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978-1-316-60971-2 — Infectious Diseases, Microbiology and Virology  
Luke S. P. Moore , James C. Hatcher  
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# Infectious Diseases, Microbiology and Virology

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A Q&A Approach for Specialist  
Medical Trainees

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# Contents

*Preface* vii  
*Reference Ranges* viii  
*List of Abbreviations* x

1	<b>Biology of Bacteria, Viruses, Fungi and Parasites and the Host–Pathogen Interactions</b>	1	7	<b>Understanding the Use of Antimicrobial Agents</b>	154
2	<b>Microbiology and Virology Laboratory Practice</b>	24	8	<b>Vaccination</b>	179
3	<b>Health and Safety for Infectious Diseases, Microbiology and Virology</b>	60	9	<b>The Management of HIV Infection, Opportunistic Infections and Complications of Other Causes of Immunocompromise</b>	187
4	<b>Principles of Public Health in Relation to Infectious Diseases, Microbiology and Virology</b>	68	10	<b>Travel and Geographical Health; Imported Infection and the Provision of Pre-travel Health Advice</b>	210
5	<b>Infection Prevention and Control</b>	79			
6	<b>Important Clinical Syndromes Presenting from the Community and within Healthcare Organisations</b>	96		<i>Index</i>	236
				<i>The plate section is found between pages 118 and 119</i>	

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## Preface

Training in infection-related specialities in the United Kingdom has undergone substantial changes over the past years. Combination of specialities (microbiology, virology, tropical medicine and infectious diseases) and the desire for infection specialists to increase clinical activities and reduce laboratory-based practice have led to a fundamental change in examination methodology. Our aim was to produce a book that mapped to the current infection training curriculum in line with the examination style of ‘best of five’ answers.

We have designed this book to test the knowledge of candidates preparing for examinations in infection specialities, but it is also our aim to have a broader appeal to other specialities with infection as a core component of their training. The book has 300 ‘best of five’ questions; along with the answers, there are detailed explanations and background to the answers, including suggestions for further reading around the subject. Readers who through this book identify curriculum areas where their understanding may be sub-optimal can then focus their revision to optimise their learning.

We are both practising infection consultants supervising current infection trainees preparing for examinations during busy clinical placements and have a deep understanding of the stress that assessments can cause. We hope you enjoy the book and it provides knowledge and guidance that will serve you beyond the examinations.

## Reference Ranges

### Haematology

Hb	Male	130–180 g/L
	Female	115–165 g/L
WCC	Total	$4\text{--}11 \times 10^9/\text{L}$
	Neutrophils	$1.5\text{--}7 \times 10^9/\text{L}$
	Lymphocytes	$1.5\text{--}4 \times 10^9/\text{L}$
	Monocytes	$0\text{--}0.8 \times 10^9/\text{L}$
	Eosinophils	$0.04\text{--}0.4 \times 10^9/\text{L}$
	Basophils	$0\text{--}0.1 \times 10^9/\text{L}$
Platelets		$150\text{--}400 \times 10^9/\text{L}$
Reticulocyte count		0.5–2.5%
ESR	Male	0–20 mm/first hour
	Female	0–30 mm/first hour

### Clotting

Fibrinogen	1.8–5.4 g/L
INR	<1.4

### Biochemistry

ALT	5–35 U/L	
Albumin	37–49 g/L	
ALP	45–105 U/L	
Amylase	60–180 U/L	
AST	1–31 U/L	
B <sub>12</sub>	115–1000 pmol/L	
Bicarbonate	22–30 mmol/L	
Bilirubin	Total	1–22 mmol/L
	Conjugated	0–3.4 mmol/L
C-reactive protein	<10 mg/L	



Creatine kinase	
Male	25–195 U/L
Female	35–170 U/L
Folate	2–20 ng/mL
Creatinine	20–70 $\mu$ mol/L
Glucose (fasting plasma)	3.0–6.0 mmol/L
Immunoglobulin	
IgA	0.8–3.0 g/L
IgG	6.0–13.0 g/L
IgM	0.4–2.5 g/L
IgE	<120 kU/L
Lactate (plasma)	0.6–1.8 mmol/L
Protein	60–76 g/L
Urea	2.5–7.5 mmol/L
Potassium	3.5–5 mmol/L
Sodium	135–145 mmol/L

## Blood Gases

H <sup>+</sup>	35–45 nmol/L
pH	7.35–7.45
PaCO <sub>2</sub>	4.7–6.0 kPa
PaO <sub>2</sub>	11.3–12.6 kPa
Base excess	+/- 2 mmol/L

## CSF

Cell count	
Neutrophils	None
Lymphocytes	60–70%
Monocytes	30–50%
Red cells	None
Protein	0.15–0.45 g/L
IgG	5–10 mg/L
Glucose	3.3–4.4 mmol/L
Opening Pressure	5–18 cmH <sub>2</sub> O

## Abbreviations

ABG	Arterial blood gas
BCG	Bacillus Calmette-Guerin
BTS	British Thoracic Society
CAP	Community-acquired pneumonia
CRP	C-reactive protein
ELISA	Enzyme-linked immunosorbent assay
ESBL	Extended-spectrum beta-lactamase
GCS	Glasgow Coma Scale
HAP	Healthcare-associated pneumonia
HAV	Hepatitis A virus
Hb	Haemoglobin
HBV	Hepatitis B virus
HCAI	Healthcare-associated infection
HCV	Hepatitis C virus
HDV	Hepatitis D virus
HEV	Hepatitis E virus
HIV	Human immunodeficiency virus
HPV	Human papilloma virus
HTLV	Human T-lymphocyte virus
INR	International normalised ratio
MC&S	Microscopy, culture and susceptibility
Neut	Neutrophil count
NICE	National Institute for Health and Care Excellence
NTM	Non-tuberculous <i>Mycobacterium</i> spp.
OCP	Ova, cysts and parasites
PCR	Polymerase chain reaction
PHE	Public Health England
RCC	Red cell count
TPHA	<i>Treponema pallidum</i> haemagglutination
VAP	Ventilator-associated pneumonia
VDRL	Venereal disease reference laboratory
WCC	White cell count
WHO	World Health Organization