

## EXAM PREPARATION

### The Diploma In Immediate Care Of The Royal College Of Surgeons Of Edinburgh

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#### Introduction

The pre-hospital care of patients is increasingly recognised as a discipline in its own right. Whilst some aspects of the knowledge used to treat patients in a hospital are relevant, there are many additional skills which are required to practice safely and effectively in the pre-hospital environment. The British Medical Association recognised in 1993 that the training of doctors in the management of patients in pre-hospital care was important (1). Since then the British Association for Immediate Care (BASICS) has established a voluntary system of accreditation that brings together experience, an appropriate medical qualification and other skills such as safe driving which many active immediate care doctors in the United Kingdom now possess (2).

There is an "alphabet soup" of post-graduate qualifications for doctors interested in pre-hospital care (3). These range from the Pre-Hospital Emergency Care certificate (PHEC), Pre-hospital Trauma Life Support course (PHTLS), and Advanced Trauma Life Support course (ATLS) to the military equivalent of ATLS, the Battlefield Advanced Trauma Life Support Course (BATLS). However, many study for the Diploma in Immediate Care of the Royal College of Surgeons of Edinburgh. This examination is designed to test the ability of practitioners to practice emergency care

outside hospital. It has immediate relevance to the Defence Medical Services given the requirement of individuals to be skilled in the management of patients who have suffered trauma or have a serious medical problem, often in challenging pre-hospital environments. This applies both on operations and in peacetime (4). It is also the qualification recommended by the Football Association, the Jockey Club and other sporting organisations for individuals providing medical care. In addition, for some BASICS schemes it is now the entry qualification for individuals to be accredited as a BASICS doctor. The aim of this article is to describe what is required of candidates for the Diploma in Immediate Care and to provide guidance for those who are preparing to take it.

#### The Examination

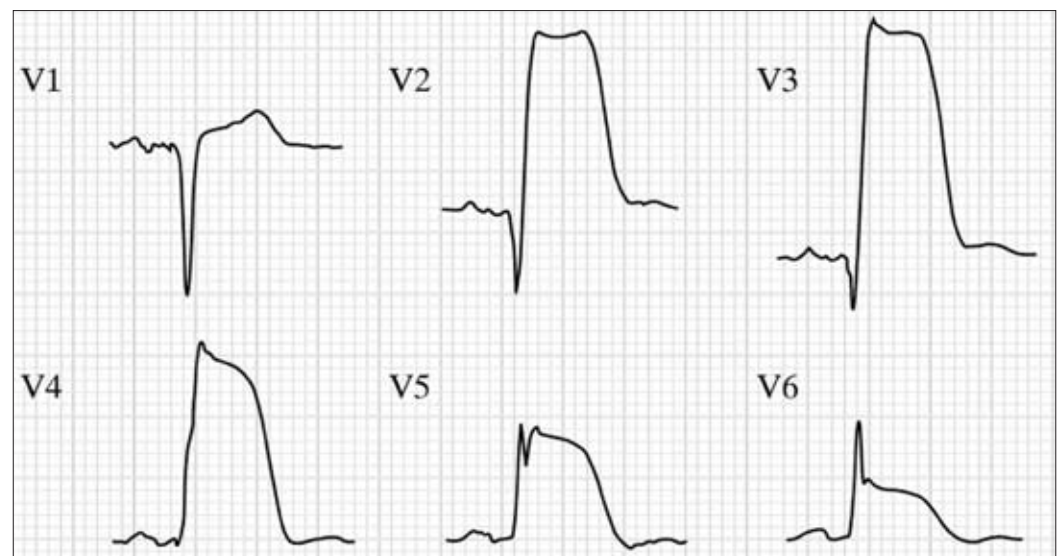
The Diploma in Immediate Care Examination (Dip IMC) tests the candidates knowledge of, and strategies for, dealing with the full range of emergencies that might be encountered in the pre-hospital environment. Whilst knowledge and skills from hospital work have relevance, they frequently have to be adapted to take into account the environment in which the patient is found, the relatively small number of assessments and treatments possible and the distance from definitive care in hospital.

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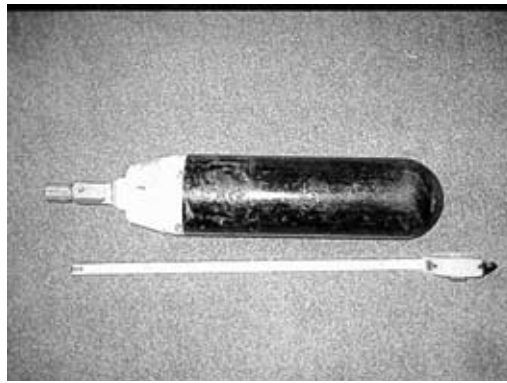
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**Question 1. What is the main finding of the ECG?**

**Question 2. What tablet would you give to a patient in a pre-hospital environment?**

Fig 1. An example of a possible Projected Written Material Question.



**Question 1. What gas is contained within the cylinder?**

**Question 2. How long would it last if the flow rate was 15 litres per minute?**

Fig 2. An example of a possible Projected Written Material Question.

The examination is divided into theoretical papers and two viva clinical incident scenario stations of 30 minutes each. The theoretical papers consist of:

- Projected material (30 minutes duration).
- 20 multiple choice questions (20 minutes).
- 6 short answer questions (30 minutes)
- Written triage exercise (15 minutes).

Some candidates may not have previously experienced an examination similar to the projected material paper. In it, slides, many of which are electrocardiograms of common dysrhythmias, are projected onto a screen. Candidates are asked to identify the rhythm and answer a supplementary question. Alternatively identification of a piece of equipment or comment on a clinical photograph may be required. Figures 1 and 2 give examples. The multiple choice question paper is not negatively marked and therefore all the questions should be attempted. The short answer question paper is designed to test a range of subjects in more detail. As its name implies, short notes should be written. Finally, the triage paper gives a major incident scenario; the candidate is requested to “triage sieve” the patients or prioritise patients for evacuation or list the initial actions relevant to each patient giving reasons (see Figure 3).

The practical examination is in two parts each of 30 minutes duration. The first part examines core skills and includes a general viva on all aspects of resuscitation. The second part consists of a clinical incident scenario and a discussion on aspects of medical and trauma management. The core skills viva station must be passed to be successful at the whole examination. It includes both basic and advanced life support including the ability to demonstrate cardiopulmonary resuscitation, the use of airway adjuncts, defibrillation with the use of both manual and automated defibrillators, the use of thrombolytic agents (in the pre-

**Question 1 Short answer:** List the risk factors that would make you consider spinal injury.

**Question 2 Short answer:** A 40 year old man known to be allergic to bees is drinking from a can of cola when he is stung at the back of the throat. In response to the call you arrive within 5 minutes to find that he is having great difficulty in breathing. What do you do?

**Question 3 Triage answer:** You are called to the local funfair where the big wheel has collapsed whilst carrying 25 people. Prioritise the following patients for treatment and evacuation (a list of patients is then given).

Figure 3. Examples of possible short answer and triage written questions.

hospital environment) and the management of chest conditions including needle thorocostomy. Demonstration of cardiopulmonary resuscitation for up to ten minutes may be required.

The second 30 minute clinical incident scenario viva tests the knowledge of emergency medicine and trauma in adults, children and neonates including common emergencies in pregnancy, childbirth, neonates, psychiatry and clinical toxicology. Included within the clinical incident scenario will be a “moulage” of a staged clinical situation that is designed to test knowledge and the practical ability to manage an emergency involving one or more casualties outside hospital. Examples might include the management of a motorcyclist after an accident or the assessment and treatment of a patient who had fallen from a height.

Candidates must ensure that they are familiar with any recent significant developments in prehospital care, a recent example being the adoption of hypotensive resuscitation in shock due to trauma (5).

The examination used to be only open to medical practitioners, however nurses and paramedics (including military medics) have been eligible to sit the exam since November 1998. For all three categories minimum levels of experience are required. The examination is conducted three times a year (currently September, March and June) and costs £400. For military personnel, the examination is on the list of recognised qualifications and as a result the examination fee can be reclaimed. It is important to remember that proof of identity will be required at the examination either in the form of a passport or a valid official document (for example a military identity card).

Details of the examination are available from the Royal College of Surgeons of Edinburgh (6) or from the college website ([www.rcsed.ac.uk](http://www.rcsed.ac.uk)).

### Preparation

The examination has a pass rate of approximately 50%; it is not unknown for individuals who have extensive resuscitation or hospital Accident and Emergency experience to fail. It is important to prepare

correctly, most especially concentrating on the treatment of patients in the pre-hospital setting away from hospital support. The syllabus is broad and as a consequence time and effort is required to pass the examination (see Table 1).

<b>Anatomy</b>		
A knowledge of basic anatomy to include in particular:	Skeletal system with relation to major fractures and soft tissue injuries	The skull and spine in association with cranial and spinal injuries and knowledge of related neurology and sequential observations
	The respiratory system including larynx and trachea with relation to chest injuries	The cardiovascular system with relation to injuries and myocardial infarction and cardiac arrhythmias
	The abdomen and pelvis with relation to acute emergencies and injury	
<b>Physiology and Pathology</b>		
	The immediate and late effects of severe trauma	Hypovolaemic, cardiogenic and neurogenic shock
	Cardiopulmonary resuscitation	Respiration to include the effects of chest and "head" injuries: asphyxiation drowning and inhalation of toxic substances
	Serious infections and associated risks: control, consequences and management	Acute metabolic disturbances
	Airway obstruction including airway problems in infancy	
<b>Pharmacology</b>		
	Accidental and non-accidental poisoning, including toxic substances and hazardous chemicals	Analgesia Sedation
	Acute medical problems	Acute respiratory problems including asthma
	Cardiac arrhythmias and arrest	Intravenous fluids and appropriate indications for use
	Routes, dosages for emergency drugs in adults and children	A knowledge of the regulations for prescription only medicines for use by medical and paramedical personnel
<b>Clinical Topics</b>		
	The mechanisms of injury	The clinical signs of severe illness or injury
	The methods and significance of appropriate recording of observations at scene	The indications for resuscitation including intravenous infusion and appropriate fluids and support of respiration
	Assessment and acute management of injuries to the brain and spinal cord	The diagnosis and management of myocardial infarction and arrhythmias including thrombolysis
	The acute management of serious burns	The acute management of fractures and soft tissue injuries
	Problems encountered in the transport of seriously ill or injured casualties by land, sea or air	Assessment of the scene including risks and hazards
<b>Practical Skills</b>		
	Control of haemorrhage and intravenous fluids	Management of the unconscious patient including related "head" injuries
	Airway care; basic airway, use of adjuncts and oxygen, endotracheal intubation, cricothyrotomy, artificial ventilation, pneumothorax including haemothorax and needle thoracostomy	Cardiac arrest: recognition, cardiopulmonary resuscitation including the use of manual and automated defibrillators, knowledge of pace makers.
	Spinal injuries	Limb injuries
	Analgesia	Communications
<b>Management Skills</b>		
	Priority in the sorting of casualties including triage	Problems associated with mass gatherings
	The understanding of the emergency services and the integration of medical response	

Table 1. Syllabus of the Diploma in Immediate Care.

Given the depth of knowledge and skill needed most candidates benefit from a period of concentrated revision (frequently 3-4 months). Whilst basic medical and military medical training is of value, further study is essential. Attendance at an Immediate Care Course is strongly recommended. These are run by a number of organisations including the Royal Centre for Defence Medicine Department of General Practice and BASICS. Experience shows that those who attend such a course have a higher rate of success. Additional desirable courses are the Road Traffic Crash Medical Management Course which trains individuals in the correct management at road traffic crashes (see Figure 4) and the Major Incident Medical Management and Support Course (MIMMS). The Department of General Practice at RCDM runs both of these additional courses, however the Immediate Care Course is of greater importance in preparation for the Diploma examination.



*Fig 4. Practical road traffic medical management training in Cyprus October 2001. The examples are of two simulated car crashes, requiring the removal of the roof of the vehicle and extracting a casualty from an upturned car respectively. Note the multidisciplinary nature of the training including Fire Brigade and Police as well as the medical services. The course runs annually in the UK and biannually in Cyprus.*

An understanding of the examination is essential. The exam is usually undertaken in one day (it is occasionally held over two days if there are large numbers of candidates) and there are considerable time pressures especially during the written papers. Preparatory reading should be broad based

to include both immediate care and general texts (such as elements of the British National Formulary). It is essential that common ECG arrhythmias can be quickly and accurately identified as relatively easy marks can be gained quickly in the projected material paper. The Royal College of Surgeons publishes a list of recommended texts suitable for preparation. Table 2 incorporates the main texts recommended by the College but includes some additional ones found to be of value by candidates.

Practical training prior to the examination is essential. During the clinical incident scenario stations candidates will be expected to manage the scene of an incident, use equipment and treat the patient appropriately. They will be asked for the reasons behind their decisions. Whilst in some of the scenarios there may be no right or wrong answers, sensible justification is expected. Safety on scene will be emphasised, particularly electrical safety with defibrillators. This often requires practice. Familiarity with the standard equipment will be expected; those who do not normally work with advanced life support equipment are recommended to ensure that they are able to identify and use correctly the necessary equipment. As an example some doctors have found it difficult to attach gas cylinders to regulators or to assemble a flat packed cervical collar.

Whilst in the clinical incident scenarios, it is essential to continue to think broadly and, if in any doubt regarding the assessment or treatment of a patient, ensure that the primary survey of ABCDE is re-checked. It is useful to remember that it has been known for examiners to provide "patients" (usually members of the Casualties Union) with alert bracelets indicating that the "patient" has diabetes or epilepsy. Whilst undertaking the primary survey, it is prudent to look carefully for these bracelets and other similar clues, as they may indicate either the potential reasons for the incident or alternatively the treatment strategies to be used. These may not always be obviously located.

Immediate Care Courses are often undertaken some months prior to the examination. Experience has shown that many candidates have benefited from "top up" basic and advanced life support refresher training just before taking the examination. Any person who is familiar with the requirements of the examination and can provide constructive feedback can provide this. Normally one to two hours is all that is required. Provided that the candidate is well prepared, this should just provide confidence and a level of "slickness". Equipment such as a resuscitation mannekin should be used together with, at the least, a discussion on the use of defibrillators and other supplementary equipment. A trauma "moulage" of a patient should be included. Common errors include

Name	Author	Cost, Date and Publisher	Comments
<b>Essentials of Immediate Medical Care</b>	CJ Eaton	Churchill Livingstone 1999 £33.95	Present in most military medical centres. Course text for BASICS Immediate Care Course
<b>Emergency Care: A textbook for Paramedics</b>	Ian Greaves, Tim Hodgetts, Keith Porter	Saunders 1997 £35	
<b>Emergency Care – A Self Assessment Guide</b>	Ian Greaves, Tim Hodgetts, Keith Porter	Saunders 1997 £14	Very useful text as it includes MCQ, short answer and triage questions. Helpful in self assessment
<b>Pre-Hospital Medicine</b>	Ian Greaves and Keith Porter	Arnold 1999 £45	The current definitive text.
<b>ABC of Resuscitation</b>	Michael C. Colquhoun (Editor), <i>et al</i>	BMJ Books 1999 £16	
<b>ABC of Spinal Cord Injury</b>	David Grundy & Andrew Swain	BMJ Books 2002 £16	
<b>ABC of Major Trauma</b>	Peter Driscoll, <i>et al</i>	BMJ Books 1999 £20	
<b>Major Incident Medical Management and Support</b>	Advanced Life Support Group	BMJ Books 2002 £20	Useful supplement to core texts
<b>ECG Made Easy</b>	John R Hampton	Churchill Livingstone 1997 £11	Basic text, but useful
<b>ECGs by Example</b>	Richard Dean Jenkins, Stephen John Gerred	Churchill Livingstone 1998 £20	Useful text for familiarisation to common dysrhythmias. Also at <a href="http://www.ecglibrary.com/ecg_sbyeg.html">http://www.ecglibrary.com/ecg_sbyeg.html</a>
<b>ABC of Clinical Electrocardiography</b>	Francis Morris <i>et al</i>	BMJ Books 2002 £16	
<b>British National Formulary</b>	BNF		Text at beginning of chapters particularly useful - especially the chapter on poisoning
<b>Trauma Rules</b>	Tim Hodgetts, Richard Deane & Keith Gunning	BMJ Books £12.95	Mainly hospital based but lots of excellent principles that can be applied to the pre-hospital arena
<b>Resuscitation Council Guidelines</b>		<a href="http://www.resus.org.uk">http://www.resus.org.uk</a>	Current guidelines must be known and understood
<b>Trauma.org</b>		<a href="http://www.trauma.org">http://www.trauma.org</a>	On-line trauma moulage training
<b>Faculty of Pre-Hospital Care</b>		<a href="http://www.rcsed.ac.uk/phc/">http://www.rcsed.ac.uk/phc/</a>	Has application details for faculty.
<b>British Association for Immediate Care</b>		<a href="http://www.basics.org.uk">www.basics.org.uk</a>	Details of courses and other information
<b>Casualties Union</b>		<a href="http://www.casualtiesunion.org.uk/">http://www.casualtiesunion.org.uk/</a>	Used during the examination as patients

Table 2. A list of suggested texts and websites recommended for preparation. (This list is neither exhaustive nor definitive, but it has been found to be of value by candidates).

not fully considering scene safety and not applying oxygen. Viva practice with a previously successful candidate is invaluable.

### Conclusion

The Diploma in Immediate Care Examination of the Royal College of Surgeons of Edinburgh is a good examination which effectively tests that which it is supposed to test, namely the prehospital management of a wide variety of medical, traumatic and other emergencies. It is becoming the basic qualification for practitioners wishing to pursue a career, or interest, in pre-hospital care. It is challenging and requires careful preparation and planning. With this preparation the majority

of candidates can be successful.

### Conflicts of Interest

MQR is the course director for the Defence Medical Services Immediate Care and Road Traffic Management Courses. AJL and PAC teach on both of these courses. AJL is a member of the Educational Board of BASICS and teaches for BASICS. MQR, PAC and AJL are active members of BASICS

### References

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4. Leach AJ, Menzies A. An Analysis of the Emergency Ambulance Workload in the British Sovereign Base Area of Cyprus May 1995 to April 1998. *J Royal Army Med Corps* 2000; **146**: 94-99.
5. Fluid Resuscitation in Pre-hospital Trauma Care: a consensus view *J Royal Army Med Corps* 2001 **147**: 147-152.
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