

Cambridge University Press
978-1-841-10092-0 - Key Questions in Surgical Critical Care
Robert U. Ashford, T. Neal Evans and R. Andrew Archbold
Frontmatter
[More information](#)

KEY QUESTIONS IN SURGICAL CRITICAL CARE

Cambridge University Press
978-1-841-10092-0 - Key Questions in Surgical Critical Care
Robert U. Ashford, T. Neal Evans and R. Andrew Archbold
Frontmatter
[More information](#)

KEY QUESTIONS IN SURGICAL CRITICAL CARE

by

Mr Robert U. Ashford MRCS(Glasg)

Specialist Registrar in Trauma & Orthopaedics
York District Hospital
Yorkshire Deanery
UK

Dr T. Neal Evans FRCA

Specialist Registrar in Anaesthesia
Oxford Radcliffe Hospitals
Oxford Deanery
UK

Dr R. Andrew Archbold MRCP

Specialist Registrar in Cardiology
London Chest Hospital
London Deanery (North)
UK



London ♦ San Francisco

Cambridge University Press
978-1-841-10092-0 - Key Questions in Surgical Critical Care
Robert U. Ashford, T. Neal Evans and R. Andrew Archbold
Frontmatter
[More information](#)



www.greenwich-medical.co.uk

© 2003

Greenwich Medical Media Limited
137 Euston Road, London
NW1 2AA

870 Market Street, Ste 720
San Francisco, CA 94102

ISBN 1 84110 0927

First Published 2003

While the advice and information in this book is believed to be true and accurate, neither the authors nor the publisher can accept any legal responsibility or liability for any loss or damage arising from actions or decisions based in this book. The ultimate responsibility for the treatment of patients and the interpretation lies with the medical practitioner. The opinions expressed are those of the authors and the inclusion in this book of information relating to a particular product, method or technique does not amount to an endorsement of its value or quality, or of the claims made by its manufacturer. Every effort has been made to check drug dosages; however, it is still possible that errors have occurred. Furthermore, dosage schedules are constantly being revised and new side-effects recognised. For these reasons, the medical practitioner is strongly urged to consult the drug companies' printed instructions before administering any of the drugs mentioned in this book.

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the UK Copyright Designs and Patents Act 1988, this publication may not be reproduced, stored, or transmitted, in any form or by any means, without the prior permission in writing of the publishers, or in the case of reprographic reproduction only in accordance with the terms of the licences issued by the appropriate Reproduction Rights Organisations outside the UK. Enquiries concerning reproduction outside the terms stated here should be sent to the publishers at the London address printed above.

The rights of Robert Ashford, Neal Evans and Andrew Archbold to be identified as authors of this Work have been asserted by them in accordance with the Copyright Designs and Patents Act 1988.

The publisher makes no representation, express or implied, with regard to the accuracy of the information contained in this book and cannot accept any legal responsibility or liability for any errors or omissions that may be made.

A catalogue record for this book is available from the British Library.

Typeset by Mizpah Publishing Services, Chennai, India
Printed by The Alden Group Ltd, Oxford

Distributed by Plymbridge Distributors Ltd and
in the USA by Jamco Distribution

Contents

Preface	vi
The Examination	vii
List of Abbreviations	ix
Acknowledgements	xiii

Section 1 – MCQs

Cardiovascular System – Questions	3
Respiratory System – Questions	21
Other Systems and Multisystem Failure – Questions	36
Problems in Intensive Care – Questions	52
Principles of Intensive Care – Questions	55
Practical Procedures – Questions	61
Cardiovascular System – Answers	63
Respiratory System – Answers	90
Other Systems and Multisystem Failure – Answers	111
Problems in Intensive Care – Answers	130
Principles of Intensive Care – Answers	133
Practical Procedures – Answers	140

Section 2 – Vivas

Cardiovascular System – Questions	145
Respiratory System – Questions	147
Other Systems and Multisystem Failure – Questions	149
Problems in Intensive Care – Questions	151
Principles of Intensive Care – Questions	152
Practical Procedures – Questions	153
Cardiovascular System – Answers	155
Respiratory System – Answers	170
Other Systems and Multisystem Failure – Answers	202
Problems in Intensive Care – Answers	223
Principles of Intensive Care – Answers	225
Practical Procedures – Answers	230

Cambridge University Press
978-1-841-10092-0 - Key Questions in Surgical Critical Care
Robert U. Ashford, T. Neal Evans and R. Andrew Archbold
Frontmatter
[More information](#)

Preface

Postgraduate surgical examinations take the form of multiple-choice questions, *viva voce* examinations and clinicals. In all the Royal Colleges, a key component of the first two of these sections is critical care. This book is a companion to *Surgical Critical Care*, by Robert Ashford and Neal Evans, published by Greenwich Medical Media Ltd in 2001, and examines all aspects of the subject that may be assessed.

This book is split into two sections: multiple-choice questions and *viva* topics. Based upon the syllabus of the Royal College of Surgeons of England, each of these two sections is sub-divided into the same six sections as *Surgical Critical Care*. Each answer is cross-referenced to specific pages in *Surgical Critical Care* (using the **SCC** icon) as well as being elaborated upon.

The multiple-choice questions are of a multiple true/false type. Marking should be in the form of the examination you are sitting. Remember some of the Royal Colleges employ negative marking, which is designed to prevent the candidate from guessing. The *viva* topics are questions typical of those you may be asked in the examination.

This book does not aim to be a definitive textbook for the MRCS examination. It is designed as a revision aid and to stimulate self-assessment.

Good luck!

R.U.A.
T.N.E.
R.A.A.

October 2002

The Examination

Whilst the Royal Colleges are working towards a unified MRCS examination, this is not yet in place. The Royal Colleges therefore have differing examination formats. Critical care is not specifically included in the clinical section of the examinations, therefore this is not discussed. As with all examinations, the format may change and candidates are advised to check the latest regulations with the relevant college.

England – MRCS

Two MCQ Papers: Core and Systems. Each paper consists of 65 MCQs and 60 EMQs to be answered in two and a half hours. Critical care is tested principally in Paper 1. Multiple true/false MCQs not negatively marked.

Three *Viva Voce* examinations each of 20 minutes: Anatomy, Physiology and Pathology. 10 minutes of Basic Science and 10 minutes of Clinical Surgery. Critical Care is examined for 10 minutes in the physiology viva.

Edinburgh – MRCS(Ed)

Two MCQ Papers: Core Syllabus and Systems Syllabus. Negatively marked.

Three *Viva Voce* examinations each of 20 minutes: Critical Care, Principles of Surgery, Clinical Surgery & Pathology.

Glasgow – MRCS(Glasg)

Two MCQ Papers: Core and Systems. 2 hours for each paper. Each paper is a combination of MCQs and EMQs. MCQs are multiple true/false and not negatively marked. Both papers must be sat the first time of entry.

Two *Viva Voce* examinations covering: Applied Anatomy, Operative Surgery & Principles of Surgery, Surgical Physiology & Critical Care and Applied Pathology & Bacteriology. 30 minutes each divided into the two sections. Critical Care forms a major part of the physiology viva.

Ireland – AFRCSI

Two MCQ Papers: Paper 1 is a Basic Sciences Paper: This is a true/false paper, which is 2 hours long. There are 30 five-part questions: 10 each in Anatomy, Physiology and Pathology. This paper will be negatively marked. Paper 2 is the Clinical Surgery Paper: This is a 2-hour paper consisting of 24 questions with 5 stems in each question. The second paper will be non-negatively marked. Minimum pass rate is 60%.

The *Viva Voce* examination consists of three 20-minute orals. The subjects are: Principles of Operative Surgery & Surgical Anatomy, Critical Care,

Cambridge University Press
 978-1-841-10092-0 - Key Questions in Surgical Critical Care
 Robert U. Ashford, T. Neal Evans and R. Andrew Archbold
 Frontmatter
[More information](#)

Surgical Emergencies & Applied Physiology, Surgical Management & Principles of Pathology. This College expects candidates to have a high level of knowledge of basic sciences. Therefore, each of these orals will include basic science examiners. Each marked out of 100, minimum to pass 180 out of 300.

There are a number of conventional terms applied to the examinations. These are outlined below:

<i>Characteristic, predominantly, reliably</i>	The feature is present in more than 90% of cases
<i>Typically, frequently, commonly, usually</i>	The feature is present in more than 60% of cases
<i>Often, tends to</i>	The feature is present in more than 30% of cases

Similarly, for percentages, a precise figure (e.g. 2.5%) means exactly that, whereas a round figure (e.g. 20%) allows a little either way ($\pm 5\%$).

As with all examinations, **read the question properly.**

List of Abbreviations

ABC	Airway, Breathing and Circulation
ABE	Actual base excess
ABG	Arterial blood gas
ACE	Angiotensin converting enzyme
ADH	Anti-diuretic hormone
AF	Atrial fibrillation
AHF	Acute hepatic failure
AIS	Abbreviated injury score
ALI	Acute lung injury
ALS	Advanced life support
AP	Antero-posterior
APACHE	Acute physiology and chronic health evaluation
APTT	Activated partial thromboplastin time
ARDS	Adult respiratory distress syndrome
ARF	Acute renal failure
ATN	Acute tubular necrosis
AXR	Abdominal X-ray
BAE	Bronchial artery embolisation
BLS	Basic life support
BMI	Body mass index
BMR	Basal metabolic rate
BSD	Brainstem death
BUN	Blood urea nitrogen
CABG	Coronary artery bypass grafting
CC	Closing capacity
CKMB	Creatinine kinase MB isoenzyme
CMV	Controlled mandatory ventilation/Cytomegalo virus
CNS	Central nervous system
CO	Cardiac output
COHb	Carboxyhaemoglobin
COPD	Chronic obstructive pulmonary disease
CPAP	Continuous positive airway pressure
CPB	Cardiopulmonary bypass
CPP	Cerebral perfusion pressure
CSF	Cerebrospinal fluid
CT	Computed tomography
CVP	Central venous pressure
CVS	Cardiovascular system
CXR	Chest X-ray
DC	Direct current
DIC	Disseminated intravascular coagulation
DO ₂	Oxygen delivery

Cambridge University Press

978-1-841-10092-0 - Key Questions in Surgical Critical Care

Robert U. Ashford, T. Neal Evans and R. Andrew Archbold

Frontmatter

[More information](#)

DPG	Diphosphoglycerate
DPL	Diagnostic peritoneal lavage
DVT	Deep vein thrombosis
EBV	Epstein-Barr virus
ECF	Extracellular fluid
ECG	Electrocardiogram
EDRF	Endothelium-derived relaxant factor
EDTA	Ethylene diamintetraacetic acid
EEG	Electroencephalogram
EJV	External jugular vein
EMD	Electromechanical dissociation
ERCP	Endoscopic retrograde cholangio-pancreatogram
ERV	Expiratory reserve volume
ESR	Erythrocyte sedimentation rate
ETT	Endo-tracheal tube
FBC	Full blood count
FDP	Fibrin degradation product
FES	Fat embolism syndrome
FEV	Forced expiratory volume
FFP	Fresh frozen plasma
FRC	Functional residual capacity
FVC	Forced vital capacity
GCS	Glasgow coma score
GFR	Glomerular filtration rate
GIT	Gastrointestinal tract
GTN	Glyceryl trinitrate
HDU	High dependency unit
HIV	Human immunodeficiency virus
HPV	Hypoxic pulmonary vasoconstriction
HR	Heart rate
IABP	Intra-aortic balloon pump
IAH	Intra-abdominal hypertension
IAP	Intra-abdominal pressure
ICF	Intracellular fluid
ICP	Intra-cranial pressure
ICU	Intensive care unit
IJV	Internal jugular vein
IL	Interleukin
INR	International normalised ratio
IOP	Intra-optic pressure
IPPV	Intermittent positive pressure ventilation
IRV	Inspiratory reserve volume/Inverse ratio ventilation
ISS	Injury severity scale

Cambridge University Press

978-1-841-10092-0 - Key Questions in Surgical Critical Care

Robert U. Ashford, T. Neal Evans and R. Andrew Archbold

Frontmatter

[More information](#)

ITU	Intensive therapy unit
IVC	Inferior vena cava
JVP	Jugular venous pressure
LD	Lethal dose
LDH	Lactate dehydrogenase
LFT	Liver function test
LMA	Laryngeal mask airway
LOC	Loss of consciousness
LOS	Lower oesophageal sphincter
MAP	Mean arterial pressure
MAWP	Mean airway pressure
MBP	Mean blood pressure
MI	Myocardial infarction
MODS	Multi-organ dysfunction syndrome
MOF	Multi-organ failure
MOFS	Multi-organ failure syndrome
MRI	Magnetic resonance imaging
MV	Minute volume
NO	Nitric oxide
NSAIDs	Non-steroidal anti-inflammatory drugs
ODC	Oxyhaemoglobin dissociation curve
ODP	Operating department practitioner
PAF	Platelet activating factor
PAFC	Pulmonary artery floatation catheter
PAH	Para-amino hippuric acid
PAOP	Pulmonary artery occlusion pressure
PAWP	Peak airway pressure
PCA	Patient controlled analgesia
PCV	Pressure controlled ventilation
PE	Pulmonary embolism
PEA	Pulseless electrical activity
PEEP	Positive end expiratory pressure
PEFR	Peak expiratory flow rate
PEG	Percutaneous gastrostomy
PEJ	Percutaneous jejunostomy
PIFR	Peak inspiratory flow rate
PS	Pressure support
PSV	Pressure support ventilation
PT	Prothrombin time
PVR	Pulmonary vascular resistance

Cambridge University Press

978-1-841-10092-0 - Key Questions in Surgical Critical Care

Robert U. Ashford, T. Neal Evans and R. Andrew Archbold

Frontmatter

[More information](#)

RAA	Renin-angiotensin-aldosterone
RBC	Red blood cell
RDS	Respiratory distress syndrome
RQ	Respiratory quotient
RR	Respiratory rate
RTS	Revised trauma score
RV	Residual volume
SBC	Standard bicarbonate
SBE	Standard base excess
SCV	Subclavicular vein
SDH	Subdural haematoma
SIADH	Syndrome of inappropriate antidiuretic hormone
SIMV	Synchronised intermittent mandatory ventilation
SIRS	Systemic inflammatory response syndrome
SV	Stroke volume
SVC	Superior vena cava
SVR	Systemic vascular resistance
TBSA	Total body surface area
TIAE	Tracheo-innominate artery erosion
TIPSS	Transjugular intrahepatic portosystemic shunt
TLC	Total lung capacity
TNF	Tumour necrosis factor
TOE	Tranoesophageal echo/echocardiogram/echocardiography
TPN	Total parenteral nutrition/Triphosphopyridine nucleotide
TRALI	Transfusion related acute lung injury
TT	Thrombin time
TTE	Transthoracic echo
U&E	Urea & Electrolytes
VC	Vital capacity
VF	Ventricular fibrillation
VSD	Ventricular septal defect
VT	Ventricular tachycardia
WCC	White cell count

Cambridge University Press
978-1-841-10092-0 - Key Questions in Surgical Critical Care
Robert U. Ashford, T. Neal Evans and R. Andrew Archbold
Frontmatter
[More information](#)

Acknowledgements

We wish to thank our families for their continuing support, and Gavin Smith of Greenwich Medical Media for his patience and encouragement in seeing the book through to press.