UKMLA Practice Questions

for medical student revision

500+ MCQs with expert clinical reasoning explained

Rebecca Richardson and Ricky Ellis

- Cardiology
- Endocrinology
- Gastroenterology
- Hepato-pancreato-biliary
- Haematology
- Immunology & allergy
- Neurology
- Renal
- Respiratory
- Surgical principles
- The acute abdomen
- Gastrointestinal surgery
- The breast
- Vascular surgery
- Urology
- Critical illness
- Emergency presentations
- Rheumatology
- Trauma & orthopaedics

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"I wish this had been available when I was doing the many MCQs throughout my career!"

From the Foreword by Peter A. Brennan OBE, Honorary Professor of Surgery, Portsmouth Hospitals University NHS Trust

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Thank you for your help.

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500+ MCQs with expert clinical reasoning explained

Rebecca Richardson

BMedSci, BMBS, MRCP, PGCert MedEd, FHEA
Internal Medicine Trainee, Royal Derby Hospital, Derby

Ricky Ellis

PhD, DPM, MRCS, MBChB, BSc, MFSTEd, FHEA
Global Development Medical Director and Honorary Professor, Health Research Institute, Edge Hill University

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Note: answers and explanations follow the questions in each chapter.

About the authors

Rebecca Richardson is an Internal Medicine Trainee currently working in the East Midlands. After graduating from the University of Nottingham with first-class honours, she became passionate about helping others to follow in her footsteps, going on to complete a PGCert in Medical Education and becoming a Fellow of the Higher Education Academy. Rebecca has continued her mission to support students and trainees through creating a variety of medical education resources, including her *Medical Student Revision Guides*, which have already helped thousands of medical students across the UK prepare for their exams.

Ricky Ellis is a Global Development Medical Director and Honorary Professor of Education at the Health Research Institute, Edge Hill University. An award-winning trainer, he regularly organises teaching courses, including the internationally delivered *Urology Boot Camp for Medical Students*. He is passionate about improving training for medical students and doctors and has received several prestigious medical education awards, including the Silver Suture Award from the Association of Surgeons in Training and the Faculty of Surgical Trainers, in recognition of his contributions to and excellence in surgical training.

List of contributors

Chapter	Chapter author	Chapter reviewer
The acute abdomen	**Dr Navraj Sidhu** Resident Medical Officer, St John of God Murdoch Hospital	**Mr Jon Lund** Consultant Colorectal Surgeon, University Hospitals of Derby and Burton NHS Foundation Trust
Anaesthetics	**Dr Francesca Birch** Anaesthetics CT1, University Hospitals Plymouth NHS Trust	**Dr Richard Telford** Retired Consultant Anaesthetist, Royal Devon University Healthcare NHS Foundation Trust
The breast	**Dr Hallie Awarah** ST1 radiology trainee, Walsall Healthcare NHS Trust	**Miss Ruth Parks** Honorary Assistant Professor, University of Nottingham and Specialty Registrar in Breast Surgery, University Hospitals of Derby and Burton NHS Foundation Trust
Cardiology	**Dr Hannah Withers** Cystic fibrosis clinical fellow, University Hospitals Bristol and Weston NHS Foundation Trust	**Dr Sharareh Vahabi** Consultant Cardiologist, University Hospitals Bristol and Weston NHS Foundation Trust
Community-based medicine	**Dr Abigail Morris** GPST1, Sherwood Forest Hospitals NHS Foundation Trust	**Dr Juanita Amin** General Practitioner, Sandwell and West Birmingham NHS Trust
Critical illness	**Dr Abigail Pelling** ACCS Trainee, Royal Cornwall Hospitals NHS Trust	**Dr Reena Ellis** Consultant Anaesthetist, Nottingham University Hospitals NHS Trust
Dermatology	**Dr Emilia Barber** Foundation Year 2 Doctor, Nottingham University Hospitals NHS Trust	**Dr Beenish Afzal** Specialty Registrar in Dermatology, Sheffield Teaching Hospitals NHS Foundation Trust

Chapter	Chapter author	Chapter reviewer
Ear, nose and throat	**Dr Imogen Milner** Resident Medical Officer, Gosford Hospital, New South Wales	**Ms Kerryann Hanks** Specialty Registrar in Ear, Nose & Throat, Great Western Hospitals NHS Foundation Trust
Emergency presentations	**Dr Flora Burton** ACCS ST2 Trainee, Sheffield Teaching Hospitals NHS Foundation Trust	**Dr Elizabeth Robinson** Associate Specialist in Emergency Medicine and Senior Teaching Fellow, University Hospitals of Derby and Burton NHS Foundation Trust
Endocrinology	**Dr Karmen Quek** Internal Medicine Trainee, Nottingham University Hospitals NHS Trust	**Dr Chia Ooi** Specialty Registrar in Diabetes and Endocrinology, Sherwood Forest Hospitals NHS Foundation Trust
Gastroenterology	**Dr Nathan Dumpleton** Internal Medicine Trainee, Buckinghamshire Healthcare NHS Trust	**Dr Muhammad Hafiz Kamarul Bahrin** Specialty Registrar in Gastroenterology, Nottingham University Hospitals NHS Trust
		Dr Darren Fernandes Specialty Registrar in Gastroenterology, Sherwood Forest Hospitals NHS Foundation Trust
		Dr Naseer Bhatti Specialty Registrar in Gastroenterology, Sherwood Forest Hospitals NHS Foundation Trust
Gastrointestinal surgery	**Dr Michaela Silver** Junior Clinical Fellow, University College London Hospitals NHS Foundation Trust	**Mr Ian Daniels** Consultant Colorectal and General Surgeon, Royal Devon University Healthcare NHS Foundation Trust
General surgical principles	**Dr Harriet Johnson** Junior Clinical Fellow, Intensive Care Medicine, University Hospitals Sussex NHS Foundation Trust	**Miss Jaspreet Seehra** Research Fellow, University of Nottingham General Surgery Registrar, University Hospitals of Derby and Burton NHS Foundation Trust
Geriatric medicine	**Dr Charles Barry** Junior Clinical Fellow, University Hospitals of Derby and Burton NHS Foundation Trust **Dr Rebecca Richardson** Internal Medicine Trainee, University Hospitals of Derby and Burton NHS Foundation Trust	**Dr Lizzie Moriarty** Consultant Geriatrician, Sherwood Forest Hospitals NHS Foundation Trust **Dr India Merrony** Specialty Doctor in Department of Ageing and Health, Frailty Academy Education Fellow, Royal Surrey NHS Foundation Trust
Gynaecology	**Dr Harriet Crossland** Sexual Health Clinical Fellow, Sherwood Forest Hospitals NHS Foundation Trust	**Dr Anna Collins** Sub-specialty trainee in Gynae-oncology, University Hospitals of Derby and Burton NHS Foundation Trust
Haematology	**Dr Peter Arnold-Smith** Internal Medicine Trainee, Guy's & St Thomas' NHS Foundation Trust	**Dr Kathryn McVinnie** Specialty Registrar in Haematology, London North West University Healthcare NHS Trust
Hepato-pancreato-biliary	**Dr Sophie Jefferson** Locum SHO, Croydon Health Services NHS Trust	**Dr Mohamed Elnagar** Specialty Registrar in Gastroenterology, Nottingham University Hospitals NHS Trust
Immunology and allergy	**Dr Ruth Strain** Internal Medicine Trainee, University Hospitals of Derby and Burton NHS Foundation Trust	**Dr Jennie Gane** Consultant Respiratory Physician with an interest in Allergy, University Hospitals of Derby and Burton NHS Foundation Trust **Mohammed Almahi A Abdalla** Speciality Registrar in Allergy & Clinical and Laboratory Immunology, Nottingham University Hospitals NHS Trust

Chapter	Chapter author	Chapter reviewer
Neurology	**Dr Bushra Kabiri** Academic Clinical Fellow in Neurology, Nottingham University Hospitals NHS Trust	**Dr Sue Yin Lim** Consultant Neurologist, Nottingham University Hospitals NHS Trust **Dr James Scott** Consultant Stroke Physician, University Hospitals of Derby and Burton NHS Foundation Trust
Obstetrics	**Dr Amie Hibbard** Specialty Trainee in Obstetrics & Gynaecology, University Hospitals of Derby and Burton NHS Foundation Trust	**Dr Nilofar Noor** Specialty Registrar in Obstetrics & Gynaecology, University Hospitals of Derby and Burton NHS Foundation Trust
Ophthalmology	**Dr Tooba Sahar** Internal Medicine Trainee, Gateshead Health NHS Foundation Trust	**Mr Di Zou** Consultant Ophthalmologist, University Hospitals of Derby and Burton NHS Foundation Trust
Paediatrics	**Dr Beth Dumpleton** Clinical Paediatric Teaching Fellow, Imperial College Healthcare NHS Trust **Dr Polly McGrath** Specialty Trainee in Paediatrics, Great Ormond Street Hospital for Children NHS Foundation Trust	**Dr Katherine Jones** Specialty Registrar in Paediatrics, Royal Devon University Healthcare NHS Foundation Trust **Dr Abisola Olawale-Cole** Consultant Paediatrician, Whittington Health NHS Trust
Palliative care	**Dr Joanna Mantio** Internal Medicine Trainee, Royal Free London NHS Foundation Trust	**Dr Vanessa Jackson** Consultant in Palliative Medicine, Nottinghamshire Healthcare NHS Foundation Trust
Psychiatry	**Dr Luke Robinson** CT3 Psychiatry Trainee, Derbyshire Healthcare NHS Foundation Trust	**Dr Daniela Tomus** Consultant Psychiatrist and Clinical Director of CAMHS, Derbyshire Healthcare NHS Foundation Trust
Renal	**Dr Kathan Desai** Locum SHO, Sherwood Forest Hospitals NHS Foundation Trust	**Dr Eoghan Redmond** Specialty Registrar in Renal Medicine, University Hospitals of Derby and Burton NHS Foundation Trust
Respiratory	**Dr Veera Khanolkar** Internal Medicine Trainee, Nottingham University Hospitals NHS Trust	**Dr John Hutchinson** Consultant in Respiratory Medicine, Sherwood Forest Hospitals NHS Foundation Trust
Rheumatology	**Dr Ruchi Desai** Junior Clinical Fellow, University Hospitals of Derby and Burton NHS Foundation Trust **Dr Katherine Butterworth** Medical Principal House Officer (PHO), Royal Brisbane and Women's Hospital	**Dr Andrew Allard** Consultant Rheumatologist, Royal United Hospitals Bath NHS Foundation Trust
Trauma & orthopaedics	**Dr Arul Madhavan** Clinical Fellow in Plastic Surgery, North Bristol NHS Trust	**Mr Sandeep Deshmukh** Consultant Hand & Orthopaedic Surgeon, Nottingham University Hospitals NHS Trust **Ms Susan Hendrickson** Consultant Plastic Surgeon, North Bristol NHS Trust
Urology	**Dr Suraj Ghandi** SHO in Paediatric Surgery, Queensland Children's Hospital	**Miss Neha Sihra** Consultant Urological Surgeon, Barts Health NHS Trust
Vascular disease	**Dr Fatema Radhi** Foundation Year 2 Doctor, Nottingham University Hospitals NHS Trust	**Ms Emily Salt** Specialty Registrar in Vascular Surgery, Nottingham University Hospitals NHS Trust

Foreword

With a busy medical undergraduate curriculum, **the need for good educational resources**, to help students understand and retain the complex knowledge required to succeed, has never been greater. **This book is one such resource**. It is the third book in a series written by Dr Becky Richardson and Mr Ricky Ellis, two respected colleagues who are committed to medical education. The first two books are extremely well-written and popular resources. The first book covers General Medicine and Surgery for Medical Students, and the second is on Clinical Specialties.

This excellent new book is a collection of peer-reviewed multiple-choice questions (MCQs) that accompanies these first two books. It will not only provide question practice for medical students, but also help **consolidate learning and develop important skills in clinical reasoning**. It is designed to be a companion to the already published 'Medical Student Revision Guides', which cover the entirety of the UK Medical Licensing Assessment (MLA) curriculum, and more. In this respect, this new book has the same chapter headings as the two previously published books, as well as references to corresponding page numbers to signpost readers for further reading.

The questions themselves (10–30 per chapter) assess **the whole undergraduate medical and MLA curriculum**, with a 'mini-mock test' at the end of the book. In addition to providing the correct answers and explanations for each question, a unique selling point is that it also **covers MCQ exam technique**. I wish this had been available when I was doing the many MCQs throughout my career! **A systematic and colour-coded approach** makes the subjects easier to digest and will appeal to colleagues with neurodivergent learning needs.

In summary, I believe this book will be **a great resource** to not only test knowledge through MCQs, but also help develop exam technique and clinical reasoning.

I wish you the very best of luck with your medical school exams and future career in the great medical profession.

Peter A Brennan
OBE, MD, PhD, FRCS (Eng, Irel, Glasg, Edin), FFST (Ed), FDSRCS
Consultant Oral and Maxillofacial Surgeon
Honorary Professor of Surgery
Portsmouth Hospitals University NHS Trust
Portsmouth, UK

Preface

The purpose of this book is twofold: to support you in preparing for medical school exams, and to help you grow into a logical, reflective and effective clinician.

When faced with an upcoming exam, how many of us will simply read and re-read information, with the hope of committing it to memory? Unfortunately, **this passive approach has shown minimal benefit** on long-term learning and is a mistake that all too many students make. Instead, a wealth of educational research highlights **the importance of active learning strategies**, in particular the use of 'information retrieval', to strengthen neural connections and consolidate learning. One of the most powerful ways to practise 'information retrieval' is through question practice, an approach that forms the foundation of this book. When used consistently and effectively, question practice enhances long-term retention and comprehension of content, **transforming study time into a highly efficient learning process**.

However, **medicine is about more than just exams**, and being a doctor goes beyond recounting facts. Competent clinicians must draw on their knowledge to interpret patterns of signs and symptoms, forming sound differential diagnoses and making meaningful clinical decisions. This cognitive process is known as 'clinical reasoning'.

Despite being an essential skill for effective medical practice, **clinical reasoning is often under-taught at medical school**. This is partly due to the misconception that it can only be developed through multiple hours spent in a clinical environment.

This book aims to challenge that notion. By integrating evidence-based educational strategies with carefully designed clinical scenarios, it offers a practical and engaging way to begin developing your clinical reasoning skills, from wherever you choose to study. Through active learning and structured practice, you will not only prepare for your exams but also take meaningful steps toward becoming the clinician you aspire to be.

I am forever grateful for any feedback that can help me to better help you, so please notify me of anything potentially misleading (info@scionpublishing.com), or leave a review on Amazon with your honest thoughts.

I wish you luck with your exams, and all the best for your future careers.

Rebecca Richardson

Disclaimer

It is important to note that this book is designed as a revision tool and aide-memoire. It is not intended to give an in-depth understanding of each condition, but rather to focus on the key points that often appear in undergraduate exams. It should not be solely relied upon in clinical situations; please always check the most current and local guidelines before implementing management or administering any treatment.

Every attempt has been made to ensure that the most up-to-date information has been included at the time of writing this book. However, due to the continuously evolving nature of the medical profession, and with variations in clinical practice between hospital Trusts, this cannot be guaranteed. It is therefore advised that you correlate these notes to other resources, and supplement them with your own clinical encounters, to ensure a complete learning experience. Readers should also ensure that they learn all elements of their own medical school curriculum, regardless of whether they are covered in this book.

Abbreviations

– Fracture
2ww – 2 week wait (*replaced by* USC)
5-ASA – 5-aminosalicylic acid
a. – Arterial
aa. – Arteries
AAA – Abdominal aortic aneurysm
Ab – Antibody
ABCDE – Airways, Breathing, Circulation, Disability, Exposure
ABG – Arterial blood gas
ABPA – Allergic bronchopulmonary aspergillosis
ABPI – Ankle–brachial pressure index
ABPM – Ambulatory blood pressure monitoring
Abs – Antibodies
ABX – Antibiotics
AC – Acromioclavicular *or* Air conduction
ACA – Anterior cerebral artery
ACE – Angiotensin-converting enzyme
ACEi – Angiotensin-converting enzyme inhibitor
ACh – Acetylcholine
AChE – Acetylcholinesterase
ACL – Anterior cruciate ligament
ACR – Albumin–creatinine ratio
ACS – Acute coronary syndrome *or* Abdominal compartment syndrome
ACTH – Adrenocorticotrophic hormone
AD – Antidepressant
ADCC – Antibody-dependent cell-mediated cytotoxicity
ADH – Antidiuretic hormone
ADHD – Attention deficit hyperactivity disorder
ADLs – Activities of daily living
ADRT – Advanced decision to refuse treatment
AED – Anti-epileptic drug
AF – Atrial fibrillation
AFP – Alpha fetoprotein
AHA – Autoimmune haemolytic anaemia
AIDS – Acquired immune deficiency syndrome
AION – Anterior ischaemic optic neuropathy
AIR – Anti-inflammatory reliever
AKI – Acute kidney injury
Al – Aluminium
Ald – Aldosterone
ALI – Acute limb ischaemia
ALL – Acute lymphoblastic leukaemia
ALND – Axillary lymph node dissection
ALP – Alkaline phosphatase
ALT – Alanine aminotransferase
AMA – Antimitochondrial antibody
AMD – Age-related macular degeneration
AMH – Anti-Müllerian hormone
AMHP – Advanced mental health practitioner
AML – Acute myeloid leukaemia
AMT – Abbreviated mental test
ANA – Antinuclear antibody
ANCA – Antineutrophil cytoplasmic antibody
Anti-CCP – Anticyclic citrullinated peptide
Anti-SM – Anti-smooth muscle
AOE – Acute otitis externa
AOM – Acute otitis media
AP – Anterior–posterior *or* Antipsychotic
APCKD – Adult polycystic kidney disease
APH – Antepartum haemorrhage
APL – Abductor pollicis longus
APS – Antiphospholipid syndrome
APTT – Activated partial thromboplastin time
ARB – Angiotensin receptor blocker
ARDS – Acute respiratory distress syndrome
AROM – Artificial rupture of membranes
ART – Anti-retroviral treatment
AS – Aortic stenosis
ASA – American Society of Anesthesiologists
ASD – Atrial septal defect *or* Autism spectrum disorder
ASIS – Anterior superior iliac spine
AST – Aspartate aminotransferase
ATLS – Advanced trauma life support
ATN – Acute tubular necrosis
AV – Arteriovenous
AVM – Arteriovenous malformation
AVN – Avascular necrosis
AVP – Arginine vasopressin
AVP-D – AVP deficiency
AVP-R – AVP resistance
AVPU – Alert, verbal, pain, unresponsive
AVSD – Atrioventricular septal defect
AXR – Abdominal X-ray
BAME – Black, Asian and minority ethnic
BASDAI – Bath Ankylosing Spondylitis Disease Activity Index
BASFI – Bath Ankylosing Spondylitis Functional Index
BB – Beta-blocker
BBB – Blood–brain barrier *or* Bundle branch block
BC – Bone conduction
BCC – Basal cell carcinoma
BCG – Bacille Calmette–Guérin (TB vaccine)
BD – Twice a day
BDR – Bronchodilator reversibility
BE – Base excess
BG – Blood glucose
B-hCG – Beta human chorionic gonadotrophin
BiPAP – Bilevel positive airway pressure
BLS – Basic life support
BM – Basement membrane *or* Bone marrow
BMD – Becker muscular dystrophy *or* Bone mineral density
BMI – Body mass index
BMR – Basal metabolic rate
BMT – Bone marrow transplant
BNP – B-type natriuretic peptide
BP – Blood pressure
BPAD – Bipolar affective disorder
BPH – Benign prostatic hyperplasia

BPPV – Benign paroxysmal positional vertigo
BR – Bilirubin
BRCA – Breast cancer gene
BSO – Bilateral salpingo-oophorectomy
BV – Bacterial vaginosis
BW – Birth weight
BZD – Benzodiazepine
Ca – Calcium
ca – Cancer
CABG – Coronary artery bypass graft
CAD – Coronary artery disease
CAE – Childhood absence epilepsy
CAH – Congenital adrenal hyperplasia
CAI – Carbonic anhydrase inhibitors
CAMHS – Child and Adolescent Mental Health Services
CAP – Community-acquired pneumonia
Carb – Carbohydrate
CBD – Common bile duct
CBG – Capillary blood glucose
CBK – Capillary blood ketones
CBR – Conjugated bilirubin
CBT – Cognitive behavioural therapy
CC – Coracoclavicular
CCB – Calcium channel blocker
CCF – Congestive cardiac failure
CCK – Cholecystokinin
CEA – Carcinoembryonic antigen
CES – Cauda equina syndrome
CF – Clotting factor *or* Cystic fibrosis
CFS – Clinical Frailty Scale
CFTR – Cystic fibrosis transmembrane conductance regulator
CGA – Comprehensive geriatric assessment
CHD – Coronary heart disease
CHF – Chronic/congestive heart failure
CHL – Conductive hearing loss
CHO – Carbohydrate
CI – Contraindication
CIDP – Chronic inflammatory demyelinating polyradiculopathy
CIN – Cervical intraepithelial neoplasia
CJD – Creutzfeldt–Jakob disease
CK – Creatine kinase
CKD – Chronic kidney disease
CL – Corpus luteum
CLD – Chronic liver disease
CLI – Chronic limb ischaemia
CLL – Chronic lymphocytic leukaemia
CLTI – Critical limb-threatening ischaemia
CML – Chronic myeloid leukaemia
CMPA – Cow's milk protein allergy
CMT – Charcot–Marie–Tooth
CMV – Cytomegalovirus
CN – Cranial nerve
CNS – Central nervous system
CO – Cardiac output
CoA – Coarctation of the aorta
COC – Ceiling of care
COCP – Combined oral contraceptive pill
COMT – Catechol-*O*-methyltransferase
COPD – Chronic obstructive pulmonary disease
CPA – Costophrenic angle
CPAP – Continuous positive airway pressure
CPEO – Chronic progressive external ophthalmoplegia
CPN – Community psychiatric nurse
CPOC – Centre for Perioperative Care
CPPD – Calcium pyrophosphate crystal deposition
CPR – Cardiopulmonary resuscitation
Cr – Creatinine
CRA – Central retinal artery
CRAO – Central retinal artery occlusion
CRC – Colorectal cancer
CRH – Corticotrophin-releasing hormone
CRL – Crown–rump length
CRP – C-reactive protein
CRT – Capillary refill time
CRVO – Central retinal vein occlusion
CSA – Chronic stable angina
CSCI – Continuous subcutaneous infusion (syringe driver)
C-section – Caesarean section
CSF – Cerebral spinal fluid
CSOM – Chronic suppurative otitis media
CSS – Carotid sinus syndrome
CT – Computed tomography
CT CAP – Computed tomography chest, abdomen & pelvis
CT KUB – CT kidneys, ureters, bladder
CTA – Computed tomography angiography
CTAP – Computed tomography abdomen & pelvis
CTD – Connective tissue disease
CTG – Cardiotocography
CTO – Community treatment order
CTPA – Computed tomography pulmonary angiogram
CTS – Carpal tunnel syndrome
Cu – Copper
Cu-IUD – Copper intrauterine device
CV – Cardiovascular
CVA – Cerebrovascular accident
CVC – Central venous catheter
CVD – Cardiovascular disease
CVI – Chronic venous insufficiency
CVID – Common variable immunodeficiency
CVL – Central venous line
CVP – Central venous pressure
CVS – Chorionic villus sampling
CVST – Cortical venous sinus thrombosis
CWP – Coal workers' pneumoconiosis
CXR – Chest X-ray
d – Day
D&V – Diarrhoea & vomiting
DA – Dopamine
DAPT – Dual antiplatelet therapy
DAS – Disease activity score
dB – Decibel
DBP – Diastolic blood pressure
DBT – Dialectical behaviour therapy
DC twins – Dichorionic twins
DCCV – Direct current cardioversion
DCDA – Dichorionic diamniotic
DCIS – Ductal carcinoma *in situ*
DCML – Dorsal column medial lemniscus
dcSSc – Diffuse cutaneous systemic sclerosis
DDH – Developmental dysplasia of the hip
DDx – Differential diagnosis
DEXA – Dual energy X-ray absorptiometry
DHEA(-S) – Dehydroepiandrosterone (sulfate)
DHP – Dihydropyridine
DHS – Dynamic hip screw
DIC – Disseminated intravascular coagulation
DILI – Drug-induced liver injury
DIPJ – Distal interphalangeal joint
DKA – Diabetic ketoacidosis
DLQI – Dermatology Life Quality Index
Dm – Dermatomyositis
DM – Diabetes mellitus
DMARD – Disease-modifying antirheumatic drug
DMD – Duchenne muscular dystrophy

DNACPR – Do not attempt cardiopulmonary resuscitation
DOAC – Direct oral anticoagulant
DPP4 – Dipeptidyl-peptidase 4
DRE – Digital rectal examination
dsDNA – Double-stranded DNA
DSM-5 – Diagnostic and Statistical Manual of Mental Disorders, 5th edition
DVLA – Driver and Vehicle Licensing Agency
DVT – Deep venous thrombosis
Dx – Diagnosis
EAM – External acoustic meatus
EASI – Eczema Area & Severity Index
EBV – Epstein–Barr virus
EC – Emergency contraception
ECG – Electrocardiogram
ECHO – Echocardiogram
ECMO – Extra-corporeal membrane oxygenation
ECT – Electroconvulsive therapy
ECV – External cephalic version
ED – Emergency Department
EDD – Estimated delivery date
EDS – Ehlers–Danlos syndrome
EEG – Electroencephalogram
EF – Ejection fraction
eGFR – Estimated GFR
eGPA – Eosinophilic granulomatosis with polyangiitis
EID – Electronic implantable device
ELBW – Extremely low birth weight
ELISA – Enzyme-linked immunosorbent assay
EMA – Endomysial antibody
EMDR – Eye movement desensitisation & reprocessing
EMG – Electromyography
ENT – Ear, nose and throat
EOM – Extraocular muscles
EPB – Extensor pollicis brevis
EPL – Extensor pollicis longus
EPO – Erythropoietin
EPSE – Extra-pyramidal side-effects
ER – Oestrogen receptor
ERCP – Endoscopic retrograde cholangiopancreatography
ERPC – Evacuation of retained products of conception
ESA – Erythropoiesis-stimulating agent
ESR – Erythrocyte sedimentation rate
ESWL – Extra-corporeal shock wave lithotripsy
ET – Essential thrombocythaemia
ET tube – Endotracheal tube
EUA – Examination under anaesthetic
EUPD – Emotionally unstable personality disorder
EVAR – Endovascular aneurysm repair
FAP – Familial adenomatous polyposis
FAST – Focused Assessment with Sonography in Trauma
FB – Foreign body
FBC – Full blood count
FBS – Fetal blood sampling
FCU – First catch urine
FDP – Flexor digitorum profundus
FDS – Flexor digitorum superficialis
Fe – Iron
FeNO – Fraction of expired nitrous oxide
FEV_1 – Forced expiratory volume in 1 second
FFP – Fresh frozen plasma
FHH – Familial hypocalciuric hypercalcaemia
FHR – Fetal heart rate
FHx – Family history
FICB – Fascia iliaca compartment block
FiO_2 – Fraction of inspired oxygen
FISH – Fluorescence *in situ* hybridisation
FIT – Faecal immunochemical test
FN – Facial nerve
FNA – Fine needle aspiration
FNA(C) – Fine needle aspiration (cytology)
FNB – Femoral nerve block
FNE – Flexible nasal endoscopy
FOOSH – Fall on outstretched hand
FPL – Flexor pollicis longus
FR – Failure rate
FSH – Follicle-stimulating hormone
FSU – First-stream urine
FTD – Frontotemporal dementia
FTT – Failure to thrive
FVC – Forced vital capacity
G&S – Group & save
G6PD – Glucose 6 phosphate dehydrogenase
GA – General anaesthesia
GABA – Gamma-aminobutyric acid
GAD – Generalised anxiety disorder *or* Glutamic acid decarboxylase
GB – Gallbladder
GBS – Group B streptococcus *or* Guillain–Barré syndrome
GC – Glucocorticoid
GCA – Giant cell arteritis
GCS – Glasgow Coma Score/Scale
GCSF – Granulocyte colony-stimulating factor
GDD – Global developmental delay
GDM – Gestational diabetes mellitus
GFR – Glomerular filtration rate
GGT – Gamma-glutamyl transferase
GH – Growth hormone
GI – Gastrointestinal
GIST – Gastrointestinal stromal tumour
GIT – Gastrointestinal tract
GLP1 – Glucagon-like peptide 1
GnRH – Gonadotropin-releasing hormone
GOJ – Gastro-oesophageal junction
GORD – Gastro-oesophageal reflux disease
GP – General practitioner
GPA – Granulomatosis with polyangiitis
GTN – Glyceryl trinitrate
GTPS – Greater trochanteric pain syndrome
GUM – Genitourinary medicine
h – Hour
H_2RA – H_2 receptor antagonist
HAP – Hospital-acquired pneumonia
Hb – Haemoglobin
HbA1c – Glycated haemoglobin
HbF – Fetal haemoglobin
HBPM – Home blood pressure monitoring
HBV – Hepatitis B virus
hCG – Human chorionic gonadotrophin
HCM – Hypertrophic cardiomyopathy
HCV – Hepatitis C virus
HDL – High density lipoprotein
HDU – High dependency unit
Hep – Hepatitis
HER2 – Human epidermal growth factor receptor 2
HF – Heart failure
HFpEF – Heart failure with preserved ejection fraction
HFrEF – Heart failure with reduced ejection fraction
HG – Hyperemesis gravidarum
HHS – Hyperosmolar hyperglycaemic state
HHV – Human herpes virus

HIE – Hypoxic ischaemic encephalopathy
HIT – Heparin-induced thrombocytopenia
HIV – Human immunodeficiency virus
HL – Hearing loss *or* Hodgkin lymphoma
HLA – Human leukocyte antigen
HLHS – Hypoplastic left heart syndrome
HMB – Heavy menstrual bleeding
HNPCC – Hereditary non-polyposis colorectal cancer
HNPP – Hereditary neuropathy with pressure palsies
HPA axis – Hypothalamic–pituitary– adrenal axis
HPCR – High pressure chronic retention
HPL – Human placental lactogen
HPLC – High performance liquid chromatography
HPT – Hyperparathyroidism
HPV – Hepatic portal vein *or* Human papillomavirus
HR – Heart rate
HRCT – High-resolution CT scan
HRT – Hormone replacement therapy
HS – Hereditary spherocytosis
HSP – Henoch–Schönlein purpura
HSV – Herpes simplex virus
HTN – Hypertension
HUS – Haemolytic uraemic syndrome
Hz – Hertz
HZV – Herpes zoster virus
IA – Intra-articular
IAP – Intra-abdominal pressure
IAPT – Improving access to psychological therapies
IBD – Inflammatory bowel disease
IBS – Irritable bowel syndrome
IC – Intracranial
ICA – Internal carotid artery
ICD – Implantable cardiac defibrillator
ICH – Intracranial haemorrhage
ICP – Intracranial pressure
ICS – Inhaled corticosteroid
ICSI – Intracytoplasmic sperm injection
ICU – Intensive care unit
ID – Intellectual disability
IDA – Iron-deficiency anaemia
IE – Infective endocarditis
IESS – Infantile epileptic spasms syndrome
Ig – Immunoglobulin
IGF – Insulin-like growth factor
IHD – Ischaemic heart disease
IIH – Idiopathic intracranial hypertension
IIM – Idiopathic inflammatory myopathies
ILAE – International League Against Epilepsy
ILD – Interstitial lung disease
ILGF – Insulin-like growth factor
ILR – Internal loop recorder
IM – Intramuscular
IM nail – Intra-medullary nail
IMA – Inferior mesenteric artery
IMB – Intermenstrual bleeding
inc. – Including
INR – International normalised ratio
IOL – Induction of labour *or* Intraocular lens
IOP – Intraocular pressure
IPC – Intermittent pneumatic compression
IPSS – International Prostate Symptom Score
IR – Immediate release
IRMA – Intraretinal microvascular abnormality
ITP – Immune thrombocytopenic purpura
IUD – Intrauterine device
IUFD – Intrauterine fetal death
IUGR – Intrauterine growth restriction
IUI – Intrauterine insemination
IV – Intravenous
IVC – Inferior vena cava
IVDU – Intravenous drug user
IVF – *In vitro* fertilisation
IVH – Intraventricular haemorrhage
Ix – Investigation
JGA – Juxtaglomerular apparatus
JIA – Juvenile idiopathic arthritis
JVP – Jugular venous pressure
KB – Ketone bodies
KCl – Potassium chloride
LA – Left atrium *or* Local anaesthetic *or* Long-acting
LABA – Long-acting beta agonist
LACS – Lacunar stroke
LAD – Left anterior descending artery
LAMA – Long-acting muscarinic antagonist
LARC – Long-acting reversible contraception
LBBB – Left bundle branch block
LBD – Lewy body dementia
LBW – Low birth weight
lcSSc – Limited cutaneous systemic sclerosis
LDH – Lactate dehydrogenase
LDL – Low density lipoprotein
L-dopa – Levodopa
LEMS – Lambert–Eaton myasthenic syndrome
LFT – Liver function test
LGA – Large for gestational age
LH – Luteinising hormone
LHS – Left-hand side
LIF – Left iliac fossa
LLETZ – Large loop excision of the transformation zone
LLSE – Lower left sternal edge
LMA – Laryngeal mask airway
LMN – Lower motor neurone
LMP – Last menstrual period
LMWH – Low molecular weight heparin
LN – Lymph node
LNG – Levonorgestrel
LNG-IUD – Levonorgestrel intrauterine device
LOC – Loss of consciousness
LP – Lumbar puncture
LP reflux – Laryngopharyngeal reflux
LPA – Lasting power of attorney
LRTI – Lower respiratory tract infection
LSBP – Lying & standing blood pressure
LSCS – Lower section caesarean section
LSD – Lysergic acid diethylamide
LTRA – Leukotriene receptor antagonist
LTs – Leukotrienes
LUQ – Left upper quadrant
LUTS – Lower urinary tract symptoms
LV – Left ventricle
LVEF – Left ventricular ejection fraction
LVF – Left ventricular failure
LVH – Left ventricular hypertrophy
m – Month
MAB – Monoclonal antibody
MAO(I) – Monoamine oxidase (inhibitor)
MART – Maintenance and reliever therapy
MASLD – Metabolic dysfunction-associated steatotic liver disease
MBT – Mentalisation-based therapy
MC – Mineralocorticoid
MC&S – Microscopy, culture and sensitivities
MC twins – Monochorionic twins
MCA – Mental Capacity Act *or* Middle cerebral artery

MCDA – Monochorionic, diamniotic
mcg – Microgram
MCH – Mean corpuscular haemoglobin
MCL – Medial collateral ligament
MCMA – Monochorionic monoamniotic
MCP – Metacarpophalangeal
MCPJ – Metacarpophalangeal joint
MCS – Microscopy, culture and sensitivity
MCV – Mean corpuscular volume
MDMA – 3,4-methylenedioxy-methamphetamine
MDT – Multidisciplinary team
Mg – Magnesium
MG – Myasthenia gravis
$MgSO_4$ – Magnesium sulphate
MGUS – Monoclonal gammopathy of unknown significance
MH – Malignant hyperthermia
MHA – Mental Health Act
MHC – Mean haematocrit content
MHRA – Medicines and Healthcare products Regulatory Agency
MI – Myocardial infarction
min – Minute
MMF – Mycophenolate mofetil
MMSE – Mini-Mental State Exam
MND – Motor neurone disease
MOAB – Monoamine oxidase B
MoCA – Montreal Cognitive Assessment
MOI – Mechanism of injury
MPN – Myeloproliferative neoplasms
MR – Mitral regurgitation *or* Modified release
MRC – Medical Research Council
MRCP – Magnetic resonance cholangiopancreatography
MRI – Magnetic resonance imaging
MRSA – Methicillin-resistant *Staphylococcus aureus*
MS – Mitral stenosis *or* Multiple sclerosis
MSCC – Metastatic spinal cord compression
MSE – Mental state exam
MSK – Musculoskeletal
MSU – Mid-stream urine
MSUM – Monosodium urate monohydrate
MTPJ – Metatarsophalangeal joint
MTX – Methotrexate
MUAC – Mid-upper arm circumference
MUST – Malnutrition Universal Screening Tool
MVP – Mitral valve prolapse
Mx – Management
MZ twins – Monozygotic twins
N / n. – Nerve
N&V – Nausea & vomiting
N_2O – Nitrous oxide
NA – Noradrenaline
Na – Sodium
NAAION – Non-arteritic anterior ischaemic optic neuropathy
NAAT – Nucleic acid amplification test
NAC – *N*-acetylcysteine
NACT – Neoadjuvant chemotherapy
NAET – Neoadjuvant endocrine therapy
NAFLD – Non-alcoholic fatty liver disease
NAI – Non-accidental injury
NaSSA – Noradrenergic and specific serotonergic antidepressants
NATT – Neoadjuvant targeted therapy
NBM – Nil by mouth
NCS – Nerve conduction study
Neb – Nebuliser
NEC – Necrotising enterocolitis
NEWS – National Early Warning Score
NF / NF1 / NF2 – Neurofibromatosis / type 1 / type 2
NG – Nasogastric
NHL – Non-Hodgkin lymphoma
NICE – National Institute for Health and Care Excellence
NICU – Neonatal intensive care unit
NIPE – Newborn & infant physical examination
NIPPV – Non-invasive positive pressure ventilation
NIV – Non-invasive ventilation
NMBA – Neuromuscular blocking agent
NMD – Neuromuscular disorder
NMDA – *N*-methyl-D-aspartate
NMJ – Neuromuscular junction
NMS – Neuroleptic malignant syndrome
(N)NRTI – (Non)-nucleoside reverse transcriptase inhibitor
NO – Nitrous oxide
NOF – Neck of femur
NPDR – Non-proliferative diabetic retinopathy
NRM – Non-rebreather mask
NSAID – Non-steroidal anti-inflammatory drug
NSCLC – Non-small cell lung cancer
NSTEMI – Non-ST-elevation myocardial infarction
NT – Nuchal translucency
NTD – Neural tube defect
NVD – Normal vaginal delivery
NVP – Nausea & vomiting in pregnancy
O/E – On examination
OA – Occipito-anterior *or* Osteoarthritis
OAB – Overactive bladder
OAE – Otoacoustic emissions
OCD – Obsessive–compulsive disorder
OCP – Oral contraceptive pill
OD – Once a day
OGD – Oesophagogastroduodenoscopy
OGTT – Oral glucose tolerance test
OHSS – Ovarian hyperstimulation syndrome
OME – Otitis media externa *or* Otitis media with effusion
OP – Occipito-posterior *or* Osteoporosis
OPG – Orthopantomogram
ORT – Oral rehydration therapy
OSA – Obstructive sleep apnoea
Osm – Osmolality
OT – Occipito-transverse *or* Occupational therapist
OTC – Over the counter
PA – Posterior–anterior
PACS – Partial anterior circulation stroke
PAD – Peripheral arterial disease
PAL – Physical activity level
PAPP-A – Pregnancy-associated plasma protein A
PASI – Psoriasis Area & Severity Index
PBC – Primary biliary cholangitis
PCA – Posterior cerebral artery
PCB – Post-coital bleeding
PCI – Percutaneous coronary intervention
PCKD – Polycystic kidney disease
PCL – Posterior cruciate ligament
PCNL – Percutaneous nephrolithotomy
PCO – Polycystic ovaries
PCOS – Polycystic ovarian syndrome
PCP – *Pneumocystis* pneumonia
PCR – Polymerase chain reaction
PCV – Packed cell volume *or* Pneumococcal conjugate vaccine
PD – Parkinson's disease *or* Personality disorder

PDA – Patent ductus arteriosus
PDD – Parkinson's disease dementia
PDR – Proliferative diabetic retinopathy
PDT – Photodynamic therapy
PE – Pulmonary embolism
PEA – Pulseless electrical activity
PEF – Peak expiratory flow
PEG – Percutaneous endoscopic gastrostomy
PET – Positron emission tomography
PFMT – Pelvic floor muscle training
PFO – Patent foramen ovale
PFTs – Pulmonary function tests
PG – Prostaglandin
PGD – Pre-implantation genetic diagnosis
PGS – Pre-implantation genetic screening
PGs – Prostaglandins
PHx – Past history
PI – Protease inhibitor
PICC – Peripherally inserted central catheter
PICU – Paediatric intensive care unit
PID – Pelvic inflammatory disease
PIP – Proximal interphalangeal
PIPJ – Proximal interphalangeal joint
PK – Pyruvate kinase
PKD – Polycystic kidney disease
PKU – Phenylketonuria
PLA_2 – Phospholipase A_2 receptor
Plt – Platelets
Pm – Polymyositis
PMB – Post-menopausal bleeding
PMC – Percutaneous mitral balloon commissurotomy
PMF – Primary myelofibrosis
PMH – Past medical history
PMR – Polymyalgia rheumatica
PMS – Premenstrual syndrome
PND – Paroxysmal nocturnal dyspnoea
PNH – Paroxysmal nocturnal haemoglobinuria
PNS – Peripheral nervous system
PO – (*per ora*) Orally
PO_4 – Phosphate
POC – Package of care
POCS – Posterior circulation stroke
PONV – Post-operative nausea & vomiting
POP – Progesterone-only contraceptive pill
POST – Postoperative sore throat
PPD – Postpartum depression
PPH – Postpartum haemorrhage
PPI – Proton pump inhibitor
PPM – Permanent pacemaker
PPP – Postpartum psychosis
PPROM – Premature prelabour rupture of membranes
PR – Per rectum
PRN – *Pro re nata* (as required)
PROM – Prelabour rupture of membranes
PRV – Polycythaemia rubra vera
PSA – Prostate-specific antigen
PsA – Psoriatic arthritis
PSC – Primary sclerosing cholangitis
PSGN – Post-streptococcal glomerulonephritis
PSHx – Past surgical history
PT – Physiotherapy *or* Prothrombin time
PTA – Percutaneous transluminal angioplasty *or* Pure tone audiometry
PTH – Parathyroid hormone
PTH-rp – Parathyroid hormone-related protein
PTSD – Post-traumatic stress disorder
PUD – Peptic ulcer disease
PUFR – Perfect use failure rate
PUJ – Pelvic–ureteric junction
pulm. – Pulmonary
PV – Per vagina
PVD – Peripheral vascular disease
PVT – Portal vein thrombosis *or* Pulseless ventricular tachycardia
QDS – Four times a day
qFIT – Quantitative faecal immunochemical test
QoL – Quality of life
r/o – Risk of
R/V – Review
RA – Rheumatoid arthritis *or* Right atrium
RAAS – Renin–angiotensin–aldosterone system
RAI – Radioactive iodine
RAPD – Relative afferent pupillary defect
RAS – Renal artery stenosis
RBBB – Right bundle branch block
RBC – Red blood cell
RCC – Renal cell carcinoma
RDS – Respiratory distress syndrome
re – Regarding
REM – Rapid eye movement
R-F – Radio-femoral
RF – Respiratory failure *or* Rheumatoid factor *or* Risk factor
RFT – Renal function test
Rh – Rhesus
RHF – Right heart failure
RHS – Right-hand side
RIF – Right iliac fossa
RIG – Radiologically inserted gastrostomy
RL CCB – Rate-limiting calcium channel blocker
RNP – Ribonucleoprotein
ROM – Range of movement *or* Rupture of membranes
ROSC – Return of spontaneous circulation
RPE – Retinal pigment epithelium
RPOC – Retained products of conception
RR – Respiration rate
RRT – Renal replacement therapy
RSV – Respiratory syncytial virus
RTA – Renal tubular acidosis *or* Road traffic accident
RUQ – Right upper quadrant
RV – Right ventricle
RVF – Right ventricular failure
s – Second
SA – Short-acting *or* Surface area
SABA – Short-acting beta agonist
SAH – Subarachnoid haemorrhage
SALT – Speech and language therapy
SAMA – Short-acting muscarinic antagonist
SAN – Spinal accessory nerve
SB – Small bowel
SBO – Small bowel obstruction
SBP – Spontaneous bacterial peritonitis *or* Systolic blood pressure
SC – Subcutaneous
SCA – Sickle cell anaemia *or* Subclavian artery
SCA/D – Sickle cell anaemia/disease
SCC – Squamous cell carcinoma
SCD – Sickle cell disease
SCID – Severe combined immunodeficiency
SCLC – Small cell lung cancer
SCV – Subclavian vein
SD – Standard deviation
SE – Side-effect
SFH – Symphysial fundal height
SFJ – Saphenofemoral junction
SGA – Small for gestational age
SGLT2 – Sodium-glucose transport protein 2

SHO – Senior house officer
SI – Small intestine
SIADH – Syndrome of inappropriate antidiuretic hormone secretion
SIJ – Sacroiliac joint
SJS – Stevens–Johnson syndrome
SJW – St John's wort
SL – Sublingual
SLE – Systemic lupus erythematosus
SLNB – Sentinel lymph node biopsy
SMA – Superior mesenteric artery *or* Smooth muscle antibody
SMV – Superior mesenteric vein
SNHL – Sensorineural hearing loss
SNRI – Selective noradrenaline reuptake inhibitor
SNS – Sympathetic nervous system
SOB – Shortness of breath
SOL – Space-occupying lesion
SPF – Sun protection factor
SpO_2 – Oxygen saturation
SR – Sustained release
SSMDT – Specialised Skin Multidisciplinary Team
SSRI – Selective serotonin reuptake inhibitor
SSSS – Staphylococcal scalded skin syndrome
STEMI – ST-elevation myocardial infarction
STI – Sexually transmitted infection
SUFE – Slipped upper femoral epiphysis
SV – Stroke volume
SVC – Superior vena cava
SVCO – Superior vena cava obstruction
SVR – Systemic vascular resistance
SVT – Supraventricular tachycardia
Sx – Symptoms
T1DM – Type 1 diabetes mellitus
T1RF – Type 1 respiratory failure
T2DM – Type 2 diabetes mellitus
T2RF – Type 2 respiratory failure
TA – Tricuspid atresia
TACO – Transfusion-associated circulatory overload
TACS – Total anterior circulation stroke
TAVI/TAVR – Transcatheter aortic valve implantation / replacement
TB – Tuberculosis
TBI – Toe–brachial index
TBSA – Total body surface area
TCA – Tricyclic antidepressant
TCC – Transitional cell carcinoma
TDS – Three times a day
TEN – Toxic epidermal necrolysis
TENS – Transcutaneous electrical nerve stimulation
TEP – Treatment escalation plan
TFT – Thyroid function test
Tg(Ab) – Thyroglobulin (antibody)
TGA – Transposition of the great arteries
TGs – Triglycerides
THA – Total hip arthroplasty
THC – Tetrahydrocannabinol
TIA – Transient ischaemic attack
TIBC – Total iron-binding capacity
TIPS – Transjugular intrahepatic portosystemic shunt
TIVA – Total intravenous anaesthesia
TLC – Total lung capacity
TM – Tympanic membrane
TMJ – Temporomandibular joint
TNF – Tumour necrosis factor
TNM – Tumour, nodes, metastases
TOE – Transoesophageal echo
TOF – Tetralogy of Fallot
TOP – Termination of pregnancy
TPMT – Thiopurine methyltransferase
TPO – Thyroid peroxidase
TPO(Ab) – Thyroid peroxidase (antibody)
TPR – Total peripheral resistance
TR(Ab) – Thyroid receptor (antibody)
TRALI – Transfusion-related acute lung injury
TSAT – Transferrin saturation
TSH – Thyroid-stimulating hormone
TSS – Toxic shock syndrome
TTE – Trans-thoracic echo
tTG – Tissue transglutaminase
TTN – Transient tachypnoea of the newborn
TTP – Thrombotic thrombocytopenic purpura
TUFR – Typical use failure rate
TURBT – Transurethral resection of bladder tumour
TURP – Transurethral resection of prostate
TV – Transvaginal
Tx – Treatment
TXA – Tranexamic acid
U&Es – Urea & electrolytes
U(L/R)SE – Upper (left/right) sternal edge
UA – Unstable angina
UC – Ulcerative colitis
UCBR – Unconjugated bilirubin
UKMEC – UK Medical Eligibility Criteria for Contraceptive Use
UMN – Upper motor neurone
UO – Urine output
UPA – Ulipristal acetate
UPSI – Unprotected sexual intercourse
USC – Urgent suspected cancer
URT – Upper respiratory tract
URTI – Upper respiratory tract infection
US – Ultrasound
USC – Urgent suspected cancer
USS – Ultrasound scan
UTI – Urinary tract infection
UVA – Ultraviolet A
UVB – Ultraviolet B
VBAC – Vaginal birth after caesarean section
VBG – Venous blood gas
VC – Vocal cord
VDRL – Venereal Disease Research Laboratory
VE – Vaginal examination
VEGF – Vascular endothelial growth factor
VEP – Visual evoked potential
VF – Ventricular fibrillation *or* Visual field
VHL – Von Hippel–Lindau disease
VIN – Vulval intraepithelial neoplasia
vit – Vitamin
VLBW – Very low birth weight
VO crises – Vaso-occlusive crises
VSD – Ventricular septal defect
VT – Ventricular tachycardia
VTE – Venous thromboembolism
VUJ – Vesico-ureteric junction
VUR – Vesicoureteric reflux
vWD – von Willebrand disease
VZV – Varicella zoster virus
W – Week
WBC – White blood cell
WCC – White cell count
WHO – World Health Organization
WOB – Work of breathing
y – Year

How to use this book

Although this book is a valuable resource on its own, **the greatest benefit** will be gained when it is used alongside its parent books: **the *Medical Student Revision Guides: General Medicine & Surgery* and *Clinical Specialties*.**

Book chapters

For ease of navigation, **chapters within this book are ordered alphabetically**.

The **chapter colour matches the colour used for its corresponding chapter in the parent books** (e.g. the cardiology chapter in this book and in the *General Medicine & Surgery* revision guide are both light green).

Alongside an explanation of how to reach the correct answer, each set of questions **links back to the relevant pages in the accompanying *Medical Student Revision Guide***, allowing you to revisit that topic in more detail if required.

Book questions

The questions in this book can be completed in any order and are grouped into chapters based on clinical specialty.

Questions are designed to **mirror the format of the MLA multiple-choice written exam**, with all of the information presented within the question stem, followed by five multiple choice answer options.

At the end of every chapter the answers, together with **a thorough explanation of how to reach each answer**, are provided. These explanations use **evidence-based strategies to support clinical reasoning**.

Explanations draw focus to important epidemiological factors, significant positive and negative symptoms, and relevant risk factors. **Colour-coded highlighting** makes it easy to pick out these key features in the question stem and build your clinical reasoning skills.

- **Patient demographics** are highlighted in yellow
- **Important positive findings** are highlighted in green
- **Important negative findings** are highlighted in blue
- **Relevant risk factors and associations** are highlighted in purple

Note that occasionally the explanation structure will differ from this format, to allow for a wider variety of question types

This process prompts **'deliberate reflection'** and it is advised that, even if a correct answer is immediately obvious, you ask yourself 'why' that answer is correct. **'Self-explaining'** your thought process will consolidate your underlying knowledge of pathophysiology, and develop your critical thinking and diagnostic skills, above and beyond just factual recall.

The final chapter comprises questions from a range of specialties, to further test your knowledge without any prior clue regarding the topic. The answers and explanations for these appear on the Resources tab at www.scionpublishing.com/UKMLA.

Book content

This book has been designed as a revision resource and, whilst the information has been checked by specialists in each field to ensure accuracy at time of writing, it should **never be used in the place of clinical guidelines** or local protocols when treating patients in the clinical environment.

Furthermore, **exam questions are often written based on typical 'textbook' presentations** of pathologies, and therefore many of the questions in this book describe the presence or absence of 'typical' features to guide you to the correct answer. However, it is important to note that in reality, **medicine is rarely so black and white**. Patients do not always present with the typical signs, symptoms or risk factors that are associated with the underlying pathology. **Importantly, the absence of any of these does not necessarily rule out a condition**. It is therefore vital to ensure that in clinical practice your differentials remain broad, and investigations appropriately comprehensive.

You will find that the questions in this book range in difficulty, with some more challenging than would be expected in the MLA. This is to prepare you not only for your exams, but also for work in clinical practice.

02 ANAESTHETICS
SBA questions

Question 1

A fit 30-year-old male is undergoing an open inguinal hernia repair under general anaesthesia. A supraglottic airway is being used. As the surgeon manipulates the peritoneum of the hernial sac, the patient develops inspiratory stridor and the oxygen saturations begin to fall. Paradoxical breathing is noted. Basic airway manoeuvres and adjuncts do not improve the situation.

What is the most likely diagnosis?

A. Apnoeic episodes
B. Bronchospasm
C. Foreign body obstruction of the airway
D. Laryngospasm
E. Pulmonary aspiration

Question 2

A 63-year-old male is at his pre-operative appointment before undergoing an elective left hemicolectomy. He is curious about exactly what medications he will be given to achieve anaesthesia, and how they work.

Which of the following is a muscle relaxant used during general anaesthesia?

A. Fentanyl
B. Propofol
C. Remifentanil
D. Sevoflurane
E. Rocuronium

Question 3

A 60-year-old male is undergoing an emergency Hartmann's procedure for a perforated colon. The anaesthetist performed a rapid sequence induction. Suxamethonium was used to provide muscle relaxation. Initial observations were HR 60 bpm, BP 130/70 mmHg, O_2 sats 100%, temperature 37.0°C. Around 30 minutes into the operation, the anaesthetist notices a worsening sinus tachycardia (HR >130 bpm) mild hypotension (BP 100/60 mmHg), an elevated end-tidal CO_2 (ET CO_2 >7.5 kPa), and elevated patient temperature (40°C). The surgeon notices some muscle rigidity.

What is the most likely diagnosis?

A. Allergic reaction to one of the anaesthetic agents
B. Autonomic response due to inadequate anaesthesia
C. Malignant hyperthermia
D. Neuroleptic malignant syndrome
E. Sepsis

Question 4

A 32-year-old female is undergoing an emergency appendicectomy. She previously suffered severe post-operative nausea and vomiting (PONV) after a general anaesthetic for routine dental extractions. She has no medical conditions, does not smoke, and has no known drug allergies.

Which of the following approaches is most likely to reduce symptoms of PONV in this patient?

A. Avoiding steroids
B. Inhaled anaesthetic agents
C. Opioid analgesia
D. Total intravenous anaesthesia
E. Using nitrous oxide

For background reading before answering these questions, see pages 279–85 of *Clinical Specialties, MLA edition*.

Answers to questions

Question 1

A fit 30-year-old male is undergoing an open inguinal hernia repair under general anaesthesia. A supraglottic airway is being used. As the surgeon manipulates the peritoneum of the hernial sac, the patient develops inspiratory stridor and the oxygen saturations begin to fall. Paradoxical breathing is noted. Basic airway manoeuvres and adjuncts do not improve the situation.

What is the **most likely** diagnosis?

Correct answer: D. Laryngospasm

HOW to reach the correct answer

All answers are possible, but clues in the question guide us to which is the **most likely**.

Patient demographics – all of the listed answers could occur in patients undergoing general anaesthesia (GA). However, laryngospasm is typically more common in younger age groups, such as this patient.

Positive clinical signs and symptoms – this patient has suddenly desaturated and developed stridor whilst under GA. There is also paradoxical breathing, which is where the chest wall moves in the opposite way to normal respiration (i.e. chest wall moves in with inspiration, and out with expiration). All these features are signs of acute respiratory distress. However, the key is that this appears to have been triggered by manipulation of the peritoneal sac. This is most in keeping with laryngospasm, a primitive reflex designed to protect against aspiration. The laryngeal muscles contract, resulting in vocal cord adduction and airway closure. It can be triggered by vagal stimulation (e.g. traction of the peritoneum in this case), in a patient who is under inadequate (too light) anaesthesia.

Negative clinical signs and symptoms – both bronchospasm and aspiration are possible differentials, but would more likely present with wheeze, rather than stridor. Additionally, bronchospasm is often related to an underlying airway condition, such as asthma, of which there is no history here. In apnoeas / breath-holding episodes, a lack of respiratory effort would be noted. In this case, there is paradoxical breathing, which rules out this option. There is no reason to suggest inhalation of a foreign body, and this is unlikely to have happened mid-procedure. Another clue here is that the symptoms do not improve with airway manoeuvres or adjuncts, which is also typical in laryngospasm.

Risk factors and associations – risk factors for laryngospasm include airway sensitivity (this can be caused by asthma, being a smoker and exposure to passive smoke inhalation), gastro-oesophageal reflux disease, obesity and anatomical airway abnormalities.

Question 2

A 63-year-old male is at his pre-operative appointment before undergoing an elective left hemicolectomy. He is curious about exactly what medications he will be given to achieve anaesthesia, and how they work.

Which of the following is a **muscle relaxant** used during general anaesthesia?

Correct answer: E. Rocuronium

HOW to reach the correct answer

We are looking for a **muscle relaxant** from the listed options. This requires a basic knowledge of different drugs used in GA.

Fentanyl is an opioid medication used to achieve the *analgesic* component of GA.

Propofol is an intravenous *hypnotic agent* used for the induction and maintenance of GA.

Remifentanil is an ultra-short-acting, extremely potent opioid medication used to provide the analgesic component of a balanced general anaesthetic.

Given the ECG findings, which of the below options is not a potential management option?

A. Carotid sinus massage
B. IV adenosine
C. IV amiodarone
D. IV metoprolol
E. Valsalva manoeuvre

Question 8

A 70-year-old female is pre-alerted to resus as she is having a cardiac arrest. On arrival, the paramedics tell you that she has had a rhythm of PEA with no output for approximately 20 minutes. Her husband is very distressed as his wife is normally fit and well, with her only medication being a statin at night. Other than some leg pain for the past 2 days, she had not complained of any other symptoms leading up to her sudden collapse today.

Which of these is the most likely cause of her cardiac arrest?

A. Cardiac tamponade
B. Hyperkalaemia
C. Hypovolaemia
D. Tension pneumothorax
E. Thrombosis

Question 9

A 20-year-old female presents to the ED with trouble breathing. She is not able to complete full sentences to give you a clear history. However, her boyfriend tells you that her symptoms have been worsening over the past 6 hours. When you listen to her chest, there is widespread wheeze, but no crackles. Her respiratory rate is 28/min and her oxygen saturations are 93% in room air. She has no peripheral cyanosis or nicotine staining.

What is the most likely diagnosis?

A. Acute life-threatening asthma
B. Acute severe asthma
C. Anaphylaxis
D. Community-acquired pneumonia (CAP)
E. Infective exacerbation of COPD

Question 10

A 40-year-old male is brought into the ED with a suspected overdose. His eyes open to pain, and he has pinpoint pupils. He localises to pain when you do a trapezius squeeze. He is only vocalising sounds rather than words, and so he cannot tell you what he has taken. His respiratory rate is 8/min. His blood pressure is 86/56 mmHg. His heart rate is 50 bpm and is in sinus rhythm.

Considering the most likely diagnosis, which of the following medications is most likely to play a role in management?

A. Deferoxamine
B. Flumazenil
C. Fomepizole
D. *N*-acetylcysteine
E. Naloxone

Question 11

A 54-year-old female presents to the ED with episodes of feeling shaky and light-headed with accompanying irritability over the last 2 months. She sometimes has palpitations during these episodes. She has not experienced any fevers, chest pain, shortness of breath, or urinary symptoms. The symptoms are worse first thing in the morning, or after exercise. She has a background of T2DM and takes gliclazide. Her ECG today is normal.

Question 9

A 20-year-old female presents to the ED with trouble breathing. She is not able to complete full sentences to give you a clear history. However, her boyfriend tells you that her symptoms have been worsening over the past 6 hours. When you listen to her chest, there is widespread wheeze, but no crackles. Her respiratory rate is 28/min and her oxygen saturations are 93% in room air. She has no peripheral cyanosis or nicotine staining.

What is the **most likely** diagnosis?

Correct answer: B. Acute severe asthma

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is **most likely**.

Patient demographics – a 20-year-old is less likely to have COPD compared to the other diagnoses, so this moves lower down in our list of differentials.

Positive clinical signs and symptoms – she is wheezy, which is most in keeping with either asthma or anaphylaxis. (It is also suggestive of an exacerbation of COPD but, as mentioned above, this is an unlikely differential for such a young patient).

Negative clinical signs and symptoms – she has no nicotine staining, again pointing us away from COPD. There are no crackles on auscultation, reducing the likelihood that this is a CAP. The fact that these symptoms have been worsening over the past 6 hours suggests that this is not anaphylaxis, which would be very sudden in onset.

Risk factors and associations – after narrowing down the diagnosis to acute asthma, we can categorise the severity by looking at certain associated clinical features and observation parameters. A respiratory rate of 28/min, saturations 93%, unable to complete full sentences but not cyanosed, fits with acute **severe** asthma, rather than life-threatening (see table below).

The classification of acute asthma severity, adapted from the British Thoracic Society

	Moderate acute	Acute severe	Life-threatening
Peak flow	50–75% best or predicted	33–50% best or predicted	<33% best or predicted
Saturations	Normal	Normal	<92%
Heart rate	Normal	≥110/min	Arrhythmia
Respiratory rate	Normal	≥25/min	Poor effort / exhaustion – so can be lower than 25
Other signs	No features of acute severe asthma	Inability to complete sentences in one breath No features of life-threatening asthma	PaO_2 <8 kPa or normal $PaCO_2$ on ABG Altered consciousness Cyanosis Silent chest

Question 10

A 40-year-old male is brought into the ED with a suspected overdose. His eyes open to pain, and he has pinpoint pupils. He localises to pain when you do a trapezius squeeze. He is only vocalising sounds rather than words, and so he cannot tell you what he has taken. His respiratory rate is 8/min. His blood pressure is 86/56 mmHg. His heart rate is 50 bpm and is in sinus rhythm.

Considering the **most likely** diagnosis, which of the following medications is **most likely** to play a role in management?

Correct answer: E. Naloxone

HOW to reach the correct answer

Stage one: determine the **most likely** diagnosis using clues in the question.

Patient demographics – age and gender do not help to narrow down the possible overdose substance. However, it is important to bear in mind that being male, and middle-aged, both increase risk of suicide.

Positive clinical signs and symptoms – he has pinpoint pupils and a reduced GCS. He is hypotensive, bradycardic and has a reduced respiratory rate. The key here is the pinpoint pupils, which in an exam question should make you think of opiates. The symptoms of reduced respiratory rate and reduced GCS also fit with opiate toxicity, as do bradycardia and hypotension (due to central nervous system depression and vasodilatory effects). If it were just the reduced GCS and decreased respiratory rate, it could also fit with alcohol.

Negative clinical signs and symptoms – he has no tachycardia, which would be expected in overdose with antifreeze (ethylene glycol) or tricyclic antidepressants. He has no abdominal pain or vomiting, which would suggest paracetamol or iron overdose. He has no hyperventilation, which would fit with salicylate overdose. He has no dilated pupils, which would be expected with benzodiazepine use. However, it is important to remember that in mixed overdoses, symptoms may not be so obvious, as multiple substances may have opposing effects.

Risk factors and associations – although there are no specific risk factors mentioned here, it is important to consider the patient's normal prescription medications as possible substances which have been overdosed on. In particular, consider if the patient has access to antidepressants, benzodiazepines, calcium channel blockers or beta-blockers.

This patient has likely overdosed on opiates.

Stage two: determine the medication that is **most likely** to play a role in management.

Naloxone (option E) is used in the management of opiate overdose. It is an opioid antagonist that can rapidly reverse the effects of opiates on the central nervous system. However, it only has a short half-life and therefore repeated doses or an ongoing infusion may be needed to provide ongoing antagonism until the opiate that was overdosed on has been sufficiently cleared from the body.

Considering the other options:

Deferoxamine: for iron overdose.

Flumazenil: for benzodiazepine overdose.

Fomepizole: for antifreeze ingestion.

N-*acetylcysteine:* for paracetamol overdose.

Question 11

A 54-year-old female presents to the ED with episodes of feeling shaky and light-headed with accompanying irritability over the last 2 months. She sometimes has palpitations during these episodes. She has not experienced any fevers, chest pain, shortness of breath, or urinary symptoms. The symptoms are worse first thing in the morning, or after exercise. She has a background of T2DM and takes gliclazide. Her ECG today is normal.

What is the **most likely** diagnosis?

Correct answer: D. Hypoglycaemic episodes

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is **most likely**.

Patient demographics – 54 years old is an unusual age for a first presentation of heart block. (Usually, onset is in patients >60 years old or in patients with other cardiac pathology.)

Positive clinical signs and symptoms – this patient has symptoms of shakiness, light-headedness, and irritability. Intermittent palpitations are also described. These symptoms are quite vague and could be associated with many of our answers, particularly AF, anxiety and hypoglycaemia. Of these three, the shakiness and irritability are most in keeping with hypoglycaemia. The fact that these symptoms are worse in the morning or after exercise (times where blood glucose levels will naturally drop) is also consistent with hypoglycaemia.

Negative clinical signs and symptoms – infection is usually associated with fever, and would have a more acute onset, making this less likely as the diagnosis. Additionally, the patient denies any specific infective symptoms, including shortness of breath or urinary problems. The normal ECG on this

Question 22

A 16-year-old female is admitted to hospital after her mother found her talking to friends that were not there. The mother also reports that she has been repeating words and acting confused. This has been ongoing for two days. There is no history of drugs or alcohol intake, or any head trauma. CT imaging identifies hypodense changes in both temporal lobes.

What is the most likely diagnosis?

A. HSV encephalitis
B. Intracranial haemorrhage
C. MDMA use
D. Schizophrenic psychosis
E. Wernicke's encephalopathy

Question 23

A 4-year-old boy is referred to neurology clinic, as his mother has noticed that he is frequently falling. There is also a background history of delayed motor milestones. When observing the boy in clinic, it is noted that in order to stand up, he has to walk his hands up his legs. On examination he has a waddling gait with a positive Trendelenburg's sign.

Considering the likely diagnosis, which protein is most likely to be affected?

A. Collagen I
B. Collagen III
C. Desmoglein
D. Dystrophin
E. Fibrillin

Question 24

A 34-year-old male is admitted to the neurology ward after being diagnosed with Guillain–Barré syndrome. His symptoms started 2 days ago with pins and needles in his feet, followed by ascending, bilateral weakness of the legs, to the point that he is now unable to walk.

What is the single most important parameter to monitor when considering whether he needs ITU admission or high-level monitoring?

A. Arterial blood gas (ABG)
B. Forced vital capacity (FVC)
C. Glasgow Coma Scale (GCS)
D. Oxygen saturations
E. Respiratory rate

Question 25

A 65-year-old female is admitted to hospital with dizziness and nausea which has been ongoing for the past 12 hours. She describes feeling as if the room is spinning. She has a past medical history of atrial fibrillation, for which she is taking apixaban regularly. Examination shows an ataxic gait and a horizontal nystagmus, fast beating to the left. Head impulse test was negative.

Considering the most likely diagnosis, what is the most appropriate next step in management?

A. Aspirin 300 mg
B. Discharge with analgesia and prochlorperazine
C. Perform the Epley manoeuvre
D. Urgent CT head
E. Urgent referral to Ophthalmology

This patient most likely has Lambert–Eaton myasthenic syndrome (LEMS).

Stage two: determine what investigation would **confirm** a diagnosis of LEMS.

LEMS is an autoimmune syndrome which has a high paraneoplastic potential. Overall, tumours are identified in about 50% of cases (most commonly small-cell lung cancer). In the remainder, there is an association with other autoimmune disorders, including vitiligo. LEMS is caused by an IgG antibody-mediated autoimmune attack on presynaptic voltage-gated calcium channels. This reduces calcium entry on depolarisation, reducing the numbers of vesicles fusing with the terminal membrane, thus reducing acetylcholine release and neuromuscular transmission. Serological testing can confirm the presence of these autoantibodies. Therefore, **serum anti-P/Q voltage-gated calcium channel antibodies** (option E) is the correct answer.

Considering the other options:

CT thorax abdomen pelvis: this is a very important investigation if LEMS is suspected, due to the strong association with malignancy. However, it is not diagnostic of LEMS itself.

Genetic testing: LEMS is a paraneoplastic, autoimmune condition, rather than a genetic disorder.

MRI head with contrast: the bilateral symptoms make an intracranial event less likely.

Serum anti-acetylcholine receptor antibodies: these are diagnostic for MG.

Question 22

A 16-year-old female is admitted to hospital after her mother found her talking to friends that were not there. The mother also reports that she has been repeating words and acting confused. This has been ongoing for two days. There is no history of drugs or alcohol intake, or any head trauma. CT imaging identifies hypodense changes in both temporal lobes.

What is the **most likely** diagnosis?

Correct answer: A. HSV encephalitis

HOW to reach the correct answer

All answers are possible, but clues in the question guide us to the **most likely** diagnosis.

Patient demographics – neuropsychological presentations in young patients should prompt consideration of neurodevelopmental, infectious and autoimmune diseases.

Positive clinical signs and symptoms – this young patient is presenting with new acute confusion and potentially hallucinations. It is important to rule out organic causes before assigning these symptoms to drug use or mental health disorders. Additionally, CT imaging shows positive findings, which would not be present if these symptoms were due to acute drug use or a primary psychiatric diagnosis. HSV infection of the CNS presents with acute confusion and memory problems, with HSV encephalitis typically affecting the temporal lobes. If untreated, the infection can progress and cause permanent amnesia and cognitive impairment. Prompt diagnosis and treatment are critical.

Negative clinical signs and symptoms – there is no history of recent trauma to suggest an intracranial haemorrhage, and spontaneous bleeds are less likely to occur in this age group. There is no drug or alcohol history that her family is aware of, so MDMA use is less likely, though a urine toxicology screen remains a sensible test to consider. In reality, it is important to consider covert use of drugs and so a low threshold of suspicion is needed.

Risk factors and associations – bilateral, typically asymmetric temporal lobe changes are typical of HSV encephalitis. CSF analysis is key in confirming the diagnosis.

Question 23

A 4-year-old boy is referred to neurology clinic, as his mother has noticed that he is frequently falling. There is also a background history of delayed motor milestones. When observing the boy in clinic, it is noted that in order to stand up, he has to walk his hands up his legs. On examination he has a waddling gait with a positive Trendelenburg's sign.

Considering the **likely** diagnosis, which protein is **most likely** to be affected?

Correct answer: D. Dystrophin

HOW to reach the correct answer

Stage one: identify the **likely** diagnosis using clues in the question.

Patient demographics – young patients presenting with weakness should prompt consideration of underlying genetic disorders that can predispose to neurological or muscle disorders. Both Duchenne and Becker muscular dystrophy are X-linked recessive dystrophinopathies. Duchenne muscular dystrophy presents early in life and is almost always symptomatic by age 5, whereas Becker muscular dystrophy presents later in life, sometimes in childhood, but more frequently in adolescence and adulthood.

Positive clinical signs and symptoms – it is possible to make a spot diagnosis from the handful of positive clinical signs given in the question stem, which are all typical of Duchenne muscular dystrophy. Proximal muscles, such as the hips and thighs, are usually affected first, resulting in difficulty standing up and walking. Young children learn to compensate by using their upper limbs to help raise themselves from the squatting position, which is sometimes described as 'walking their hands up their legs'. This is known as the Gower's manoeuvre. When walking, weakness of the bilateral hip abductors leads to what is called a Trendelenburg gait.

Negative clinical signs and symptoms – no relevant negative symptoms mentioned in this question stem.

Risk factors and associations – Duchenne muscular dystrophy is an X-linked recessive disorder and so predominantly affects the male sex.

This patient most likely has Duchenne muscular dystrophy.

Stage two: determine which protein is **most likely** to be affected.

Both Duchenne and Becker muscular dystrophy result from mutations of the dystrophin gene. Dystrophin is a major muscle cell structural protein which plays an important role in muscular contraction.

Of the two, Becker muscular dystrophy is a milder form of dystrophinopathy, in which the dystrophin protein is not completely absent but may be structurally abnormal or present in smaller amounts.

Question 24

A 34-year-old male is admitted to the neurology ward after being diagnosed with Guillain–Barré syndrome. His symptoms started 2 days ago with pins and needles in his feet, followed by ascending, bilateral weakness of the legs, to the point that he is now unable to walk.

What is the single most important parameter to monitor when considering whether he needs ITU admission or high-level monitoring?

Correct answer: B. Forced vital capacity (FVC)

Explanation: Guillain–Barré syndrome (GBS) is a sensorimotor acute polyradiculoneuropathy that occurs due to an autoimmune response, typically to an antecedent infection. The patient in this case has a typical presentation of GBS, which starts with distal sensory disturbance and progressive weakness of the limbs, usually starting in the legs and then progressing to the upper limbs. In some patients, paralysis can continue to ascend proximally to the diaphragm and/or the bulbar muscles. This can cause ventilatory failure and dysarthria/dysphagia, respectively. Patients with diaphragm paralysis need urgent ventilatory support on ITU.

The most important measure of diaphragmatic and respiratory muscle involvement is the forced vital capacity (FVC). An FVC of <20 ml/kg has been shown to predict the need for mechanical ventilation (and ITU admission) for patients with GBS. Other important clinical features to consider include the presence of neck weakness and bulbar muscle weakness.

An ABG can be helpful, as a raised pCO_2 suggests inadequate ventilation and therefore neuromuscular respiratory involvement. However, this is typically a late sign. FVC monitoring can detect neuromuscular respiratory involvement earlier, making it more appropriate as a single monitoring parameter.

Question 8

Twin-to-twin transfusion syndrome (TTTS) is a known serious complication of monochorionic diamniotic twin pregnancies as a consequence of unequal blood distribution between the two fetuses.

Which of the following would you not expect to see in the recipient twin?

A. Cardiac failure
B. Intrauterine growth restriction (IUGR)
C. Polycythaemia
D. Polyhydramnios
E. Volume overload

Question 9

A woman presents to the Pregnancy Assessment Unit at 37 weeks' gestation, with reduced fetal movements for the past 6 hours. Cardiotocography (CTG) monitoring is carried out as part of the initial assessment. The baseline fetal heart rate is 165 bpm and maternal heart rate is 90 bpm. Accelerations are present and there is no evidence of decelerations. The variability is 10 bpm and there is no evidence of uterine activity.

Which one of the following findings makes this CTG suspicious?

A. Absence of decelerations
B. Baseline fetal heart rate of 165 bpm
C. Maternal heart rate of 90 bpm
D. Presence of accelerations
E. Variability of 10 bpm

Question 10

One hour following a normal vaginal delivery at term, a woman has ongoing PV bleeding. Cumulative blood loss is 1 L. She had active management of third stage of labour, and the placenta has been delivered but not yet checked. She sustained a left labial graze and a small 1st-degree tear.

What is the most likely cause of her ongoing bleeding?

A. 1st-degree tear
B. Endometritis
C. Maternal coagulopathy
D. Retained placental tissue
E. Uterine atony

Question 11

You are in antenatal clinic and see a 36-year-old woman for her booking visit. She has a BMI of 28 and she has no medical conditions. However, her last pregnancy was complicated by pre-eclampsia which necessitated an induction of labour at 39 weeks. Her sister also had pre-eclampsia during her pregnancy.

Booking bloods show that her haemoglobin is 105 g/L and she is rhesus negative.

Which of the following is the most appropriate antenatal care plan for this patient?

A. Anti-D at 28 weeks, aspirin 150 mg once daily until 36 weeks, 5 mg folic acid OD
B. Anti-D at 28 weeks, aspirin 150 mg once daily until 36 weeks, 5 mg folic acid OD, ferrous sulphate 200 mg OD
C. Anti-D at 28 weeks, aspirin 150 mg once daily until 36 weeks, ferrous sulphate 200 mg OD
D. Anti-D at 28 weeks, aspirin 75 mg once daily until 36 weeks, ferrous sulphate 200 mg OD
E. Anti-D at time of booking, aspirin 150 mg once daily until 36 weeks, ferrous sulphate 200 mg OD

Question 12

A patient has a combined screening test done at booking. The results suggest that there is a high risk of her baby having Down syndrome. She decides to undergo invasive diagnostic testing.

Which of the following statements is inaccurate with regard to her options?

A. Amniocentesis can be carried out earlier than chorionic villus sampling
B. Amniocentesis involves removal of a sample of amniotic fluid
C. Amniocentesis is safest when carried out after 15 weeks' gestation
D. Both amniocentesis and chorionic villus sampling are done with ultrasound guidance
E. Chorionic villus sampling involves taking a sample of placental cells

Question 9

A woman presents to the Pregnancy Assessment Unit at 37 weeks' gestation, with reduced fetal movements for the past 6 hours. Cardiotocography (CTG) monitoring is carried out as part of the initial assessment. The baseline fetal heart rate is 165 bpm and maternal heart rate is 90 bpm. Accelerations are present and there is no evidence of decelerations. The variability is 10 bpm and there is no evidence of uterine activity.

Which **one** of the following findings makes this CTG **suspicious**?

Correct answer: B. Baseline fetal heart rate of 165 bpm

HOW to reach the correct answer

Identifying **one** of the answers as a **suspicious** CTG finding requires a knowledge of the normal features of a CTG. Normal CTG features are:

- **Baseline fetal heart rate:** 110–160 bpm
- **Variability:** 5–25 bpm
- **Accelerations** (increase in baseline heart rate of >15 bpm for <15 s): presence is reassuring and represents the normal activity of the fetal autonomic nervous system
- **Decelerations:** when in sync with contractions, these are a natural response to head compression. If decelerations quickly recover, they are most likely benign and can simply be monitored. Any other deceleration is abnormal and represents hypoxia.

Using the clue in the question, the only feature in this patient's CTG that does not fit with the normal and expected features is the baseline fetal heart rate of >160 bpm. Therefore, answer option B is correct. Fetal tachycardia can result from pathologies including chorioamnionitis, anaemia, hypoxia and prematurity.

Question 10

One hour following a normal vaginal delivery at term, a woman has ongoing PV bleeding. Cumulative blood loss is 1 L. She had active management of third stage of labour, and the placenta has been delivered but not yet checked. She sustained a left labial graze and a small 1st-degree tear.

What is the **most likely** cause of her ongoing bleeding?

Correct answer: E. Uterine atony

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is **most likely**.

Patient demographics – the cause of the bleed will depend partially on the mode of delivery. For example, tears are more common in instrumental deliveries and in primiparous women. Unfortunately, in this question stem, none of the patient demographics help us in narrowing down our answers.

Positive clinical signs and symptoms – this patient has a significant blood loss (1 L) which is still ongoing at one hour post-delivery. It would be unlikely for a 1st-degree tear to cause this degree of bleeding, making option A less likely. Ongoing blood loss could point towards uterine atony (option E), retained placental tissue (option D) or maternal coagulopathy (option C), so we need to consider which of these three options is most common.

Negative clinical signs and symptoms – endometritis (inflammation or infection of the endometrium) usually presents at least 24 hours after delivery, as opposed to the one hour post-delivery in this case. Endometritis also typically presents with abdominal pain, abnormal discharge or vaginal bleeding. Patients can sometimes be febrile and septic. These clinical signs and symptoms do not fit with this patient's presentation, meaning option B is unlikely.

Risk factors and associations – based on the signs and symptoms, multiple answers are possible (options C, D and E). However, we can determine which of these is most likely by understanding the most common cause of primary postpartum haemorrhage – this is **uterine atony** and is the most likely cause of this patient's ongoing bleeding.

Question 11

You are in antenatal clinic and see a 36-year-old woman for her booking visit. She has a BMI of 28 and she has no medical conditions. However, her last pregnancy was complicated by pre-eclampsia which necessitated an induction of labour at 39 weeks. Her sister also had pre-eclampsia during her pregnancy.

Booking bloods show that her haemoglobin is 105 g/L and she is rhesus negative.

Which of the following is the **most appropriate** antenatal care plan for this patient?

Correct answer: C. Anti-D at 28 weeks, aspirin 150 mg once daily until 36 weeks, ferrous sulphate 200 mg OD

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to the **most appropriate** care plan.

Patient demographics – risk in pregnancy will depend on different demographic factors. Increased patient age (>35 years) will increase risk for pre-eclampsia, as is the case here.

Positive clinical signs and symptoms – in this case there are no signs or symptoms to review. However, we are given some of the patient's blood results. These show her to be anaemic and rhesus negative. Our antenatal care plan must reflect these two findings. Oral ferrous sulphate 200 mg OD should be included to manage her anaemia, therefore option A is incorrect. As this mother is rhesus negative, anti-D must be given in order to prevent rhesus haemolytic disease of the newborn. This should be done at 28 weeks, not at the time of booking, therefore option E is incorrect.

Negative clinical signs and symptoms – this patient has no medical conditions that mean high-dose folic acid is indicated (such as diabetes or epilepsy). Although a BMI of 28 puts her in the overweight category, high-dose folic acid is only indicated if BMI is >30. Options A and B are therefore incorrect.

Risk factors and associations – this patient has a personal history and strong family history of pre-eclampsia, putting her in the high-risk group for this condition in her current pregnancy. To reduce the risk, 150 mg aspirin is given OD until 36 weeks. Option D is incorrect, as 75 mg aspirin is too low a dose.

Question 12

A patient has a combined screening test done at booking. The results suggest that there is a high risk of her baby having Down syndrome. She decides to undergo invasive diagnostic testing.

Which of the following statements is **inaccurate** with regard to her options?

Correct answer: A. Amniocentesis can be carried out earlier than chorionic villus sampling

Explanation: amniocentesis is the removal of amniotic fluid via a fine-gauge needle with ultrasound guidance. This is safest after 15 weeks' gestation and carries a 1% miscarriage risk. Chorionic villus sampling involves taking a sample of placental cells via a fine-gauge needle with ultrasound guidance and under local anaesthetic. This is usually carried out at 11–13 weeks' gestation and carries a 1–2% miscarriage risk. As chorionic villus sampling is carried out earlier, it leaves time for the option of termination of pregnancy to be considered.

Question 13

Pre-eclampsia has a number of severe complications for the mother. Magnesium sulphate is used in the management of pre-eclampsia to reduce the risk of one of these complications.

Which complication does treatment with magnesium sulphate **aim to prevent**?

Correct answer: B. Eclampsia

Explanation: eclampsia is a complication of pre-eclampsia that results in grand mal seizures due to cerebral vasospasm. Magnesium sulphate acts as a vasodilator to reverse cerebral vasospasm and therefore prevent/terminate seizures. Some studies also suggest that it protects the blood–brain barrier to reduce cerebral oedema, again reducing seizure risk.

Question 14

During the antenatal ward round with the obstetric consultant, you review a woman admitted with pre-eclampsia.

Which of the following suggests this patient is at an **increased risk** of eclamptic seizure?

Correct answer: E. All of the above

Explanation: pre-eclampsia is diagnosed when BP is >140/90 mmHg after 20 weeks' gestation with associated proteinuria (0.3 mg/24 hours). Mild–moderate pre-eclampsia is asymptomatic. In severe

23 PALLIATIVE CARE
SBA questions

Question 1

A 76-year-old male has stage 4 metastatic lung cancer. He is taking modified-release morphine (Zomorph) 15 mg orally twice a day to control the pain. He remembers being told that he can take a dose of immediate-release oral morphine sulphate (Oramorph), should he experience breakthrough pain between taking his regular Zomorph. However, he is unsure what dose of Oramorph he should take.

What is the most appropriate breakthrough dose of immediate-release morphine sulphate for this patient to take PRN?

A. 1.5 mg
B. 2 mg
C. 5 mg
D. 6 mg
E. 10 mg

Question 2

A 50-year-old female, who has breast cancer with spinal metastases, has been admitted to a hospice for end-of-life care. She has been taking modified-release morphine (Zomorph) orally, 60 mg twice a day. In addition, she takes 20 mg of immediate-release morphine sulphate orally, when she experiences breakthrough pain. She has consistently been needing 2 doses of her PRN morphine each day to fully control her pain. She has been tolerating the morphine with no concerning side-effects. She is now unable to take medications orally and a decision is made to start a syringe driver (continuous subcutaneous infusion (CSCI)) to deliver medications subcutaneously over 24 hours. Your consultant asks you to prescribe the syringe driver.

What is the most appropriate prescription of analgesia for the syringe driver?

A. 120 mg oxycodone
B. 60 mg morphine sulphate
C. 60 mg oxycodone
D. 80 mg morphine sulphate
E. 160 mg morphine sulphate

Question 3

An 81-year-old female is in hospital receiving end-of-life care. She is felt to be in the last few days of her life. She is noted by the medical team to be spending increasing amounts of time asleep and sometimes has a reduced consciousness level. She is declining food and drink. You have seen her on the ward round and her family are concerned that she is making a rattling noise with her breathing, and at times she has appeared distressed by this. The nurse has already given the patient a dose of subcutaneous midazolam to help with agitation.

What additional medication could you prescribe as a single immediate dose (stat dose), which may relieve the patient's noisy breathing?

A. Carbocisteine 500 mg oral
B. Hyoscine butylbromide 20 mg oral
C. Hyoscine butylbromide 20 mg subcutaneous
D. Levomepromazine 6.25 mg subcutaneous
E. Morphine 2.5 mg subcutaneous

For background reading before answering these questions, see pages 287–90 of *Clinical Specialties, MLA edition*.

Answers to questions

Question 1

A 76-year-old male has stage 4 metastatic lung cancer. He is taking modified-release morphine (Zomorph) 15 mg orally twice a day to control the pain. He remembers being told that he can take a dose of immediate-release oral morphine sulphate (Oramorph), should he experience breakthrough pain between taking his regular Zomorph. However, he is unsure what dose of Oramorph he should take.

What is the **most appropriate** breakthrough dose of immediate-release morphine sulphate for this patient to take PRN?

Correct answer: C. 5 mg

HOW to reach the correct answer

All answers are possible, but the clue in the question helps to guide us to which is **most appropriate**.

The breakthrough dose of morphine sulphate can be calculated in two steps:

1. **Calculate the total daily (24-hour) dose of modified-release morphine** that the patient is taking. In this case, he takes 15 mg twice daily Zomorph, which is equivalent to 30 mg in 24 hours (15 mg + 15 mg). Remember that PRN dosing is based on the total amount of morphine sulphate used in one day, not each individual dose of modified-release morphine sulphate taken.
2. **Calculate the PRN dose of immediate-release morphine sulphate** which is 1/10th to 1/6th of the total daily dose. 30 mg/10 = 3 mg and 30 mg/6 = 5 mg. So, the appropriate PRN dose for this patient is between 3 mg and 5 mg.

Question 2

A 50-year-old female, who has breast cancer with spinal metastases, has been admitted to a hospice for end-of-life care. She has been taking modified-release morphine (Zomorph) orally, 60 mg twice a day. In addition, she takes 20 mg of immediate-release morphine sulphate orally, when she experiences breakthrough pain. She has consistently been needing 2 doses of her PRN morphine each day to fully control her pain. She has been tolerating the morphine with no concerning side-effects. She is now unable to take medications orally and a decision is made to start a syringe driver (continuous subcutaneous infusion (CSCI)) to deliver medications subcutaneously over 24 hours. Your consultant asks you to prescribe the syringe driver.

What is the **most appropriate** prescription of analgesia for the syringe driver?

Correct answer: D. 80 mg morphine sulphate

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is the **most appropriate**.

The answer can be reached through three steps:

Identify the appropriate analgesia type – the patient is currently taking morphine, and from the information we are given, she is tolerating it well and there are no contraindications to continuing this. We can therefore eliminate answers with an alternative analgesia formulation (oxycodone).

Calculate the total daily dose of morphine sulphate the patient is currently taking – the question states she is taking 60 mg morphine sulphate modified-release twice daily, which is equivalent to 120 mg in 24 hours. She is also taking 20 mg PRN immediate-release morphine sulphate twice daily, which is the equivalent of 40 mg in 24 hours. The total daily dose of morphine is therefore 120 mg + 40 mg = 160 mg.

Convert from oral to subcutaneous morphine sulphate requirements – the patient is going to have a syringe driver as the oral route is no longer appropriate. To convert from oral to subcutaneous morphine sulphate, divide the total oral dose by 2 (subcutaneous morphine is twice as strong as oral morphine). 160 mg/2 = **80 mg subcutaneous morphine sulphate required daily in the syringe driver.**

Question 21

A 29-year-old mother presents 4 days postpartum with emotional lability, tearfulness and low mood. She reports struggling with a brief period of 'emotional problems' after her first child but denies any recent mental health issues. She also denies any psychotic features and appears orientated to time, place and person.

What is the most appropriate management?

A. Admit to Mother and Baby Unit
B. CBT
C. ECT
D. Sertraline
E. Watch and wait

Question 22

You are the on-call psychiatry SHO. You have been asked to review a 22-year-old male patient in the ED. The patient appears unkempt and fearful, stating that MI6 have been following him. He says he knows they are following him because he read about a celebrity dying in the newspaper. He has also heard MI6 talking about him at night. He reports that this has been happening for the last 2 months. He has no insight into his mental health. He has shown no symptoms of catatonia and there is nothing to suggest any recent drug use.

Which of the following is the most appropriate first-line treatment for this patient?

A. ECT
B. Fluoxetine
C. Lamotrigine
D. Risperidone
E. Sodium valproate

Question 23

A 34-year-old patient is admitted to the ward and detained under the Mental Health Act. She has presented with a history of recurrent depression and her parents tell you that they have never seen her this bad previously. She has been trialled on 2 different antidepressants prior to admission but continued to deteriorate. She is now no longer eating or drinking and has lost a significant amount of weight. She has no known history of physical health problems.

What is the most appropriate management?

A. Augment with lithium
B. Commence CBT
C. Commence flupentixol depot
D. Commence olanzapine
E. ECT

Question 24

A 24-year-old female attends a working age psychiatry clinic. She reports feelings of extreme elation and tells you of a particular episode where she acted recklessly and lost significant amounts of money gambling. At the same time that this happened, she felt high in energy and did not feel the need to sleep for over a week. She goes on to describe hearing voices, which have been telling her that she is special. When asked specifically, the patient tells you that she had a period of low mood a couple of years ago but did not require any medical treatment. She also tells you that her mum had a history of 'manic depression'. The patient denies any feelings of paranoia or of being controlled by others.

What is the most likely diagnosis?

A. Acute mania
B. Bipolar affective disorder
C. Emotionally unstable personality disorder
D. Schizoaffective disorder
E. Schizophrenia

Explanation: the time period of this presentation (<10 days postpartum) fits best with baby blues. This doesn't require any treatment, meaning that watch and wait is the most appropriate management at this stage. However, it is important to monitor the patient to see if she subsequently goes on to develop postpartum depression.

Question 22

You are the on-call psychiatry SHO. You have been asked to review a 22-year-old male patient in the ED. The patient appears unkempt and fearful, stating that MI6 have been following him. He says he knows they are following him because he read about a celebrity dying in the newspaper. He has also heard MI6 talking about him at night. He reports that this has been happening for the last 2 months. He has no insight into his mental health. He has shown no symptoms of catatonia and there is nothing to suggest any recent drug use.

Which of the following is the **most appropriate** first-line treatment for this patient?

Correct answer: D. Risperidone

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is **most appropriate**.

Patient demographics – mental health conditions can affect all ages, genders and ethnicities, but certain conditions are more likely amongst certain demographics, and we should keep this in mind when considering the most likely diagnosis for this 22-year-old male.

Positive clinical signs and symptoms – the patient is presenting with delusional perceptions (perceiving the news of a celebrity dying to mean that MI6 are following him), auditory hallucinations (hearing MI6 talking about him) and poor self-care. The first two symptoms are examples of Schneider's first-rank symptoms and are therefore suggestive of schizophrenia. The poor self-care is in keeping with this diagnosis. The fact that these symptoms have been present for 2 months makes an acute cause of psychosis (e.g. drug-induced) less likely.

Negative clinical signs and symptoms – this patient does not have any catatonic symptoms, meaning there is no current indication for ECT. As the patient has not had drugs recently, he is less likely to be suffering from drug-induced psychosis, for which pharmacological management is not always indicated.

Risk factors and associations – the most notable risk factor is that the patient is a young male, which increases the risk of certain mental health disorders, including schizophrenia.

Explanation: once we have determined that this patient is presenting with a new diagnosis of schizophrenia, we can determine the most appropriate management – this would be a trial of an antipsychotic. Risperidone is the only first-line antipsychotic medication listed, thus making it the only appropriate option at this point. Although sodium valproate and lamotrigine could potentially be used as adjuncts in the management of schizophrenia, they are not first-line options. Fluoxetine is an antidepressant. ECT is only indicated in severe treatment of refractory depression, catatonic states, and occasionally in the manic phase of bipolar disorder.

Question 23

A 34-year-old patient is admitted to the ward and detained under the Mental Health Act. She has presented with a history of recurrent depression and her parents tell you that they have never seen her this bad previously. She has been trialled on 2 different antidepressants prior to admission but continued to deteriorate. She is now no longer eating or drinking and has lost a significant amount of weight. She has no known history of physical health problems.

What is the **most appropriate** management?

Correct answer: E. ECT

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is **most appropriate**.

Patient demographics – the patient is a 34-year-old female, which affects the decision of how early to use certain management options.

Positive clinical signs and symptoms – the patient is suffering from severe depression which has resulted in her no longer eating or drinking. This severity, combined with the lack of oral intake, immediately means oral medication will be unsuitable. Similarly, CBT is not appropriate as an emergency treatment for such severe depression.

Negative clinical signs and symptoms – the patient does not disclose any physical health issues which may prevent them from having certain treatments.

Risk factors and associations – the patient has previously trialled 2 different antidepressants, but neither of them has helped, which suggests severe, treatment-resistant depression, for which alternative therapies may be required.

Explanation: the most appropriate management is ECT because the patient is suffering from severe, treatment-resistant depression. She is not eating or drinking and therefore requires emergency management with a non-oral therapy. Flupentixol depot could be used in such cases. However, ECT would be more appropriate because it often results in faster and more significant improvements in symptoms.

Question 24

A 24-year-old female attends a working age psychiatry clinic. She reports feelings of extreme elation and tells you of a particular episode where she acted recklessly and lost significant amounts of money gambling. At the same time that this happened, she felt high in energy and did not feel the need to sleep for over a week. She goes on to describe hearing voices, which have been telling her that she is special. When asked specifically, the patient tells you that she had a period of low mood a couple of years ago but did not require any medical treatment. She also tells you that her mum had a history of 'manic depression'. The patient denies any feelings of paranoia or of being controlled by others.

What is the **most likely** diagnosis?

Correct answer: B. Bipolar affective disorder

HOW to reach the correct answer

All answers are possible, but the clues in the question guide us to which is **most likely**.

Patient demographics – certain conditions are more likely amongst certain demographics, and we should keep this in mind when considering the most likely diagnosis for this 24-year-old female.

Positive clinical signs and symptoms – the patient reports extreme elation, energy, lack of sleep and reckless behaviour. The voices telling her that she is special are an example of 'grandiose delusions'. All of these are features of mania. The delusions and fact that symptoms lasted over 1 week are suggestive of mania rather than hypomania. The patient also reports one episode of depression in the past. This points us towards a diagnosis of bipolar affective disorder, rather than pure mania.

Negative clinical signs and symptoms – the patient denied any paranoia or delusions of control, and so this makes a diagnosis of schizophrenia or schizoaffective disorder less likely.

Risk factors and associations – the patient has a family history of manic depression (the original name for bipolar affective disorder). Bipolar affective disorder is more likely to develop in those who have a first-degree relative with the condition. Onset is usually in early adulthood, which again fits with this case.

Explanation: the most likely diagnosis is bipolar affective disorder, supported by recent symptoms of mania combined with an episode of depression in the past. It is important to ask about depressive episodes in patients presenting with mania, because long-term treatment for mania differs from that of mixed states of mania and depression (the latter are riskier and more difficult to manage).

31 'TEST YOURSELF' QUESTIONS

Question 1

A 45-year-old woodworker presents to the ED with a 24-hour history of a painful, erythematous left index finger. He reports removing a splinter from the same digit 2 days ago.

Which of these examination findings is least predictive of an infection in the flexor sheath?

A. Finger held in slight flexion
B. Fusiform swelling of digit
C. Pain on passive extension
D. Palpable tense collection in the distal finger pulp
E. Tenderness on palpation along flexor sheath

Question 2

A 13-year-old boy attends his GP practice with a 6-week history of pain in the left groin and increasing difficulty walking. On examination, he is systemically well, has an antalgic gait, limited range of flexion and internal rotation of the hip. His weight is in the 90th percentile for his age. There is no history of trauma, and his past medical history is unremarkable except for a chest infection 3 weeks ago.

What is the most likely diagnosis?

A. Osgood–Schlatter disease
B. Perthes disease
C. Septic arthritis of the hip
D. Slipped upper femoral epiphysis
E. Transient synovitis

Question 3

A 62-year-old Caucasian male presents to his GP with a concerning skin lesion on his shoulder. He has a 2.5 cm-wide flat, dark brown lesion with irregular asymmetric borders. It has doubled in size over the last 3 years.

Which of these is the most likely diagnosis?

A. Acral lentiginous melanoma
B. Amelanotic melanoma
C. Benign melanocytic naevus
D. Nodular melanoma
E. Superficial spreading melanoma

Question 4

A 76-year-old female, with a past medical history of diabetes and cauda equina syndrome, is admitted to hospital with a urinary tract infection. She mobilises using a wheelchair and has a patch of non-blanching erythema on her ischial tuberosity. There is no history of trauma.

Which of these systems would help establish her risk of developing the skin lesion described?

A. Child–Pugh score
B. Gustilo–Anderson classification
C. Salter–Harris classification
D. Tscherne classification
E. Waterlow score

Answers and explanations for this chapter can be found on the Resources tab at www.scionpublishing.com/UKMLA.