Respiratory distress	DIS	H
k)	Seizures	DIS	H
l)	Infections/sepsis		
	i) Occult bacteraemia	DIS	H
m)	Sudden infant death syndrome	DIS	H

5. SURGICAL

5.1 Trauma

a)	Epidemiology of trauma	T	H
b)	Mechanisms of injury	T	H
c)	Principles of management of trauma	T	Ex
d)	Trauma team concepts	T	H
e)	Trauma scoring systems	T	H
f)	Glasgow Coma Score	E	Ex
g)	Imaging modalities in trauma	I	H
h)	Assessment and management of multiple trauma	DIS	Ex
i)	Spinal immobilisation techniques	P	Ex
j)	Head trauma		
	i) Assessment and management of head trauma	DIS	H
	ii) Scalp lacerations	DIS	H
	iii) Skull fractures	DIS	H
	iv) Extradural haematoma	DIS	H

		Columns LO	LP
v)	Subdural haematoma	DIS	H
vi)	Intracerebral haematoma	DIS	H
vii)	Diffuse axonal injury	DIS	H
viii)	Penetrating head injury	DIS	H
ix)	Minor head injury	DIS	Ex
x)	Post concussive syndrome	DIS	H
xi)	Emergency department drainage of traumatic intracranial haematomas	P	G
k)	Chest trauma		
i)	Assessment and management of chest trauma	DIS	H
ii)	Pneumothorax	DIS	Ex
iii)	Haemothorax	DIS	H
iv)	Pulmonary contusion	DIS	H
v)	Myocardial contusion	DIS	H
vi)	Fractured ribs	DIS	H
vii)	Fractured sternum	DIS	H
viii)	Flail chest	DIS	H
ix)	Pericardial tamponade	DIS	H
x)	Tracheobronchial rupture	DIS	H
xi)	Oesophageal perforation	DIS	H
xii)	Diaphragmatic rupture	DIS	H
xiii)	Great vessel injury	DIS	H
xiv)	Penetrating thoracic injury	DIS	H
xv)	Emergency department thoracotomy	P	H
xvi)	Traumatic asphyxia	DIS	H
l)	Abdominal trauma		
i)	Assessment and management of abdominal trauma	DIS	H
ii)	Diagnostic peritoneal lavage	P	H
iii)	Splenic injury	DIS	H
iv)	Hepatic injury	DIS	H
v)	Renal injury	DIS	H
vi)	Pancreatic injury	DIS	H
vii)	Hollow viscus injury	DIS	H
viii)	Great vessel injury	DIS	H
ix)	Penetrating abdominal injury	DIS	H
x)	Abdominal compartment syndrome	DIS	G
m)	Genitourinary trauma		
i)	Assessment and management of genitourinary trauma	DIS	H
ii)	Ureteric injury	DIS	H
iii)	Urethral injury	DIS	H
iv)	Bladder injury	DIS	H
v)	Penile rupture	DIS	G
vi)	Testicular trauma	DIS	G
vii)	Penetrating genitourinary injury	DIS	G
n)	Pelvic trauma		
i)	Assessment and management of pelvic trauma	DIS	H
ii)	Major pelvic fracture	DIS	H
iii)	Exsanguinating pelvic injury	DIS	H

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		Columns LO	LP
o)	Spinal cord injury		
i)	Assessment and management of spinal cord injury	DIS	H
ii)	Spinal cord syndromes	DIS	H
iii)	SCIWORA	DIS	H
p)	Neck trauma		
i)	Assessment and management of neck trauma	DIS	H
ii)	Penetrating neck injury	DIS	H
iii)	Laryngotracheal injury	DIS	H
iv)	Vascular injury	DIS	H
v)	Nerve injury	DIS	H
q)	Maxillofacial trauma		
i)	Assessment and management of maxillofacial trauma	DIS	H
ii)	Facial lacerations	DIS	H
iii)	Nasal fractures	DIS	H
iv)	Mandibular fractures	DIS	H
v)	Le Fort fractures	DIS	H
vi)	Zygomatic fractures	DIS	H
vii)	Orbital injury	DIS	H
viii)	Temporal bone fractures	DIS	H
ix)	Dental trauma	DIS	G
x)	Tooth avulsion	DIS	G
xi)	Intraoral lacerations	DIS	G
r)	Extremity trauma		
i)	Assessment and management of extremity trauma	DIS	H
ii)	Traumatic amputation	DIS	H
iii)	Arterial injury	DIS	H
iv)	Compartment syndromes	DIS	H
v)	Crush syndrome	DIS	H
s)	Trauma in pregnancy		
i)	Assessment and management of trauma in pregnancy	DIS	H
ii)	Obstetric complications of trauma	DIS	H
iii)	Uterine rupture	DIS	H
iv)	Perimortem caesarean section	DIS	G
t)	Trauma in children		
i)	Assessment and management of trauma in children	DIS	H
ii)	Paediatric aspects of trauma management	DIS	H
iii)	Non-accidental injury	DIS	H

5.2 Burns

a)	Evaluation of the patient with burns	M	Ex
b)	Early management of severe burns	M	Ex
c)	Burn wound care	M	H
d)	Management of minor burns	M	H
e)	Inhalation injury	DIS	H
f)	Chemical burns	DIS	H

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Ex - Expert
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		Columns LO	LP
g)	Electrical burns	DIS	H
h)	Tar burns	DIS	H
i)	Sunburn	DIS	H
j)	Oral burns	DIS	H
k)	Escharotomy	P	H

5.3 Dental

a)	Normal dental development	T	G
b)	Dental infections without upper airway obstruction	DIS	G
c)	Dental infections with possible upper airway obstruction	DIS	H

5.4 Thoracic

a)	Spontaneous pneumothorax	DIS	Ex
b)	Pneumomendiastinum	DIS	H
c)	Mediastinitis	DIS	H
d)	Oesophageal perforation	DIS	H
e)	Mediastinal masses	DIS	G
f)	Oesophageal foreign body	DIS	H
g)	Tracheobronchial foreign body	DIS	H
h)	Congenital		
	i) Diaphragmatic hernia	DIS	G
	ii) Oesophageal	DIS	G
	iii) Tracheobronchial	DIS	G
	iv) Vascular ring	DIS	G

5.5 Abdominal

a)	Assessment and management of abdominal pain	DIS	Ex
b)	Pancreatitis	DIS	H
c)	Cholelithiasis	DIS	H
d)	Cholecystitis	DIS	H
e)	Cholangitis	DIS	H
f)	Non-traumatic splenic rupture	DIS	H
g)	Bowel obstruction		
	i) Post-surgical adhesions	DIS	H
	ii) Malrotation	DIS	G
	iii) Volvulus	DIS	H
	iv) Congenital pyloric stenosis	DIS	H
	v) Intussusception	DIS	H
	vi) Insertion of a nasogastric tube	P	Ex
h)	Diverticular disease	DIS	H

		Columns LO	LP
i)	Meckel's diverticulum	DIS	H
j)	Perforated viscus	DIS	H
k)	Acute appendicitis	DIS	H
l)	Peritoneal adhesions	DIS	H
m)	Ischaemic colitis	DIS	H
n)	Peritonitis	DIS	H
o)	Retroperitoneal haematoma	DIS	H
p)	Intra-abdominal/retroperitoneal abscesses	DIS	H
q)	Hernias	DIS	H
r)	Tumours	DIS	G
s)	Constipation	DIS	G

5.6 Anorectal

a)	Haemorrhoids	DIS	H
b)	Perianal haematoma	DIS	H
c)	Anal fissure	DIS	H
d)	Anorectal abscesses	DIS	H
e)	Pilonidal disease	DIS	G
f)	Rectal bleeding	DIS	H
g)	Rectal prolapse	DIS	H
h)	Idiopathic anal pain	DIS	G
i)	Radiation proctitis	DIS	G
j)	Proctoscopy and sigmoidoscopy	P	H
k)	Rectal foreign bodies	DIS	Ex

5.7 Vascular

a)	Peripheral ischaemia	DIS	H
b)	Arterial occlusion	DIS	H
c)	Venous occlusion	DIS	H
d)	Intestinal ischaemia	DIS	H
e)	Thoracic dissection	DIS	H
f)	Intra-abdominal aneurysms	DIS	H
g)	Aortic disorders	DIS	H
	i) Aortic aneurysms	DIS	H
	ii) Aortic dissection	DIS	H
h)	Mycotic aneurysms	DIS	G
i)	Intra-arterial drug injection	DIS	H

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

5.8 Orthopaedic and Hand

			Columns LO	LP
a)	General principles of fracture management		T	Ex
b)	Paediatric considerations in orthopaedics		T	H
	i)	Salter-Harris classification	T	H
	ii)	Injuries about the elbow	DIS	H
	iii)	The child with a limp	DIS	H
	iv)	Bone dysplasia	DIS	G
	v)	Connective tissue syndrome	DIS	G
	vi)	Inflammatory arthritis	DIS	H
	vii)	Injury rehabilitation	T	G
	viii)	Metabolic bone abnormalities	DIS	G
	ix)	Osgood/Schlatter disease	DIS	H
	x)	Perthe's disease	DIS	H
	xi)	Slipped capital femoral epiphysis	DIS	H
	xii)	Transient synovitis	DIS	H
	xiii)	Developmental hip dislocation	DIS	G
c)	Casting techniques		P	Ex
	i)	Short arm POP	P	Ex
	ii)	Long arm POP	P	Ex
	iii)	Short arm backslab	P	Ex
	iv)	Scaphoid POP	P	Ex
	v)	Bennett's fracture POP	P	Ex
	vi)	Volar splint	P	Ex
	vii)	U Slab	P	Ex
	viii)	Short leg POP	P	Ex
	ix)	Long leg cylinder	P	Ex
d)	Splintage techniques including splintage procedures		P	Ex
	i)	Application of a broad arm sling	P	Ex
	ii)	Application of a collar and cuff	P	Ex
	iii)	Application of a figure-of-8 bandaging	P	Ex
	iv)	Application of a knee immobiliser	P	Ex
	v)	Application of a Donway/ Hare splint	P	Ex
	vi)	Application of a Thomas splint	P	Ex
	vii)	Pelvic stabilisation techniques	P	Ex
e)	Fractures		DIS	H
	i)	Clavicle	DIS	H
	ii)	Scapula	DIS	H
	iii)	Proximal humerus	DIS	H
	iv)	Elbow	DIS	H
	v)	Forearm bones	DIS	H
	vi)	Wrist	DIS	H
	vii)	Carpal bones	DIS	H
	viii)	Spine	DIS	H
	ix)	Pelvis and hip		
		i. Pelvic fractures	DIS	H
		ii. Sacral fractures	DIS	H
		iii. Coccygeal fractures	DIS	H

Column "LO" – Categories of Learning Objectives

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Column "LP" – Levels of Practice

Ex - Expert
H - High
G - General

		Columns LO	LP
	iv. Femoral neck fractures	DIS	H
x)	Hip and femur		
	i. Femoral shaft fractures	DIS	H
	ii. Supracondylar fractures	DIS	H
	iii. Condylar fractures	DIS	H
	iv. Fractured patella	DIS	H
xi)	Tibia and fibula	DIS	H
xii)	Ankle	DIS	H
	i. Classification of ankle fractures	T	H
xiii)	Foot		
	i. Talar fractures	DIS	H
	ii. Calcaneal fractures	DIS	H
	iii. Tarsal bone fractures	DIS	H
	iv. Metatarsal fractures	DIS	H
	v. Phalangeal fractures	DIS	H
f)	Dislocations		
i)	Shoulder	DIS	Ex
ii)	Acromioclavicular joint	DIS	H
iii)	Elbow	DIS	H
iv)	Pulled elbow	DIS	Ex
v)	Carpal–metacarpal bones	DIS	H
vi)	Phalanges	DIS	H
vii)	Cervical spine		
	i. Atlantoaxial	DIS	H
	ii. Facet joint	DIS	H
viii)	Hip	DIS	H
ix)	Knee	DIS	H
x)	Patella	DIS	Ex
xi)	Ankle	DIS	H
xii)	Foot	DIS	H
xiii)	Tarsal	DIS	H
xiv)	Metatarsal	DIS	H
xv)	Phalangeal	DIS	H
g)	Soft tissues		
i)	Shoulder		
	i. Rotator cuff tears	DIS	G
	ii. Bursitis	DIS	G
	iii. Tendinitis	DIS	G
ii)	Elbow		
	i. Bursitis	DIS	H
	ii. Tendinitis	DIS	G
iii)	Knee		
	i. Bursitis	DIS	H
	ii. Ligament injury	DIS	H
	iii. Cruciate injury	DIS	H
	iv. Menisceal injury	DIS	H
	v. Bakers cyst	DIS	H
iv)	Ankle		

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
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		Columns LO	LP
	i. Ligament injury	DIS	H
v)	Foot		
	i. Foot injury	DIS	H
h)	Hand injuries		
i)	Metacarpal fractures/dislocations	DIS	H
ii)	Phalangeal fractures/dislocations	DIS	H
iii)	Lacerations	DIS	H
iv)	Nail injuries	DIS	H
v)	Extensor tendon injuries	DIS	H
vi)	Mallet finger	DIS	H
vii)	Boutonniere deformity	DIS	H
viii)	Other	DIS	H
ix)	Flexor tendon injuries	DIS	H
x)	Infections		
	i. Paronychia	DIS	H
	ii. Infective tenosynovitis	DIS	H
	iii. Other	DIS	H
xi)	Foreign bodies	DIS	H
xii)	Amputations	DIS	H
xiii)	Nerve injuries	DIS	H
xiv)	High pressure injection injuries	DIS	H
xv)	Crush injury	DIS	H
i)	Overuse syndromes	DIS	H
j)	Osteomyelitis	DIS	H
k)	Septic arthritis	DIS	H
l)	Complex regional pain syndrome type 1 (Sudeck's atrophy)	DIS	G

5.9 Neurosurgical

a)	Intracranial aneurysms	DIS	G
b)	AV malformations	DIS	G
c)	Subarachnoid haemorrhage	DIS	H
d)	Cerebral tumours	DIS	G
e)	Shunt complications	DIS	H
f)	Management of elevated intracranial pressure	DIS	H
g)	Intracranial abscesses	DIS	H
h)	Cerebral venous thrombosis	DIS	G
i)	Spinal epidural abscess	DIS	H
j)	Intravertebral disc disease	DIS	G
k)	Spinal stenosis	DIS	G

5.10 Urology

a)	Renal colic	DIS	E

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COLUMN "LP" – LEVELS OF PRACTICE

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G - General

		Columns LO	LP
b)	Urinary catheter insertion	P	Ex
c)	Suprapubic catheter insertion	P	Ex
d)	Urinary retention	DIS	H
e)	Obstructive uropathy	DIS	H
f)	Vesico-ureteric reflux	DIS	G
g)	Assessment and management of haematuria	DIS	G
h)	Urethritis	DIS	G
i)	Balantitis	DIS	G
j)	Prostatic hypertrophy	DIS	G
k)	Tumours	DIS	G
l)	Acute scrotum		
	i) Epididymitis	DIS	H
	ii) Orchitis	DIS	H
	iii) Testicular torsion	DIS	H
	iv) Torsion of the testicular appendage	DIS	H
m)	Priapism	DIS	H
n)	Phimosis/paraphimosis	DIS	H

5.11 ENT

a)	Ear		
	i) Auroscopes	Eq	H
	ii) Otalgia	DIS	H
	iii) Otitis media	DIS	H
	iv) Otitis externa	DIS	H
	v) Aural toilet/wick insertion	P	H
	vi) Cholesteatoma	DIS	G
	vii) Perforated tympanic membrane	DIS	H
	viii) Chondritis/perichondritis	DIS	G
	ix) Mastoditis	DIS	H
	x) Labyrinthitis	DIS	H
	xi) Meniere's disease	DIS	G
b)	Nose		
	i) Epistaxis		
	i. Anterior packing	DIS	H
	ii. Cautery	DIS	H
	iii. Posterior packing	DIS	H
	iv. Balloon placement	DIS	H
	ii) Sinusitis	DIS	H
c)	Throat/oropharynx		
	i) Ludwig's angina	DIS	H
	ii) Stomatitis	DIS	H
	iii) Pharyngitis	DIS	H
	iv) Tonsilitis	DIS	H

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
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		Columns LO	LP
v)	Peritonsillar abscess	DIS	H
vi)	Retropharyngeal abscess	DIS	H
vii)	Epiglottitis	DIS	H
viii)	Laryngitis	DIS	H
ix)	Tracheitis	DIS	H
x)	Post-tonsillectomy bleed	DIS	H
d)	Foreign bodies		
i)	Nasal	DIS	H
ii)	Aural	DIS	H
iii)	Upper airway	DIS	Ex
iv)	Pharyngeal	DIS	Ex

5.12 Eye

a)	Use of the slit lamp	Eq	H
b)	Opthalmoscopes	Eq	H
c)	Measurement of intraocular pressure	P	H
d)	Evaluation of the red eye	E	H
e)	Evaluation of the painful eye	E	H
f)	Sudden visual loss	E	H
g)	External eye		
i)	Blepharitis	DIS	G
ii)	Dacryocystitis	DIS	H
iii)	Conjunctivitis	DIS	H
iv)	Corneal abrasions	DIS	H
v)	Corneal ulcers	DIS	H
vi)	Keratitis	DIS	H
vii)	Foreign bodies		
i.	Conjunctival	DIS	H
ii.	Corneal	DIS	H
viii)	Spontaneous subconjunctival haemorrhage	DIS	H
ix)	Amblyopia	DIS	G
x)	Ocular burns		
i.	Caustic	DIS	H
ii.	Flash burns	DIS	H
iii.	Thermal	DIS	H
h)	Anterior pole		
i)	Glaucoma	DIS	H
ii)	Uveitis	DIS	G
i)	Posterior pole		
i)	Retinal detachment	DIS	G
ii)	Vitreous haemorrhage	DIS	G
iii)	Retinal haemorrhage	DIS	G
iv)	Retinal vascular occlusions	DIS	G
v)	Optic neuritis	DIS	G
j)	Orbit		

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
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		Columns LO	LP
i)	Cellulitis		
i.	Orbital	DIS	H
ii.	Pre-orbital	DIS	H
iii.	Endophthalmitis	DIS	G
ii)	Ocular trauma		
i.	Blunt	DIS	G
ii.	Penetrating	DIS	H

5.13 Wound management

a)	Classification of wounds	T	H
b)	Surgical wound management	P	H
c)	Basic wound closure techniques	P	H
d)	Wound dressings	P	H
e)	Wound infections	DIS	H
f)	Chronic ulcers	DIS	G
g)	Special wounds		
i)	Puncture wounds	DIS	H
ii)	Bites and stings	DIS	H
iii)	Blast injury	DIS	H
iv)	Degloving injury	DIS	H
v)	Amputations	DIS	H

5.14 Plastics

a)	Plastic surgical techniques		
i)	Grafts	P	G
ii)	Flaps	P	G
iii)	Advanced wound closure	P	G

5.15 Breast

a)	Carcinoma of the breast	DIS	G
b)	Mastitis	DIS	H
c)	Breast abscess	DIS	H

6. OBSTETRICS AND GYNAECOLOGY

6.1 Pregnancy

a)	Normal pregnancy	DIS	G
i)	Antenatal screening	DIS	G
ii)	Physiological changes	DIS	G
iii)	Foetal development	DIS	G
b)	High risk pregnancy	DIS	G
c)	Complications of pregnancy		
i)	Hyper-emesis gravidarum	DIS	H

		Columns LO	LP
ii)	Miscarriage	DIS	H
iii)	Anembryonic pregnancy	DIS	H
iv)	Septic abortion	DIS	H
v)	Ectopic pregnancy	DIS	H
vi)	HELLP syndrome (haemolysis, elevated liver enzymes, low platelets)	DIS	H
vii)	First trimester bleeding	DIS	H
viii)	Haemorrhage, antepartum		
	i. Abruptio placentae	DIS	H
	ii. Placenta praevia, vasa praevia	DIS	H
	iii. Other	DIS	H
ix)	Infections, including urinary tract infection	DIS	G
x)	Fevers	DIS	G
xi)	Isoimmunisation	DIS	H
xii)	Pregnancy-induced hypertension, pre-eclampsia	DIS	H
d)	Normal labour and delivery	P	H
e)	Complications of labour		
i)	Foetal distress	DIS	G
ii)	Premature labour	DIS	G
iii)	Premature rupture of membranes	DIS	G
iv)	Other	DIS	G
f)	Complications of delivery		
i)	Mal-presentation	DIS	G
ii)	Mal-position	DIS	G
iii)	Nuchal cord	DIS	G
iv)	Prolapsed cord	DIS	H
v)	Rupture or inversion of uterus	DIS	H
vi)	Retained placenta	DIS	G
vii)	Other	DIS	G
g)	Post-partum complications		
i)	Haemorrhage, postpartum		
	i. Primary	DIS	H
	ii. Secondary	DIS	H
ii)	Endometriosis	DIS	G
iii)	Retained products of conception	DIS	G
h)	Drugs in pregnancy	D	H

6.2 Gynaecology

a)	Vagina and vulva		
i)	Bimanual and vaginal speculum examination	P	H
ii)	Vaginitis/vulvovaginitis	DIS	H
iii)	Foreign body	DIS	H
iv)	Bartholin's cyst/abscess	DIS	H
v)	Other	DIS	H
b)	Uterus		
i)	Dysmenorrhoea	DIS	G
ii)	Dysfunctional uterine bleeding	DIS	G

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		Columns LO	LP
iii)	Cervicitis, endocervicitis	DIS	G
iv)	Endometriosis	DIS	G
v)	Tumours		
i.	Leiomyoma	DIS	G
ii.	Gestational trophoblastic disease	DIS	G
iii.	Other	DIS	G
vi)	Prolapse	DIS	G
c)	Ovaries		
i)	Cysts and cyst complications	DIS	H
ii)	Mittelschmerz	DIS	H
iii)	Tumours	DIS	G
iv)	Ovarian hyperstimulation syndrome	DIS	G
d)	Infections		
i)	Pelvic inflammatory disease	DIS	H
ii)	Fitz-Hugh-Curtis syndrome	DIS	G
iii)	Tubo-ovarian abscess	DIS	G
iv)	Herpes simplex	DIS	G
v)	Human papilloma virus	DIS	G
e)	Contraception		
i)	Complications	D	G
ii)	Post-coital	D	H
f)	Sexual assault	DIS	H
7.	**PSYCHIATRY**		
7.1	**Evaluation**		
a)	History	E	H
b)	Physical examination	E	H
c)	Mental state examination	E	H
d)	Investigations	I	H
7.2	**Organic brain syndrome**	**DIS**	**H**
7.3	**Violent/agitated behaviour**		
a)	Prevention	S	H
b)	Safety issues	S	H
c)	Restraint options and management	M	Ex
7.4	**Deliberate self-harm**	**DIS**	**H**
7.5	**Depression**	**DIS**	**H**
7.6	**Anxiety disorders**		
a)	Phobias	DIS	G

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		Columns LO	LP
b)	Panic disorder	DIS	H
c)	Post-traumatic stress disorder	DIS	G
d)	Obsessive–compulsive disorder	DIS	G
e)	Hypochondriasis	DIS	G
f)	Other	DIS	G

7.7 Psychoses

a)	Acute and chronic	DIS	H
b)	Bipolar effective disorder	DIS	H
c)	Schizophrenia	DIS	H
d)	Mania and hypomania	DIS	H
e)	Other	DIS	H

7.8 The "challenging" ED patient

a)	Personality disorder	DIS	H
b)	Malingering	DIS	H
c)	Frequent presenter	DIS	H
d)	Conversion disorder	DIS	H
e)	Pain disorder	DIS	H
f)	Somatization disorder	DIS	H
g)	Munchausen's by proxy	DIS	H
h)	Management strategies	DIS	H
i)	Other	DIS	H

7.9 The mental health patient in the ED

a)	Triage	S	Ex
b)	Appropriate psychiatric assessment area	S	H
c)	Community teams	S	H
d)	Psychiatry liaison nurse as part of the ED team	S	H
e)	In-patient psychiatry services	S	H
f)	Psychiatric facilities/units	S	H
g)	ED staff issues – appropriate training, debriefing	S	Ex

7.10 Therapy

a)	Pharmacology of therapeutic agents			
	i)	Benzodiazepines	D	H
	ii)	Anti-psychotics	D	H
	iii)	Antidepressants	D	H
	iv)	SSRIs	D	H
	v)	Sedatives	D	H

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		Columns LO	LP
vi)	Other	D	H
b)	Non-pharmacologic therapy		
i)	ECT – complications	M	G
ii)	Other	M	G
7.11	**Involuntary detention**	**M**	**Ex**
a)	Legal aspects of mental health care	S	Ex
8.	**TOXICOLOGY**		
8.1	**General principles**		
a)	Prehospital care	M	H
b)	Epidemiology and prevention of poisoning	T	H
c)	Management issues		
i)	Emesis	M	Ex
ii)	Gastric lavage	M	Ex
iii)	Activated charcoal	M	Ex
iv)	Cathartics	M	Ex
v)	Whole bowel irrigation	M	Ex
d)	Poison centres	M/S	G
	Demonstrate knowledge of the role of poison centres in the management and prevention of poisoning	M/S	G
e)	Risk assessment/prediction of toxicity	DIS	H
f)	Toxidromes	E	Ex
8.2	**Analytical toxicology**		
a)	Principles	I	H
b)	Drug testing and screening	I	H
8.3	**Chemical dependency and substance abuse**		
a)	Drug abuse	T	G
b)	Drug dependence	DIS	G
c)	Drug withdrawal	DIS	H
d)	Tolerance	T	G
8.4	**Antidotes**		
a)	Anticholinergics	D	H
b)	Chelation agents	D	G
c)	Benzodiazepine antagonists	D	H
d)	Calcium	D	H
e)	Cyanide treatment	D	H

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		Columns LO	LP
f)	Desferioxamine	D	H
g)	Fuller's earth	D	H
h)	Glucagon	D	H
i)	Methylene blue	D	H
j)	Opioid antagonists	D	Ex
k)	Physostigmine	D	H
l)	Pyridoxine	D	G
m)	Oximes	D	H
n)	Protamine	D	H
o)	Vitamin K	D	Ex
p)	Folinic acid	D	H
q)	Oxygen – normobaric	D	Ex
r)	Oxygen – hyperbaric	D	H
s)	N-acetylcysteine	D	EX
t)	Digibind	D	EX
8.5	**Anti-inflammatory agents and analgesic poisoning**		
a)	Paracetamol	D	Ex
b)	NSAIDs	D	H
c)	Salicylates	D	H
d)	Gout drugs	D	H
e)	Opioids	D	Ex
8.6	**Antimicrobial poisoning**		
a)	Antibiotics	D	G
b)	Antifungal	D	G
c)	Antiparasitic	D	G
d)	Antiseptics	D	H
e)	Antiviral	D	G
f)	Anti-tuberculous	D	H
8.7	**Autonomic agent poisoning**		
a)	Anticholinergics	D	Ex
b)	Antihistamines	D	H
c)	Serotonergic drugs	D	H
d)	Cholinergics	D	H
e)	Ergot alkaloids	D	G
f)	Methylxanthines	D	H

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		Columns LO	LP
g)	Sympathomometics	D	Ex
8.8	**CNS drugs and muscle relaxant poisoning**		
a)	Alcohols	D	Ex
b)	Anticonvulsants	D	Ex
c)	GHB and related compounds	D	H
d)	Anti-Parkinsonian drugs	D	G
e)	Psychiatric drugs	D	H
i)	Antipsychotic agents	D	H
ii)	Antidepressants	D	H
iii)	Lithium	D	Ex
f)	Hallucinogens	D	H
g)	Sedatives, hypnotics, anxiolytics	D	H
h)	Smooth muscle relaxants	D	G
8.9	**Cardiovascular**		
a)	Antiarrhythmics	D	H
b)	Anticoagulants	D	Ex
c)	Anti-hypertensives	D	H
8.10	**Environmental toxicology**		
a)	Plant ingestions	D	H
8.11	**GI agents**		
a)	Antacids	D	G
b)	Antidiarrhoeals	D	G
c)	Laxatives	D	G
8.12	**Industrial toxicology**		
a)	Metals		
i)	Arsenic	D	G
ii)	Lead	D	G
iii)	Mercury	D	G
iv)	Metal fumes	D	G
v)	Other	D	G
b)	Toxic gases		
i)	CO	D	H
ii)	Chlorine	D	H
iii)	CO2	D	G
iv)	Cyanide	D	H
v)	Hydrogen sulphide	D	H
vi)	Hydrocarbons	D	H

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		Columns LO	LP
	vii) Phosgene	D	G
c)	Hydrogen fluoride/hydrofluoric acid	D	H
d)	Nitrites	D	G

8.13 Pesticides, herbicides and rodenticide poisoning

a)	Organophosphates	D	H
b)	Carbamates	D	H
c)	Glyphosate	D	H
d)	Paraquat	D	H
e)	Naphthalene/camphor	D	H
f)	Strychnine	D	H
g)	Phosphine	D	G
h)	Super warfarins	D	H

8.14 Pharmacology principles

a)	Techniques for drug removal	M	H
b)	Drug delivery vehicles/diluents	D	G
c)	Drug interactions	D	H
d)	Adverse drug reactions	D	H
e)	Pharmacokinetics	D	H
	Demonstrate knowledge of pharmacokinetic principles, including drug absorption, distribution, metabolism and clearance		

8.15 Vitamins, minerals, bone and endocrine agents

a)	Hypoglycaemic agents	D	H
b)	Electrolytes and minerals	D	H
c)	Iron	D	H
d)	Steroids	D	G
e)	Thyroid drugs	D	G
f)	Vitamins	D	G
g)	Hormones	D	G

9. ENVIRONMENTAL

9.1 Heat

a)	Heat stroke	DIS	Ex
b)	Heat stress/exhaustion	DIS	H
c)	Drug related hyperthermia	DIS	H

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		Columns LO	LP
9.2	**Cold**		
a)	Hypothermia	DIS	H
b)	Frostbite	DIS	G
9.3	**Venomous bites and stings**		
a)	Snakes	DIS	Ex
b)	Spiders	DIS	Ex
c)	Hymenoptera – bees, wasps, ants	DIS	Ex
d)	Jellyfish	DIS	H
e)	Stinging fish	DIS	H
f)	Blue-ringed octopus	DIS	H
g)	Other	DIS	H
9.4	**Aquatic**		
a)	Near drowning	DIS	H
b)	Decompression illness	DIS	H
c)	Barotrauma	DIS	H
d)	Toxic marine ingestions	DIS	H
9.5	**Electricity**		
a)	Electric shock	DIS	H
b)	Lightning strike	DIS	H
9.6	**Aviation**		
a)	Acute mountain sickness	DIS	H
b)	High altitude cerebral oedema	DIS	G
c)	High altitude pulmonary oedema	DIS	H
9.7	**Exercise-associated illness**	**DIS**	**H**
10.	**RADIOLOGY IN EMERGENCY MEDICINE**		
10.1	**Physics**	**T**	**G**
10.2	**Safety issues/requirements**	**S**	**H**
10.3	**Limitations of modalities**		
a)	Plain x-ray	I	H
b)	Ultrasound	I	H
c)	CT scan	I	H

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		Columns LO	LP
d)	MRI	I	H
e)	Nuclear medicine	I	H

10.4 Indications, techniques and interpretation of common studies in emergency medicine

a)	Plain radiology		
i)	Trauma series (chest, pelvis, cervical spine)	I	Ex
ii)	Chest	I	H
iii)	Abdomen	I	H
iv)	Limbs	I	H
v)	Spine	I	H
i.	Cervical	I	H
ii.	Thoracic	I	H
iii.	Lumbo-sacral	I	H
vi)	Skull and facial skeleton	I	H
vii)	Soft tissue	I	H
b)	Contrast radiology		
i)	Angiography	I	H
i.	Cerebral	I	H
ii.	Cardiac	I	H
iii.	Limb	I	H
iv.	Abdominal	I	H
v.	Pulmonary	I	H
ii)	IVP	I	G
iii)	Cystography and urethrography	I	G
iv)	GIT	I	G
c)	Computed tomography (CT)		
i)	Brain	I	H
ii)	C-spine	I	G
iii)	Thoracic and lumbar spine	I	G
iv)	Chest	I	G
i.	CT pulmonary angiography	I	G
v)	Abdomen	I	G
i.	CT urography	I	G
vi)	Limbs and joints	I	G
vii)	Facial bones	I	G
d)	Magnetic resonance imaging (MRI)	I	G
i)	Brain	I	G
ii)	Spine	I	G
iii)	Other	I	G
e)	Nuclear medicine	I	G
i)	Ventilation/perfusion scans	I	G
ii)	Bone scans	I	G
iii)	Cardiac scans	I	G
iv)	Infection and inflammation scans	I	G
v)	GIT scans	I	G
f)	Ultrasound		

		Columns LO	LP
i)	Physics	I	H
ii)	Focussed abdominal sonography in trauma (FAST)	I/P	H
iii)	Abdominal aortic aneurysm (AAA)	I	H
iv)	Vascular access / procedural	P	H
v)	Vascular Doppler and duplex	I	G
vi)	Abdominal (Biliary, Renal)	I	G
vii)	Pelvic, including pregnancy	I	G
viii)	Limb	I	G
ix)	Echocoardiography	I	G
x)	Testicular	I	G

10.5 Medical precautions in radiology

a)	Complications (including contrast agents)	DIS	H
b)	Pregnancy and shielding	T	H
c)	The unstable patient – transfer and monitoring in radiology	S	Ex

11. LEGAL

11.1 Duty of care

a)	Individual doctor		
	Demonstrate knowledge of the term "duty of care"	NCI	H
b)	Hospital		
	Demonstrate knowledge of the role of the practitioner within a health service in providing care on behalf of the health service	NCI	H

11.2 Medical error

	Demonstrate knowledge of the concept of medical error	NCI	H
	Demonstrate knowledge of the key definitions of medical error • negligence • systems versus individual failure • preventability • root cause analysis	NCI	H

11.3 Consent

Demonstrate knowledge of the following concepts in relation to consent -

a)	Legal definition of "emergency"	NCI	H
b)	Capacity to consent		
i)	Children and adolescents	NCI	H
ii)	Intellectually disabled	NCI	H
iii)	Mentally ill	NCI	H
iv)	Impaired by drugs or alcohol	NCI	H
v)	Impaired by physical illness	NCI	H
c)	Guardianship Board	NCI	H

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		Columns LO	LP
d)	Valid consent	NCI	H
e)	Implied consent	NCI	H
f)	Verbal consent	NCI	H
g)	Written consent	NCI	H
h)	Refusal to consent	NCI	H
i)	Documentation of the process of consent	NCI	H

11.4 Coronial Investigations

a)	Reporting to coroner		
	Demonstrate knowledge of the requirements of coronial notification	NCI	H
b)	Expert opinion		
	Demonstrate knowledge of the competencies required to provide expert witness, the reason for the provision of service, and the obligation required once a service is rendered to the court	NCI	H

11.5 Involuntary detention under a Mental Health Act

Demonstrate knowledge of the following concepts in relation to involuntary detention in the ED

a)	Definition of mentally ill	NCI	H
b)	Effects of drugs or alcohol	NCI	H
c)	Criteria for detention	NCI	H
d)	Physical restraint and sedation	NCI	H
e)	Emergency treatment	NCI	H
f)	Police powers	NCI	H
g)	Death in detention	NCI	H

11.6 Privacy and confidentiality

a)	Principles of privacy	NCI	H
	Demonstrate working knowledge of relevant legislation		
b)	Patient confidentiality	NCI	H
	Demonstrate principles of application into the clinician's practice.		

11.7 Reporting

Demonstrate a working knowledge of the following concepts in relation to reporting in the ED

a)	Child abuse/child at risk	NCI	H
b)	Domestic violence	NCI	H
c)	Infectious diseases	NCI	H
d)	Violent injuries	NCI	H
e)	Occupational health and safety	NCI	H

		Columns LO	LP
f)	Mental health patients	NCI	H
g)	Medical conditions and driving	NCI	H
h)	Firearms registration	NCI	G
i)	Coroner's Act	NCI	H
j)	Impaired practitioner	NCI	H

11.8 Medico-legal reports

Demonstrate knowledge of the components of a medico-legal document and the ethical and legal responsibility associated with generation of such documents	NCI	G

11.9 Documentation and the Medical Record

Demonstrate knowledge of the components of a medical record	NCI	H
Demonstrate knowledge of the importance of the medical record in patient care	NCI	H
Demonstrate knowledge of the legal aspects of medical record entries	NCI	H
Demonstrate knowledge of how to write a medical record	NCI	H

11.10 Legal aspects of death and dying

Demonstrate knowledge of the legal aspects of death and dying

a)	Death certificate	NCI	H
b)	Living wills	NCI	G
c)	End-of-life decisions and advance directives	NCI	H
d)	Brain death	NCI	G
e)	Coroners Act	NCI	H

11.11 Forensic issues

Demonstrate knowledge of the principles of forensic evidence collection and sources of additional information

a)	Forensic evidence	NCI	G
b)	Chain of evidence	NCI	G
c)	Drug and alcohol testing	NCI	H

11.12 Impaired health practitioner

Demonstrate knowledge of the following concepts –

a)	Recognition	NCI	G
b)	Common causes	NCI	G
c)	Legal responsibilities of reporting	NCI	G
d)	Sources of assistance for the practitioner	NCI	G

11.13 Medical registration authority

Demonstrate knowledge of the role of medical registration authorities	NCI	G

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H - High
G - General

	Columns LO	LP
12. CLINICAL RISK MANAGEMENT		
12.1 High risk areas		
Demonstrate knowledge of types of clinical situation in the ED associated with a high incidence of adverse outcomes	NCI	H
12.2 Telephone advice and triage		
Demonstrate knowledge of the medico-legal aspects of telephone advice	NCI	H
Demonstrate knowledge of the importance of documentation of a non-face-to-face encounter (including follow up)	NCI	H
12.3 Consultation		
Demonstrate knowledge of the concepts of vertical and horizontal consultation	NCI	H
12.4 Transfer of responsibility		
Demonstrate knowledge that patient care is a continuum and of techniques that ensure that the standard of patient care is maintained at time of referral and handover of care/treatment	S/NCI	H
Demonstrate knowledge of the issues of interface care between one service/ individual practitioner and another	S/NCI	H
12.5 Disposition		
Demonstrate knowledge of patient disposition from the ED in the following areas		
a) Discharge/transfer	S	Ex
b) Follow up	S	Ex
c) Referral	S	Ex
12.6 Leaving against medical advice		
Demonstrate knowledge of the outcomes associated with LAMA	NCI	Ex
Demonstrate knowledge of techniques/ systems that can lessen the number of LAMA patients	NCI	Ex
Demonstrate knowledge of the medico-legal implications of patients who LAMA	NCI	Ex
12.7 Left without being seen		
Demonstrate knowledge of the outcomes associated with LWBS	NCI	Ex
Demonstrate knowledge of techniques/ systems that can lessen the number of LWBS patients	NCI	Ex
Demonstrate knowledge of the medico-legal implications of patients who LWBS	NCI	Ex
12.8 Patients who leave before treatment is completed		
Demonstrate knowledge of the responsibilities associated with patients who leave before treatment is completed	NCI	Ex

COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

DIS - Diseases/Injuries/Symptoms
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Eq - Equipment
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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

	Columns LO	LP
Demonstrate knowledge of the principles of medico-legal obligations, mental status assessment, mental competency and guardianship	NCI	Ex

13. PREHOSPITAL AND RETRIEVAL

13.1 Prehospital care

a)	The concept of emergency medical system (EMS)		
	Demonstrate knowledge of the benefits of an EMS for emergency patient care	S	H
	Demonstrate knowledge of the need for coordination of the components of EMS and the need for effective interfaces between EMS and other health care systems	S	H
b)	Models of prehospital care		
	Demonstrate knowledge of the different models of pre-hospital care, both within Australasia and in other areas of the world, and the relative advantages and disadvantages of each	S	G
c)	Communications		
	Demonstrate knowledge of the need for effective communication between components of the EMS system in the delivery of prehospital care	S	H
	Demonstrate knowledge of the various means of communication available in the delivery of prehospital care	S	H
d)	Patient access in prehospital care		
	Demonstrate knowledge of the differences and the difficulties in accessing the patient for the delivery of emergency care in the prehospital setting as compared to the hospital setting	S	H
e)	Roles and responsibilities of EMS		
	Demonstrate knowledge of the roles and responsibilities of the personnel within the EMS who contribute to the overall delivery of prehospital care i) Ambulance ii) Fire iii) Police	S	H
f)	Modes of transport		
	Demonstrate knowledge of the different modalities of patient transport available to prehospital care providers	S	H
	Demonstrate knowledge of the relative advantages and disadvantages of the use of each of the different modalities of patient transport available to prehospital care providers i) Road ambulance ii) Rotary wing aircraft	S	H
g)	Patient assessment in prehospital care		
	Demonstrate knowledge of the differences in assessment of a patient between the hospital and the prehospital environment	S	H
h)	Equipment considerations in prehospital care		

		Columns LO	LP
	Demonstrate knowledge of the medical equipment utilised in prehospital care and the limitations that the prehospital environment places on the use and function of that equipment	E	H
	Demonstrate knowledge of the equipment utilised by other EMS personnel in facilitating the delivery of prehospital care	E	H
i)	Clinical procedures in prehospital care		
	Demonstrate knowledge of the relevant considerations and adaptations that may be necessary to safely undertake a procedure in the prehospital environment	P	H
	Demonstrate knowledge of the relative advantages and disadvantages of undertaking a clinical procedure in the prehospital environment as compared to delaying the procedure until arrival at hospital	P	Ex
	Demonstrate knowledge of the following procedures in prehospital care		
	i) Airway and pulmonary resuscitation	P	Ex
	ii) Cardiopulmonary resuscitation	P	Ex
	iii) Defibrillation	P	Ex
	iv) Haemorrhage control	P	Ex
	v) Spinal immobilisation	P	H
	vi) Splintage techniques	P	H
	Demonstrate knowledge of the rationale for the development of intensive care paramedic protocols	S	G
j)	Controversies in prehospital care		
	Demonstrate knowledge of contemporary areas of controversy in prehospital care	S	H
k)	Working at an accident scene		
	Demonstrate knowledge of their role and responsibility as part of the EMS team at an accident scene	S	H
	i) Safety issues Demonstrate knowledge of the hazards of working at an accident scene and the safety requirements to minimise the risks to both themselves and other EMS personnel	S	H
	ii) Hazard control Demonstrate knowledge of hazardous materials that may be encountered at an accident scene and of the roles and responsibilities of the different EMS providers in managing these hazards	S	H
l)	Special circumstances		
	i) The entrapped patient	S	H
	ii) Crush syndrome	DIS	H
	iii) Field amputation	P	G
	iv) Rescues		
	Demonstrate knowledge of the role and responsibilities of rescue systems in the context of EMS	S	H
	Demonstrate knowledge of the role and responsibilities of the emergency physician during a rescue operation at an accident scene	S	H

COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

DIS - Diseases/Injuries/Symptoms	D - Pharmacological & toxicological agents	
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I - Investigations	Eq - Equipment	NCI - Non-clinical/clinical interface
M - Medical Interventions	T - Theories	

COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

	Columns LO	LP
13.2 Retrieval		
a) Interhospital transfer		
Demonstrate knowledge of the reasons that interhospital transfers are a requirement of EMS systems throughout Australasia	S	Ex
Demonstrate knowledge of how to provide safe and effective patient care during all phases of patient transfer	S	Ex
b) Intrahospital transfer		
Demonstrate knowledge of the requirements to effect safe transfer of patients between departments within a hospital	S	Ex
c) Roles and responsibilities in retrieval medicine		
Demonstrate knowledge of the roles and responsibilities of other personnel who contribute to the overall care and safety of patients requiring transfer i) Retrieval physician ii) Retrieval nurse iii) Transport provider	S	H
d) Modes of transport		
Demonstrate knowledge of the different modalities of patient transport available for interhospital transfer	S	H
Demonstrate knowledge of the relative advantages and disadvantages of the use of each of the different modalities of patient transport available for interhospital transfer i) Road ambulance ii) Rotary wing aircraft iii) Fixed wing aircraft	S	H
e) Communications		
Demonstrate knowledge of the need for effective communication between components of the EMS system involved in the transfer of patients from one hospital facility to another	S	H
Demonstrate knowledge of the various means of communication available to facilitate the transfer of patients from one hospital facility to another	S	H
f) Equipment considerations		
Demonstrate knowledge of the medical equipment utilised in interhospital transfer and the limitations that the requirement for transfer places on the use and function of that equipment	Eq	H
Demonstrate knowledge of the equipment utilised by other EMS personnel in facilitating the transfer of patients from one hospital facility to another	Eq	H
g) Preparing the patient for transport		
Demonstrate knowledge of the assessments and procedures that must be undertaken, and the monitoring requirements necessary to ensure that a patient is optimally prepared for safe transfer from one hospital facility to another	S	Ex
h) Physiological considerations		

Column "LO" – Categories of Learning Objectives			Column "LP" – Levels of Practice
DIS - Diseases/Injuries/Symptoms	D - Pharmacological & toxicological agents		Ex - Expert
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M - Medical Interventions	T - Theories		

		Columns LO	LP
	Demonstrate knowledge of the physiological consequences of transport in the ill or injured patient	T	H
i)	Effects of altitude		
	Demonstrate knowledge of the physiological consequences of transport by air in the ill or injured patient	T	H
j)	When not to transport		
	Demonstrate knowledge of the limitations of the transport environment and of the clinical scenarios where alternatives to patient transfer are likely to contribute to better patient outcome.	S	Ex

14. DISASTER MEDICINE

14.1 Disasters

a)	Definitions of a disaster and the importance of the relativity of an incident to available resources	S	H
b)	Classification of disasters	S	G
c)	Epidemiology of disasters	T	G
d)	National & regional responsibilities	S	G

14.2 Disaster planning

a)	General principles		
i)	Disaster management & mitigation		
i.	Principles of prevention and risk reduction	S	G
ii.	Principles of preparedness relative to risk of occurrence and impact	S	H
b)	Hospitals as responders to an emergency		
	Demonstrate knowledge of the standard emergency threat/incident procedures in the following situations		
i)	External emergency (Code Brown)	S	H
ii)	Hospitals as "victims" in an emergency		
i.	Fire (Code Red) procedures and considerations	S	H
ii.	Bomb threat (Code Purple) procedures	S	H
iii.	Evacuation (Code Orange)	S	H
iv.	Internal emergency (Code Yellow)	S	G
c)	Response		
	Demonstrate the principles and procedures that are required for preparing the ED for a large influx of casualties	S	Ex
d)	Recovery		
	Demonstrate knowledge of the principles and procedures that are required in the aftermath of an incident	S	H
e)	Incident command structure		
	Demonstrate knowledge of the five different management activities which need to be addressed in the effective management of any incident		

		Columns LO	LP
i)	Strategic: The overall command of the incident and interface between different responding agencies and the community	S	G
ii)	Planning: The continual evaluation of the incident situation	S	G
iii)	Financial: Tracking costs and administering the procurement of any necessary resources	S	G
iv)	Operational: The practical management of incident	S	G
v)	Logistics: The provision of services and support for all needs of the incident	S	G
f)	Demonstrate knowledge of the importance of communications during an incident	S	G
g)	Demonstrate knowledge of the importance of media management during incidents and the use of media during an incident	S	G

14.3 Roles and responsibilities at the disaster site

a)	Medical		
	Demonstrate knowledge of the relative advantages and disadvantages in having specialist disaster response medical teams instead of disaster response medical teams taken from hospitals	S	G
b)	Ambulance	S	G
c)	Police	S	G
d)	Fire	S	G

14.4 Disaster equipment and supplies

a)	Incident site		
i)	Selecting equipment for use at an incident site		
i.	Medical bags	Eq	H
ii.	Medical disposables & pharmaceuticals	Eq	H
iii.	Medical monitoring equipment	Eq	H
b)	Emergency department		
i)	Disposables and pharmaceutical supplies	S	H
ii)	Medical records and stationary	S	G

14.5 Occupational health and safety issues

a)	Incident site		
i)	Personal protective equipment (incident site)	S	H
b)	Emergency department		
i)	Principles of hazardous materials incidents	S	H
ii)	Recognising toxic gas exposures	S	H
iii)	Chemical personal protective equipment (hospital)	Eq/S	H
iv)	Personal protective equipment for biological hazards	Eq/S	H

14.6 Disaster site operations

a)	Organization of medical operations at an incident site	S	H
b)	Adapting clinical management in a disaster		

Column "LO" – Categories of Learning Objectives

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Column "LP" – Levels of Practice

Ex - Expert
H - High
G - General

		Columns LO	LP
i)	Disaster triage		
	Demonstrate knowledge of the principles of disaster triage and the national disaster triage standard	S	H
ii)	Record keeping	S	G
iii)	Paediatric casualties		
	Demonstrate knowledge of important triage considerations with regard to paediatric casualties and the needs of children involved in an incident	S	H

14.7 Mental health & behavioural issues

a)	Disaster victims		
i)	The role of counselling	S	G
b)	Health professionals and responders		
i)	Critical incident stress debriefing	S	G
ii)	Post traumatic stress disorder	DIS	G

14.8 Medical response to terrorist incidents

a)	Chemical weapons		
i)	Choking agents		
i.	Cyanide	D/S	H
ii.	Phosgene	D/S	G
ii)	Blistering agents		
i.	Mustard	D/S	G
iii)	Nerve agents	D/S	H
b)	Biological weapons		
i)	Small pox	DIS/S	G
ii)	Anthrax	DIS/S	G
iii)	Botulism	DIS/S	G
iv)	Viral haemorrhagic fevers	DIS/S	G
c)	Radiation emergencies		
i)	Radiation exposure –		
	Demonstrate knowledge of the different types of radiation exposure and their relative biological impact	DIS/S	G
ii)	Radiation injury	DIS	H
iii)	Radiation safety		
	Demonstrate knowledge of the principles of radiation safety, radiation monitoring and responding to a casualty contaminated with a radio-isotope safely	S	H
d)	Urban search and rescue		
i)	Demonstrate knowledge of the problems & dangers associated with accessing and treating casualties within collapsed structures	S	G

14.9 Disaster exercises

a)	Demonstrate knowledge of the role of different types of disaster exercises	S	G
b)	Designing an exercise		

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

		Columns LO	LP
i)	Practical problems in conducting exercises	S	G
ii)	Occupational health and safety issues in exercises	S	G
iii)	The importance of debriefing exercise participants to update disaster plans	S	G

15. MEDICAL EDUCATION

15.1 Basic principles of medical education

Demonstrate knowledge of the principles of the following aspects of medical education to the emergency medicine setting

a)	One-on-one tutorials	NCI	H
b)	Small group tutorials	NCI	H
c)	Large group tutorials	NCI	H
d)	Didactic versus interactive sessions	NCI	H
e)	Setting learning objectives	NCI	H
f)	Study techniques	NCI	G
g)	Creation of an environment conducive to learning	NCI	G
h)	Evaluation of a teaching program	NCI	G
i)	Development of courses	NCI	G
j)	Educational resources including electronic aids in teaching and learning	NCI	H

15.2 Undergraduate

Demonstrate knowledge of the following issues with regards to medical student education

a)	Ensuring a safe environment for the student	S	H
b)	Ensuring a safe environment for the patient interacting with the student	S	H
c)	Consent of a patient interacting with a student	NCI	H
d)	Topics in emergency medicine relevant to differing stages in the medical student curriculum	NCI	H
e)	Problem-based learning	NCI	G

15.3 Junior medical staff

Demonstrate knowledge of the principles of the following issues with regard to junior medical staff in the ED

a)	Principles of on-the-floor teaching of junior medical staff	NCI	H
b)	Principles of a topical program for junior medical staff	NCI	H
c)	Principles of on-the-floor supervision of junior medical staff	NCI	H

15.4 Specialist training

Demonstrate knowledge of the principles of the following issues with regard to specialist training in emergency medicine

		Columns LO	LP
a)	Appropriate structure of a training program in emergency medicine	NCI/S	H
b)	Primary examination teaching program and curriculum	NCI	H
c)	Fellowship examination teaching program and curriculum	NCI	H
d)	Continuing medical education program	NCI	H
e)	Guidelines and requirements for the accreditation of EDs for ACEM training	NCI	H
f)	ACEM research requirements for training	NCI	H
g)	The roles of the Director of Emergency Medicine Training	NCI	H
h)	The roles of the Board of Education	NCI	G
i)	Assessment of ACEM trainees	NCI	H
j)	Providing feedback to trainees	NCI	H
k)	Approach to a problem being experienced by an emergency medicine trainee	NCI	H
l)	The approach to a poorly performing trainee	NCI	G
m)	The international differences with regard to training in emergency medicine	S	G

15.5 Principles of medical education related to competency as an emergency physician

Demonstrate insight into their own limitations of expertise via self-assessment	NCI	H
Demonstrate knowledge of the principles of adult learning	NCI	H
Demonstrate knowledge of the maintenance of competence as an emergency physician.	NCI	H

15.6 Non-specialist, nursing and paramedical training

Demonstrate knowledge of the differences between specialist and other forms of education in the ED

a)	Differences between specialist and other forms of education in the ED such as non-specialist, nursing and paramedical training	S	H

16. ADMINISTRATION AND MANAGEMENT

16.1 Management principles

a) Responsibility

Demonstrate knowledge of potential barriers to the assumption of responsibility for patient care	NCI	H
Demonstrate knowledge of the importance of the assumption of overall responsibility for safe and effective patient care	NCI	H

b) Leadership

Demonstrate knowledge of the different roles that may be played by a leader	NCI	G
Demonstrate knowledge of the different skills required by leaders at different levels within an organisation	NCI	G

		Columns LO	LP
c)	Delegation		
	Demonstrate knowledge of the concept of delegation and the features required for successful delegation	NCI	G
d)	Management Structures		
	Demonstrate knowledge of different types of organisational structures commonly found within hospitals and their relative strengths and weaknesses	NCI	G
e)	Planning		
	Demonstrate knowledge of the steps required to generate a plan	NCI	G
	Demonstrate knowledge of effective priority setting	NCI	G
f)	Communication		
	Demonstrate knowledge of the modes of communication commonly used in the ED between the ED and other interfaces in the hospital	NCI	H
g)	Supervision		
	Demonstrate the ability to appropriately supervise other staff members, including how to give clear instructions	NCI	Ex

16.2 Physical

a)	Design		
	Demonstrate knowledge of the desirable features of an ED with reference to the following items i) Site selection, access points, parking and visibility, and relationships to other departments ii) Internal layout, patient flow, security features and privacy iii) Area/size, number and type of treatment areas appropriate for casemix, staffing and ED length of stay iv) Fire and local government regulations and how they may influence design v) Short stay unit vi) Signage appropriate for casemix vii) Staff facilities, including rest areas and educational facilities	NCI	H
b)	Equipment		
	Demonstrate knowledge of the steps involved in equipment selection and acquisition	Eq	H
	Demonstrate knowledge of the steps required to manage equipment failure	Eq	G
c)	Computers and information management systems		
	Demonstrate knowledge of the principles of operation of the systems commonly used to manage patients in the ED including patient tracking, investigation ordering and results, medical record generation, decision support, and referral systems	NCI	G
	Demonstrate knowledge of the benefits and risks of electronic vs paper based storage of health information	NCI	G
d)	Ergonomics, occupational health and safety		

		Columns LO	LP
	Demonstrate knowledge of the principles of occupational health and safety and how they may affect ED design	NCI	G
e)	Communications systems		
	Demonstrate knowledge of the communications features commonly utilised in the design of an ED	NCI	H

16.3 Staff

a)	Job descriptions		
	Demonstrate knowledge of the roles of key members of ED staff	NCI	Ex
	Demonstrate knowledge of the key competencies required by staff to effectively perform their tasks	NCI	Ex
b)	Staff assessment and appraisal		
	Demonstrate the ability to adequately evaluate staff performance and provide effective feedback to staff members regarding their performance	NCI	H
	Demonstrate the ability to receive feedback and to modify their behaviour to improve their own performance	NCI	H
c)	Conflict		
	Demonstrate knowledge of the sources and consequences of conflict and the techniques commonly used to resolve conflict	NCI	G
d)	Harassment and discrimination		
	Demonstrate knowledge of the principles for protection of staff from various forms of harassment and discrimination	NCI	G
e)	Stress		
	Demonstrate knowledge of the common sources of personal and work-related stress	NCI	H
f)	Motivation		
	Demonstrate knowledge of the theories underlying personal motivation and reward systems	NCI	G
g)	Teams		
	Demonstrate knowledge of the advantages and disadvantages of teams and committees	NCI	H
	Demonstrate knowledge of the different roles that team members may perform	NCI	H
	Demonstrate knowledge of the different phases of team development	NCI	G
	Demonstrate knowledge of the roles and responsibilities of other professionals in the provision of emergency health care.	S	H
	Demonstrate the capacity to effectively work with others to assess, plan, provide and integrate care for patients	NCI	H
	Demonstrate the capacity to effectively work with others to assess, plan, provide and review research problems, educational work, program review or administrative responsibilities	NCI	H
h)	Rostering		

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

	Columns LO	LP
Demonstrate knowledge of the factors that should be considered in the construction of a staff roster for an ED	NCI	H
Demonstrate knowledge of the factors that influence the staffing requirements of an ED	NCI	H

16.4 Financial

a)	Principles		
i)	Budgets		
	Demonstrate knowledge of the functions of budgets within an organisation	NCI	G
	Demonstrate knowledge of the principles of budget management	NCI	G
ii)	Cost-effectiveness		
	Demonstrate knowledge of the principles of cost effectiveness analysis and the potential limitations of such analyses	NCI	G
iii)	Funding sources and models		
	Demonstrate knowledge of the models commonly used in Australasia to provide funding to EDs and is able to identify potential sources of funding for ED operations	NCI	G
b)	Capital		
	Demonstrate knowledge of the difference between capital and recurrent funding, relative contributions of each to total budgetary position	NCI	G
i)	Building	NCI	G
ii)	Equipment	NCI	G
c)	Recurrent		
	Demonstrate knowledge of the difference between fixed and marginal costs	NCI	G
	Demonstrate knowledge of the approximate relevant contribution of the following to the total cost of ED operations		
i)	Salaries and wages	NCI	G
ii)	Consumables	NCI	G
iii)	Drugs	NCI	G
iv)	Investigations	NCI	G
v)	Repair, maintenance and replacement	NCI	G
vi)	Education and training	NCI	G
d)	Special projects		
i)	Research funding		
	Demonstrate knowledge of the possible sources of funds for research projects	NCI	G

16.5 Hospital environments

Demonstrate knowledge of the possible differences in staffing, physical facilities, support services and organisational cultures between the following types of hospitals		
a) Major referral	S	H

		Columns LO	LP
b)	Urban	S	H
c)	Regional and rural	S	H
d)	Remote	S	H
e)	Other		
	i) Military	S	G
	ii) International disaster relief	S	G

16.6 Quality improvement

	Demonstrate knowledge of the following quality improvement concepts		
a)	Principles		
	i) Pathways	NCI	H
	ii) Development	NCI	H
	iii) Implementation	NCI	H
	iv) Evaluation	NCI	H
b)	Policies and procedures	NCI	H
c)	Clinical audit	NCI	H
d)	Clinical indicators	NCI	H
e)	Process measurement	NCI	H
f)	Outcome measurement	NCI	H
g)	Risk management	NCI	H
h)	Complaints management	NCI	H
i)	Accreditation and verification processes	NCI	G
j)	Patient satisfaction		
	Demonstrate knowledge of the factors associated with patient satisfaction with ED care	NCI	H
k)	Task design		
	Demonstrate knowledge of the factors that influence the effectiveness of task design	NCI	G

16.7 Communications with external groups

	Demonstrate knowledge of the relationship between patient perception and satisfaction	NCI	G
	Demonstrate the ability to manage patients with special needs in an appropriate manner	NCI	H
	Demonstrate the ability to conduct a media interview regarding a medical topic	NCI	G
	Demonstrate knowledge of the importance of good relationships, and how these may be achieved, with the following groups		
a)	Interdepartmental relations	NCI	H
b)	Public relations	NCI	G
c)	Media relations	NCI	G

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COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
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G - General

		Columns LO	LP
d)	Government relations	NCI	G
e)	Legal relations	NCI	G
	i) Law enforcement		
	ii) Coroner		
	iii) Courts		

16.8 ED specific management issues

a)	Patient flow, ED overcrowding and access block		
	Demonstrate knowledge of the concepts of process mapping and concepts of patient flow	NCI	H
	Demonstrate knowledge of the possible causes of ED overcrowding and the possible effects that ED overcrowding may have on patient care	NCI	Ex
	Demonstrate knowledge of the factors that may contribute to access block	NCI	Ex
b)	Observation medicine and short-stay units		
	Demonstrate knowledge of the different models of care and observation medicine	S	H
	Demonstrate knowledge of the potential benefits and limitations of a short-stay unit associated with the ED	S	Ex
	Demonstrate knowledge of the types of cases that may be suitable for admission to a short-stay unit	S	Ex

17. RESEARCH AND LITERATURE APPRAISAL

17.1 Principles of research

a)	Demonstrate knowledge of the importance of accurate data collection on the validity of a scientific work	NCI	G
	Demonstrate knowledge of the importance of how the presentation of data may influence the perception of study results	NCI	G
	Demonstrate knowledge of the importance of honesty in research and how competing interests may influence research	NCI	H
	Demonstrate knowledge of the importance of randomisation in differentiating between an association and a cause	NCI	G
b)	Hypothesis formulation and testing		
	Demonstrate knowledge of the generation of an appropriate hypothesis to answer a research question	NCI	G
	Demonstrate knowledge of the types of error that may occur when testing research hypotheses	NCI	G
c)	Research ethics		
	i) Consent for research		
	Demonstrate knowledge of the process of consent for research	NCI	H
	ii) Ethics of research		
	Demonstrate knowledge of the ethics of medical research	NCI	G

		Columns LO	LP
17.2	**Research methods**		
	Demonstrate knowledge of the following principles of medical research		
a)	Sample size	NCI	G
b)	Choice of research method	NCI	G
c)	Enrolment	NCI	G
d)	Randomisation	NCI	G
e)	Concealment of treatment allocation	NCI	G
f)	Bias	NCI	G
g)	Validity	NCI	G
h)	"Gold standard" test	NCI	G
	Demonstrate knowledge of the roles, benefits and limitations of the following		
a)	Trials	NCI	G
b)	Meta-analysis	NCI	G
c)	Case series and reports	NCI	G
d)	Literature reviews	NCI	G
e)	Observational studies	NCI	G
f)	Letters	NCI	G
17.3	**Statistical methods**		
a)	Demonstrate knowledge of the following statistical principles		
	i) Sensitivity	NCI	H
	ii) Specificity	NCI	H
	iii) Positive predictive value	NCI	H
	iv) Negative predictive value	NCI	H
	v) Accuracy	NCI	H
	vi) Relative risk	NCI	H
	vii) Odds ratio	NCI	H
	viii) Confidence intervals	NCI	H
	ix) Statistical significance	NCI	H
b)	Usage of statistical methods		
	Demonstrate knowledge of the difference between dichotomous, nominal, ranked (ordinal) and continuous variables	NCI	G
	Demonstrate knowledge of the difference techniques used to graphically display or plot data from dichotomous, nominal, ranked (ordinal) and continuous variables	NCI	G
	Demonstrate knowledge of the difference between parametric and non-parametric data	NCI	G
	Demonstrate knowledge of the difference between paired and non-paired data	NCI	G
	Demonstrate knowledge of the difference between descriptive and comparative statistics	NCI	G

COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

DIS - Diseases/Injuries/Symptoms
E - Physical Examination
I - Investigations
M - Medical Interventions
D - Pharmacological & toxicological agents
P - Procedures
Eq - Equipment
T - Theories
S - Systems
NCI - Non-clinical/clinical interface

COLUMN "LP" – LEVELS OF PRACTICE

Ex - Expert
H - High
G - General

		Columns LO	LP
	Demonstrate knowledge of distributions of continuous variables and the terms used to describe these distributions	NCI	G
	Demonstrate knowledge of the principles and practical application of the following comparative statistical tests		
	• Student's t test	NCI	G
	• Mann Whitney U test	NCI	G
	• Chi squared test	NCI	G
	• Sign test	NCI	G
	• ANOVA	NCI	G
	• Correlation coefficients	NCI	G
	• Tests of agreement	NCI	G
	• Multiple regression	NCI	G
c)	Measurement accuracy		
	Demonstrate knowledge of confidence intervals in data reporting	NCI	H
	Demonstrate knowledge of the standard error of the mean	NCI	G
d)	Significance		
	Demonstrate knowledge of the difference between clinical and statistical significance	NCI	H
e)	Bayes' theorem		
	Demonstrate knowledge of the principles and practical application of Bayes' theorem, including the following terms • Prior probability • Post-test probability • Likelihood ratios (+ve and -ve)	NCI	G
	Demonstrate knowledge of the limitations of Bayes' theorem in clinical practice	NCI	G

17.4 Literature evaluation

a)	Evidence-based medicine		
	Demonstrate knowledge of the principles, practical application and limitations of evidence-based medicine	NCI	H
b)	Clinical application of research		
	Demonstrate knowledge of the potential barriers to the adoption of research findings into clinical practice	NCI	H
c)	Critical appraisal of emergency medicine specific literature		
	Demonstrate the knowledge and skills to accurately and critically appraise the emergency medicine specific literature.	NCI	Ex
d)	Is able to effectively critically appraise retrieved evidence in order to address a clinical question	NCI	H

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COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

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Columns

LO **LP**

COLUMN "LO" – CATEGORIES OF LEARNING OBJECTIVES

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Fellowship Exam Learning Processes

This is taken directly from the ACEM Fellowship Exam Learning Processes. These outline the specific subjects and the level of knowledge that can be covered by the Fellowship exam.

Key:

Red = Expert level knowledge

Bold = High level knowledge

Normal = General level knowledge

1. PRINCIPLES OF EMERGENCY MEDICINE

1.1 Definitions and Background

- **Demonstrate knowledge of the following definitions**
  a) Emergency medicine
  b) Emergency department
  c) Emergency physician

1.2 History of Emergency Medicine

- **Demonstrate knowledge of history of emergency medicine in Australia and New Zealand**
- Demonstrate knowledge of history of emergency medicine in other countries

1.3 Triage

- **Demonstrate knowledge of the principles of the following**
  a) Definition
  b) Philosophy of triage
  c) Australasian Triage Scale
  d) Potential limitations of triage

1.4 Epidemiology

- **Demonstrate knowledge of common patterns of attendances in adults and children to an ED**

1.5 Patient encounters

- **Demonstrate capacity to effectively identify and explore issues to be addressed in an emergency patient encounter, including the patient's context and preferences**
- **Demonstrates capacity to effectively seek out and integrate relevant information from other sources, such as a patient's family, caregivers and other professionals**
- **Demonstrate capacity to effectively deliver information to a patient and family, colleagues and other professionals in a humane manner and in such a way that it is understandable, and culturally appropriate**
- **Demonstrate effective clinical problem solving and judgment to address a patient's emergency problems, including interpreting available data and integrating information to generate differential diagnoses and management plans**
- **Demonstrate capacity to implement an effective emergency management plan in collaboration with a patient and their family**

1.6 Community Liaison

- **Demonstrate knowledge of the principles of liaison between the ED and the following:**

  a) General practice
  b) Community agencies
  c) Disease prevention
- Demonstrate knowledge of the principles and practice of disease prevention as it relates to emergency medicine

1.7 Crisis Management

- Demonstrate knowledge of how to manage the effects of the following events on patients, their friends and relatives, and staff

  a) Deceased patients
  b) Violence
  c) Victim management
  d) Child and elder abuse
  i) Neglect, failure to thrive
  ii) Physical abuse
  iii) Sexual abuse
  iv) Psychological abuse

2. RESUSCITATION

2.1 Airway

a) Basic airway maintenance techniques
b) Oxygen delivery systems
c) Bag mask ventilation
d) Intubation and rapid sequence induction
e) Alternative/different airway techniques
  i) laryngeal mask
  ii) other
f) Needle/surgical cricothyroidotomy
g) Tracheostomy
h) Tracheal suctioning

2.2 Airway Management

a) Elective intubation
b) Confirming endotracheal tube position
c) Laryngeal mask airway
d) Capnography
e) Pulse oximetry
f) Extubation
g) Ventilators

  i) Used in EDs
  ii) Other
h) Non-invasive ventilation

2.3 Life Support

- **a) Cardiac arrest**
- **b) Basic life support**
- **c) ACLS drugs and algorithms**
- **d) Defibrillation**
- **e) Special arrest situations**
  - **i) Paediatric**
  - **ii) Trauma**
  - **iii) Hypothermia**
  - **iv) Out-of-hospital**

2.4 Vital sign measurement

- **a) Clinical vital signs (BP, pulse, RR, temp)**
- **b) Non-invasive electronic monitoring**
- **c) Invasive monitoring**

2.5 Shock

- a) **Intravenous fluid composition and therapy**
  - **i) High volume intravenous infusion techniques**
  - ii) Autotransfusion
- **b) Peripheral venous access**
  - **i) Accessing indwelling vascular devices**
  - **ii) Vascular access techniques in infants & children**
- **c) Central venous access**
  - **i) Subclavian**
  - **ii) Internal jugular**
  - **iii) Femoral**
  - **iv) Cubital**
- **d) Central venous pressure measurement**
- **e) Alternative venous access**
  - **i) Intraosseous**
  - **ii) Peripheral venous cutdown**
- **f) Inotropes**
- **g) Pressors**
- **h) Arterial puncture and cannulation**
- **i) Endotracheal drug delivery**
- j) MAST suit

2.6 Coma

- a) **Care of the comatose patient**
- **b) Brain death**

2.7 Age-specific differences

- **Be able to describe the anatomical and physiological differences that might affect resuscitation in the following groups**
  - **a) Neonatal**
  - **b) Infant**
  - **c) Paediatric**
  - **d) Elderly**

3. ANAESTHETICS

3.1 General Anaesthetic Techniques

- a) Intravenous induction and maintenance agents
- b) Muscle relaxants
  - i) Depolarising
  - ii) Non-depolarising
- c) Inhalational anaesthetic agents (including nitrous oxide)
- d) Drugs for conscious sedation

3.2 Local Anaesthetic Techniques

- a) Local anaesthetic pharmacology and toxicity
- b) Regional nerve blocks
  - i) Digital
  - ii) Wrist
  - iii) Brachial plexus
  - iv) Femoral
  - v) Facial
  - vi) Foot
- c) Intravenous regional anaesthesia
- d) Local anaesthetic adjuncts and alternatives

3.3 Pain Management

- a) Acute pain management
  - i) Drugs
  - ii) Methods of delivery
  - iii) Adjuncts
- b) Chronic pain management
- c) Pain scores

3.4 Procedural Analgesia and Sedation

4. MEDICINE

4.1 Cardiovascular

a) Clinical examination of the cardiovascular system

b) Interpretation of symptoms and clinical signs of the cardiovascular system

c) Acute coronary syndromes (ACS)

- **i) Approach to the patient with chest pain**
- **ii) Prehospital management**
- **iii) Low-risk chest pain**
- **iv) Stable angina**
- **v) Unstable angina**
- **vi) Myocardial infarction**
- **vii) Right ventricular myocardial infarction**
- **viii) Thrombolysis in myocardial infarction**
- **ix) Left ventricular failure and cardiogenic shock in the setting of myocardial infarction**
- x) Interventional cardiology in acute coronary syndromes
- **xi) Pharmacological agents used in acute coronary syndromes**
- **xii) Interpreting the ECG in the setting of acute coronary syndromes**
- **xiii) ST elevation in the absence of myocardial infarction**
- **xiv) An understanding of the major trials in acute coronary syndromes**
- **xv) Current research in ACS**
- **xvi) Chest pain pathways**
- **xvii) Chest pain units**

d) Syncope

- **i) Differential diagnosis**
- **ii) Identification of at-risk groups**
- **iii) Management and disposition**

e) Congestive cardiac failure

f) Valvular disorders

- **i) Aortic**
- **ii) Mitral**
- iii) Tricuspid
- iv) Pulmonary
- v) Conditions that are associated with valvular disorders

g) Disorders of the myocardium

- i) Cardiomyopathy
- ii) Aneurysm
- iii) Atrial septal defect
- iv) Ventricular septal defect
- v) Dextrocardia

h) Disorders of the pericardium

- **i) Acute pericarditis**
- ii) Constrictive pericarditis
- iii) Pericardial effusion
- **iv) Pericardial tamponade**
- **v) Pericardiocentesis**

i) Cardiogenic shock

j) Hypertension

- **i) Urgencies**
- **ii) Emergencies**
- **iii) Pharmacological agents used to treat hypertension**

k) Disturbances of cardiac rhythm

- **i) Mechanisms of arrhythmias**
- **ii) Bradycardias**
  - **i. sinus bradycardia**
  - **ii. heart block**
  - **iii. other bradycardias**
- **iii) Tachycardias**
  - **i. narrow complex regular**
  - **ii. narrow complex irregular**
  - **iii. wide complex regular**
  - **iv. wide complex irregular**
  - **v. torsade des pointes**
  - **vi. ventricular fibrillation**
- **iv) Ectopy**
  - **i. narrow complex**
  - **ii. wide complex**
- **v) Accessory pathways**
  - **i. Wolff-Parkinson-White syndrome**
  - **ii. other**
- vi) Electrophysiological testing
- **vii) Drugs associated with cardiac arrhythmias**
- **viii) Pharmacological agents used to treat arrhythmias**
- **ix) International guidelines for the management of arrhythmias**

l) Implantable cardiac devices (ICDs)

- i) Implantable pacemakers
- ii) Implantable defibrillators
- iii) Complications of ICDs

m) External and internal emergent cardiac pacing

n) Disorders of the peripheral vasculature

- **i) Deep venous thrombosis**
- **ii) Pulmonary embolism**
- **iii) Mesenteric ischaemia**

o) Cardiac transplantation

p) Endocarditis

q) Tumours

r) Congenital heart disease

i) Cyanotic heart disease

s) Rheumatic fever

4.2 Respiratory

a) Clinical examination of the respiratory system

b) Interpretation of symptoms and clinical signs of the signs of the respiratory system

c) Respiratory failure

d) Upper airway obstruction

e) Infectious diseases

- **i) Croup**
- **ii) Bronchitis**
- **iii) Pneumonia**
- **iv) Empyema**

f) Aspiration

g) Acute lung injury/respiratory distress syndrome

h) Asthma

i) Pneumothorax

j) Intercostal catheter insertion

k) Pneumomediastinum
l) Chronic obstructive pulmonary disease
m) Pleural effusions
n) Needle thoracocentesis
o) Haemoptysis
p) Cavitating lung lesions
q) Isolated "coin" lesions on chest x-ray
r) Disorders of the chest wall
s) Disorders of the mediastinum
t) The respiratory effects of obesity
u) Sleep apnoea
v) Lung transplants
w) Neoplastic disorders
x) Congenital/neonatal
    i) Bronchopulmonary dysplasia
    ii) Cystic fibrosis

4.3 Gastrointestinal

a) Clinical examination of the gastrointestinal system
b) Interpretation of the symptoms and clinical signs of the gastrointestinal system
c) Gastrointestinal bleeding
i) Indications for urgent gastroscopy
    ii) Techniques used with gastroscopy to control haemorrhage
    iii) **Pharmacological agents used in management toxicological agents**
    iv) Oesophageal varices
    v) Balloon tamponade of gastro-oesophageal varices
    vi) Peptic ulceration
    vii) Angiodysplasia of the colon
d) Oesophageal disorders
    i) Infectious disorders
    ii) Oesophagitis
    iii) Gastroesophageal reflux
    iv) Motor abnormalities
    v) Mallory-Weiss syndrome
    vi) Stricture and stenosis
    vii) Tracheo-oesophageal fistula
    viii) Neoplastic disorders
e) Peptic ulcer disease and gastritis
f) Feeding tube management
g) Inflammatory bowel disease
h) Irritable bowel syndrome
i) Infectious disorders and gastroenteritis
j) Hepatic disorders
    i) Jaundice
    ii) Interpretation of liver function tests
    iii) Hepatic failure
    iv) Hepatitis
    v) Other infectious disorders of the liver
    vi) Vascular disorders
    vii) Liver transplant patient
    viii) Alcoholic liver disease

ix) Hepato-renal syndrome

x) Portal hypertension
k) Abdominal paracentesis

4.4 Neurological

a) Clinical examination of the neurological system
b) Interpretation of symptoms and clinical signs of the neurological system
c) Disorders of the cranial nerves
- **i) Facial nerve paralysis**
- ii) Other

d) Headache and facial pain
i) Pharmacological agents
- **ii) Indications for imaging (CT, MRI)**
- **iii) Migraine**
- **iv) Cluster headache**
- **v) Tension headache**
- **vi) Raised intracranial pressure**
- **vii) Temporal arteritis**
- viii) Neuralgia
- ix) TMJ syndrome

e) Cerebrovascular accident (CVA)
- **i) Transient ischaemic attacks**
- **ii) RINDS**
- **iii) Thrombotic CVA**
- **iv) Embolic CVA**
- **v) Haemorrhagic CVA**
- **vi) Cerebellar CVA**
- **vii) Thombolysis in CVA**
- viii) CVA and hypertension
- ix) Syndromes of CVA
  - i. Anterior cerebral artery
  - ii. Middle cerebral artery
  - iii. Posterior inferior cerebellar artery syndrome
  - iv. Lacunar syndrome
  - v. Midbrain, pontine and brainstem syndromes
- x) Stroke units

f) Altered mental state
- **i) Coma**
- **ii) Acute brain syndrome**
- iii) Dementia DIS G
- iv) Memory disorders

g) Approach to ataxia and gait disturbances
h) Seizures
i) Status epilepticus
j) Dystonic reactions
k) Lumbar puncture
l) Interpretation of CSF fluid biochemistry, cell count and microbiology
m) Infectious disorders of the CNS and PNS
- **i) Meningitis**
- **ii) Encephalitis**
- **iii) Abscess**
- iv) Tuberculosis
- v) Toxoplasmosis
- vi) Cryptococcal infection
- vii) HIV

n) Guillain-Barré syndrome
o) Multiple sclerosis DIS H
p) Myasthenia gravis & Eaton-Lambert syndrome DIS G
q) Botulism DIS G
r) Diphtheria DIS G
s) Tetanus DIS H
t) Motor neurone disease DIS H
u) Peripheral neuropathy DIS G
v) Disorders of the peripheral nervous system
    i) Peripheral nerve lesions DIS H
    ii) Brachial plexus syndrome DIS G
w) Myopathy DIS G
x) Periodic paralysis DIS H
y) Parkinson's disease DIS G
z) Hydrocephalus DIS H
aa) Complications of the central nervous system devices DIS G
ab) Disorders of the spinal cord DIS G
ac) Medical problems in the spinally-injured patient DIS H
ad) Paraneoplastic disorders of the CNS and PNS DIS G

4.5 Endocrine

a) Clinical examination of the endocrine system
b) Interpretation of symptoms and clinical signs of the endocrine system
c) Hypoglycaemia
d) Diabetic ketoacidosis
e) Diabetic with unstable blood glucose
f) Alcoholic ketoacidosis
g) **Hyperosmolar hyperglycaemic nonketotic syndrome**
h) Adrenal disorders
    i**) Acute adrenal insufficiency (adrenal crisis)**
    ii) Congenital adrenal insufficiency
    iii) Cushing's disease
    iv) Conn's syndrome
v) Phaeochromocytoma
i) Thyroid disorders
i) Urgencies associated with thyroid disorders
    ii) Thyroid storm
    iii) Hypothyroid crisis
j) Pituitary disorders
i) Panhypopituitarism
k) Parathyroid disorders

4.6 Haematological

a) Clinical examination of the haematological system
b) Interpretation of symptoms and clinical signs of the haematological system
c) Interpretation of haematological investigations
d) Anaemia
e) Abnormal haemoglobins
f) Disorders of haemostasis and coagulation
g) Anticoagulant agents
h) Antiplatelet agents
i) Neutropenia
j) Thrombocytopenia
k) Thrombocytosis
l) Disorders of white cells
m) Myelodysplastic disorders
n) Paraproteinaemia
o) Blood transfusion and component therapy
p) Transfusion reactions

4.7 Oncology

a) Clinical examination in patients suspected of having a malignancy
b) Interpretation of symptoms and clinical signs associated with malignancy
c) Complications of chemotherapeutic agents
d) Complications related to local tumour involvement
    i) Acute spinal cord compression
    ii) Upper airway obstruction
    iii) Malignant pericardial effusion
    iv) Superior vena cava syndrome
    v) Pancoast's syndrome
e) Hyperviscosity syndrome
f) Complications related to myelosuppression
    i) Febrile neutropenia
    ii) Immunosuppression and opportunistic infections
    iii) Thrombocytopaenia and haemorrhage
g) Malignancies specific to organ systems
h) Paraneoplastic syndromes

4.8 Renal

a) Clinical examination of the renal system
b) Interpretation of symptoms and clinical signs of the renal system
c) Pyuria
d) Interpretation of urine dipstick results
e) Interpretation of urine microscopy and culture
f) Infectious disorders
    i) UTI
    ii) Prostatitis
    iii) Pyelonephritis
    iv) Infected obstructed kidney
g) Acute renal failure
h) Chronic renal failure
i) Hyperkalaemia in renal failure

j) Renal dialysis
    i) Peritoneal
    ii) Intermittent haemodialysis
    iii) Continual renal replacement therapies
    iv) Complications of renal dialysis
k) Renal transplant
l) Haemolytic uremic syndrome
m) Rhabdomyolysis
n) Polycystic kidney disease

4.9 Rheumatology

a) Clinical examination of the rheumatological system
b) Interpretation of symptoms and signs of the rheumatological system
c) Arthrocentesis
d) Rheumatoid arthritis
e) Osteoarthritis
f) Crystal arthopathies
g) Urgencies and emergencies in systemic rheumatic disease
h) Thoracic and lumbar pain
i) Neck pain
j) Shoulder pain
k) Tunnel syndromes
    i) Carpal tunnel
    ii) Ulnar tunnel
    iii) Tarsal tunnel
l) Complications of drugs used on rheumatic disease

4.10 Dermatology

a) Clinical examination of the dermatology system
b) Interpretation of symptoms and clinical signs of the dermatological system
c) Examination and description of a lump, lesion ulcer of the skin, or rash
d) Dermatitis and eczema
e) Urticarial and allergic rashes
f) Viral exanthems
g) Macular rashes
h) Maculopapular lesions
    i) Erythema multiforme
    ii) Erythema nodosum
    iii) Others
i) Papular and nodular rashes
j) Petechial and purpuric rashes
k) Vesicular and bullous rashes
    i) Pemphigus
    ii) Pemphigoid
    iii) Staphylococcal scalded skin syndrome
    iv) Stevens-Johnson syndrome
    v) Toxic epidermal necrolysis
    vi) Herpetic infections
    vii) Others
l) Ulceration
m) Cellulitis
n) Dermatological manifestations of underlying systemic disease
o) Dermatological manifestations of neoplastic disorders

4.11 Infectious disorders

a) **Clinical examination in patients with infectious disease**
b) Interpretation of symptoms and signs in patients with infectious disease
c) Blood cultures
d) Universal and standard precautions
e) Protection of staff from infectious disease
f) Isolation of patients with infectious disease
g) Infection control in the ED
h) Body fluid exposure
i) Vaccination in the ED
j) Infectious disease surveillance
k) **Infectious disease outbreaks**
l) Reportable communicable diseases
m) Contact management of patients with serious infectious disease
n) Antibiotic use in the ED
o) Outpatient antibiotic therapy
p) Febrile infant management
i) Bacteraemia
q) Systemic inflammatory response syndrome
r) Sepsis, severe sepsis and septic shock
s) Multiple organ dysfunction
t) Toxic shock syndrome
u) Infections in the returned traveller
- i) Malaria
- ii) Dengue fever
- iii) Haemorrhagic fevers
- iv) Typhoid
- v) Others

v) Bacterial
- i) Food poisoning
- ii) **Meningococcaemia**
- **iii) Disseminated gonococcal infection**
- iv) Tuberculosis and other mycobacterial infections
- **v) Gas gangrene**
- **vi) Necrotising fasciitis**
- **vii) Fournier's gangrene**
- viii) Diphtheria
- ix) Haemophilus influenzae

w) Sexually transmitted infections
x) Viral
- **i) HIV**
- ii) Infectious mononucleosis
- iii) Influenza/parainfluenza
- **iv) Herpes simplex**
- **v) Herpes zoster**

y) Mycoplasma infections
z) Fungal infections
aa) Protozoal infections
ab) Tick-borne infections
ac) Infection from a marine source
ad) Infection in the burns patient
ae) Biologic weapons

4.12 Immunology

a) Clinical examination of the patient with a suspected immunological disorder E G
b) Interpretation of symptoms and signs of the immunological systems E G
c) Hypersensitivity
i) Allergic reactions
ii) Anaphylactoid reactions
iii) Anaphylaxis
iv) Angioedema
v) Drug allergies
d) Collagen vascular disease
i) Raynaud's syndrome
ii) Reiter's disease
iii) Scleroderma
iv) Systemic lupus erythematosus
e) Vasculitis
i) Polyarteritis nodosa
ii) Wegener's granulomatosis
f) Kawasaki's disease
g) Sarcoidosis
h) Complication of immunosuppressant agents

4.13 Metabolic

a) Volumes and composition of the
i) Total body water
ii) Intracellular fluid
iii) Extracellular fluid
iv) Plasma
v) Blood
b) Electrolytes
i) Hypokalaemia
ii) Hyperkalaemia
iii) Hyponatraemia
iv) Hypernatraemia
v) Hypocalcaemia
vi) Hypercalcaemia
vii) Hypermagnesaemia
viii) Hypomagnesaemia
ix) Hyperphosphataemia
x**) Hypochloraemia**
xi) Hyperchloraemia
xii) Inappropriate ADH syndrome
xiii) Interpretation of the electrocardiograph in electrolyte disturbance

4.14 Acid Base Disorders

- **a) Interpretation of arterial blood gases**
  - **i) Alveolar gas equation**
  - **ii) A-a gradient**
- **b) Metabolic acidosis**
- **c) Metabolic alkalosis**
- **d) Respiratory acidosis**
- **e) Respiratory alkalosis**
- **f) Anion gap**
- **g) Osmolar gap**
- **h) Indications for the administration of sodium bicarbonate**

4.15 Neonates and Infants

- a) Apnoea of prematurity
- b) Hyperbilirubinaemia
- c) Feeding problems
- d) Congenital heart disease
- e) Diaphragmatic hernia
- f) Congenital syndromes
- g) Gastroesophageal reflux
- h) Metabolic disease
- i) Necrotising enterocolitis
- **j) Respiratory distress**
- **k) Seizures**
- **l) Infections/sepsis**
- **i) Occult bacteraemia**
- **m) Sudden infant death syndrome**

5. SURGICAL

5.1 Trauma

a) Epidemiology of trauma
b) Mechanisms of injury
c) Principles of management of trauma
d) Trauma team concepts
e) Trauma scoring systems
f) Glasgow Coma Score
g) Imaging modalities in trauma
h) Assessment and management of multiple trauma
i) Spinal immobilisation techniques
j) Head trauma
- **i) Assessment and management of head trauma**
- **ii) Scalp lacerations**
- **iii) Skull fractures**
- **iv) Extradural haematoma**
- **v) Subdural haematoma**
- **vi) Intracerebral haematoma**
- **vii) Diffuse axonal injury**
- **viii) Penetrating head injury**
- **ix) Minor head injury**
- **x) Post concussive syndrome**
- xi) Emergency department drainage of traumatic intracranial haematomas

k) Chest trauma
- **i) Assessment and management of chest trauma**
- **ii) Pneumothorax**
- **iii) Haemothorax**
- **iv) Pulmonary contusion**
- **v) Myocardial contusion**
- **vi) Fractured ribs**
- **vii) Fractured sternum**
- **viii) Flail chest**
- **ix) Pericardial tamponade**
- **x) Tracheobronchial rupture**
- **xi) Oesophageal perforation**
- **xii) Diaphragmatic rupture**
- **xiii) Great vessel injury**
- **xiv) Penetrating thoracic injury**
- **xv) Emergency department thoracotomy**
- **xvi) Traumatic asphyxia**

l) Abdominal trauma
- **i) Assessment and management of abdominal trauma**
- **ii) Diagnostic peritoneal lavage**
- **iii) Splenic injury**
- **iv) Hepatic injury**
- **v) Renal injury**
- **vi) Pancreatic injury**
- **vii) Hollow viscus injury**
- **viii) Great vessel injury**
- **ix) Penetrating abdominal injury**
- x) Abdominal compartment syndrome

m) Genitourinary trauma

- **i) Assessment and management of genitourinary trauma**
- **ii) Ureteric injury**
- **iii) Urethral injury**
- **iv) Bladder injury**
- v) Penile rupture
- vi) Testicular trauma
- vii) Penetrating genitourinary injury

n) Pelvic trauma

- **i) Assessment and management of pelvic trauma**
- **ii) Major pelvic fracture**
- **iii) Exsanguinating pelvic injury**

o) Spinal cord injury

- **i) Assessment and management of spinal cord injury**
- **ii) Spinal cord syndromes**
- **iii) SCIWORA**

p) Neck trauma

- **i) Assessment and management of neck trauma**
- **ii) Penetrating neck injury**
- **iii) Laryngotracheal injury**
- **iv) Vascular injury**
- **v) Nerve injury**

q) Maxillofacial trauma

- **i) Assessment and management of maxillofacial trauma**
- **ii) Facial lacerations**
- **iii) Nasal fractures**
- **iv) Mandibular fractures**
- **v) Le Fort fractures**
- **vi) Zygomatic fractures**
- **vii) Orbital injury**
- **viii) Temporal bone fractures**
- ix) Dental trauma
- x) Tooth avulsion
- xi) Intraoral lacerations

r) Extremity trauma

- i**) Assessment and management of extremity trauma**
- **ii) Traumatic amputation**
- **iii) Arterial injury**
- **iv) Compartment syndromes**
- **v) Crush syndrome**

s) Trauma in pregnancy

- i**) Assessment and management of trauma in pregnancy**
- **ii) Obstetric complications of trauma**
- **iii) Uterine rupture**
- iv) Perimortem caesarean section

t) Trauma in children

- **i) Assessment and management of trauma in children**
- **ii) Paediatric aspects of trauma management**
- **iii) Non-accidental injury**

5.2 Burns

a) Evaluation of the patient with burns M Ex
b) Early management of severe burns M Ex
c) Burn wound care M H
d) Management of minor burns M H
e) Inhalation injury DIS H
f) Chemical burns DIS
g) Electrical burns
h) Tar burns
i) Sunburn
j) Oral burns
k) Escharotomy

5.3 Dental

a) Normal dental development
b) Dental infections without upper airway obstruction
c) Dental infections with possible upper airway obstruction

5.4 Thoracic

a) Spontaneous pneumothorax
b) Pneumomendiastinum
c) Mediastinitis
d) Oesophageal perforation
e) Mediastinal masses
f) Oesophageal foreign body
g) Tracheobronchial foreign body
h) Congenital
    i) Diaphragmatic hernia
    ii) Oesophageal
    iii) Tracheobronchial
    iv) Vascular ring

5.5 Abdominal

a) Assessment and management of abdominal pain
b) Pancreatitis
c) Cholelithiasis
d) Cholecystitis
e) Cholangitis
f) Non-traumatic splenic rupture
g) Bowel obstruction
    i) Post-surgical adhesions
    ii) Malrotation
    iii) Volvulus
    iv) Congenital pyloric stenosis
    v) Intussusception
    vi) Insertion of a nasogastric tube

h) Diverticular disease
i) Meckel's diverticulum
j) Perforated viscus
k) Acute appendicitis
l) Peritoneal adhesions
m) Ischaemic colitis
n) Peritonitis
o) Retroperitoneal haematoma
p) Intra-abdominal/retroperitoneal abscesses
q) Hernias
r) Tumours
s) Constipation

5.6 Anorectal

a) Haemorrhoids
b) Perianal haematoma
c) Anal fissure
d) Anorectal abscesses
e) Pilonidal disease
f) Rectal bleeding
g) Rectal prolapse
h) Idiopathic anal pain
i) Radiation proctitis
j) Proctoscopy and sigmoidoscopy
k) Rectal foreign bodies

5.7 Vascular

a) Peripheral ischaemia
b) Arterial occlusion
c) Venous occlusion
d) Intestinal ischaemia
e) Thoracic dissection
f) Intra-abdominal aneurysms
g) Aortic disorders
i) Aortic aneurysms
ii) Aortic dissection
h) Mycotic aneurysms
i) Intra-arterial drug injection

5.8 Orthopaedic and Hand

a) General principles of fracture management

b) Paediatric considerations in orthopaedics

- **i) Salter-Harris classification**
- **ii) Injuries about the elbow**
- **iii) The child with a limp**
- iv) Bone dysplasia DIS G
- v) Connective tissue syndrome DIS G
- **vi) Inflammatory arthritis**
- vii) Injury rehabilitation T G
- viii) Metabolic bone abnormalities DIS G
- **ix) Osgood/Schlatter disease**
- **x) Perthe's disease**
- **xi) Slipped capital femoral epiphysis**
- **xii) Transient synovitis**
- xiii) Developmental hip dislocation DIS G

c) Casting techniques

- **i) Short arm POP**
- **ii) Long arm POP**
- **iii) Short arm backslab**
- **iv) Scaphoid POP**
- **v) Bennett's fracture POP**
- **vi) Volar splint**
- **vii) U Slab**
- **viii) Short leg POP**
- **ix) Long leg cylinder**

d) Splintage techniques including splintage procedures

- **i) Application of a broad arm sling**
- **ii) Application of a collar and cuff**
- **iii) Application of a figure-of-8 bandaging**
- **iv) Application of a knee immobiliser**
- **v) Application of a Donway/ Hare splint**
- **vi) Application of a Thomas splint**
- **vii) Pelvic stabilisation techniques**

e) **Fractures**

- **i) Clavicle**
- **ii) Scapula**
- **iii) Proximal humerus**
- **iv) Elbow**
- **v) Forearm bones**
- **vi) Wrist**
- **vii) Carpal bones**
- **viii) Spine**
- **ix) Pelvis and hip**
- **i. Pelvic fractures**
- **ii. Sacral fractures**
- **iii. Coccygeal fractures**

iv. Femoral neck fractures

x) Hip and femur

i. Femoral shaft fractures
ii. Supracondylar fractures
iii. Condylar fractures
iv. Fractured patella
xi) Tibia and fibula
xii) Ankle
i. Classification of ankle fractures
xiii) Foot
i. Talar fractures
ii. Calcaneal fractures
iii. Tarsal bone fractures
iv. Metatarsal fractures
v. Phalangeal fractures

f) Dislocations

i) Shoulder
ii) Acromioclavicular joint
iii) Elbow
iv) Pulled elbow
v) Carpal–metacarpal bones
vi) Phalanges
vii) Cervical spine
i. Atlantoaxial
ii. Facet joint
viii) Hip
ix) Knee
x) Patella
xi) Ankle
xii) Foot
xiii) Tarsal
xiv) Metatarsal
xv) Phalangeal

g) Soft tissues

i) Shoulder
i. Rotator cuff tears
ii. Bursitis
iii. Tendinitis

ii) Elbow
i. Bursitis
ii. Tendinitis

iii) Knee
i. **Bursitis**
ii. Ligament injury
iii. Cruciate injury
iv. Meniscal injury
v. Bakers cyst

iv) Ankle

i. Ligament injury

v) Foot

i. Foot injury

h) Hand injuries

i) Metacarpal fractures/dislocations
ii) Phalangeal fractures/dislocations
iii) Lacerations
iv) Nail injuries
v) Extensor tendon injuries
vi) Mallet finger
vii) Boutonniere deformity
viii) Other
ix) Flexor tendon injuries
x) Infections
i. Paronychia
ii. Infective tenosynovitis
iii. Other
xi) Foreign bodies
xii) Amputations
xiii) Nerve injuries
xiv) High pressure injection injuries
xv) Crush injury

i) Overuse syndromes
j) Osteomyelitis
k) Septic arthritis
l) Complex regional pain syndrome type 1 (Sudeck's atrophy)

5.9 Neurosurgical

a) Intracranial aneurysms
b) AV malformations
c) Subarachnoid haemorrhage
d) Cerebral tumours
e) Shunt complications
f) Management of elevated intracranial pressure
g) Intracranial abscesses
h) Cerebral venous thrombosis
i) Spinal epidural abscess
j) Intravertebral disc disease
k) Spinal stenosis

5.10 Urology

a) Renal colic
b) Urinary catheter insertion
c) Suprapubic catheter insertion
d) Urinary retention
e) Obstructive uropathy
f) Vesico-ureteric reflux
g) Assessment and management of haematuria
h) Urethritis
i) Balantitis
j) Prostatic hypertrophy
k) Tumours
l) Acute scrotum

i) Epididymitis
ii) Orchitis
iii) Testicular torsion
iv) Torsion of the testicular appendage

m) Priapism
n) Phimosis/paraphimosis

5.11 ENT

a) Ear
i) Auroscopes
ii) Otalgia
iii) Otitis media
iv) Otitis externa
v) Aural toilet/wick insertion
vi) Cholesteatoma
vii) Perforated tympanic membrane
viii) Chondritis/perichondritis
ix) Mastoiditis
x) Labyrinthitis
xi) Meniere's disease

b) Nose
i) Epistaxis
i. Anterior packing
ii. Cautery
iii. Posterior packing
iv. Balloon placement
ii) Sinusitis

c) Throat/oropharynx
i) Ludwig's angina
ii) Stomatitis
iii) Pharyngitis
iv) Tonsillitis
v) Peritonsillar abscess
vi) Retropharyngeal abscess
vii) Epiglottitis
viii) Laryngitis
ix) Tracheitis
x) Post-tonsillectomy bleed

d) Foreign bodies
i) Nasal
ii) Aural
iii) Upper airway
iv) Pharyngeal

5.12 Eye

a) Use of the slit lamp
b) Ophthalmoscopes
c) Measurement of intraocular pressure
d) Evaluation of the red eye
e) Evaluation of the painful eye
f) Sudden visual loss
g) External eye
i) Blepharitis
ii) Dacryocystitis

iii) Conjunctivitis
iv) Corneal abrasions
v) Corneal ulcers
vi) Keratitis
vii) Foreign bodies
i. Conjunctival
ii. Corneal
viii) Spontaneous subconjunctival haemorrhage
ix) Amblyopia
x) Ocular burns
i. Caustic
ii. Flash burns
iii. Thermal

h) Anterior pole
i) Glaucoma
ii) Uveitis

i) Posterior pole
i) Retinal detachment
ii) Vitreous haemorrhage
iii) Retinal haemorrhage
iv) Retinal vascular occlusions
v) Optic neuritis

j) Orbit

i) Cellulitis
i. Orbital
ii. Pre-orbital
iii. Endophthalmitis

ii) Ocular trauma
i. Blunt
ii. Penetrating

5.13 Wound management

a) Classification of wounds
b) Surgical wound management
c) Basic wound closure techniques
d) Wound dressings
e) Wound infections
f) Chronic ulcers
g) Special wounds
i**) Puncture wounds**
ii) Bites and stings
iii) Blast injury
iv) Degloving injury
v) Amputations

5.14 Plastics

a) Plastic surgical techniques
i) Grafts
ii) Flaps
iii) Advanced wound closure

5.15 Breast

a) Carcinoma of the breast
b**) Mastitis**
c) Breast abscess

6. OBSTETRICS AND GYNAECOLOGY

6.1 Pregnancy

a) Normal pregnancy
    i) Antenatal screening
    ii) Physiological changes
    iii) Foetal development
b) High risk pregnancy
c) Complications of pregnancy
    i) Hyper-emesis gravidarum
    ii) Miscarriage
    iii) Anembryonic pregnancy
    iv) Septic abortion
    v) Ectopic pregnancy
    vi) HELLP syndrome (haemolysis, elevated liver enzymes, low platelets)
    vii) First trimester bleeding
    viii) Haemorrhage, antepartum
        i. Abruptio placentae
        ii. Placenta praevia, vasa praevia
        iii. Other
    ix) Infections, including urinary tract infection
    x) Fevers
    xi) Isoimmunisation
    xii) Pregnancy-induced hypertension, pre-eclampsia
d) Normal labour and delivery
e) Complications of labour
    i) Foetal distress
    ii) Premature labour
    iii) Premature rupture of membranes
    iv) Other
f) Complications of delivery
    i) Mal-presentation
    ii) Mal-position
    iii) Nuchal cord
    iv) Prolapsed cord
    v) Rupture or inversion of uterus
    vi) Retained placenta
    vii) Other
g) Post-partum complications
    i**) Haemorrhage, postpartum**
    i. Primary
    ii. Secondary
    ii) Endometriosis
    iii) Retained products of conception
h) Drugs in pregnancy

6.2 Gynaecology

a) Vagina and vulva

- **i) Bimanual and vaginal speculum examination**
- **ii) Vaginitis/vulvovaginitis**
- **iii) Foreign body**
- **iv) Bartholin's cyst/abscess**
- **v) Other**

b) Uterus

- i) Dysmenorrhoea
- ii) Dysfunctional uterine bleeding
- iii) Cervicitis, endocervicitis
- iv) Endometriosis
- v) Tumours
    - i. Leiomyoma
    - ii. Gestational trophoblastic disease
    - iii. Other
- vi) Prolapse

c) Ovaries

- **i) Cysts and cyst complications**
- **ii) Mittelschmerz**
- iii) Tumours
- iv) Ovarian hyperstimulation syndrome

d) Infections

- **i) Pelvic inflammatory disease**
- ii) Fitz-Hugh-Curtis syndrome
- iii) Tubo-ovarian abscess
- iv) Herpes simplex
- v) Human papilloma virus

e) Contraception

- i) Complications
- **ii) Post-coital**

f) Sexual assault

7. PSYCHIATRY

7.1 Evaluation

- **a) History**
- **b) Physical examination**
- **c) Mental state examination**
- **d) Investigations**

7.2 Organic brain syndrome

7.3 Violent/agitated behaviour

- **a) Prevention**
- **b) Safety issues**
- **c) Restraint options and management**

7.4 Deliberate self-harm

7.5 Depression

7.6 Anxiety disorders

a) Phobias
b) Panic disorder
c) Post-traumatic stress disorder
d) Obsessive–compulsive disorder
e) Hypochondriasis
f) Other

7.7 Psychoses

a) Acute and chronic
b) Bipolar effective disorder
c) Schizophrenia
d) Mania and hypomania
e) Other

7.8 The "challenging" ED patient

a) Personality disorder
b) Malingering
c) Frequent presenter
d) Conversion disorder
e) Pain disorder
f) Somatization disorder
g) Munchausen's by proxy
h) Management strategies
i) Other

7.9 The mental health patient in the ED

a) Triage
b) Appropriate psychiatric assessment area
c) Community teams
d) Psychiatry liaison nurse as part of the ED team
e) In-patient psychiatry services
f) Psychiatric facilities/units
g) ED staff issues – appropriate training, debriefing

7.10 Therapy

a) Pharmacology of therapeutic agents
- **i) Benzodiazepines**
- **ii) Anti-psychotics**
- **iii) Antidepressants**
- **iv) SSRIs**
- **v) Sedatives**
- **vi) Other**

b) Non-pharmacologic therapy
- i) ECT – complications
- ii) Other

7.11 Involuntary detention M Ex

a) Legal aspects of mental health care

8. TOXICOLOGY

8.1 General principles

a) Prehospital care
b) Epidemiology and prevention of poisoning
c) Management issues
i) Emesis
ii) Gastric lavage
iii) Activated charcoal
iv) Cathartics
v) Whole bowel irrigation
d) Poison centres
- Demonstrate knowledge of the role of poison centres in the management and prevention of poisoning

e) Risk assessment/prediction of toxicity
f) Toxidromes

8.2 Analytical toxicology

a) Principles
b) Drug testing and screening

8.3 Chemical dependency and substance abuse

a) Drug abuse
b) Drug dependence
c) Drug withdrawal
d) Tolerance

8.4 Antidotes

a) Anticholinergics
b) Chelation agents
c) Benzodiazepine antagonists
d) Calcium
e) Cyanide treatment
f) Desferioxamine
g) Fuller's earth
h) Glucagon
i) Methylene blue
j) Opioid antagonists
k) Physostigmine
l) Pyridoxine
m) Oximes
n) Protamine
o) Vitamin K
p) Folinic acid
q) Oxygen – normobaric
r) Oxygen – hyperbaric
s) N-acetylcysteine
t) Digibind

8.5 Anti-inflammatory agents and analgesic poisoning

a) Paracetamol
b) NSAIDs
c) Salicylates
d) Gout drugs
e) Opioids

8.6 Antimicrobial poisoning

a) Antibiotics
b) Antifungal
c) Antiparasitic
d) Antiseptics
e) Antiviral
f) Anti-tuberculous

8.7 Autonomic agent poisoning

a) Anticholinergics
b) Antihistamines
c) Serotonergic drugs
d) Cholinergics
e) Ergot alkaloids
f) Methylxanthine

g) Sympathomometics

8.8 CNS drugs and muscle relaxant poisoning

a) Alcohols
b) Anticonvulsants
c) GHB and related compounds
d) Anti-Parkinsonian drugs
e) Psychiatric drugs
i) Antipsychotic agents
ii) Antidepressants
iii) Lithium
f) Hallucinogens
g) Sedatives, hypnotics, anxiolytics
h) Smooth muscle relaxants

8.9 Cardiovascular

a) Antiarrhythmics
b) Anticoagulants
c) Anti-hypertensives

8.10 Environmental toxicology

a) Plant ingestions

8.11 GI agents

a) Antacids D G
b) Antidiarrhoeals D G
c) Laxatives D G

8.12 Industrial toxicology

a) Metals
    i) Arsenic
    ii) Lead
    iii) Mercury
    iv) Metal fumes
    v) Other
b) Toxic gases
    i) CO
    ii) Chlorine
    iii) CO_2
    iv) Cyanide
    v) Hydrogen sulphide
    vi) Hydrocarbons
    vii) Phosgene
c) Hydrogen fluoride/hydrofluoric acid
d) Nitrites

8.13 Pesticides, herbicides and rodenticide poisoning

a) Organophosphates
b) Carbamates
c) Glyphosate
d) Paraquat
e) Naphthalene/camphor
f) Strychnine
g) Phosphine
h) Super warfarins

8.14 Pharmacology principles

a) Techniques for drug removal
b) Drug delivery vehicles/diluents
c) Drug interactions
d) Adverse drug reactions
e) Pharmacokinetics
- **Demonstrate knowledge of pharmacokinetic principles, including drug absorption, distribution, metabolism and clearance**

8.15 Vitamins, minerals, bone and endocrine agents

a) Hypoglycaemic agents
b) Electrolytes and minerals
c) Iron
d) Steroids
e) Thyroid drugs
f) Vitamins
g) Hormones

9. ENVIRONMENTAL

9.1 Heat

- **a) Heat stroke**
- **b) Heat stress/exhaustion**
- **c) Drug related hyperthermia**

9.2 Cold

- **a) Hypothermia**
- b) Frostbite

9.3 Venomous bites and stings

- **a) Snakes**
- **b) Spiders**
- **c) Hymenoptera – bees, wasps, ants**
- **d) Jellyfish**
- **e) Stinging fish**
- **f) Blue-ringed octopus**
- **g) Other**

9.4 Aquatic

- **a) Near drowning**
- **b) Decompression illness**
- **c) Barotrauma**
- **d) Toxic marine ingestions**

9.5 Electricity

- **a) Electric shock**
- **b) Lightning strike**

9.6 Aviation

- **a) Acute mountain sickness**
- b) High altitude cerebral oedema
- **c) High altitude pulmonary oedema**

9.7 Exercise-associated illness

10. RADIOLOGY IN EMERGENCY MEDICINE

10.1 Physics

10.2 Safety issues/requirements

10.3 Limitations of modalities

- **a) Plain x-ray**
- **b) Ultrasound**
- **c) CT scan**
- **d) MRI**
- **e) Nuclear medicine**

10.4 Indications, techniques and interpretation of common studies in emergency medicine

- a) Plain radiology
  - **i) Trauma series (chest, pelvis, cervical spine)**
  - **ii) Chest**
  - **iii) Abdomen**
  - **iv) Limbs**
  - **v) Spine**
  - **i. Cervical**
  - **ii. Thoracic**
  - **iii. Lumbo-sacral**
  - **vi) Skull and facial skeleton**
  - **vii) Soft tissue**
- b) Contrast radiology
  - **i) Angiography**
    - **i. Cerebral**
    - **ii. Cardiac**
    - **iii. Limb**
    - **iv. Abdominal**
    - **v. Pulmonary**
  - ii) IVP
  - iii) Cystography and urethrography
  - iv) GIT
- c) Computed tomography (CT)
  - **i) Brain**
  - ii) C-spine
  - iii) Thoracic and lumbar spine
  - iv) Chest
    - i. CT pulmonary angiography
  - v) Abdomen
    - i. CT urography
  - vi) Limbs and joints
  - vii) Facial bones
- d) Magnetic resonance imaging (MRI)
  - i) Brain
  - ii) Spine
  - iii) Other
- e) Nuclear medicine
  - i) Ventilation/perfusion scans
  - ii) Bone scans
  - iii) Cardiac scans
  - iv) Infection and inflammation scans
  - v) GIT scans
- f) Ultrasound

i) Physics
ii) Focussed abdominal sonography in trauma (FAST)
iii) Abdominal aortic aneurysm (AAA)
iv) Vascular access / procedural
v) Vascular Doppler and duplex
vi) Abdominal (Biliary, Renal)
vii) Pelvic, including pregnancy
viii) Limb
ix) Echocardiography
x) Testicular

10.5 Medical precautions in radiology

a) Complications (including contrast agents)
b) Pregnancy and shielding
c) The unstable patient – transfer and monitoring in radiology

11. LEGAL

11.1 Duty of care

a) Individual doctor
- **Demonstrate knowledge of the term "duty of care"**

b) Hospital
- **Demonstrate knowledge of the role of the practitioner within a health service in providing care on behalf of the health service**

11.2 Medical error

- **Demonstrate knowledge of the concept of medical error**
- **Demonstrate knowledge of the key definitions of medical error**
  - **negligence**
  - **systems versus individual failure**
  - **preventability**
  - **root cause analysis**

11.3 Consent

- **Demonstrate knowledge of the following concepts in relation to consent -**

a) Legal definition of "emergency"
b) Capacity to consent
i) Children and adolescents
ii) Intellectually disabled
iii) Mentally ill
iv) Impaired by drugs or alcohol
v) Impaired by physical illness
c) Guardianship Board

d) Valid consent
e) Implied consent
f) Verbal consent
g) Written consent
h) Refusal to consent
i) Documentation of the process of consent

11.4 Coronial Investigations

a) Reporting to coroner
- **Demonstrate knowledge of the requirements of coronial notification**

b) Expert opinion
- **Demonstrate knowledge of the competencies required to provide expert witness, the reason for the provision of service, and the obligation required once a service is rendered to the court**

11.5 Involuntary detention under a Mental Health Act

- **Demonstrate knowledge of the following concepts in relation to involuntary detention in the ED**

a) Definition of mentally ill
b) Effects of drugs or alcohol
c) Criteria for detention
d) Physical restraint and sedation
e) Emergency treatment
f) Police powers
g) Death in detention

11.6 Privacy and confidentiality

a) Principles of privacy
- **Demonstrate working knowledge of relevant legislation**

b) Patient confidentiality
- **Demonstrate principles of application into the clinician's practice.**

11.7 Reporting

- **Demonstrate a working knowledge of the following concepts in relation to reporting in the ED**

a) Child abuse/child at risk
b) Domestic violence
c) Infectious diseases
d) Violent injuries
e) Occupational health and safety
f) Mental health patients
g) Medical conditions and driving
h) Firearms registration
i) Coroner's Act
j) Impaired practitioner

11.8 Medico-legal reports

- Demonstrate knowledge of the components of a medico-legal document and the ethical and legal responsibility associated with generation of such documents

11.9 Documentation and the Medical Record

- **Demonstrate knowledge of the components of a medical record**
- **Demonstrate knowledge of the importance of the medical record in patient care**
- **Demonstrate knowledge of the legal aspects of medical record entries**
- **Demonstrate knowledge of how to write a medical record**

11.10 Legal aspects of death and dying

- Demonstrate knowledge of the legal aspects of death and dying
  a) Death certificate
  b) Living wills
  c) End-of-life decisions and advance directives
  d) Brain death
  e) Coroners Act

11.11 Forensic issues

- Demonstrate knowledge of the principles of forensic evidence collection and sources of additional information
  a) Forensic evidence
  b) Chain of evidence
  c) Drug and alcohol testing

11.12 Impaired health practitioner

- Demonstrate knowledge of the following concepts –
  a) Recognition
  b) Common causes
  c) Legal responsibilities of reporting
  d) Sources of assistance for the practitioner

11.13 Medical registration authority

- Demonstrate knowledge of the role of medical registration authorities

12. CLINICAL RISK MANAGEMENT

12.1 High risk areas

- **Demonstrate knowledge of types of clinical situation in the ED associated with a high incidence of adverse outcomes**

12.2 Telephone advice and triage

- **Demonstrate knowledge of the medico-legal aspects of telephone advice**
- **Demonstrate knowledge of the importance of documentation of a non-face-to-face encounter (including follow up)**

12.3 Consultation

- **Demonstrate knowledge of the concepts of vertical and horizontal consultation**

12.4 Transfer of responsibility

- **Demonstrate knowledge that patient care is a continuum and of techniques that ensure that the standard of patient care is maintained at time of referral and handover of care/treatment**
- **Demonstrate knowledge of the issues of interface care between one service/ individual practitioner and another**

12.5 Disposition

- Demonstrate knowledge of patient disposition from the ED in the following areas
  a) Discharge/transfer
  b) Follow up
  c) Referral S

12.6 Leaving against medical advice

- **Demonstrate knowledge of the outcomes associated with LAMA**
- **Demonstrate knowledge of techniques/ systems that can lessen the number of LAMA patients**
- **Demonstrate knowledge of the medico-legal implications of patients who LAMA**

12.7 Left without being seen

- **Demonstrate knowledge of the outcomes associated with LWBS**
- **Demonstrate knowledge of techniques/ systems that can lessen the number of LWBS patients**
- **Demonstrate knowledge of the medico-legal implications of patients who LWBS**

12.8 Patients who leave before treatment is completed

- **Demonstrate knowledge of the responsibilities associated with patients who leave before treatment is completed**
- **Demonstrate knowledge of the principles of medico-legal obligations, mental status assessment, mental competency and guardianship**

13. PREHOSPITAL AND RETRIEVAL

13.1 Prehospital care

a) The concept of emergency medical system (EMS)

- **Demonstrate knowledge of the benefits of an EMS for emergency patient care**
- **Demonstrate knowledge of the need for coordination of the components of EMS and the need for effective interfaces between EMS and other health care systems**

b) Models of prehospital care

- Demonstrate knowledge of the different models of pre-hospital care, both within Australasia and in other areas of the world, and the relative advantages and disadvantages of each

c) Communications

- **Demonstrate knowledge of the need for effective communication between components of the EMS system in the delivery of prehospital care**
- **Demonstrate knowledge of the various means of communication available in the delivery of prehospital care**

d) Patient access in prehospital care

- **Demonstrate knowledge of the differences and the difficulties in accessing the patient for the delivery of emergency care in the prehospital setting as compared to the hospital setting**

e) Roles and responsibilities of EMS

- **Demonstrate knowledge of the roles and responsibilities of the personnel within the EMS who contribute to the overall delivery of prehospital care**
  i) Ambulance
  ii) Fire
  iii) Police

f) Modes of transport

- **Demonstrate knowledge of the different modalities of patient transport available to prehospital care providers**
- **Demonstrate knowledge of the relative advantages and disadvantages of the use of each of the different modalities of patient transport available to prehospital care providers**
  - **Road ambulance**
  - **Rotary wing aircraft**

g) Patient assessment in prehospital care

- **Demonstrate knowledge of the differences in assessment of a patient between the hospital and the prehospital environment**

h) Equipment considerations in prehospital

- **Demonstrate knowledge of the medical equipment utilised in prehospital care and the limitations that the prehospital environment places on the use and function of that equipment**
- **Demonstrate knowledge of the equipment utilised by other EMS personnel in facilitating the delivery of prehospital care**

i) Clinical procedures in prehospital care

- **Demonstrate knowledge of the relevant considerations and adaptations that may be necessary to safely undertake a procedure in the prehospital environment**
- **Demonstrate knowledge of the relative advantages and disadvantages of undertaking a clinical procedure in the prehospital environment as compared to delaying the procedure until arrival at hospital**
- **Demonstrate knowledge of the following procedures in prehospital care**
  i) Airway and pulmonary resuscitation
  ii) Cardiopulmonary resuscitation
  iii) Defibrillation
  iv) Haemorrhage control
  v) Spinal immobilisation
  vi) Splintage techniques
- Demonstrate knowledge of the rationale for the development of intensive care paramedic protocols

j) Controversies in prehospital care

- **Demonstrate knowledge of contemporary areas of controversy in prehospital care**

k) Working at an accident scene

- **Demonstrate knowledge of their role and responsibility as part of the EMS team at an accident scene**

i) Safety issues

- **Demonstrate knowledge of the hazards of working at an accident scene and the safety requirements to minimise the risks to both themselves and other EMS personnel**

ii) Hazard control

- **Demonstrate knowledge of hazardous materials that may be encountered at an accident scene and of the roles and responsibilities of the different EMS providers in managing these hazards**

l) Special circumstances

i) The entrapped patient
ii) Crush syndrome
iii) Field amputation
iv) Rescues

- **Demonstrate knowledge of the role and responsibilities of rescue systems in the context of EMS**
- **Demonstrate knowledge of the role and responsibilities of the emergency physician during a rescue operation at an accident**

13.2 Retrieval

a) Interhospital transfer

- **Demonstrate knowledge of the reasons that interhospital transfers are a requirement of EMS systems throughout Australasia**
- **Demonstrate knowledge of how to provide safe and effective patient care during all phases of patient transfer**

b) Intrahospital transfer

- **Demonstrate knowledge of the requirements to effect safe transfer of patients between departments within a hospital**

c) Roles and responsibilities in retrieval medicine

- **Demonstrate knowledge of the roles and responsibilities of other personnel who contribute to the overall care and safety of patients requiring transfer**
  i) Retrieval physician
  ii) Retrieval nurse
  iii) Transport provider

d) Modes of transport

- **Demonstrate knowledge of the different modalities of patient transport available for interhospital transfer**
- **Demonstrate knowledge of the relative advantages and disadvantages of the use of each of the different modalities of patient transport available for interhospital transfer**
  i) Road ambulance
  ii) Rotary wing aircraft
  iii) Fixed wing aircraft

e) Communications

- **Demonstrate knowledge of the need for effective communication between components of the EMS system involved in the transfer of patients from one hospital facility to another**
- **Demonstrate knowledge of the various means of communication available to facilitate the transfer of patients from one hospital facility to another**

f) Equipment considerations

- **Demonstrate knowledge of the medical equipment utilised in interhospital transfer and the limitations that the requirement for transfer places on the use and function of that equipment**
- **Demonstrate knowledge of the equipment utilised by other EMS personnel in facilitating the transfer of patients from one hospital facility to another**

g) Preparing the patient for transport

- **Demonstrate knowledge of the assessments and procedures that must be undertaken, and the monitoring requirements necessary to ensure that a patient is optimally prepared for safe transfer from one hospital facility to another**

h) Physiological considerations

- **Demonstrate knowledge of the physiological consequences of transport in the ill or injured patient**

i) Effects of altitude

- **Demonstrate knowledge of the physiological consequences of transport by air in the ill or injured patient**

j) When not to transport

- **Demonstrate knowledge of the limitations of the transport environment and of the clinical scenarios where alternatives to patient transfer are likely to contribute to better patient outcome.**

14. DISASTER MEDICINE

14.1 Disasters

a) Definitions of a disaster and the importance of the relativity of an incident to available resources

b) Classification of disasters

c) Epidemiology of disasters

d) National & regional responsibilities

14.2 Disaster planning

a) General principles

i) Disaster management & mitigation

i. Principles of prevention and risk reduction

ii. Principles of preparedness relative to risk of occurrence and impact

b) Hospitals as responders to an emergency

- Demonstrate knowledge of the standard emergency threat/incident procedures in the following situations

i) External emergency (Code Brown)

ii) Hospitals as "victims" in an emergency

i. Fire (Code Red) procedures and considerations

ii. Bomb threat (Code Purple) procedures

iii. Evacuation (Code Orange)

iv. Internal emergency (Code Yellow)

c) Response

- **Demonstrate the principles and procedures that are required for preparing the ED for a large influx of casualties**

d) Recovery

- **Demonstrate knowledge of the principles and procedures that are required in the aftermath of an incident**

e) Incident command structure

- Demonstrate knowledge of the five different management activities which need to be addressed in the effective management of any incident

i) Strategic: The overall command of the incident and interface between different responding agencies and the community

ii) Planning: The continual evaluation of the incident situation

iii) Financial: Tracking costs and administering the procurement of any necessary resources

iv) Operational: The practical management of incident

v) Logistics: The provision of services and support for all needs of the incident

f) Demonstrate knowledge of the importance of communications during an incident

g) Demonstrate knowledge of the importance of media management during incidents and the use of media during an incident

14.3 Roles and responsibilities at the disaster site

a) Medical

- Demonstrate knowledge of the relative advantages and disadvantages in having specialist disaster response medical teams instead of disaster response medical teams taken from hospitals

b) Ambulance

c) Police

d) Fire

14.4 Disaster equipment and supplies

a) Incident site

i) Selecting equipment for use at an incident site

i. Medical bags

ii. Medical disposables & pharmaceuticals

iii. Medical monitoring equipment

b) Emergency department

i) Disposables and pharmaceutical supplies

ii) Medical records and stationary

14.5 Occupational health and safety issues

a) Incident site

i) Personal protective equipment (incident site)

b) Emergency department

i) Principles of hazardous materials incidents

ii) Recognising toxic gas exposures

iii) Chemical personal protective equipment (hospital)

iv) Personal protective equipment for biological hazards

14.6 Disaster site operations

a) Organization of medical operations at an incident site

b) Adapting clinical management in a disaster

i) Disaster triage

- **Demonstrate knowledge of the principles of disaster triage and the national disaster triage standard**

ii) Record keeping

iii) Paediatric casualties

- **Demonstrate knowledge of important triage considerations with regard to paediatric casualties and the needs of children involved in an incident**

14.7 Mental health & behavioural issues

a) Disaster victims

i) The role of counselling

b) Health professionals and responders

i) Critical incident stress debriefing

ii) Post traumatic stress disorder

14.8 Medical response to terrorist incidents

a) Chemical weapons

i) Choking agents

i. Cyanide

ii. Phosgene

ii) Blistering agents

i. Mustard

iii) Nerve agents

b) Biological weapons

i) Small pox

ii) Anthrax

iii) Botulism

iv) Viral haemorrhagic fevers

c) Radiation emergencies

i) Radiation exposure –

- Demonstrate knowledge of the different types of radiation exposure and their relative biological impact

ii) Radiation injury

iii) Radiation safety

- **Demonstrate knowledge of the principles of radiation safety, radiation monitoring and responding to a casualty contaminated with a radio-isotope safely**

d) Urban search and rescue

i) Demonstrate knowledge of the problems & dangers associated with accessing and treating casualties within collapsed structures

14.9 Disaster exercises

a) Demonstrate knowledge of the role of different types of disaster exercises

b) Designing an exercise

i) Practical problems in conducting exercises

ii) Occupational health and safety issues in exercises

iii) The importance of debriefing exercise participants to update disaster plans

15. MEDICAL EDUCATION

15.1 Basic principles of medical education

- Demonstrate knowledge of the principles of the following aspects of medical education to the emergency medicine setting

a) One-on-one tutorials

b) Small group tutorials

c) Large group tutorials

d) Didactic versus interactive sessions

e) Setting learning objectives

f) Study techniques

g) Creation of an environment conducive to learning

h) Evaluation of a teaching program

i) Development of courses

j) Educational resources including electronic aids in teaching and learning

15.2 Undergraduate

- Demonstrate knowledge of the following issues with regards to medical student education

a) Ensuring a safe environment for the student

b) Ensuring a safe environment for the patient interacting with the student

c) Consent of a patient interacting with a student

d) Topics in emergency medicine relevant to differing stages in the medical student curriculum

e) Problem-based learning

15.3 Junior medical staff

- Demonstrate knowledge of the principles of the following issues with regard to junior medical staff in the ED

a) Principles of on-the-floor teaching of junior medical staff

b) Principles of a topical program for junior medical staff

c) Principles of on-the-floor supervision of junior medical staff

15.4 Specialist training

- Demonstrate knowledge of the principles of the following issues with regard to specialist training in emergency
  a) Appropriate structure of a training program in emergency medicine
  b) Primary examination teaching program and curriculum
  c) Fellowship examination teaching program and curriculum
  d) Continuing medical education program
  e) Guidelines and requirements for the accreditation of EDs for ACEM training
  f) ACEM research requirements for training
  g) The roles of the Director of Emergency Medicine Training
  h) The roles of the Board of Education
  i) Assessment of ACEM trainees
  j) Providing feedback to trainees
  k) Approach to a problem being experienced by an emergency medicine trainee
  l) The approach to a poorly performing trainee
  m) The international differences with regard to training in emergency medicine

15.5 Principles of medical education related to competency as an emergency physician

- **Demonstrate insight into their own limitations of expertise via self-assessment**
- **Demonstrate knowledge of the principles of adult learning**
- **Demonstrate knowledge of the maintenance of competence as an emergency physician.**

15.6 Non-specialist, nursing and paramedical training

- Demonstrate knowledge of the differences between specialist and other forms of education in the ED
  a) Differences between specialist and other forms of education in the ED such as non-specialist, nursing and paramedical training

16. ADMINISTRATION AND MANAGEMENT

16.1 Management principles

a) Responsibility
  - **Demonstrate knowledge of potential barriers to the assumption of responsibility for patient care**
  - **Demonstrate knowledge of the importance of the assumption of overall responsibility for safe and effective patient care**

b) Leadership
  - Demonstrate knowledge of the different roles that may be played by a leader Demonstrate knowledge of the different skills required by leaders at different levels within an organisation

c) Delegation
  - Demonstrate knowledge of the concept of delegation and the features required for successful delegation

d) Management Structures
  - Demonstrate knowledge of different types of organisational structures commonly found within hospitals and their relative strengths and weaknesses

e) Planning
  - Demonstrate knowledge of the steps required to generate a plan
  - Demonstrate knowledge of effective priority setting

f) Communication
  - **Demonstrate knowledge of the modes of communication commonly used in the ED between the ED and other interfaces in the hospital**

g) Supervision
- **Demonstrate the ability to appropriately supervise other staff members, including how to give clear instructions**

16.2 Physical

a) Design
- **Demonstrate knowledge of the desirable features of an ED with reference to the following items**
  i) Site selection, access points, parking and visibility, and relationships to other departments
  ii) Internal layout, patient flow, security features and privacy
  iii) Area/size, number and type of treatment areas appropriate for casemix, staffing and ED length of stay
  iv) Fire and local government regulations and how they may influence design
  v) Short stay unit
  vi) Signage appropriate for casemix
  vii) Staff facilities, including rest areas and educational facilities

b) Equipment
- **Demonstrate knowledge of the steps involved in equipment selection and acquisition**
- Demonstrate knowledge of the steps required to manage equipment failure

c) Computers and information management systems
- Demonstrate knowledge of the principles of operation of the systems commonly used to manage patients in the ED including patient tracking, investigation ordering and results, medical record generation, decision support, and referral systems
- Demonstrate knowledge of the benefits and risks of electronic vs paper based storage of health information

d) Ergonomics, occupational health and safety
- Demonstrate knowledge of the principles of occupational health and safety and how they may affect ED design

e) Communications systems
- **Demonstrate knowledge of the communications features commonly utilised in the design of an ED**

16.3 Staff

a) Job descriptions
- **Demonstrate knowledge of the roles of key members of ED staff**
- **Demonstrate knowledge of the key competencies required by staff to effectively perform their tasks**

b) Staff assessment and appraisal
- **Demonstrate the ability to adequately evaluate staff performance and provide effective feedback to staff members regarding their performance**
- **Demonstrate the ability to receive feedback and to modify their behaviour to improve their own performance**

c) Conflict
- Demonstrate knowledge of the sources and consequences of conflict and the techniques commonly used to resolve conflict

d) Harassment and discrimination
- Demonstrate knowledge of the principles for protection of staff from various forms of harassment and discrimination

e) Stress
- **Demonstrate knowledge of the common sources of personal and work-related stress**

f) Motivation
- Demonstrate knowledge of the theories underlying personal motivation and reward systems

g) Teams

- **Demonstrate knowledge of the advantages and disadvantages of teams and committees**
- **Demonstrate knowledge of the different roles that team members may perform**
- Demonstrate knowledge of the different phases of team development
- **Demonstrate knowledge of the roles and responsibilities of other professionals in the provision of emergency health care**
- **Demonstrate the capacity to effectively work with others to assess, plan, provide and integrate care for patients**
- **Demonstrate the capacity to effectively work with others to assess, plan, provide and review research problems, educational work, program review or administrative responsibilities**

h) Rostering

- **Demonstrate knowledge of the factors that should be considered in the construction of a staff roster for an ED**
- **Demonstrate knowledge of the factors that influence the staffing requirements of an ED**

16.4 Financial

a) Principles

i) Budgets

Demonstrate knowledge of the functions of budgets within an organisation

Demonstrate knowledge of the principles of budget management

ii) Cost-effectiveness

Demonstrate knowledge of the principles of cost effectiveness analysis and the potential limitations of such analyses

iii) Funding sources and models

- Demonstrate knowledge of the models commonly used in Australasia to provide funding to EDs and is able to identify potential sources of funding for ED operations

b) Capital

- Demonstrate knowledge of the difference between capital and recurrent funding, relative contributions of each to total budgetary position

i) Building

ii) Equipment

c) Recurrent

- Demonstrate knowledge of the difference between fixed and marginal costs
- Demonstrate knowledge of the approximate relevant contribution of the following to the total cost of ED operations

  i) Salaries and wages

  ii) Consumables

  iii) Drugs

  iv) Investigations

  v) Repair, maintenance and replacement

  vi) Education and training

d) Special projects

i) Research funding

- Demonstrate knowledge of the possible sources of funds for research projects

16.5 Hospital environments

- Demonstrate knowledge of the possible differences in staffing, physical facilities, support services and organisational cultures between the following types of hospitals
  a) Major referral
  b) Urban
  c) Regional and rural
  d) Remote
  e) Other
    i) Military
    ii) International disaster relief

16.6 Quality improvement

- Demonstrate knowledge of the following quality improvement concepts
  a) Principles
    i) Pathways
    ii) Development
    iii) Implementation
    iv) Evaluation
  b) Policies and procedures
  c) Clinical audit
  d) Clinical indicators
  e) Process measurement
  f) Outcome measurement
  g) Risk management
  h) Complaints management
  i) Accreditation and verification processes
  j) Patient satisfaction
    - **Demonstrate knowledge of the factors associated with patient satisfaction with ED care**
  k) Task design
    - Demonstrate knowledge of the factors that influence the effectiveness of task design

16.7 Communications with external groups

- Demonstrate knowledge of the relationship between patient perception and satisfaction
- **Demonstrate the ability to manage patients with special needs in an appropriate manner**
- Demonstrate the ability to conduct a media interview regarding a medical topic
- Demonstrate knowledge of the importance of good relationships, and how these may be achieved, with the following groups
  a) Interdepartmental relations
  b) Public relations
  c) Media relations
  d) Government relations
  e) Legal relations
    i) Law enforcement
    ii) Coroner
    iii) Courts

16.8 ED specific management issues

a) Patient flow, ED overcrowding and access block

- **Demonstrate knowledge of the concepts of process mapping and concepts of patient flow**
- **Demonstrate knowledge of the possible causes of ED overcrowding and the possible effects that ED overcrowding may have on patient care**
- **Demonstrate knowledge of the factors that may contribute to access block**

b) Observation medicine and short-stay units

- **Demonstrate knowledge of the different models of care and observation medicine**
- **Demonstrate knowledge of the potential benefits and limitations of a short-stay unit associated with the ED**
- **Demonstrate knowledge of the types of cases that may be suitable for admission to a short-stay unit**

17. RESEARCH AND LITERATURE APPRAISAL

17.1 Principles of research

a) Demonstrate knowledge of the importance of accurate data collection on the validity of a scientific work

- Demonstrate knowledge of the importance of how the presentation of data may influence the perception of study results
- **Demonstrate knowledge of the importance of honesty in research and how competing interests may influence research**
- Demonstrate knowledge of the importance of randomisation in differentiating between an association and a cause

b) Hypothesis formulation and testing

- Demonstrate knowledge of the generation of an appropriate hypothesis to answer a research question
- Demonstrate knowledge of the types of error that may occur when testing research hypotheses

c) Research ethics

i) Consent for research

- **Demonstrate knowledge of the process of consent for research**

ii) Ethics of research

- Demonstrate knowledge of the ethics of medical research

17.2 Research methods

- Demonstrate knowledge of the following principles of medical research
  a) Sample size
  b) Choice of research method
  c) Enrolment
  d) Randomisation
  e) Concealment of treatment allocation
  f) Bias
  g) Validity
  h) "Gold standard" test
- Demonstrate knowledge of the roles, benefits and limitations of the following
  a) Trials
  b) Meta-analysis
  c) Case series and reports
  d) Literature reviews
  e) Observational studies

f) Letters

17.3 Statistical methods

a) Demonstrate knowledge of the following statistical principles

i) Sensitivity
ii) Specificity
iii) Positive predictive value
iv) Negative predictive value
v) Accuracy
vi) Relative risk
vii) Odds ratio
viii) Confidence intervals
ix) Statistical significance

b) Usage of statistical methods

- Demonstrate knowledge of the difference between dichotomous, nominal, ranked (ordinal) and continuous variable
- Demonstrate knowledge of the difference techniques used to graphically display or plot data from dichotomous, nominal, ranked (ordinal) and continuous variables
- Demonstrate knowledge of the difference between parametric and non-parametric data
- Demonstrate knowledge of the difference between paired and non-paired data
- Demonstrate knowledge of the difference between descriptive and comparative statistics
- Demonstrate knowledge of distributions of continuous variables and the terms used to describe these distributions
- Demonstrate knowledge of the principles and practical application of the following comparative statistical tests
    - Student's t test
    - Mann Whitney U test
    - Chi squared test
    - Sign test
    - ANOVA
    - Correlation coefficients
    - Tests of agreement
    - Multiple regression

c) Measurement accuracy

- **Demonstrate knowledge of confidence intervals in data reporting**
- Demonstrate knowledge of the standard error of the mean

d) Significance

- **Demonstrate knowledge of the difference between clinical and statistical significance**

e) Bayes' theorem

- Demonstrate knowledge of the principles and practical application of Bayes' theorem, including the following terms
    - Prior probability
    - Post-test probability
    - Likelihood ratios (+ve and -ve)
- Demonstrate knowledge of the limitations of Bayes' theorem in clinical practice

17.4 Literature evaluation

a) Evidence-based medicine

- **Demonstrate knowledge of the principles, practical application and limitations of evidence-based medicine**

b) Clinical application of research

- **Demonstrate knowledge of the potential barriers to the adoption of research findings into clinical practice**

c) Critical appraisal of emergency medicine specific literature

- **Demonstrate the knowledge and skills to accurately and critically appraise the emergency medicine specific literature.**

d) Is able to effectively critically appraise retrieved evidence in order to address a clinical question

Fellowship Exam Recommended References

This is a list of recommended reference books. It is not meant to be exclusive, but rather a guide to the books that should assist trainees and supervisors to review the knowledge base. The most recent edition of each book should be referred to.

Cameron P et al (eds), *Textbook of Adult Emergency Medicine*
Churchill Livingstone

Dunn R et al (eds), *The Emergency Medicine Manual*
Venom Publishing

Tintinalli JE (ed), Emergency Medicine: a comprehensive study guide
McGraw-Hill

Rosen P (ed-in-chief), Emergency Medicine: concepts and clinical practice
Mosby

Cameron P et al (eds), *Textbook of Paediatric Emergency Medicine*
Churchill Livingstone

Braunwald E, et al. (eds), Harrison's Principles of Internal Medicine
McGraw-Hill

Chan T et al (eds), ECG in Emergency Medicine and Acute Care
Elsevier Mosby

Roberts JR, Hedges JR (eds), *Clinical Procedures in Emergency Medicine*
WB Saunders Company

Murray L et al (eds), *Toxicology Handbook*
Churchill Livingstone

Sutherland SK, Tibballs J, *Australian Animal Toxins*
Oxford University Press

Meier J, White J (eds), Handbook of Clinical Toxicology of Animal Venoms and Poisons
CRC Press

Bersten AD, Soni N (eds), *Oh's Intensive Care Manual*
Butterworth-Heinemann

Talley N, O'Connor S, Examination Medicine – a Guide to Physician Training
MacLennan & Petty

Peat JK, *Health Science Research*
Allen & Unwin

Journals

In addition, the following journals regularly contain articles relevant to emergency medicine, and should be used as a resource for the most recent knowledge in the medical literature.

- Emergency Medicine Australasia (Australia & New Zealand)
- Annals of Emergency Medicine (USA)

- Journal of Emergency Medicine (USA)
- Academic Emergency Medicine (USA)
- Emergency Medicine Journal (UK)
- New England Journal of Medicine
- Lancet
- British Medical Journal
- Medical Journal of Australia
- Circulation
- Journal of Trauma

AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

ITEM WRITING FOR ASSESSMENTS

HANDBOOK

MCQs

EMQs

SAQs

OSCEs

JUNE 2014

AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

INTRODUCTION

This Handbook has been developed for the use of high quality item writing for MCQs, EMQs, SAQs and OSCEs. For each of these forms of assessment you are provided with:

- **A brief introduction, examples and guidelines.**

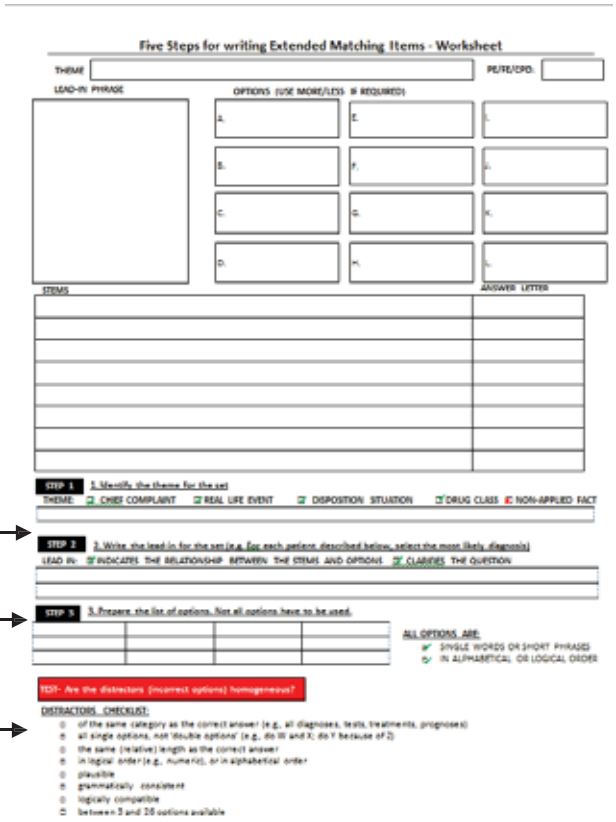
- **A practical worksheet with the following sections:**

An area to write up the draft item – final versions should be written into the electronic template and submitted electronically.

Steps to write items with checklists

An area to work through ideas

Tests for high quality items



- **Excerpts from current item writing literature for reference and further reading.**

- **The college templates (also available electronically)**:
Once you have used the worksheet, the question can be entered into the college template. These are available electronically on the ACEM website.

- **Confidentiality and Intellectual Property Statement**

AUSTRALASIAN COLLEGE
FOR EMERGENCY MEDICINE

CONTENTS

Multiple Choice Questions

Reference: **Case, D. & Swanson, S.** 2002, *Constructing Written Test Questions for the Basic & Clinical Sciences,* Third Edition.

Brief Introduction to writing one-best Answer MCQs

MCQs utilise a stem that will ask the examinee to choose the one best answer from four options. The aim is to ensure clinical relevance of items and reduce items testing recall of knowledge. Advantages of their use include that they:

- are more salient to most areas of medicine
- an efficient sampling of knowledge
- machine scoreable

To start writing:

1. Read through the MCQ Writing Guidelines – Five Tests
2. Use the MCQ Worksheet in this pack to practice

When you are familiar with the process use the MCQ Template available on the ACEM website (example template also included within this pack) alongside the Writing Guidelines.

Examples

MCQ Example One

A 32 year old man has a 4 day history of progressive weakness in his extremities. He has been healthy except for an upper respiratory tract infection 10 days ago. His temperature is 37.8C. BP is 130/80 mmHg, Pulse 94bpm, and respiration rate is 42 and shallow. He has symmetric weakness of both sides of his face as well as proximal and distal extremity muscles. Sensation is intact. No tendon reflexes can be elicited and the plantar responses are flexor.

Which of the following is the most likely diagnosis?

A) Guillain-Barré Syndrome
B) Myasthenia gravis
C) Poliomyelitis
D) Polymyositis

Answer: A

MCQ Example Two

What is MOST likely to exacerbate a case of pelvic inflammatory disease?

A) Menstruation
B) Pregnancy
C) Progesterones
D) Urinary tract infection

Answer: A

MCQ Example Three

Following an overdose of a substance, which of the following is the MOST likely ingestion – side effect combination

A) Metoprolol – profound hypotension
B) Metformin – profound hypoglycaemia
C) Propanolol – QRS widening
D) Venlafaxine – hepatic failure

Answer: C

Further reading

- Appendix 1 – **Multiple Choice Questions** from Jolly, B. 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second Edition, pp. 264-265. (Full chapter available on request)
- Appendix 2 – **Types of written assessments and their primary usages** from Jolly, B. 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second Edition, pp. 258-260. (Full chapter available on request)
- **Section 2 – Writing One Best-Answer Questions for the Basic and Clinical Sciences** from Case, S. & Swanson, D. 2002, *Constructing Written Test Questions for the Basic and Clinical Sciences*, Third Edition, pp. 31-66

MCQ Writing Guidelines – Five Tests

Reference: Case. S & Swanson D (2001 3rd Edition) *Constructing Written Test Questions for the Basic & Clinical Sciences*

TEST 1

1. Each item should focus on a clinically important concept or problem

- Avoid items that only require recall of isolated facts
- Focus on: - common, serious or potentially catastrophic clinical problems
  - problems that would be encountered in real life Emergency Medical Practice.

EXAMPLE

A six-year-old boy has a one-day history of (*description of presenting complaint, history, physical exam*)? What is
✓ the most appropriate therapy?

A six year old boy has a one-day history of (*description of presenting complaint, history, physical exam*)? What is
✘ the best drug to treat Otitis media?

Regarding Otitis media?

TEST 2

2. Each item should assess the application of knowledge

- Use clinical vignettes
- Focus items on key concepts and principles that are essential information (without access to references) for all examinees to understand.

EXAMPLE

✓ A 62-year-old man develops left-sided limb ataxia, Horner's syndrome, nystagmus, and loss of appreciation of facial pain and temperature sensations. Which artery is most likely to be occluded?

✘ Rotator cuff muscles include?

TEST 3

3. The stem of the item must pose a clear question, and it should be possible to arrive at an answer with the options covered.

- To determine if the question is focused, cover up the options and see if the question is clear and if the examinees can pose an answer based only on the stem.
- Rewrite the stem and/or options if they could not.

EXAMPLE

✓ A patient has (*symptoms and signs*). Which of the following is the most likely explanation for the (*findings*)?

✘ Which of the following is incorrect regarding the trigeminal nerve?

TEST 4

4. All distractors (i.e., incorrect options) should be homogeneous.

- They should fall into the same category as the correct answer (e.g., all diagnoses, tests, treatments, prognoses, disposition alternatives).
- Avoid using 'double options' (e.g., do W and X; do Y because of Z), unless the correct answer and all distractors are double options.
- All distractors should be plausible, grammatically consistent, logically compatible, and of the same (relative) length as the correct answer.
- Order the options in logical order (e.g., numeric), or in alphabetical order.

EXAMPLE

✓ A 65-year-old man has difficulty rising from a seated position and straightening his trunk, but he has no difficulty flexing his leg. Which of the following muscles is most likely to have been injured?

A. Gluteus maximus
B. Gluteus minimus
C. Hamstrings
D. Iliopsoas
E. Obturator internus

✘ Regarding calcium containing solutions?

A. it is recommended to give calcium chloride Intramuscularly
B. calcium chloride is safe to give via rapid intravenous bolus
C. calcium gluconate is the preferred solution for intravenous administration
D. 10ml of 10% calcium gluconate contains the same mmol of calcium ions as 10ml of 10% calcium chloride

TEST 5

5. Avoid technical item flaws that provide special benefit to testwise examinees or that pose irrelevant difficulty.

- Do NOT write any questions of the form 'Which of the following statements is correct?' or 'Each of the following statements is correct EXCEPT.'

EXAMPLE

✓ A (*patient description*) has (*abnormal findings*). Which of the following (*positive laboratory results*) would be expected?

✘ With regard to the duodenum, which is NOT TRUE?

Five Tests for One-Best-Answer MCQs- Worksheet

Reference: **Case, D & Swanson, S** 2002, *Constructing Written Test Questions for the Basic & Clinical Sciences,* Third Edition.

PE/FE/CPD:

Correct answer letter:

QUESTION ITEM STEM

OPTIONS (in alphabetical order)

A.

B.

C.

D.

TEST 1 1.**Each item should focus on an important concept, typically a common or potentially catastrophic clinical problem.**

CONCEPT: ☑ **CLINICAL PROBLEM** ☑ **REAL LIFE EVENT** ☒ **ISOLATED FACT**

TEST 2 2.**Each item should assess the application of knowledge.**

APPLICATION OF KNOWLEDGE: ☑ **CLINICAL VIGNETTE** ☑ **ESSENTIAL INFORMATION** ☒ **ISOLATED FACT**

TEST 3 3.**The stem of the item must pose a clear question, and it should be possible to arrive at an answer with the options covered.**

COVER THE ANSWERS AND WRITE DOWN YOUR OWN, DOES IT MATCH? ☑ **MATCH** ☒ **NO MATCH**

TEST 4 4.**All distractors (ie, incorrect options) should be homogeneous.**

LIST DISTRACTORS

ALL DISTRACTORS ARE:

- ☑ of the same category as the correct answer (e.g., all diagnoses, tests, treatments, prognoses)
- ☑ all single options, not "double options" (e.g., do W and X; do Y because of Z)
- ☑ the same (relative) length as the correct answer
- ☑ in logical order (eg, numeric), or in alphabetical order
- ☑ plausible
- ☑ grammatically consistent
- ☑ logically compatible

TEST 5 5.**Avoid technical item flaws that provide special benefit to testwise examinees or that pose irrelevant difficulty.**

CHECK FOR TECHNICAL ITEM FLAWS

TECHNICAL ITEM FLAWS:

- ☒ Which of the following statements is correct?
- ☒ Which of the following statements is correct EXCEPT?

Extended Matching Questions

Reference: **Case, D. & Swanson, S.** 2002 *Constructing Written Test Questions for the Basic & Clinical Sciences,* Third Edition.

Brief Introduction to Writing a Single-Answer EMQ

Extended Matching Questions (EMQs) are a form of multiple choice questions. You may also hear or read about them referred to as 'R-type' items. They are used extensively in medical education at all levels on an international basis. Advantages of their use include that they:

- can contain minimal cueing (thereby reducing the artefacts produced by testwise students).
- are much less dependent on semantic and grammatical features than other test forms.
- can be written in an easier, more realistic style.
- are good discriminators of students (i.e. they separate poorly and well performing students very efficiently with good reliability).

The format is particularly suited to testing reasoning, application of knowledge to practice and clinical problem solving MCQs, rather than the more regular knowledge-based, single fact recall questions.

To start writing:

1. Read through the EMQ Writing Guidelines – Five Tests
2. Use the EMQ Worksheet in this pack to practice

When you are familiar with the process use the EMQ Template available on the ACEM website (example template also included within this pack) alongside the Writing Guidelines.

Examples

EMQ Example One

Theme: Toxicology

Options:

a) Aspirin
b) Butane
c) Chlorine gas
d) Clonidine
e) Clozapine
f) Colchicine
g) Doxepin
h) Erythromycin
i) Ferrous sulphate
j) Flecainide
k) Fluoxetine
l) Metformin
m) Methanol
n) Morphine
o) Omeprazole
p) Organophosphate
q) Paracetamol
r) Promethazine
s) Propranolol
t) Quetiapine

Lead-in: For each patient admitted to the emergency department with an overdose select the most likely medication or compound ingested:

1. A 19 year old woman with a history of depression. She is vomiting and confused

   Her vital signs are:

HR	120	beats/min (regular)
BP	100/70	mmHg
RR	20	/min
O_2 Saturation	98	% on air

Temperature	37.7	^{o}C	

ECG: sinus tachycardia

Arterial Blood Gas			Reference range
pH	7.45	mmHg	(7.36-7.44)
pCO_2	24	mmHg	(35-45)
pO_2	100	mmHg	
HCO_3^-	18	mmol	(21-28)

Electrolytes

Na^+	140	mmol/L	(135-145)
K^+	3.7	mmol/L	(3.2-4.3)
Cl^-	100	mmol/L	(99-109)
BUN	10	mmol/L	(3.0 – 8.0)
Creat	75	mmol/L	(45-85)
BSL	5.0	mmol/L	(3.0 – 5.5)
Lactate	0.8	mmol/L	(0.5 -2.0)

Answer: a) Aspirin

2. A 35 year old man with no significant past medical history. Presents after ingestion of unknown substance. He is confused and agitated, complaining of blurred vision.
His vital signs are:

HR	90	beats/min (regular)
BP	95/70	mmHg
RR	30	/min
O_2 Saturation	98	% on air
Temperature	36.8	^{o}C

ECG: sinus tachycardia

Arterial Blood Gas			Reference range
pH	7.07	mmHg	(7.36-7.44)
pCO_2	24	mmHg	(35-45)
pO_2	100	mmHg	
HCO_3^-	8	mmol/L	(21-28)

Electrolytes

Na^+	140	mmol/L	(135-145)
K^+	3.7	mmol/L	(3.2-4.3)
Cl^-	90	mmol/L	(99-109)
BUN	10	mmol/L	(3.0 – 8.0)
Creat	75	mmol/L	(45-85)
Glucose	6.5	mmol/L	(3.0-5.5)
Lactate	3.0	mmol/L	(0.5 – 2.0)

Answer: m) Methanol

EMQ Example Two

Theme: Paediatrics

Options:

a) Acute renal failure
b) Appendicitis
c) Constipation
d) Diabetic ketoacidosis
e) Gastroenteritis
f) Intussusception
g) Malrotation with volvulus
h) Mesenteric adenitis
i) Psychogenic vomiting
j) Pyloric stenosis

Lead-in: For each child presenting with vomiting described select the most likely diagnosis from the options provided:

1. A 5 year old boy with no significant past history complains of abdominal pain and vomiting for 2 days. He has had a recent URTI and has been bed wetting. He looks unwell with deep respirations and is moderately dehydrated.

   His vital signs are:

HR	160	beats/min (regular)
BP	90/60	mmHg
RR	30	/min
O_2 Saturation	100	% on air
Temperature	36.5	^oC

Answer: d) Diabetic ketoacidosis

2. A 1 week old child has been vomiting for 24 hours. The child is breast fed, and has been wetting nappies but had no bowel motions. The child is intermittently grizzly.

   Vital signs are:

HR	150	beats/min (regular)
RR	30	/min
O_2 Saturation	100	% on air
Temperature	36.8	^oC

Answer: g) Malrotation with volvulus

Further reading

- Appendix 1 - **Extended Matching Questions** from Jolly, B. 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second Edition, pp. 264-265. (Full chapter available on request)
- Appendix - **Types of written assessments and their primary usages** from Jolly, B. 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second Edition, pp. 258-260. (Full chapter available on request)
- **Section 3 – Extended Matching Items** from Case, S. & Swanson, D. 2002, *Constructing Written Test Questions for the Basic and Clinical Sciences*, Third Edition, pp. 69-103
- Case, S. & Swanson, D. 1993 **Extended-matching items: a practical alternative to free-response questions**, *Teaching and Learning in Medicine: An International Journal, 5:2,* pp:107-115.

EMQ Writing Guidelines – Five Tests

Reference: Case, S & Swanson, D 2002 *Constructing Written Test Questions for the Basic & Clinical Sciences,* Third Edition

TEST 1

1. Each item should focus on a clinically important concept or problem.

- Avoid items that only require recall of isolated facts.
- Focus on: - common, serious or potentially catastrophic clinical problems.
  - problems that would be encountered in real life emergency medical practice.

EXAMPLE

✓ Lead-In: For each patient with fatigue, select the most likely diagnosis.
Stem: A 15 year old girl has a 2 week history of fatigue and back pain. She has widespread bruising, pallor, and tenderness over the vertebrae and both femurs. A complete blood count shows hemoglobin concentration of 7.0 g/dL, leukocyte count of 2000/mm3, and platelet count of 15,000/mm3.
Option: Acute leukemia

TEST 2

2. Each item should assess the application of knowledge

- Use clinical vignettes.
- Focus items on key concepts and principles that are essential information (without access to references) for all examinees to understand.

EXAMPLE

✓ For each of the following patients select the most appropriate therapy
✘ For each of the following patients select the best drug to treat Otitis media.

TEST 3

3. The stem of the item must pose a clear question, and it should be possible to arrive at an answer with the options covered.

- To determine if the stem is focused, cover up the options and see if the examinees can pose an answer based only on the stem.
- Rewrite the stem and/or options if they could not.
- A lead-in must be specified for each set.
- Include lead-ins specifying the relationship between the items and the options.

EXAMPLE

For each of the following patients with [chief complaint], select the most likely diagnosis.

✓ - the item will be a patient with a chief complaint

TEST 4

4. All distractors (i.e., incorrect options) should be homogeneous.

- They should fall into the same category as the correct answer (e.g., all diagnoses, tests, treatments, prognoses, disposition alternatives).
- Avoid using 'double options' (e.g., do W and X; do Y because of Z) unless the correct answer and all distractors are double options.
- All distractors should be plausible, grammatically consistent, logically compatible, and of the same (relative) length as the correct answer.
- Order the options in logical order (e.g., numeric), or in alphabetical order.
- They should include between 3 and 26 options -- all those that require an appropriate level of discrimination.

✓
A. Ankylosing spondylitis
B. Osteoporosis
C. Intervertebral disc infection
D. Spinal stenosis
E. Multiple myeloma
F. Myofascial pain

✘
A. is motion sickness
B. have no effects on people
C. is a reduction in visibility
D. cause death
E. esthetics, economics, health
F. are completely controlled

TEST 5

5. Avoid technical item flaws that provide special benefit to testwise examinees or that pose irrelevant difficulty.

- Sets without lead-ins (or with nonspecific lead-ins, such as 'Match each item with the best option') should NOT be used, because they generally pose inconsistent or ambiguous tasks for examinees.

Five Steps for writing Extended Matching Questions - Worksheet

THEME | **PE/FE/CPD:**

LEAD-IN PHRASE

OPTIONS (IN ALPHABETICAL ORDER - USE MORE/LESS AS REQUIRED)

A.	E.	I.
B.	F.	J.
C.	G.	K.
D.	H.	L.

STEMS	ANSWER LETTER

STEP 1 **1. Identify the theme for the set**

THEME: ☑ **CHIEF COMPLAINT** ☑ **REAL LIFE EVENT** ☑ **DISPOSITION SITUATION** ☑ **DRUG CLASS** ☒ **NON-APPLIED FACT**

STEP 2 **2. Write the lead-in for the set (e.g. For each patient described below, select the most likely diagnosis)**

LEAD IN: ☑ **INDICATES THE RELATIONSHIP BETWEEN THE STEMS AND OPTIONS** ☑ **CLARIFIES THE QUESTION**

STEP 3 **3. Prepare the list of options. Not all options have to be used.**

ALL OPTIONS ARE:

- ☑ SINGLE WORDS OR SHORT PHRASES
- ☑ IN ALPHABETICAL OR LOGICAL ORDER

TEST- Are the distractors (incorrect options) homogeneous?

DISTRACTORS CHECKLIST:

- ☑ of the same category as the correct answer (e.g., all diagnoses, tests, treatments, prognoses)
- ☑ all single options, not 'double options' (e.g., do W and X; do Y because of Z)
- ☑ the same (relative) length as the correct answer
- ☑ in logical order (e.g., numeric), or in alphabetical order
- ☑ plausible
- ☑ grammatically consistent
- ☑ logically compatible
- ☑ between 3 and 26 options available

STEP 4 **4. Write the stems (Not all stems have to be used in every exam)**

ARE THE STEMS:

- ☑ WITHIN A SET SIMILAR IN STRUCTURE
- ☑ PATIENT VIGNETTES (IF APPROPRIATE)
- ☑ KEY CONCEPTS AND PRINCIPLES THAT ARE ESSENTIAL INFORMATION

TEST- Are the stems of the item focused and pose a clear question?

COVER THE OPTIONS AND WRITE DOWN YOUR OWN, DOES IT MATCH?

☑ **MATCH**

☒ **NO MATCH** → **REWRITE THE STEM/OPTIONS**

STEP 5 **5. Review the items**

IS THERE ONLY A SINGLE "BEST" ANSWER FOR EACH STEM ☐ **YES** ☐ **NO**

AT LEAST FOUR REASONABLE DISTRACTORS FOR EACH STEM ☐ **YES** ☐ **NO**

TEST 1- Check for technical item flaws that provide special benefit to testwise examinees or that pose irrelevant difficulty

TECHNICAL ITEM FLAWS:

- ☒ Sets without lead-ins
- ☒ Non-specific lead-ins e.g. "Match each item with the best option…"
- ☒ Grammatical cues or inconsistency

TEST 2- Peer review

CAN A PEER DETERMINE THE CORRECT ANSWER?

☑ **YES** → **A SUCCESSFUL EMQ!**

☒ **NO** → **MODIFY OPTIONS OR ITEM TO ELIMINATE AMBIGUITY**

Short Answer Questions

Reference: **Jolly, B** 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice,* Second Edition, pp. 293-305

Brief introduction to writing an SAQ

Short answer questions are used to ascertain factual knowledge or understanding. Various forms exist including completion of sentences, supplying a missing line, giving a short descriptive or analytical answer or annotating diagrams. The response therefore is varied; from one or a few words, a paragraph to extensive writing. Advantages of their use include that they:

- avoid cueing as examinees have to construct an answer
- are easier to mark than essay questions
- versatile in usage

To start writing:

1. Read through the SAQ Writing Guidelines – Five Tests.
2. Use the SAQ Worksheet in this pack to practice.

When you are familiar with the process use the SAQ Template available on the ACEM website (example template also included within this pack) alongside the writing guidelines.

Examples

SAQ Example One

A 3 year old child presents with their parents who are concerned that she has aspirated a toy.

The child is not distressed.

Vital signs are:

HR	100	beats/min (regular)
BP	95/70	mmHg
O_2 Saturation	98	% on air
Temperature	37.3	^oC

a. What are three indications for bronchoscopy in a child with a possible inhaled foreign body? (3 marks)

Answer: historical choking / coughing or persistent cough post choke, unilateral wheeze or atelectasis, or hyperinflation on expiration on X-ray

b. In acute total upper airway obstruction in a child, list the initial treatment steps in sequential order?
(4 marks)

Answer: BLS with back blows and chest thrusts, attempted ventilation with BVM, direct visualization possibly attempted removal, ETT to advance obstruction,)

c. What features in history are most relevant when assessing a child for possible foreign body aspiration?
(3 marks)

Answer: Age, opportunity, cough/ choking, sudden onset, no prodrome

SAQ Example Two

You are the duty Consultant in a northern Australian emergency department during the summer months. You receive a 35 year old female surfer who has been being "dragged" from the water and brought in by car. She is extremely distressed by leg pain.

Vital signs are:

HR	140	beats/min (regular)
BP	150/90	mmHg
RR	26	/min
O_2Saturation	92	% on air
GCS	15	

A photo of her right leg is shown.

1. What is your initial interpretation of the wounds? (2 marks)

Answer: Extensive Chironex fleckeri (Box jelly fish) stings to the leg with potential for systemic envenomation

2. List three possible causes of her hypoxia (3 marks)

Answer: Possible near drowning, Pulmonary oedema post envenomation, chest injury sustained in the water > contusion/PTx, (medical cause such as asthma)

3. What is the recommended initial treatment of the local leg injury? (3 marks)

Answer: Vinegar should be liberally applied if not already done so. Analgesia: IV narcotic, large doses often required. Remove tentacles with gloves if any remain attached.

What would be the indications for anti-venom in this case? (2 marks)

Answer: If patient develops Cardiovascular instability/cardiac arrest (usually occurs soon after sting). Ongoing severe local pain not controlled by IV narcotics

SAQ Example Three

A member of the police force presents to your urban district hospital emergency department after being stabbed in the shoulder with a freshly used hypodermic needle whilst working. Assessment of the patient shows no acute wound repair is needed.

1. What is the approximate relative risk in this setting of the infection transmission of the following?
   (a) HIV
   (b) HCV
   (c) HBV

2. List 4 key issues that should be addressed in the assessment of this patient.

Answer: Patient anxiety, infection counselling, follow up with appropriate work services, confidentiality.

3. 3. List 3 blood tests that are essential to aid in the assessment of this patient.

	Blood Test	Clinical Meaning
1.		
2.		
3.		

4. What 4 specific discharge counselling topics should be provided to this patient?

Answer: Follow up results, further serological testing, referral to appropriate services, explanation of infection risk in layman's terms.

5. What are 3 ethical and legal principles involved when giving discharge counselling?

Answer: Confidential labelling of specimens, notification of appropriate work authorities, work cover certificate)

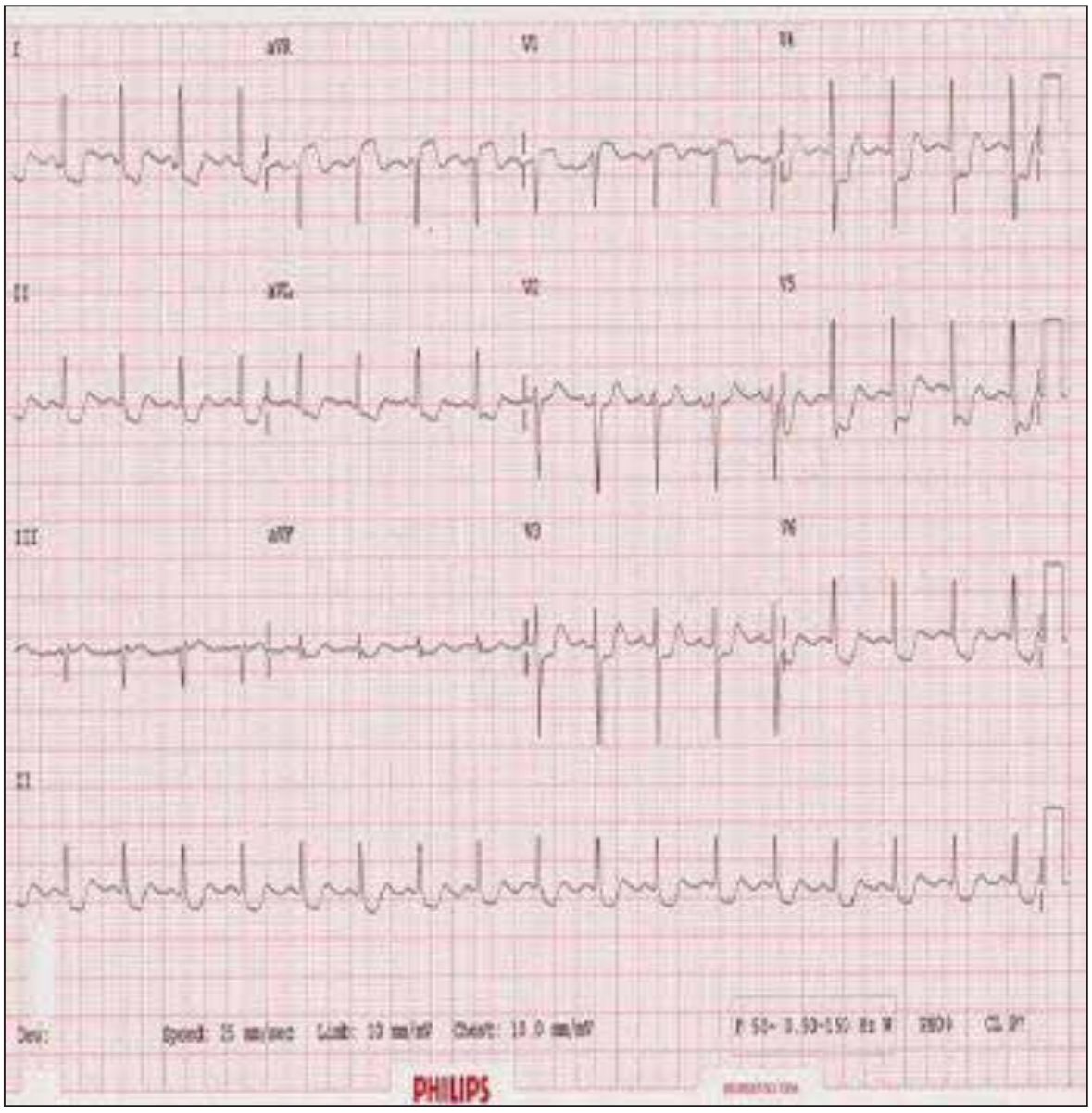
SAQ Example Four

A 50 year old man presents to the emergency department with severe crushing chest pain of 5 hours duration.

Vital signs are:

Temperature	37.4	^{o}C
BP	70/50	mmHg
RR	20	/min
O_2 Saturation	91	% on air
GCS	15	
Weight	76	Kg

The following ECG is obtained:



1. What is the diagnosis? (1 mark)

Answer: Acute STEMI

2. What is the likely cardiac pathology? (1 mark)

Answer: Likely proximal LAD or left main artery occlusion

3. What ECG changes support the diagnosis? (1 mark)

Answer: ST elevation AVR and V1, with marked widespread ST depression lead I, II and antero lateral

4. List and justify your immediate emergency department management priorities for this patient (excluding investigations). Include any drug doses (7 marks)

Management	Justification	Dose

17

Answer:

Management	*Justification*	*Dose*
Oxygen by mask	*Currently hypoxic, ? LVF*	*To have O_2 sat >95%*
Aspirin	*Acute STEMI*	*150-300mg*
Pain control: Opiates	*BP a problem currently – may need fluids first, nitrates not indicated with hypotension*	*Titrated to BP and pain* *1-2mg morphine aliquots* *or* *25 – 50 mcg Fentanyl aliquots*
IV fluid bolus	*Evidence of circulatory compromise, and likely RV involvement*	*500ml N Saline then review*
Thrombosis prevention	*Prevent reocclusion*	*Clopidogrel 600mg,or similar* *Heparin 5000u bolus then approx. 1000u/hr*
Urgent cardiology notification for definitive management.	*Urgent angiography/PCI*	
Inotropes likely required	*cardiogenic shock /BP support until definitive Rx*	*Reasonable pressor/ inotrope Rx option*

Further reading

- Appendix 1 – **Short Answer Question** from Jolly, B. 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second Edition, pp. 263-264. (Full chapter available on request)
- Appendix 2 – **Types of written assessments and their primary usages** from Jolly, B. 2014, *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second Edition, pp. 258-260. (Full chapter available on request)
- Case, D. & Swanson, S. 2002 *Constructing Written Questions for the Basic and Clinical Sciences,* Third Edition.

SAQ Writing Guidelines

QUESTIONS

1. **Each question should be clinically relevant and important to assess**

    - Can be answered realistically in a few words or phrases – avoid essays
    - Visual aids (such as X-rays, ECGs, photos, etc.) can enhance the relevance of the questions – make sure they contribute to the assessment.

2. **Each question should be clear and unambiguous**

    - Should have one focus and one interpretation
    - Restrict the length of the answer by using precise wording to define the task

        - Ask direct questions: "What is . . . "
        - Use actions verbs such as: "List", "Name"
        - Do not use words like "Discuss", "Describe", "Outline" unless you limit the length of the answer or specify a limiting restriction such as "Describe THREE specific methods of …"

    - Length of vignettes should be proportional to the value of the question.
    - Do not provide cues in text.

ANSWERS

1. **Simple and detailed marking scheme is required.**

    - Ensures the questions can be marked objectively and consistently
    - Marking scheme should be reviewed by others before implementation of question to ensure validity

2. **Model answers should be as comprehensive and clear as possible**

    - Ensures little subjectivity by marker
      Clearly outlines the expectations for:

        - Content expected
        - Length of answer
        - Mark allocation

Short Answer Questions - Worksheet

Reference: **Jolly, B**. 2014 *Written Assessment* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice,* Second Edition, pp. 293-305

PE/FE/CPD: | **MARK ALLOCATION:**

QUESTION ITEM STEM

MARKING SCHEME

MODEL ANSWER

STEP 1 **1. Select the specific learning objectives**

OBJECTIVE: ☐ **FACTUAL RECALL** ☐ **COMPREHENSION** ☐ **APPLICATION** ☐ **ANALYSIS**

STEP 2 **2. Select the most appropriate SAQ format for the objective**

FORMAT: ☐ **COMPLETION ITEM** ☐ **OPEN-ONE WORD PHRASE OR ANSWER** ☐ **SERIES OF ANSWERS OR SHORT PARAGRAPH**

STEP 3 **3. Write a clear and unambiguous stem**

STEM:

STEMS:

- ☑ CLINICALLY RELEVANT
- ☑ IMPORTANT TO ASSESS
- ☑ ONE FOCUS AND ONE INTERPRETATION
- ☑ LENGTH OF VIGNETTE PROPORTIONATE TO QUESTION VALUE
- ☑ "What is…"
- ☑ ACTION VERBS: "List", "Name"
- ☑ CAN USE VISUAL AIDS
- ☒ GRAMMATICAL CUES
- ☒ "Discuss", "Describe", "Outline" unless with limiting restriction:
- ☑ Describe THREE specific methods of…

TEST- Is the stem focused and length of the answer limited?

IS THE WORDING PRECISE TO DEFINE THE TASK?

☑ **YES**

☒ **NO** → Amend the stem

WRITE YOUR OWN ANSWER TO THIS STEM. IS YOUR ANSWER LIMITED IN LENGTH?

☑ **YES**

☒ **NO** → Amend the stem

STEP 4 **4. Provide a simple and detailed marking scheme**

MARKING SCHEME: ☑ **ENSURES OBJECTIVE AND CONSISTENT MARKING**

TEST- PEER REVIEW

CAN A PEER DETERMINE THE CORRECT ANSWER?

☑ **YES** → **A SUCCESSFUL MARKING SCHEME**

☒ **NO** → **MODIFY STEM OR MARKING SCHEME IF APPROPRIATE**

STEP 5 **5. Write a model answer**

MODEL ANSWER: ☑ **COMPREHENSIVE AND CLEAR** ☒ **MARKER SUBJECTIVITY**

TEST- ARE EXPECTATIONS CLEARLY OUTLINED?

MODEL ANSWER OUTLINES EXPECTATIONS FOR:

- ☑ CONTENT EXPECTED
- ☑ LENGTH OF ANSWER
- ☑ MARK ALLOCATION

Objective Structured Clinical Examinations

Reference: **Boursicot, K., Roberts ,T. & Burdick, W. 2014** *Structured assessments of clinical competence* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second edition, pp. 293-305

Brief introduction to writing OSCEs

Objective structured clinical examinations are becoming an increasingly utilised form of assessment in clinical competence. They are blueprinted to the learning outcomes of the curriculum and involve rotating around a series of structured cases and undertaking specific tasks usually involving a clinical skill e.g. history taking or examination.

An advantage of their use is that OSCEs are a fair and reliable method of assessing clinical skills.

To start writing:

1. Read through the OSCE Writing Guidelines – Five Tests
2. Use the OSCE Worksheet in this pack to practice

When you are familiar with the process use the OSCE Template available on the ACEM website (example template also included within this pack) alongside the Writing Guidelines.

Example 1

SUBJECT AND CURRICULUM REFERENCE

Difficult airway management

Medical Expertise

Teamwork and Collaboration

Prioritisation and Decision Making

CLINICAL SCENARIO STEM

A 50 year old man is brought in by ambulance with an IV in situ. The patient has been assaulted with a cricket bat. He has isolated head and face injuries. On arrival his vital signs are as follows:

HR	90	beats/min	
RR	8	/min	
BP	150/80	/mmHg	
O_2 Saturation	90	%	15L oxygen via non rebreather mask.
GCS	4	with equal and reactive pupils	

On examination he has obvious extensive midface fractures bilaterally, with blood coming out of his mouth, and gurgling respirations.

INSTRUCTIONS

Candidate:

The scenario is in the Resuscitation Room. There is a high fidelity mannequin that will respond as a live patient. Your registrar has already prepared the appropriate drugs and difficult airway trolley.
You have an assistant who is a competent nurse, but requires instruction. The registrar has been called away. You have been called by your registrar for an anticipated difficult airway and are required to manage the patient's airway.

Role player - nurse assistant:

You are an experienced airway nurse. You will follow the candidate's instructions promptly, efficiently and competently. You will not prompt him with regards to patient management. You will alert him to significant deterioration in the patient's condition (e.g. when the oxygen saturations deteriorate, or if the patient becomes bradycardic).

Examiner:

This scenario requires an advanced mannequin, difficult airway and resuscitation equipment and a competent nurse to assist the candidate.

The mannequin is impossible to intubate.

The candidate must first recognise the need to secure the airway and attempt intubation using RSI.
Once intubation fails, the candidate must commence an appropriate difficult airway algorithm (e.g. reattempt intubation with some changes such as repositioning head, use of a bougie, etc., assistant providing laryngeal manipulation, etc.), then LMA insertion, BVM ventilation.

If the candidate inserts an oral airway and ventilates competently via bag-valve-mask, he is initially able to oxygenate and ventilate the person for approximately 30 seconds. However over that period of time, the patient's oxygen saturations deteriorate markedly. The candidate must now recognise a "can't intubate, can't oxygenate" scenario and proceed to a surgical airway.

NOTE: If by 5 minutes the candidate has not proceeded to a surgical airway, at that point the patient becomes peri-arrest: HR 20 /min, apnoeaic, O2 Saturation 60%.

Assessment criteria

- Recognition of need to secure airway and intubate patient.
- Attempt intubation with appropriate drugs, equipment and technique.
- Once first intubation attempt fails, commence difficult airway algorithm.
- Maximum of 3 attempts at intubation, and at each attempt must alter some factor to increase likelihood of intubation (e.g. Reposition patient, or use of a bougie, or having assistance provide external laryngeal manipulation)
- LMA insertion – must have competent technique and insert successfully, however is unable to ventilate patient adequately via LMA.
- Maintain oxygenation between attempts at intubation/LMA by competent ventilation with bag-valve-mask
- NOTE: After at least 3 attempts of establishing a definitive airway (ETT and/or LMA) candidate is able to ventilate and oxygenate patient via BVM (if performed competently). However after approx. 30 seconds, situation deteriorates into a "can't intubate can't oxygenate" scenario.
- Candidate must recognise and verbalise that this is a "can't intubate, can't oxygenate" scenario.
- Candidate must successfully establish a surgical airway.
- Candidate must successfully ventilate patient via the surgical airway, using an appropriate technique.

Example 2

SUBJECT AND CURRICULUM REFERENCE

History taking - diarrhoea

Medical Expertise

Communication

CLINICAL SCENARIO STEM

A 25 year old previously healthy man presents to the emergency department complaining of 2 weeks of diarrhoea.

INSTRUCTIONS

Candidate:

A 25 year old previously healthy man presents to the emergency department complaining of 2 weeks of diarrhoea. Take a history. After 6 minutes you will be asked to summarize the findings and give a differential diagnosis.

You will not be required to examine the patient. Vital sign are normal. The abdomen is soft, non-tender with no distension.

Role player - patient:

You are 25 and called Michael Jones. You started to notice that your stools were more runny than normal two weeks ago, and since then you have been opening your bowels with increasing frequency up to 10 times per day. This is very unusual for you. For the last five days you have noticed blood in the stool, and this morning the toilet pan was filled with blood, which alarmed you and made you come to the emergency department. You have no other previous visits to doctors or the hospital. You are not short of breath. If asked, say that you have felt more tired than usual recently. No nausea or vomiting and no shortness of breath. If asked about pain, say that you have had one or two twinges of pain in your stomach during attacks of the diarrhoea but otherwise not. You drink 5 pints of beer most Saturday nights, do not smoke and have no allergies. You have two sisters who are both healthy and your parents are both healthy and in their 50s. Your appetite is usually good but you have been less hungry than normal for the past two weeks. Your jeans are looser than normal. You have had no recent overseas travel.

Examiner:

Observation only. After 6 minutes ask the candidate to give a differential diagnosis.

Assessment criteria

- Confirms that reason for attendance is diarrhoea.
- Duration of symptoms.
- Amount and frequency of stools.
- Any blood – alone or mixed with stool – bright red or dark.
- Nausea, vomiting, haematemesis (coffee grounds), abdominal pain.
- Weight loss? Fever? Lethargy? Dizziness.
- PMH? Meds (NSAIDS, anticoagulants, ASA) Family history? Diet. Travel history. Joint problems, eye problems, skin problems?
- Candidate should include inflammatory bowel disease in his differential diagnosis.

Example 3

SUBJECT AND CURRICULUM REFERENCE

Asthma management

Leadership and Management

Medical Expertise

CLINICAL SCENARIO STEM

You are working in a rural district hospital. You have immediately available an experienced emergency department nurse and emergency department registrar.

A 26 year old man is brought into your emergency department having a severe asthma attack. Initial arterial gas on high flow oxygen is as follows:

pH	7.10
pO_2	54
pCO_2	120
$HCO3^-$	18
Base	21.0
Na	135
K	4.6
Cl	99
Gluc	6.4
Lactate	4

INSTRUCTIONS

Candidate:

You are required to describe the blood gas result to the staff and commence therapy for this patient with severe asthma. You may assume that all drugs and equipment usually available in a Resuscitation Room are available. You will need to provide detailed instructions to the nurse and registrar including drug dose and administration route.

You will have a high fidelity resuscitation mannequin and two staff members; an emergency department registrar and an emergency department nurse who will assist by carrying out your instructions but will not initiate any treatment unless requested. They may alert you to major changes in the patient's clinical status.

Role player – ED nurse:

You are an experienced ED nurse and will follow instructions as given by the candidate promptly and efficiently. You are able to note any significant changes to the clinical status of the patient. You are not to initiate therapy without being asked, nor prompt regarding patient management. You are able to seek clarification if any instruction is unclear. If asked to administer a drug you will need to be provided with the dose and route of administration. If asked to ventilate or connect to a ventilator you will expect to be provided with clear instruction, and can prompt the candidate if required.

Role player – ED registrar:

You will follow instructions as given by the candidate. You are able to note any significant changes to the clinical status of the patient. You are not to initiate therapy without being asked, nor prompt regarding management. You are able to seek clarification if any instruction is unclear. If asked to administer a drug you will need to be provided with the dose and route of administration. If asked to ventilate or connect to a ventilator you will expect to be provided with clear instruction, and can prompt the candidate if required.

Examiner:

The candidate should efficiently describe the blood gas result to the staff members and then immediately proceed with resuscitation.

The candidate should assume the team leader role, and communicate with and utilise team members appropriately.

The candidate should commence reasonable therapy for severe asthma including intravenous drugs with doses and prepare for immediate intubation and ventilation.

Once intubated, the candidate should aim for adequate oxygenation and accept hypercarbia, with prolonged expiratory time.

Assessment criteria

- Accurately identify severe acute respiratory failure.
- Manage drug therapy for severe asthma appropriately.
- Identify need for intubation and proceed to intubation using appropriate drugs for RSI.
- Intubation technique.
- Appropriate post intubation checks and ventilation goals in a patient with severe asthma.

See Appendix 4 for Full Set of OSCE Stations

Further reading

Appendix 3 – **Structured assessments of clinical competence** from Boursicot K., Roberts T., & Burdick W. 2014 in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second edition, pp. 293-305. Full chapter available on request.

Newble, D. 2004 *Techniques for measuring clinical competence: objective structured clinical examinations.* Medical Education.

OSCE Writing Guidelines

Newble D. 2004 *Techniques for measuring clinical competence: objective structured clinical examinations.* Medical Education.

Define the purpose of the station

STEP 1

- Ensure focus on an authentic clinical problem that is sufficiently realistic.
- Avoid assessing competencies that are not included in the OSCE blueprint.

Develop the clinical scenario

STEP 2

- Can use the stem to frame a task and make it appropriate for the given time limit
  - if assessing ability, frame the stem with relevant patient information.
  - if assessing judgement as well as ability, consider limited patient information in the stem.
- May use a standardised patient.
- May use written of oral questions presented to a candidate.

Develop the station instructions

STEP 3

Candidate instructions

- Specify venue and other circumstances e.g. have they met the patient before.
- Provide explicit instructions about the task to be performed (e.g. take history, examine, explain etc).
- Include any other information required e.g. data.

Examiner instructions

- Provide explicit instructions to examiner to enable them to run the station effectively
  - if prompting will detract from candidate's performance, ask examiner not to prompt
  - if a particular task requires examiner intervention, state what he/she should do
- Give guidance on timing for the station.

Patient instructions

- Provide background information for the patient (where relevant) including name, age, employment, social circumstances, gender, ethnicity, behavioural characteristics, presenting history, past medical history, family history, understanding of illness, attitude to illness.
- Specify answers or questions to ask during the scenario.

CHECK for congruence between:

- the candidate's instructions
- the examiner's instructions
- the simulated patient role

Develop Scoring Sheet for Station

STEP 4

- List the specific items which are important in the performance of the task. Check the items correspond with what is being assessed.
- Be realistic about minutiae (is this really necessary?) and is time available.
- If prompting/questioning required by the examiner, indicate where this should occur.
- Ensure the scoring sheet and clinical scenario stem are compatible.

Objective Structured Clinical Examinations- Worksheet

Reference: **Boursicot K., Roberts T., and Burdick W.** *Structured assessments of clinical competence* in Swanwick, T. (ed) *Understanding Medical Education: Evidence, Theory and Practice*, Second edition, 2014: pp. 293-305

FE/CPD:

PURPOSE OF STATION:

CLINICAL SCENARIO STEM

CANDIDATE INSTRUCTIONS

EXAMINER INSTRUCTIONS

PATIENT INSTRUCTIONS

SCORING SHEET

•	•
•	•
•	•
•	•

STEP 1 **1. Define the purpose of the station**

PURPOSE: ☑ **AUTHENTIC CLINICAL PROBLEM** ☑ **REALISTIC** ☑ **COMPETENCIES INCLUDED IN OSCE BLUEPRINT**

This station tests…

STEP 2 **2. Develop the clinical scenario**

STEM: ☑ **FRAMES THE TASK** ☑ **MAY USE STANDARDISED PATIENT** ☑ **WRITTEN QUESTIONS** ☑ **ORAL QUESTIONS**

TEST- IS THE STEM APPROPRIATE FOR THE GIVEN TIME LIMIT?

IF ASSESSING ABILITY → STEM CONTAINS RELEVANT PATIENT INFO? ☑ YES / ☒ NO → **AMEND STEM**

IF ASSESSING JUDGEMENT AND ABILITY → IS PATIENT INFORMATION SUCCESSFULLY LIMITED? ☑ YES / ☒ NO → **AMEND STEM**

STEP 3 **3. Develop the station instructions**

CANDIDATES: ☑ VENUE AND CIRCUMSTANCES ☑ EXPLICIT TASK INSTRUCTIONS ☑ INCLUDE OTHER INFO REQUIRED

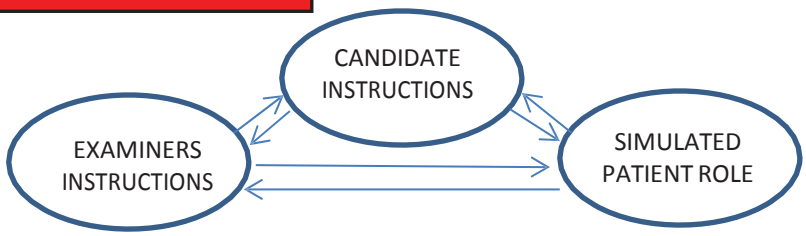
EXAMINERS: ☑ INSTRUCTIONS EXPLICIT ☑ DETAILS PROMPT/NO PROMPT/INTERVENTION ☑ INCLUDE TIMING INFO

PATIENTS: ☑ BACKGROUND INFO ☑ SPECIFY QUESTION/ANSWERS DURING SCENARIO:

Include relevant background info such as:

- ☑ Name
- ☑ Age
- ☑ Employment
- ☑ Social circumstances
- ☑ Gender
- ☑ Ethnicity
- ☑ Behavioural characteristics
- ☑ Presenting history, past medical history, family history
- ☑ Understanding of illness
- ☑ Attitude to illness

TEST- IS THERE CONGRUENCE BETWEEN:



STEP 4 **4. Develop the Scoring Sheet**

SCORING SHEET: ☑ ITEMS CORRESPOND TO WHAT IS BEING ASSESSED ☑ REALISTIC MINUTIAE AND TIME

List specific items important to task performance:

TEST- COMPATIBILITY BETWEEN:

APPENDIX 1

In this example, computer delivery, or physical removal of the answers, first, to Question 1, and then 2, before giving the information about anaemia and asking candidates Questions 3 and 4, would be required to avoid both backward and forward cueing. Q1 and Q2 test broad knowledge of such clinical presentations and initial diagnostic strategy. They require understanding of the clinical significance of the scenario. Question 3 tests linkage between data from investigation (that may not have been initially considered by a test taker) and subsequent questioning. Question 4 is vague and open to misinterpretation – for example, Question 1 asks for three likely diagnoses – which one does question 4 refer to? Is the test taker supposed to assume certain positive or negative outcomes from their examination of signs in Question 3? What does 'information' mean in Q4? What does 'affect' mean? What is the designer's rationale for asking Q3 after the delivery of the information about the blood test? Would this information be better after Q3?

Where's the evidence for MEQs?

Psychometric studies done on the MEQ in the 1980s showed that reliabilities ranged between 0.43 and 0.90 (Cronbach's alpha) for a 60-item test, depending on the content area.(38) However, one study suggested that over 50 per cent of MEQ items in a general test for undergraduates in medicine and surgery tested nothing more than factual recall.(39) This contrasts with the rationale for MEQs that emphasises their ability to reflect analysis, interpretation and clinical decision-making. A more recent study in the same institution has resulted in the removal of the MEQ from the undergraduate assessment programme.(40)

Short-answer question

Many educators use short-answer questions (SAQs) in some form. Frequently, they are used as means of gauging students' factual knowledge or understanding – for example, in lectures and ward rounds. In the verbal form they tend to be quite short, asking for one word or a few alternative answers, within a specific context, as in the following example:

- What is the most common feature of diabetic retinopathy we are likely to see in this patient?

The other major use of short-answer questions is in assessments. Various forms exist requiring the test-taker to complete the sentence or supply a missing line (a 'cloze test'), give short descriptive or analytical answers, or annotate diagrams. Such questions can demand a wide range of responses, from one or several words, a paragraph, to more than a page. The different forms of SAQ provide for great versatility in usage, but make classification difficult. An individual question can be used to assess a specific objective and unlike multiple-choice questions, short-answer questions have the advantage of requiring students to construct an answer, rather than choosing (or guessing) from provided options, so avoiding cueing (at least when SAQs are used sparingly).

SAQs are easier to mark than essay questions and usually involve a structured marking sheet that indicates all possible answers, and ones that should or should not get credit. Marking sheets should also indicate whether spelling needs to be perfect or which common misspellings are acceptable. One-word answers are computer scoreable. Currently programs are being developed for scoring that involves longer answers.(41)

Items should be marked with assessors blind to the identity of candidates and different markers allocated to different questions or sets of questions. In this way, examiner bias is diluted for each candidate. Some assessors report that having the marking done at one time in a large room with all examiners able to talk to each other as unexpected responses are discovered is beneficial to efficient and equitable scoring. Test designers need to be prepared to accept answers not on the score sheet, some of which may or may not have been predicted. There will need to be a system for referring these to the test convenor or committee – do not allow discretion at the marker level, some markers may be unable to make this judgement.

Marking poses the major difficulties with this form of assessment, although there is variability between markers on most constructed response types of question. Increasing the number of markers and number of questions can ameliorate the problem, but is frequently impractical.(42,43) Many educators allege that SAQs reduce the likelihood that students will look for the relations between objectives or sections of the subject whilst studying, and that complex issues cannot always be satisfactorily addressed in short answers. However, there is little empirical evidence for these assertions.

Constructing an SAQ

- Identify the specific learning objectives the item will cover. These are generally in the area of factual recall, comprehension, application or analysis. Higher levels such as evaluation or synthesis will probably require a longer test format, such as a modified essay.
- Choose the most appropriate SAQ format for the objective – a cloze or completion item, an open one-word or phrase answer, a series of answers or a question that requires a short paragraph.
- State the item concisely in clear, unambiguous simple language. A good SAQ tests factual knowledge or capacity to analyse and clinically interpret a scenario. Introducing an element of the test taker's ability to make sense of the question introduces construct-irrelevant variance into the assessment.
- Look at the draft item from a number of different perspectives – mentally try out adequate and inadequate responses. Ideally, an item aimed at one fact should have just one answer, and one aimed at alternatives (e.g. differential diagnoses) should have as many as are appropriate. However, what you may think of as a clear, straightforward question may frequently be answered in multiple ways, depending on how the reader reads it.
- It is good practice to give the test taker an indication of the length of answer required.
- Indicate how many marks are available for the question.
- Some research suggests that items asking for positive perspectives (e.g. knowing the best method, describing

good practice or identifying the most relevant facts) have greater educational significance (e.g. in terms of capacity to measure objectives) than knowing the poorest method, unsatisfactory practice or the least relevant issues. However, clinical science sometimes depends on the capacity to rule out rare or unlikely occurrences, so research done in general educational settings may not always apply in the health context. If you have to word an item negatively, it is advisable to use some form of emphasis for the negative words (e.g. 'What is *not* an appropriate management option in this situation?'), using italics, bold type or underlining to stress this for the test taker.

- Try to avoid grammatical cues to the answer or providing answer spaces that are equal or proportional to the lengths of the required responses.
- Where a numerical answer has to be supplied, for example from a calculation based on clinical data, indicate that both;
  a) the degree of precision expected (e.g. give your answer to one decimal place and answers within 5% of the correct value will be given credit) and
  b) the appropriate units must be indicated.

Not doing this will result in uncertainty for markers about whether the answers supplied are acceptable or not.

Where's the evidence for SAQs?

There is very little research on short-answer questions, particularly in medicine. However, there is some evidence from secondary education that constructed response short-answer questions measure exactly the same thing as MCQ items, as long as the stems are the same.(44) In other words, the cognitive task set to the test taker is more important than the response format. However, once the task diverges, even in the same content domain, the correlation between the two forms falls off. Also, SAQs are more reliably scored than essays,(45,46) largely because the pitfalls of scoring lengthy answers are avoided, and because SAQs can sample more widely in a given time. In addition, using SAQs may reduce the reported differences between men and women, and black and white racial groups on propensity to omit items in MCQ tests.(47) In medicine SAQs have successfully been used as a reliable alternative to MCQ items in a progress test in the Netherlands.(48) One study showed that SAQ tests could produce better retention of information over time, as long as the delayed test was a short-answer test. There was no difference between groups if the test was an MCQ test.(49)

Selected response formats

Multiple-choice questions: Multiple true/false formats

Multiple-choice testing was once seen as an enduring solution to the reliable and valid measurement of knowledge in 'knowledge rich' or knowledge-dependent environments such as medicine, bioscience and engineering. Invented in 1914 by Frederick Kelly, head of a training school in Kansas, USA, by 1926 the multiple-choice test had become the rite of passage for entering post-secondary education in the USA. The MCQ was developed into several forms. One of these is the multiple true/false item, called an 'X type' item in North America, which has become a significant feature of assessment of knowledge in medicine and many other professions over the last 50 years.

BOX 19.4 Example of a multiple true/false item

Stem	Options	
The following present as chronic (>3 months) airspace disease on a chest radiograph.	A. Streptococcal pneumonia	T/F
	B. Adult respiratory distress syndrome	T/F
	C. Pulmonary oedema	T/F
	D. Asbestosis	T/F

In essence, an MCQ is a question that proffers several answers from which the correct one or ones must be chosen. In multiple true/false types a set of options, usually four to six, is given of which each can be either true or false, and the candidate is required to indicate which is correct for each option. An example is shown in Box 19.4.

Over the last few years the multiple true/false item has received a good deal of critical attention. Many examining bodies (for example, the National Board of Medical Examiners (NBME) in the USA) have given up using it altogether. The main reasons have been elucidated with a good deal of empirical evidence.(26) In brief, Case and Swanson(26) state that:

- the distinction between 'true' and 'false' is not always clear, and it is not uncommon for subsequent reviewers to alter the answer key
- reviewers rewrite or discard true/false items far more frequently than items written in other formats
- some ambiguities can be clarified, but others cannot
- to avoid ambiguity, item writers are pushed toward assessing recall of an isolated fact, which is not desirable in most testing situations
- application of knowledge, integration, synthesis and judgement questions can better be assessed by one-best-answer questions.

It is also the case that using true/false restricts the choice of answers, as discussed in the NBME guidance,(26) to a sub-set that can best be classified as completely true all of the time or completely false all of the time. For this reason this author will strongly recommend not using this type of item.

Multiple choice questions: Single-best answer

In single-best-answer questions a stem question asks the test taker to choose the one best answer typically from a set of four-to-five options. An example, taken from the NBME guidance,(26) is given in Box 19.5.

MCQ items are usually scored optically or directly by computer. There are standard programs for marking and analysing test data straight from a scanner. The answer 'key' – a line of data containing the correct option for each

BOX 19.5 Example of a one best answer item. (26, p. 38)

Stem	Options
A 65-year-old man has difficulty rising from a seated position and straightening his trunk, but he has no difficulty flexing his leg. Which of the following muscles is most likely to have been injured?	A. Gluteus maximus B. Gluteus minimus C. Hamstrings D. Iliopsoas E. Obturator internus

item – is used in this process and should be double', or even triple-, checked before use. The most common reason for problems at the marking or item analysis stage is a key that contains wrong answers. This may be because the answer has been wrongly transcribed from the item writer's design or (and this not as rare as it should be) because he/she has not provided the best answer.

Most MCQs are scored 1 or 0 for correct or incorrect answers, respectively. Weighting is not necessary for best-answer items; it has very little impact on rankings of students and can reduce reliability. A so-called 'correction for guessing' need not be used.(50)

How to construct a single-best-answer question

Writing multiple-choice items involves following a series of basic rules that, for the most part, apply to all types. A sensible approach to item construction is to have item-writing workshops that force item writers to work in small groups(2,3) and then have their items immediately reviewed by a larger group. During the workshops the rules are as follows and *should* be applied as a test to each of the items that you construct. Each item should pass *all* the rules.

- Focus on an important (non-trivial) concept, typically a common or potentially serious clinical problem. Avoid trivial, 'tricky', or overly complex questions.
- Focus on how knowledge is applied to a clinical situation, not on recognising an isolated fact or association between concept and exemplar.
- The stem must state a clear question, and it should be possible to arrive at an answer with the options covered (the cover test). To determine if the question is clearly focused, cover up the options and read the stem to make sure it is lucid and that other item designers can supply an answer dependent only on reading the stem.
- All distractors and the correct answer should be homogeneous, that is, they should fall into the same category. For example, in an anatomy question all answers should be the same type of structure – bones, vessels, nerves, etc. In a clinical item they should all be diagnoses, tests, treatments, prognoses, and so on.
- All distractors should be salient and plausible. Order the options in numeric, or in alphabetical order (*see* Box 19.5).
- Try to write questions of moderate difficulty – if any of the item constructors have a problem with the item it is probably too difficult. Make sure the correct answer has a sufficiently different degree of correctness, when compared to the distractors across all the conditions identified in the stem. For example, let's assume we are testing knowledge of a condition that affects men, usually in later life. If an incorrect option (distractor) is a diagnosis that does sometimes occur in the age group that the question stem has identified, and the correct answer is one of the rarer diagnoses, the two options may not be far enough apart to make a distinction clear.
- Avoid technical item flaws. For example, all items and options should be grammatically consistent, logically compatible, and of the same (relative) length as the correct answer.
- Writing questions of the form 'Which of the following is correct?' followed by a set of brief, possibly unrelated postulates, one of which is correct, is not advisable. It is basically a true/false item masquerading as a one best answer. Furthermore, it is a good way of ensuring that the questions do focus on trivia. These questions will not be directed at course objectives in a coherent fashion and will contain multiple heterogeneous options.

Where's the evidence for MCQs?

There is far too much research on MCQs to summarise in this chapter. The interested reader should look at recent evidence based guidelines by Wood,(15) Downing(51) and Haladyna *et al.*(52) for comprehensive treatments of many issues. One interesting fact to emerge is that the number of options to use in a one-best-answer item for maximal reliability is more likely to be 2 or 3 than 4 or 5. There is long-standing theoretical and empirical evidence to support this position.(53) This is because this effect is generated when the additional distractors, usually put in to make up or provide a standard number of options are not performing adequately. In items where the 4 or 5 distractors are operating effectively, the item tends to have increased reliability, but this situation is unusual. There is also contradictory evidence that extended matching question distractors, usually a naturally occurring fairly large set of 10–15 (*see* below), may operate more effectively than 3 or 4 pre-selected ones.(26,54) We would hope that the processes that students use to answer one-best-answer MCQ items are at least analytical and at best reasoning-rich. However, evidence suggests that 'the problem with multiple-choice items is not that they are mere exercises in recognition, but that we are unable to predict the processes that will be evoked'.(55, p. S9)

Extended matching questions

Extended matching questions (EMQs) were developed in the early 1990s.(26) However, the kernel of the idea was first conceived by Sue Case in her PhD thesis as early as 1983.(56) She and David Swanson are credited with most of the development work on this format, whilst at the National Board of Medical Examiners. An EMQ is a selected response item in which the item stem has been extended, usually, to a short clinical vignette or scenario and the

BOX 19.6 Example of an extended matching item

Area: Abdominal pain – Diagnosis

Options

A. Abdominal aneurysm	K. Kidney stone
B. Appendicitis	L. Mesenteric adenitis
C. Bowel obstruction	M. Mesenteric artery thrombosis
D. Cholecystitis	N. Ovarian cyst – ruptured
E. Colon cancer	O. Pancreatitis
F. Constipation	P. Pelvic inflammatory disease
G. Diverticulitis	Q. Peptic ulcer disease
H. Ectopic pregnancy – ruptured	R. Perforated peptic ulcer
I. Endometriosis	S. Pyelonephritis
J. Hernia	T. Torsion

Lead In: For each patient with abdominal pain described below, select the most likely diagnosis.

Scenario/Stem: A 25-year-old woman has sudden onset of persistent right lower abdominal pain that is increasing in severity. She has nausea without vomiting. She had a normal bowel movement just before onset of pain. Examination shows exquisite deep tenderness to palpation in right lower abdomen with guarding but no rebound; bowel sounds are present. Pelvic examination shows a 7-cm, exquisitely tender right-sided mass. Hematocrit is 32%. Leukocyte count is 18,000/mm3. Serum amylase activity is within normal limits. Test of the stool for occult blood is negative.

Answer: __

[Next scenario in the domain (diagnosis of abdominal pain) would appear here.]

Source: National Board of Medical Examiners(26)

choices have been extended to include all potentially acceptable ones for the clinical problem or issue that is being addressed by the item. This format was originally targeted towards the application of clinical knowledge to diagnostic and management problems, but has been extended to other areas such as basic science. In the example, in Box 19.6 there are 20 options pertaining to the theme of diagnosis of abdominal pain. This is followed by one or more clinical vignettes. The options are all causes of abdominal pain. It is usual in such items to attempt to make all the questions and options homogenous in this way, so other issues concerning abdominal pain, such as initial management or investigations, are not included. An item should focus on a specific area of clinical cognitive activity that pertains to a specific phase of the clinical process – in this case diagnosis.

EMQs are usually scored 1 for a correct response and 0 for an incorrect one. It is sometimes possible to have more than one best answer – for example, when two (or more) diagnoses are equally likely, given the information in the vignette. However, the scoring of these requires more attention during the scanning process, as for optical scoring two (or more) passes of the score sheets are necessary with each correct answer keyed on each pass. Unless it is clinically important to be able to recognise both potential diagnoses from the same vignette, such multiple responses are probably best avoided (for example, by removing one of the options from the list).

Investigations of the reliability and construct validity of EMQs suggest that they have good measurement properties, and correlate well with other measures of recall, recognition and cognitive functioning.(57) Recently, studies of experts and novices who talk aloud whilst trying to complete EMQ items have strongly suggested that EMQs have good construct validity for, and can be reliably used to assess, clinical reasoning,(58) even though novice and experts approach the same item with different strategies (backwards vs. forwards reasoning, respectively).(59) Furthermore, when used in pathology EMQs are more reliable, better discriminate the competent from the borderline student, and can be written definitively to test core content.(60)

EMQs seem to be easier to write than true/false or other types of one-best-answer items, because in that style of item the convolutions that writers go through to reduce the item set to a smaller number where each is true or false, or there is clearly one best answer, are not needed.(61) Clinicians from some disciplines such as public health, epidemiology and statistics have suggested that EMQs are difficult to write for these content domains, but recent articles suggest they have been adopted or are being developed in some of these hitherto unexplored areas (e.g. psychiatry(62)).

How to construct an EMQ

It is best to write these items first by considering the area or domain of the assessment blueprint for which items need to be written (e.g. abdominal pain in Box 19.6). Then a general question is posed, followed by all the possible answers to that question (e.g. 'What are the causes of abdominal pain in adults?'). After these have been identified, scenarios that pertain to one or more of the answers are constructed. Ideally, create items (particularly the stems/scenarios) in pairs of writers, at workshops of about 8–12 people in total (4–6 pairs), with review every two hours or so in a larger group. This is an effective, and in most examiners' experience, an enjoyable way of generating items. The stages are as follows.

- ***Identify the domain or subject for the set.*** The domain is an area of cognitive activity (e.g. diagnosis, management planning). The subject can be a presenting complaint in a body system or systems (e.g. abdominal pain, so that diagnosis is the focus of the item), or a pre-diagnosed condition (e.g. community-acquired pneumonia, so that management is the focus of the item). Sometimes it might be appropriate to move directly from a non-diagnosed presenting complaint (e.g. abdominal pain) to an investigative option (e.g. ultrasound) or management plan (e.g. restricted diet). However, the more cognitive steps involved in moving between the presenting complaint and the focus of the item (e.g. asking about management), the less will be known about why an

examinee might have answered the item incorrectly. For example, the examinee might have thought a patient with ulcerative colitis had appendicitis and ordered surgical intervention.

- ***Write the lead-in for the set*** (e.g. *for each patient described below, select the most likely diagnosis* (Box 19.6)). The lead-in indicates the relationship between the stems and options. It must be a clear question for examinees. It is an essential component of an extended-matching set. Sometimes two lead-ins can be written at the same time – for example, one based on diagnosis and one on indications for investigations or management. Subsequent scenarios can be used, usually with only minor modification, with either lead-in. In summary, the lead-in should consist of a single, clearly formulated task so that the examinee could, if necessary, create an answer without looking at the options.
- ***Prepare the list of options.*** The list of options should be single words or very short phrases. This list is best developed in a whole-group format. It will be generated in a fairly random order, but the options should be rearranged in alphabetical order for the final item presentation. For example, the initial list for Box 19.6 should contain all the likely causes of abdominal pain as options. Sometimes there are specific causes that occur only or predominantly in a particular subset of the population – for example, in women (e.g. ectopic pregnancy), in men (testicular torsion), in the elderly (dementia). Such options can sometimes become 'zebras',(26) which stand out as so obviously applying to one subgroup of patients that their inclusion is ill advised. In Box 19.6 there are some such options, but there are also sufficient important differential diagnoses in the list to warrant their inclusion for the given scenario.
- ***Write the stems.*** The stems (items) within a set should be similar in structure. Most often, patient vignettes are appropriate. The scenario should contain all the information that one would normally expect to be available from any conscious patient: the presenting problem, the history (including duration of signs and symptoms), the physical findings, and then the results of any immediate diagnostic tests carried out. Sometimes, for a complex case, further data pertaining to development of symptoms over several days might also be given – for example, initial management and subsequent clinical changes. Scenarios can include a smaller set of information, but it is unwise to exclude the information that would normally be collected by or available to the test taker in the real clinical context at the time they were seeing this patient. Specifying this information in a standardised order makes shorter reading time and hence allows more items to be delivered in a given time.
- ***Review the items.*** Make sure there is only one 'best' answer for each question. Having two right answers is possible, but entails more marking effort than it is usually worth. Also make sure that there are at least four reasonable distractors for each item to minimise guessing effects. Evaluate the extent to which the lead-in clearly formulated task. See if the other examiners can create an answer without looking at the options. Satisfying this 'cover-the-options' rule is an important feature of a good question because, if the examinee cannot do that, it means the question is too vague, is not appropriately targeted to the skills the examination is testing, or exhibits some other flaw of test writing. As a final check, review the items (without the correct answer indicated) across other pairs in the writing group. If the pair has difficulty determining the correct answer, modify the option list or the item to eliminate the ambiguity.

Where's the evidence for EMQs?

There is evidence that some MCQs, of which the EMQ type seems to be the most suited to clinical tasks, can involve substantially more than recognition of knowledge learnt by rote memorisation.(55) These authors nevertheless suggest that unfocused items or those with negatively worded stems, as sometimes, of necessity, occur in the typical true/false or best of five types, do not appear to provoke problem-solving skills and forward-reasoning. Whilst the evidence for the link between item type and cognitive response is being developed, they suggest concentrating on items that are low-fidelity simulations of clinical situations with examinee tasks that are relevant for them (e.g. diagnosis and management). EMQs are ideally suited to this role. EMQs also substantially reduce the likelihood of obtaining a correct answer by chance alone.

Although this area is fraught with controversy, and not all of the options provided for any one EMQ stem will be active for that item, modelling suggests that EMQs with between 7 and 12 active distractors will provide good insulation against the need to be concerned about the so called 'guessing' factor in multiple-choice tests.(63) Research on EMQ formats has shown that a reduction in the length of item option lists, from the 15–20 previously thought necessary, is possible without much, if any, deleterious effects on item quality.(64,65) Eight options seem to be a reasonable minimum number. In general, items with more options are more difficult, require more time to complete, and nevertheless have similar discriminating properties to items with eight options. Reducing the whole list to a 'shortlist' of eight or so can be done by carefully constructing physician panels to select the most appropriate set. Moreover, providing the panel with item response statistics from the long item does not seem to improve option selection. The use of a smaller number of options reduces time spent on each item by candidates and therefore increases the number of items that can be used in a set time.(64,65) Swanson *et al.* advised, 'We plan to begin advising [examiners] to reduce the number of options included on option lists in order to make more efficient use of testing time'.(64, p. S95) That advice may now be prudent to implement, as student numbers in medical schools have increased dramatically in a number of countries in the last few years.

Script concordance items

Over the last 15 years interest has developed in constructing a multiple-choice test that can reflect clinicians' capacity to weigh evidence in a clinical encounter. This work has its foundations in a clearer understanding of how clinicians approach the diagnostic task and how this information is

BOX 19.1 Types of written assessments and their primary usages. From Epstein(27)

Method	Domain Usage/Response Mode	Design Factors	Limitations	Strengths
Constructed Response Formats				
1a Essay – Traditional. The typical university essay, either seen or unseen, where the writer is required to describe, discuss and propose new perspectives on one or more issues. The answer may or may not be predetermined.	Any situation where lengthy explanation or detail is required. Detailed synthesis of information; interpretation of literature, evaluation of management options. Context frequently provided by the candidate.	Traditionally questions can vary from the blindingly obvious to the very obscure. Large number of dimensions to the constructed response. Getting questions right takes time. Model answers or protocols help marking. High marking workload.	Can be usurped into provision of lists, e.g. for treatments; can become memory dumps. Can be misinterpreted. Long testing time per topic, so limited coverage possible. Reliability variable and susceptible to rater and candidate bias	Total flexibility in question setting. Can avoid cueing. Regarded as using higher-order cognitive processes.
1b Modified Essay – Specifically developed for medicine – mostly used in general practice. Highly structured case vignette followed by questions on any aspect. Focused on candidates' management of a case or cases. Answer(s) usually predetermined.	Clinical management issues. Some cue identification and reasoning required to link, e.g. signs and symptoms to investigations and management. Context provided by the question.	Can move from one stage of clinical management to another easily, by using slightly different cases to address issues, e.g. patient management in one case, and ethics in a similar one. More efficient sampling of a wide area of knowledge possible	Needs careful design to avoid cueing. As a result can be patchy in sampling knowledge across cases.	Can avoid cueing. Context is controllable by question setter. Can demand wide range of cognitive processes. May be machine scoreable in next 5–10 years.
2a Short Answer – Traditional. A short question that asks for a constructed specific answer, usually requiring one word, a short phrase, or a line or two of text. Answers mostly predetermined.	Recall of specific facts or statements about biomedical or clinical processes. Context provided by the question.	Deceptively simple to construct. Can sample widely different domains of knowledge easily.	Very wide variety of formats and little research on their use and psychometric properties. Can lead to cueing across items. Context provided by question.	Scoring by machine becoming a reality. Can replace MCQs where recall is thought to be vital (e.g. decisions based on core knowledge and experience)
2b Short Answer – Extended. A question that asks for an extended answer, usually requiring a paragraph or two, that may address different aspects, or an extension, of the issue. Answers may be predetermined.	Recall of related groups of concepts or relatively short explanations. Context provided by the question.	Deceptively simple to construct. Can sample widely different domains of knowledge but in more depth than short answer.	As above. Scoring more difficult as depends on multiple attributes of answers involved in essay construction. Machine scoring not possible. Context provided by question. Recent research on analysis of answers can give more insight into level of functioning of candidate.	Total flexibility in question setting.

Selected Response Modes				
1a MCQ – True/False. Typically a short statement or brief paragraph followed by several (3–6) options. Candidates are asked to identify which options are true and which ones false in relation to the initial statement.	Recognition of consonance between two facts, attributes or concepts. Can test recognition of clear-cut knowledge in many domains. Complex items requiring calculations or problem-solving have been used.	Requires all options to be absolutely true or false. Can test knowledge of contraindications through the 'false' option.	Difficult to write. The number used in most assessments can lead to cross-cueing. Can involve silly or irrelevant options due to lack of absolute falsehoods. Getting statements into an absolute true/false mode sometimes requires convolutions such as double-negatives. Extreme controversy over 'correction for guessing' as random choice of options results in 50 per cent score. Rapidly waning in popularity	Can test range of knowledge in limited testing time. Machine scoreable. True/False requirement restricts applicability and engenders artificiality.
1b MCQ – 1 from N. Typically a short statement or brief paragraph followed by several (3–6) options. Candidates are asked to identify the option that best fits with or is the best outcome for the initial statement.	Recognition of consonance between two facts, attributes or concepts. Can reflect basic clinical decisions, basic science or hypothesis generation.	Easier to write than MCQ T/F. Choosing one best answer is more salient to most areas of medicine.	The number used in most assessments can lead to cross cuing. Need not involve a correction for guessing.	Efficient sampling of knowledge. Allow more subtle distinctions than T/F types. Machine scoreable.
1c MCQ – Extended matching. Typically a topic area (e.g. Headache), followed by many (6–26) options homogenous to a clinical grouping (e.g. diagnosis). There is a linked question asking candidates to choose the most likely diagnosis. Then one or more paragraphs each comprising a clinical case vignette, including e.g. headache presentation at various stages of progression each of which may indicate different 'best' diagnoses.	Recognition of consonance between (typically) clinical presentations and their underlying pathology, investigation and outcome; diagnoses, prognoses, tests, pharmacology etc Items appear to involve basic clinical reasoning. Students report fidelity to 'real' medicine.	*Relatively easy to generate first* drafts. Salient to most areas of medicine that depend on a clinical context.	Not easy to write in some areas of medicine, especially non-clinical ones, e.g. epidemiology. Some argue that the 'extended' list of options is not as useful as first thought – many options are redundant.	Seem to be more reliable than one-best-answer MCQs and T/F MCQs, due to increased difficulty. No corrections for guessing needed. Good discriminators at higher levels of ability.

(*Continued*)

BOX 19.1 *(Continued)*

Method	Domain Usage/Response Mode	Design Factors	Limitations	Strengths
Selected Response Modes				
2d MCQ – Script Concordance Typically a case vignette followed, for example in items on diagnosis, by statements that give an additional sign or symptom and a question that asks whether a specific diagnosis would be more or less likely if such an attribute were present in the case (*see* example in text) . For example, given a description of a 67-year-old man with chest pain, if pain radiating down the left arm were present, would the likelihood of myocardial infarction be 'strongly increased, ... , strongly decreased'.	Recognition of relationship between, and agreement with an expert group on, attributes of case presentations that are predictive of diagnoses, prognoses, findings on investigation, etc. Appears to involve basic clinical reasoning and personal probabilities.	New type of item, limited experience available of construction. Scoring generated by expert group. May have more than one answer that scores marks. Appears to discriminate effectively between experts and non-experts in some specialties.	Probably limited to diagnostic and prognostic decisions	More research needed, but does show high construct validity for clinical experience. Writing protocols and rules still in development.
Constructed and Selected Response				
1. Short Answer – Key Features. Usually a short case vignette followed by between one and three questions that investigate the taker's knowledge of the main aspects of the case. Answers may be constructed or selected, usually requiring words or short phrases.	Answers that attempt to focus **only** on the critical aspects of clinical cases e.g. key decisions and the factors underpinning those. Developed (1990's) to counter arguments that short answers led to isolated recall of facts and trivialisation. Context provided by the question.	Strict rules for design, done usually by a small team. Items may involve some **selected** responses as well as **constructed** ones. Can explore wide variety of cases. Can match response mode to attributes of the context – e.g. selecting the most important features in clinical investigation results. Shares some properties of Modified Essay Questions.	Scoring and standard-setting can be complex. For example, although single word answers are common, there may be several answers to one question each differentially weighted. There may be totally inappropriate or dangerous answers given by test takers. Can be challenging to avoid cueing between different parts of the item.	Partial scoring by machine is now becoming a reality. Can replace MCQ style questions where recall is thought to be important (e.g. decisions based on core knowledge and experience). Has embedded quickly into assessment technology in medicine.

examiner bias and variations in examiner stringency is a major argument against the long case. Reliability is further compromised when there is little prior agreement between pairs of examiners as to what constitutes acceptable competence. Unstructured questioning and global marking without anchor statements compounds the problem. Reliability in the long case encounter is diminished by variability in degree and details of information disclosure by the patient, as well as variability in patients' demeanour, comfort and health. Furthermore, some patients' illnesses may be straightforward, whereas others may be extremely complex. Examinees' clinical skills also vary significantly across tasks (i.e. task or case specificity),(7) so that assessing examinees on one patient will not provide generalisable estimates of their overall ability.(6,8,9)

While the authenticity of a long-case examination is one of the strengths of the genre, inferring examinees' true clinical skills in the time-constrained environment of actual clinical practice from a 1-hour long-case encounter is debatable. Additionally, given the evidence of the importance of history taking in achieving a diagnosis(10) and the need for students to demonstrate good patient communication skills, the omission of direct observation in this process is a significant weakness.

Objective Structured Long Case Examination Record

onstrated that assessments using structured long cases could be highly reliable (predicted Cronbach's alpha of 0.84),(14) but this required 10 separate cases and 20 examiners raising major issues of practicality.

Short cases

In traditional tests of clinical competence, candidates undertook a series of (usually three to six) short cases. In this type of test, they were taken to a number of patients with widely differing conditions, and asked to examine individual systems or areas and give differential diagnoses of their findings, or to demonstrate abnormal clinical signs or produce spot diagnoses. Although in some ways similar to an OSCE in that they provided a wider range of cases on which the examiner was able to base his or her opinion of the student's ability, there are important differences. Different candidates rarely saw the same set of patients, cases often differed greatly in their complexity and the same two assessors examined the candidate at each case. These cases were not designed to test communication skills, but instead concentrated on clinical examination skills, with communication with the patients merely incidental. The examination was not structured and the examiners were free to ask any questions they wanted. Like the long case there was no attempt to standardise the expected level of performance. For all these reasons OSCEs have superseded this type of assessment.

Objective Structured Clinical Examinations

The remainder of this chapter relates to the OSCE, an assessment format in which the candidates rotate sequentially around a series of structured cases located in 'stations', at each of which specific tasks have to be performed. The tasks usually involve a clinical skill, such as history taking, examination of a patient or a practical skill. The marking scheme for each station is structured and determined in advance. There is a time limit for each station, after which the candidates have to move on to the next task.

The basic structure of an OSCE may be varied in the timing for each station, the use of a checklist or rating scale for scoring, the use of a clinician or standardised patient as examiner and the use of real patients or manikins, but the fundamental principle is that every candidate has to complete the same assignments in the same amount of time and is marked according to a structured marking schedule.

The terminology associated with the OSCE format can vary – in the undergraduate arena they are more consistently referred to as OSCEs, but in the postgraduate setting a variety of terminology exists. For example, in the UK, the Royal College of Physicians' membership clinical examination is called the Practical Assessment of Clinical Examination Skills (PACES), while the Royal College of General Practitioners' membership examination is called the Clinical Skills Assessment (CSA).

Rationale

The use of OSCEs in the quantitative assessment of competence has become widespread in the field of undergraduate and postgraduate medical education(15–19) since they were originally described,(20) mainly due to the improved reliability of this assessment format. This has resulted in a fairer test of candidates' clinical abilities, since the score has become less dependent on who is examining the candidate and which patient is selected for the encounter. The criteria used to evaluate any assessment method are well described(21) and summarised in Chapter 13. We will examine these criteria – reliability, validity, educational impact, cost-efficiency and acceptability – in some detail, as they relate to OSCE design.

Reliability

Essentially, the OSCE was developed to address the inherent unreliability of classical long and short cases. OSCEs are more reliable than unstructured observations in four main ways:

- Structured marking schedules allow for more consistent scoring by examiners according to predetermined criteria; hence reliability is improved.
- Candidates have to perform a number of different tasks across clinical, practical and communication skill domains – this wider sampling across different cases and skills results in a more reliable picture of a candidate's overall competence. The more stations or cases each candidate has to complete, the more generalisable the test is.
- The reliability of the total test score increases with increasing number and increasing homogeneity of stations or cases. Reliability of sub-scores must be carefully reviewed before reporting.
- As the candidates move through all the stations, each is examined by a number of different examiners, so multiple independent observations are collated. Individual examiner bias is thus attenuated.

It is worth bearing in mind that sampling across different cases makes the most important contribution to reliability; the more stations in an OSCE, the more reliable it will be. However, increasing the number of stations has to be balanced with the practicability of an OSCE exercise. Practically, to enhance reliability it is better to have more stations with one examiner per station than fewer stations with two examiners per station.(22,23)

Validity

Validity assessment asks the question 'What is the degree to which evidence supports the inference(s) made from the test results?' Each separate inference or conclusion from a test may require different supporting evidence. Note that it is the inferences that are validated, not the test itself.(24,25)

Inferences about ability to apply clinical knowledge to bedside data gathering and reasoning, and to effectively use interpersonal skills, are most relevant to the OSCE model. Inferences about knowledge, rather than clinically relevant application of knowledge, or clinical and practical skills, are less well supported by this method.(26)

Types of validity evidence include *content validity* and *construct validity*. Content validity (sometimes referred to as *direct validity*) of an OSCE is determined by how well the sampling of skills matches the learning objectives of the course or degree for which that OSCE is designed.(26,27) The sampling should be representative of the whole testable domain for that examination purpose. The best way to ensure an adequate spread of sampling is to use a *blueprint* method, which we will describe later in the chapter.

Construct validity (sometimes referred to as *indirect validity*) of an OSCE would be the implication that those who performed better at this test had better clinical skills than those who did not perform as well. In an OSCE testing situation, we can only make inferences about a candidate's clinical skills in actual practice, as the OSCE is an artificial situation.

To enhance the validity of inferences from an OSCE, the length of any station should be best fitted to the task to achieve the best authenticity possible. Thus, for example, a station in which blood pressure measurement is tested would authentically be achieved in 5 minutes, whereas taking a history of chest pain or examining the neurological status of a patient's legs would be more authentically achievable in 10 minutes.(28)

Educational impact

The impact on students' learning resulting from a testing process is sometimes referred to as *consequential validity*. The design of an assessment system can reinforce or augment learning, or undermine learning:(29,30) it is a well-recognised phenomenon that students focus on their assessments rather than the learning objectives of the course. Explicit, clear learning objectives allied with clinical skills assessment content and format can be a very effective way of encouraging students to learn the desired clinical competencies. Objectives that include action verbs like 'demonstrate' or 'perform', which are then linked to OSCEs that measure ability to demonstrate or perform certain skills, will encourage students to practise these skills. By contrast, an assessment system that measures students' ability to answer multiple-choice questions about clinical skills will encourage students to focus on knowledge acquisition. Neither approach is wrong – they simply demonstrate that assessment drives education and that assessment methods need to be thoughtfully applied. There is a danger in using detailed checklists as this may encourage students to memorise the steps in a checklist rather than learn and practise the skill. Rating scale marking schedules encourage students to learn and practise skills more holistically.

OSCEs may be used for formative or summative assessment. When teaching and improvement are a major goal of an OSCE, time should be built into the schedule at the end of each station to allow the examiner to give feedback to the student on their performance, providing a very powerful opportunity for student learning. For summative certification examinations, expected competencies should be clearly communicated to the candidates so they have the opportunity to learn the skills prior to taking such examinations.

Cost-efficiency

OSCEs can be very complex to organise. They require meticulous and detailed forward planning, and engagement of considerable numbers of examiners, real patients, simulated patients, and administrative and technical staff to prepare the circuits and station materials and manage the examination. It is therefore most cost-effective to use OSCEs to test clinical competencies and not knowledge, which can be tested more efficiently in a different examination format. Effective implementation of OSCEs requires thoughtful deployment of resources, with attention to production of examination material, timing of sittings, suitability of facilities, catering, and collating and processing of results. Other critical logistics include examiner and standardised patient recruitment and training. This is possible even in resource-limited environments.(31)

Acceptability

The increased reliability of the OSCE format over other formats of clinical testing and its perceived fairness by candidates has helped to engender the widespread acceptability of OSCEs among test takers and testing bodies.

Since Harden's original description in 1979,(20) the use of OSCEs has become widespread in the undergraduate level of testing of clinical competence,(17,18,32,33) as well as increasingly in postgraduate assessment.(16–19,34–39) More recently, OSCEs have been used to replace traditional interviews in recruitment processes in both undergraduate and postgraduate settings.(40,41) For example, for recruitment to general practice training schemes in the UK, candidates go through an OSCE format of scenarios in assessment centres where different exercises are assessed by trained assessors, who observe various job-related competencies, including communication skills, team involvement and problem-solving ability.

In North America, clinical skills assessment has been accepted on a massive scale. In 1992, the Medical Council of Canada (MCC) added a standardised patient component to its national licensing examination because of the perception that important competencies expected of licensed physicians were not being assessed.(40) Since inception, approximately 2500 candidates per year have been tested at multiple sites at fixed periods of time during the year throughout Canada. The MCC clinical skills examination uses physicians at each station to score the encounter.

In the US, the Educational Commission for Foreign Medical Graduates (ECFMG) instituted a performance-based examination in 1998 to assess bedside data gathering, clinical reasoning, interpersonal skills and spoken English communication skills of foreign medical graduates seeking to enter residency training programmes. From 1998 to 2004, when it was incorporated into the United States Medical Licensing Examination (USMLE), there were 43642 administrations, including 37930 first-time takers, making it at the time, the largest high-stakes clinical skills examination in the world.(42) The 11 scored encounters had a standardised format, with each requiring the candidate to elicit a medical history, perform a physical examination, communicate in spoken English with a patient in a clinical setting and generate a written record of the encounter. In each station, the candidate encountered a unique standardised patient – a lay person recruited and trained to give a realistic portrayal of a patient with a standardised medical and psychosocial history, and standardised findings on physical examination. Each case had a case-specific checklist containing the elements of medical history and physical examination considered pertinent to that particular case. Simulated patients were trained to recognise appropriate queries and/or physical examination manoeuvres, including acceptable equivalents or variants, and to document each checklist item achieved by the candidate. Simulated patients also evaluated each candidate's interpersonal skills and spoken English proficiency. After each encounter, the candidate generated a patient note on which the pertinent positive and negative elements of history and physical examination were recorded, a differential diagnosis constructed and a diagnostic work-up plan proposed. Performance was evaluated by averaging scores across all encounters and determining the mean for the integrated clinical encounter (data gathering combined with the patient note score) and communication (interpersonal skills and spoken English). Generalisability coefficients for the two conjunctively scored components of CSA were approximately 0.70–0.90.(43)

In 2004, the USMLE adopted the ECFMG clinical skills assessment model and began testing all US medical graduates in addition to foreign medical graduates seeking ECFMG certification.(44) Additional computer and standardised patient training infrastructure was included to ensure comparability across all centres.

The USMLE Step 2 (Clinical Skills) uses 12 standardised patient encounters, each 15 minutes in length followed by 10 minutes to write a patient note. As in the ECFMG CSA examination, standardised patients document the items asked in the history and performed in the physical examination to specified criteria, and evaluate interpersonal skills and spoken English skills, while physician raters score the patient note. Approximately 35000 administrations take place each year.

OSCE design

We turn now to the elements of good OSCE design, which are summarised in Box 21.1.

Blueprinting

For any particular OSCE, the content – clinical tasks chosen for the stations – should map onto the learning objectives of the course and the candidates' level of learning. It is only reasonable to test candidates on what they have been taught.(27)

To map the assessment to the learning objectives, the categories of skill to be tested should be mapped on one axis and the elements of the course being tested should be mapped on the other. Usually in OSCEs, the skills domains are categorised into clinical examination skills, practical skills and communication skills, which can be further subgrouped into history-taking skills and other doctor–patient/colleague interactions. The subject content of the

OSCE will be determined to a certain extent by how the elements of the course are categorised, that is, by subject discipline or systems.

Blueprinting is a powerful tool that helps to focus the OSCE designers on the exact nature of what they wish to test and relate this to the teaching. Once this blueprint or framework for an OSCE is agreed, the individual stations can be planned and classified according to this blueprint. This ensures adequate sampling across subject area and skill, in terms of numbers of stations covering each skill and the spread over the subjects/systems of the course being tested.

The feasibility of testing a particular task also needs to be considered. Real patients with clinical signs can be used to test clinical examination skills, while simulated patients are best for testing communication skills. Simulated patients can also simulate a number of clinical signs (e.g. loss of visual field, localised abdominal pain). Healthy volunteers can be used when testing the technical process of a clinical examination. There are many manikins on the market for testing invasive practical skills, e.g. intravenous cannulation, urethral catheterisation and arterial blood gas sampling.

BOX 21.1 Elements of Objective Structure Clinical Examination design

Blueprinting

Ensuring the test content maps across the learning objectives of the course

Station development and piloting

Writing stations that function well

Examiner training

Engaging examiners, ensuring consistency of marking contributes to reliability

Simulated patient training

Consistent performance ensures each candidate is presented with the same challenge

Organisation

Making detailed plans well in advance. Be prepared!

It is essential to use a blueprint to plan the content of an OSCE as this helps to ensure that different domains of skill are tested equitably and that the balance of subject areas tested is fairly decided. An example is provided in Box 21.2.

Station development

It is important to write out station specifications well in advance of the examination date so the stations can be reviewed and trialled prior to the actual assessment. Sometimes stations that seem like a good idea at the time of writing may turn out to be unfeasible in practice. When writing a station specification, the following aspects should be considered:

- *Construct:* a statement of what that station is supposedly testing, e.g. this station tests the candidate's ability to examine the peripheral vascular system.
- *Clear instructions for the candidate:* to inform the candidate exactly what task they should perform at that station.
- *Clear instructions for the examiners:* including a copy of the candidate instructions, to assist the examiner at that station to understand his or her role and conduct the station properly.
- *List of equipment required.*
- *Personnel requirements:* whether the station requires a real patient or a simulated patient and the details of such individuals (e.g. age, gender, ethnicity).
- *Simulated patient scenario:* if the station requires a particular role to be played.
- *Marking schedule:* this should include the important aspects of the skill being tested, a marking scheme for each item and how long the station should last. The marking schedule may be either a checklist or a rating scale as there is good evidence that, despite the apparent objectivity of structured checklists, global rating scales have been shown to be equally as reliable (*see* Box 20.2). Items can be grouped into the broad categories of process skills, content skills and clinical management skills.

Process skills

For clinical examination stations with a real or simulated patient, these could include introduction and orientation, rapport, professional manner and communicating with the patient appropriately during examination.

BOX 21.2 Example of a system-based blueprint

	History	Explanation	Examination	Procedures
Cardiovascular	Chest pain	Discharge drugs	Cardiac	BP
Respiratory	Haemoptysis		Respiratory	Peak flow
Gastrointestinal	Abdominal pain	Gastroscopy	Abdominal	PR
Reproductive	Amenorrhoea	Abnormal smear	Cervical smear	
Nervous	Headache		Eyes	Ophthalmoscopy
Musculoskeletal	Backache		Hip	
Generic	Pre-op assessment	Consent for post-mortem		IV cannulation

THIS IS A 10-MINUTE STATION	Good	Adequate	Not done/ Inadequate
1 Introduction and orientation (name and role, explains purpose of examination, confirms patient's agreement)	[ ]	[ ]	[ ]
2 Rapport (shows interest, respect and concern, appropriate body language)	[ ]	[ ]	[ ]
3 Appropriately exposes the patient and positions them at 45 degrees		[ ]	[ ]
4 Looks at hands, commenting on peripheral stigmata (i.e. cyanosis, clubbing, splinter haemorrhages, etc.)		[ ]	[ ]
5 Checks the radial pulse, commenting on the rate and rhythm		[ ]	[ ]
6 Asks for patient's blood pressure ***Examiner please give correct BP***		[ ]	[ ]
7 Looks for central stigmata of cardiovascular disease (i.e. anaemia, central cyanosis, hyperlipidaemia)		[ ]	[ ]
8 Examines the JVP correctly (positions the patient's chin and neck; assesses the waveform in the correct area) and comments on findings		[ ]	[ ]
9 Palpates the carotid or brachial pulses, commenting on the character		[ ]	[ ]
Inspects and palpates the praecordium: 10 Localises the apex beat, commenting on the position		[ ]	[ ]
11 Examines for RVH		[ ]	[ ]
12 Auscultates in all four cardiac areas		[ ]	[ ]
13 Moves patient to left side and sits patient forward in expiration	[ ]	[ ]	[ ]
14 Comments on heart sounds and times heart sounds against central pulse	[ ]	[ ]	[ ]
15 Comments on any murmurs		[ ]	[ ]
16 Listens to the lung bases		[ ]	[ ]
17 Candidate attempts to assess peripheral pulses ***Examiner please stop candidate***		[ ]	[ ]
18 Checks for ankle/sacral oedema		[ ]	[ ]
19 Presents a brief summary and conclusions	[ ]	[ ]	[ ]
20 Communicates with patient appropriately during examination (explain what they are doing, gains patient's co-operation)	[ ]	[ ]	[ ]
21 Examines patient in a professional manner (gentle, watches for pain, maintains dignity and privacy)	[ ]	[ ]	[ ]
22 Closure (thanks patient, leaves patient comfortable)	[ ]	[ ]	[ ]
23 Candidate cleans hands after examination		[ ]	[ ]

Figure 21.1 Example checklist mark sheet for cardiovascular examination.

For history-taking stations, these could include introduction and orientation, listening skills, questioning skills, demonstration of empathy and appropriate closure.

For explanation stations, these could include introduction and orientation, rapport, establishing what the patient knows/understands, demonstration of empathy, appropriate organisation of explanation, checking the patient's understanding and using clear language, avoiding jargon.

Content skills

These include appropriate technical steps or aspects of the task or skill being tested.

Clinical management skills

It may be appropriate to ask the candidate some set questions in relation to the specific case.

Figures 21.1 and 21.2 provide examples illustrating the checklist and rating scale marking schedules, respectively.

Piloting

Ideally, stations should be piloted before they are used in examinations to ensure that all stations are functional in terms of the following:

- *Timing:* can the candidates realistically perform the task in the time allotted?

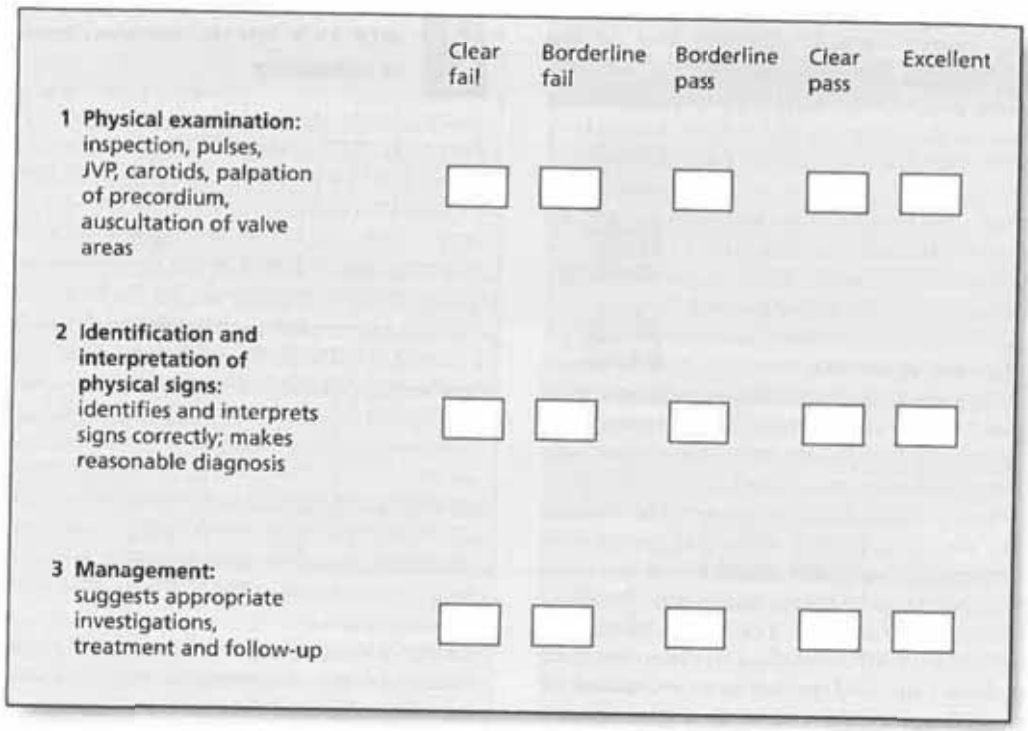


Figure 21.2 Example rating scale mark sheet for cardiovascular examination.

- *Difficulty:* how difficult is the station?
- *Equipment:* is all the equipment required available and on the list?
- *Is an additional helper required* to assist the examiner, e.g. for catherisation, suturing stations?
- *Candidate instructions:* do the instructions tell the candidate exactly what the task is?
- *Examiner instructions:* do the instructions tell the examiner how to conduct the station? Does the examiner know what the candidate has been told to do?
- *Real patient specifications:* are the medical conditions specified?
- *Simulated patient scenario:* is the age/gender/ethnicity specified? Is there enough information for the simulated patient to learn and play the part effectively?
- *Construct validity:* is the station testing what it is meant to test? Does the marking schedule reflect the elements of the task appropriately?

Simulated patient training

For consistent performances, particularly at communication skills stations, it is best to use well-trained simulated patients. Depending on location, it may be possible to organise a database of actors who assist in the teaching as well as assessment of communication skills. It is desirable to have people across a range of ages and ethnicities, as well as a balanced gender mix. Training and monitoring simulated patients is essential to ensure consistent performance – a significant factor in the reliability of the examination. The simulated patients should be sent their scenarios in advance and then asked to go through their roles with other simulated patients playing the same role, while being supervised by a communication skills teacher and/or a clinician, to develop the role to a suitable standard.

Examiner training

OSCEs require large numbers of examiners. This can be a strength, as candidates are observed and scored by clinicians, but it is also one of the potential weaknesses of OCSEs, as inconsistency between examiners will reduce fairness and reliability.

Considerable resources are devoted to examiner training. Structured face-to-face training sessions are good for introducing new examiners to OSCEs and scoring processes. The programme for these events is interactive and very much acknowledges the inherent expertise that experienced clinicians bring to the assessment process. These training sessions cover:

- principles of OSCEs
- role of examiners (i.e. to assess not to teach; to conduct vivas, adhere to marking schedules and respect the role of the simulated patient)
- marking video-recorded OSCE stations, followed by assessment with the clinicians of their marking and getting them to think through their mark allocation
- marking 'live stations' with group members playing the candidate, the assessor and the simulated patient. This demonstrates how stressful this assessment is for the candidate and how difficult it can be to play the part of a good simulated patient

- standard-setting procedure used. This can be crucial when using a student-centred approach, and all the examiners are integral to the standard-setting process. The more the assessors understand their vital role in this process the more likely they are to do it in a satisfactory way. The use of non-clinicians in assessment is discussed in Box 21.3.

Once examiners have had initial training, it may be helpful to refresh examiners' scoring and standards via interactive on-line courses, with videos of candidate performance and feedback on examiner scoring.

Working with real patients

Patients do not always give the same history each time they are asked to repeat it; they can become tired or unwell and they may develop new signs and symptoms to the ones they originally reported; they may even lose previous clinical findings. However, they can be a most valuable resource and need to be treated as such. Using 'real' patients in OSCEs adds greatly to the validity of the assessment. Ideally, patients should be used to assess the detection of common chronic clinical signs. For each clinical sign assessed several patients will be needed and even the most stoical patient should not be expected to be examined by more than 10 students in the course of a day. Ideally, patients should be swapped in and out of the station to allow them to have sufficient rest time.

Practical considerations

The smooth running of OSCEs is highly dependent on the detail of the practical arrangements made in advance and it is worth putting some effort into this to ensure a tolerable day of examinations. There are many aspects to consider.

Prior to the OSCE

Suitable venue

Depending on the number of stations and candidates, more than one circuit may need to be conducted simultaneously. There are advantages (less noise, more privacy for patients) to conducting each station in a separate room (e.g. in an outpatient department), but larger halls divided up with soundproofed partitions can also be suitable. Venues may need to be booked well in advance of examination dates. Appropriate adjacent rooms to the OSCE circuits are required for the gathering of the students, where they can be registered and briefed prior to the examination. Rooms may be required for patients to rest in between each examination. A floor plan of the stations and rest rooms is an invaluable aid to planning.

Video cameras to record encounters may be useful for quality assurance, training of simulated patients and examiners, and standard setting. This is particularly important when attempting to standardise encounters and examiners across different sites.

Recruitment of examiners

Busy clinicians and other teachers will need advance notice to enable them to attend and play the vital role of assessors at each station. It is helpful to send out a grid of dates and

BOX 21.3 FOCUS ON: Simulated patients as assessors

Scoring standardised patient examinations can be done by third-party observers (usually physicians) or by the standardised patients themselves. Physician examiners enhance the validity of the assessment because they can apply holistic judgements and integrate subdomains of sequence, logic and other factors that may be difficult for a non-professional completing a binary checklist to capture. Boulet *et al.*(45) however, demonstrated that holistic judgements from physician examiners are similar to aggregate scores from trained standardised patients, at least in assessing a general, entry-level physician. Physician evaluator models using holistic scoring models may have greater utility in capturing higher levels of expertise – something that checklist models may not be able to do. Any examiner, whether simulated patient or physician, must be thoroughly trained and then monitored to ensure consistent use of the score scale, since variability diminishes reliability.(46)

Ratings of interpersonal and communication skills provide a unique challenge in determining who is best able to provide the ratings. Although the assessment of doctor–patient communication skills can be accomplished by a physician or other observers, and can be done 'live' or via video-taped reviews, it is unclear whether someone watching the interplay between a doctor and a patient can adequately measure the complex, multi-dimensional nature of the communication. Many aspects of this communication, especially those that are non-verbal, are best assessed by the patient or the person trained to be the patient.(44)

Spoken English is another domain that might be better scored by non-physicians. The generalisability coefficient of this component of the Educational Commission for Foreign Medical Graduates Clinical Skills Assessment (CSA), scored by standardised patients, was 0.94.(47)

From a logistical and cost perspective, the examinee volume for the CSA and now the United States Medical Licensing Examination Step 2 (CS) (approximately 35 000 per year) makes it effectively impossible to entertain using physician examiners. Cost analysis also needs to account for training time and quality assurance for standardised patients or physician raters as well as the different nature of the training needed by each group. It may also be harder to standardise a large number of highly educated, typically independently thinking physicians across five test centres in a year-round testing model.

Currently in the UK, at both the undergraduate and postgraduate levels, examiners are clinicians or other health-care professionals. It would probably need a considerable shift in cultural acceptance to move to standardised patients as the sole assessors of clinical competence.

Station	Skill	Scenario	Expected response	Curriculum Reference
1. Physical Examination	Upper limb examination	A 34 year old dance instructor presents complaining of right shoulder pain and difficulty moving it. There is no history of trauma. Perform a full examination of the upper limbs.	Candidates are required to correctly examine the patient and present findings to the examiner. Marking will include examiner assessment and patient feedback.	Medical Expertise
2. Procedure 3. (Double Station)	Difficult airway	A 50 year old man with severe facial injury after being assaulted requires airway management. You have been asked by the Team Leader to manage his airway. The scenario will be on a high fidelity mannequin. You have an experienced airway nurse as an assistant.	Candidates are required to demonstrate appropriate airway management of difficult airway, where intubation is not possible. They are expected to attempt ventilation with RSI, then difficult airway algorithm and ultimately including "can't ventilate, can't intubate" situation. *See Specific detailed OSCE sample - Airway Management*	Medical Expertise Teamwork and Collaboration Prioritisation and Decision Making
4. History taking	Cardiac history	A 34 year old man presents to the emergency department with sudden onset of palpitations that have now resolved. This is his ECG. (The ECG is normal) Take a focussed history, risk stratify him, and explain likely causes to this patient.	Candidates are required to take an accurate focused history with regard to palpitations and risk factors, consider and explain the likely possible causes to the patient. Marking will include examiner assessment and patient feedback	Medical Expertise Communication

Station	Skill	Scenario	Expected response	Curriculum Reference
5. History taking	Sexual and drug history	A 32 year old woman, who is a known IV drug user, presents with an offensive purulent vaginal discharge. Take a focussed history and explain your recommended investigation plan to the patient.	Candidates are required to take a focussed history, and develop an investigation plan, incorporating immediate clinical and preventive health issues.	Health Advocacy Medical Expertise Communication
6. Patient management	Clinical synthesis from notes and documentation	You are on duty in your Short Stay Ward and you have just taken over the care of a 68 year old man with a suspected TIA that has now resolved and is being discharged. You are provided with the notes which contain a full history and examination and patient charts. You are to formulate a management plan for this patient. Write a brief letter to the GP, including the formulated management plan	Candidates are required to write a brief letter to the GP, including relevant findings and an appropriate management plan.	Prioritisation and Decision Making Communication Medical Expertise
7. Risk assessment from history	Assessment of suicide risk	A 19 year old woman has been admitted following an overdose of benzodiazepines. She has been resuscitated and is now threatening to take her own discharge although she has not yet been assessed by the psychiatrist. You are asked to assess her safety risk and explain to her your decision around her request to go home.	Candidates are required to perform a suicide risk assessment and communicate the outcome to the patient.	Communication Health Advocacy Prioritisation and Decision Making

Station	Skill	Scenario	Expected response	Curriculum Reference
8. Communication / confidentiality	Confidentiality and legalities of consent	You have been asked to talk to a distressed father who has just arrived in the emergency department demanding information about his son. His 17 year old son was admitted earlier after being involved in a road traffic accident in which he is suspected to have been driving a stolen vehicle. He has had a full drug and alcohol screen and the police are present. The son has indicated that he does not wish to talk to his father. You will speak to the father in a private relatives' room.	Candidates are required to talk to the father, bearing in mind the right of the patient to confidentiality and the patient's wishes. Candidates are expected to talk calmly and appropriately to the father in a manner that helps to resolve the situation.	Professionalism Communication
9. Consent	Communication and gaining consent X-ray interpretation	A 22 year old soccer player has been brought in with a wrist fracture which requires reduction. You are provided with the X-ray. You are asked to explain the X-ray findings to the patient and gain their consent for a manipulation in the emergency department by the method of your choice.	Candidates are required to correctly interpret the X-ray Candidates are expected to give a thorough explanation to the patient regarding their injury and recommended management. Candidates are also expected to obtain informed consent from the patient.	Medical Expertise Communication

Station	Skill	Scenario	Expected response	Curriculum Reference
10. Resuscitation 11. (Double Station)	Paediatric resuscitation	An 18 month old child is brought in by ambulance because he is unwell. His mother is accompanying him and on arrival he starts fitting. You are the Team Leader in a tertiary hospital, and have 2 nurses and a junior doctor to assist you. The history obtainable is that he has had high fevers for a day, vomiting, lethargic and developed a rapidly spreading rash.	Candidates are required to lead the simulated team resuscitation response while obtaining a focussed history from the mother. Candidates are expected to consider: - IV access including IO if required. - Vital signs - Seizure control - IV antibiotics - IV fluids - Airway management - Appropriate consultation - Explanation to the mother of events	Medical Expertise Teamwork and Collaboration Leadership and Management Communication
12. Teaching	Lumbar puncture	A 25 year old woman requires a lumbar puncture to exclude subarachnoid haemorrhage. The junior doctor has seen a lumbar puncture done recently but has never performed one. An examiner will be playing the role of the junior doctor. A training mannequin is available. You are asked to explain to a junior doctor how to do the lumbar puncture.	Candidates are required to explain to a junior doctor how to perform a lumbar puncture, including positioning, anatomical landmarks, indications, contra-indications, sterile technique, procedural technique and investigation.	Medical Expertise Scholarship and Teaching

Station	Skill	Scenario	Expected response	Curriculum Reference
13. Communication	Breaking bad news	A 67 year old woman has collapsed at home. She has a GCS of 5, is spontaneously breathing and maintaining her blood pressure. Her CT scan shows a massive inoperable intracerebral bleed. You have been asked to speak to her husband who was present when she collapsed.	Candidates are required to discuss expected short-term management - ICU, IPPV etc., as well as explaining the grim prognosis.	Health Advocacy Communication
14. History taking	Diarrhoea	You are required to take a history from a 25 year old man who presents with a 2 week history of diarrhoea. After 6 minutes you will be asked by the examiner to summarise your findings and provide a differential diagnosis.	Candidates are required to take a focussed history, and formulate the information into a concise structured summary and differential diagnosis. *See Specific detailed OSCE sample – History Taking*	Medical expertise Communication
15. Communication	Back pain	You are asked by your Resident Medical Officer for assistance with a 35 year old patient who presented with back pain. A thorough history and examination has been performed and is unremarkable. The findings are consistent with mechanical back pain. You have examined the patient yourself and are confident there are no red flags. The patient is not happy with the assessment of the treating doctor and feels that the RMO is not listening to his concerns. You, as the Senior Doctor, are asked to speak to the patient about his concerns.	Candidates are required to address the patient's concerns in a professional manner, support the junior doctor, and manage the patient's expectations.	Communication Health Advocacy Professionalism

Station	Skill	Scenario	Expected response	Curriculum Reference
16. Communication and teaching	Investigation plan	A 27 year old pregnant patient who is 28 weeks gestation presents with chest pain. She is otherwise healthy. Her vital signs are provided and are normal. You are also provided with an ECG and chest X-ray (both normal). You have decided that pulmonary embolism needs to be excluded. Hospital policy requires that investigation of all pregnant patients requires discussion with a radiologist. You are required to speak to the radiologist on the telephone and discuss your imaging choice in a patient with a suspected pulmonary embolism.	Candidates are required to provide a coherent and evidence-based investigation plan that can be justified to a consultant peer.	Medical Expertise Communication Prioritisation and Decision Making
17. Management	Asthma	A 26 year old man is brought into the emergency department of your rural district hospital having a severe asthma attack. You have immediately available an experienced emergency department nurse and an emergency department registrar. The arterial gas result is provided. You are asked to manage the patient.	Candidates are required to describe the blood gas result to the staff and commence therapy for severe asthma. *See Specific detailed OSCE sample - Asthma*	Leadership and Management Medical Expertise

Station	Skill	Scenario	Expected response	Curriculum Reference
18. Interpretation of investigations	Chest X-ray	A healthy 40 year old man who is a non-smoker presents with sudden onset of chest pain. His chest X-ray shows moderate spontaneous pneumothorax. You are required to describe the X-ray result to the patient and discuss treatment options.	Candidates are required to identify the pneumothorax and discuss treatment options and implications with the patient. The patient will be actively questioning as to the pros and cons of treatment options. The patient feedback will be sought as well as examiner observation of the explanation.	Medical Expertise Communication

APPENDIX 5

MCQ Writing Template			
PE/FE/CPD:	Type PE/FE/CPD	Author(s):	Type your name here
Subject and topic reference:	Type subject and topic	LOA	Type LOA here
Text Reference	Type references to text here		
Question stem:	Type clinically relevant question stem to assess application of knowledge here.		

Options (in alphabetical order)	Correct Answer letter: Type correct answer letter here
A	
B	
C	
D	

Reviewer comments:	Please leave this space for reviewer comments

APPENDIX 6

EMQ Writing Template

PE/FE/CPD:	Type PE/FE/CPD	**Author(s):**	Type your name here
Subject and topic reference:	Type subject and topic.	**LOA**	Type LOA
Theme:	Type your theme here		

Options: (insert your options in alphabetical order in the table below)
Add more rows if required. Do not exceed X. Use fewer if required.

A		**I**	
B		**J**	
C		**K**	
D		**L**	
E		**M**	
F		**N**	
G		**O**	
H		**P**	

Lead-in phrase: Type your lead-in phrase here

Stem (insert your stems below- not all have to be used)	Reference	Answer letter

Reviewer comments: Please leave this space for reviewer comments

APPENDIX 7

SAQ Writing Template

FE/CPD:	Type PE/FE/CPD	**Author(s):**	Type your name here
Subject and topic reference:	Type subject and topic	**LOA**	Type LOA here
		Mark:	Type mark allocation here
Text Reference	Type references to text here		
Question stem:	Type clear, focused stem here.		

Marking Scheme

Type simple, detailed marking scheme to ensure objective and consistent marking

Model Answer

Type a comprehensive and clear model answer- clearly outline expectations.

Reviewer comments:	Please leave this space for reviewer comments

APPENDIX 8

OSCE Writing Template			
FE/CPD:	Type PE/FE/CPD	**Author(s):**	Type your name here
Subject and topic reference:	Type subject and topic	**LOA**	Type LOA here
		Mark:	Type mark allocation here
Text Reference	Type references to text here		
Question stem:	Type clinical scenario stem here.		

Instructions
Candidate: Type candidate instructions
Examiner: Type examiner instructions
Patient: Type patient instructions

Scoring sheet
Type a list of specific items important to task performance.

Reviewer comments:	Please leave this space for reviewer comments

APPENDIX 9

CONFIDENTIALITY AND INTELLECTUAL PROPERTY STATEMENT

TO: **AUSTRALIAN COLLEGE FOR EMERGENCY MEDICINE**

I, _____
[Full Name]

_____
[Address]

_____

_____

AGREE AND ACKNOWLEDGE THAT:

1. all information from or about the examinations for the Australasian College For Emergency Medicine (ACEM) including but not limited to examination questions, information about the ACEM examination, examination papers or results and information concerning the procedures and process of the ACEM **(Confidential Information)** must not be used, copied, reproduced, distributed or disclosed in any format;

2. the questions on the MCQ examination paper are the only copy of these questions and that there are to be no duplicates, extracts or adaptation of these questions;

3. I will not reveal, disclose, amend, use or reproduce the Confidential Information or provide it to any other person;

4. I will provide all assistance reasonably requested by ACEM in connection with maintaining the confidentiality of the Confidential Information;

5. I have established and maintained security measures to safeguard the Confidential Information from unauthorized access, copying, reproduction, distribution, disclosure, use of tampering; and

6. I agree to immediately notify ACEM upon becoming aware of any suspected or actual breach of confidentiality, unauthorized access, copying, reproduction, distribution, disclosure, use or tampering of the Confidential Information. I further agree to return or destroy to the College upon their direction, all Confidential Information and any materials in which Confidential Information may be contained.

DATED this _____ day of _____ _____ (Year)

SIGNED: _____

Five tests for writing SCQ items

TEST 1 — Each item should focus on a clinically important concept or problem

- Focus on
  - common, serious or potentially catastrophic clinical problems
  - problems that would be encountered in real life Emergency Medical Practice.
- Avoid items that only require recall of isolated facts.

MCQ

A six year old boy has a one-day history of (*description of presenting complaint, history, physical exam*)

✓ What is the most appropriate therapy?

✗ What is the best drug to treat Otitis media?

✗ Regarding Otitis media

EMQ

Lead-in: For each patient with fatigue, select the most likely diagnosis.

Stem: A 15 year old girl has a 2 week history of fatigue and back pain. She has widespread bruising, pallor, and tenderness over the vertebrae and both femurs. A complete blood count shows haemoglobin concentration of 7.0 g/dL, leukocyte count of 2000/mm^3, and platelet count of 15,000/mm^3.

Option: Acute leukaemia

TEST 2 — Each item should assess the application of knowledge

- Use clinical vignettes
- Focus items on key concepts and principles that are essential information (without access to references) for all examinees to understand.

MCQ

A 62-year-old man develops left-sided limb ataxia, Horner's syndrome, nystagmus, and loss of appreciation of facial pain and temperature sensations.

✓ Which artery is most likely to be occluded?

✗ Rotator cuff muscles include:

EMQ

✓ **Lead-in:** For each of the following patients, select the most appropriate therapy

✗ **Lead-in:** For each of the following patients, select the best drug to treat Otitis media

Stem: A patient has *(symptoms and signs)*.

Reference: Case. S & Swanson D (2001 3rd Edition) Constructing Written Test Questions for the Basic & Clinical Sciences

TEST 3 — The stem of the item must pose a clear question, and it should be possible to arrive at an answer with the options covered

- To determine if the question is focused, cover up the options and see if the question is clear and if the examinees can pose an answer based only on the stem.
- Rewrite the stem and/or options if they could not.
- EMQ only: Include lead-ins specifying the relationship between the items and the options.

MCQ

A patient has *(symptoms and signs)*.

✓ Which of the following is the most likely explanation for the *(findings)*?

✗ Which of the following is incorrect regarding the trigeminal nerve?

EMQ

Lead-in: For each of the following patients with *(chief complaint)*, select the most likely diagnosis.

✓ **Stem:** *The stem will be a patient with a chief complaint*

Items not following all the above tests will reduce exam quality, so will be rejected and require re-writing

TEST 4 All distractors (i.e. incorrect options) should be homogeneous

- They should fall into the same category as the correct answer (e.g. all diagnoses, tests, treatments, prognoses, disposition alternatives).
- Avoid using 'double options' (e.g. do W and X; do Y because of Z), unless the correct answer and all distractors are double options.
- All distractors should be plausible, grammatically consistent, logically compatible, and of the same (relative) length as the correct answer.
- Order the options logically (e.g. numeric), or in alphabetical order.

EMQ only: They should include between 3 and 26 options, all those that require an appropriate level of discrimination.

MCQ

A 65-year-old man has difficulty rising from a seated position and straightening his trunk, but he has no difficulty flexing his leg. Which of the following muscles is most likely to have been injured?

A. Gluteus maximus
B. Gluteus minimus
C. Hamstrings
D. Iliopsoas
E. Obturator internus

MCQ

Regarding calcium containing solutions

A. it is recommended to give calcium chloride Intramuscularly
B. calcium chloride is safe to give via rapid intravenous bolus
C. calcium gluconate is the preferred solution for intravenous administration
D. 10ml of 10% calcium gluconate contains the same mmol of calcium ions as 10ml of 10% calcium chloride

EMQ

A. Ankylosing spondylitis
B. Osteoporosis
C. Intervertebral disc infection
D. Spinal stenosis
E. Multiple myeloma
F. Myofascial pain

EMQ

A. is motion sickness
B. have no effects on people
C. is a reduction in visibility
D. cause death
E. esthetics, economics, health
F. are completely controlled

TEST 5 Avoid technical item flaws that provide special benefit to test-wise trainees or that pose irrelevant difficulty

- Do NOT write any questions of the form 'Which of the following statements is correct?' or 'Each of the following statements is correct EXCEPT.'
- EMQ only: Sets without lead-ins (or with non-specific lead-ins, such as 'Match each item with the best option') should NOT be used because they generally pose inconsistent or ambiguous tasks for examinees.

MCQ

✗ A *(patient description)* has *(abnormal findings)*.

✓ Which of the following *(positive laboratory results)* would be expected?

With regard to the duodenum, which is NOT TRUE?

Other recommendations

- Stems can be long but options should be short
- Avoid complexity
- Avoid using absolutes such as 'always', 'never', 'all' in options
- Avoid vague terms such as 'usually' 'frequently'
- Check there is only one correct or 'best' answer
- EMQ only: Options should be single words or very short phrases in alphabetical order.

Last updated 4/12/2015

Items not following all the above tests will reduce exam quality, so will be rejected and require re-writing