

OXFORD

fifth edition

# Fitneess for Work

the medical  
aspects



**fom**  
Faculty of Occupational Medicine  
of the Royal College of Physicians

EDITED BY KEITH T. PALMER | IAN BROWN | JOHN HOBSON

# **Fitness for Work**

## The Medical Aspects

FIFTH EDITION

Edited by

**Keith T. Palmer**

Professor of Occupational Medicine,  
University of Southampton,  
Southampton, UK

**Ian Brown**

Director and Head of Department,  
Occupational Health Service,  
University of Oxford;  
Honorary Consultant Physician,  
Occupational Health Medicine,  
Oxfordshire Primary Care Trust,  
Oxfordshire, UK

and

**John Hobson**

Consultant Occupational Physician,  
Hobson Health Ltd,  
Stoke-on-Trent, UK



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# Foreword

By Dame Carol Black and Dr Bill Gunnyeon

The fifth edition of *Fitness for Work* is being published at a time of profound global economic challenge with its consequential impact on business growth and employment opportunity. At the same time the recognition and acceptance of the inextricable links between health and employment has never been greater, nor has the focus on supporting people with health conditions or disabilities to experience the benefits of work been sharper. Medical professional institutions in many countries have demonstrated their commitment to promoting the link between good work and good health by affirming that helping patients to remain in or return to work should be part of a healthcare professional's clinical function.

Safeguarding health at work, preventing loss of occupation as a result of ill health, and supporting prompt treatment and rehabilitation must be a joint enterprise. It must bring together the multiple aspects of a patient's concerns about their work in the face of health problems. It bridges the elements of clinical consultation and clinical management, functional assessment, and the workplace and welfare support agencies.

For some people an unavoidable consequence of illness and resulting disability is that they never work again. For many others this might result from failure to intervene sufficiently early when sickness threatens employment. There is consistent evidence in support of early intervention to help sick-certified people who do not have life-threatening or seriously disabling conditions to return to work. Such intervention should combine biopsychosocial and vocational rehabilitation, reaching beyond the usual limits of occupational health or of common clinical practice.

The needs of those who are not in productive employment—notably the young, the retired, and those unable to work—depend on the productive efforts of those who are working. With an ageing population the ratio is changing adversely and chronic disorders, common and rare, become more prevalent. This has obvious implications for attempts to extend working life. Besides underlining the importance of safeguarding and maintaining the health and well-being of people at all ages, it heightens attention to the preservation of function as an essential goal of clinical management, with a particular emphasis on capabilities that remain rather than those that have been diminished or lost.

The balance of this book is weighted towards clinical consultations and the functional consequences of health problems. Its chief concerns are the effects of medical conditions on employment and working capability, and the implications for the working life of patients with an illness or other disabling condition. This new edition builds on the foundations of the preceding edition, which reflected a growing understanding of the importance of appropriate 'good' work in maintaining health and well-being. The book provides an unrivalled source of information and guidance on the functional consequences of every significant health problem, their occupational impact, and how these can be minimized. Above all, it should help clinicians restore confidence to many people who—with a determination to meet the life challenges of less than perfect health and some impairment of function—can maintain a rewarding and fulfilling working life for as long as possible.

As we look to the future and to the growth in the economy required to support our increasingly elderly population, we will become more and more dependent on those with long-term health conditions and disabilities optimizing their participation in the world of work. Sound evidence-based decisions about fitness for work will be critical to achieving this. Like its predecessors, the new edition of *Fitness for Work: The Medical Aspects* should be accessible to all who have duties and responsibilities in this field.

Dame Carol Black  
National Director for Health and Work (2006–2011)

Dr Bill Gunnyeon  
Chief Medical Adviser  
Department for Work and Pensions



# Foreword

By Dr Olivia Carlton

The understanding of fitness for work underpins much of the practice of occupational medicine and occupational health. It is sometimes a complex matter, requiring knowledge of medicine and the related health disciplines. It also requires an understanding of individual psychology, the nature of work, the social milieu and social norms, cultural and gender differences, the barriers to work, and the incentives and disincentives which affect attitudes and behaviour.

The practitioner is not always a disinterested party, when advising on fitness to work. Part of their role may be to use their agency to help workers change their attitudes and behaviours towards their own fitness for work. This work on attitudes sometimes extends to employers and indirectly, or sometimes even directly, to families, work colleagues, and workplace employee advisers, including trade unions. The process of arriving at the point at which effective fitness for work advice can be given is a fascinating one. Working as I do in a safety critical industry, I am aware that some of the most interesting conversations I have had over a quarter of a century are about fitness for work decisions.

This outstanding textbook assists English-speaking people working in the occupational health arena all over the world to apply evidence-based knowledge in their decision-making. The first edition came out in 1987 and subsequent editions have reflected changes in knowledge, approach, and legislation, focused primarily on UK practice but with information that is useful worldwide. This fifth edition has new important and welcome chapters on cancer and on sickness absence. There has been a change of authorship in half of the chapters, which has brought a fresh approach to much of the subject matter. The underlying evidence for all chapters has been updated.

This is the Faculty of Occupational Medicine's flagship publication. I would like to thank all the contributors, and note my particular gratitude to the Editor in Chief, Keith Palmer, and his co-editors Ian Brown and John Hobson. I can attest to their tireless application in ensuring that the fifth edition builds on its predecessors and is of outstanding quality. All users of this book are in their debt.

Dr Olivia Carlton  
President  
Faculty of Occupational Medicine

# Preface

*Fitness for Work* has become an established and essential source of guidance to all those involved in the practice of occupational medicine, including occupational physicians, occupational health nurses, general practitioners, and hospital doctors. It has also become an important point of reference for non-medical professionals such as personnel managers, safety officers, trade union officials, lawyers, and careers advisers amongst others. The requirement for sound, evidence-based advice on fitness decisions in workers with health complaints underpins the book's enduring popularity.

Since the last edition, awareness of the benefits of work has come to the forefront of public health and government thinking. The Black report, the Equality Act 2010, and the scrapping of compulsory retirement are all recent major developments with implications for assessing working-age health. The introduction of the 'fit note' may herald a sea change in thinking about return to work by both employers and general practitioners. Legislation to remove the 'default' retirement age provides a passport for people to work longer, but raises additional questions about fitness at older ages for suitable and, if necessary, appropriately tailored work.

Successive editions of this book have mentioned the fact that most employers and a large proportion of the workforce still do not have access to specialist occupational health advice. Occupational health is more important than ever and yet, paradoxically, there continues to be a decline in specialist training and established expertise, with little prospect of this trend being reversed in the near future. The existence of this book therefore remains an essential resource for non-specialist physicians to provide appropriate and accurate advice to employers.

The fifth edition follows the tried and trusted formula whereby most chapters are co-authored by a specialist occupational physician and a topic specialist. Every chapter has been updated and a number of other significant changes have been made. A new chapter has been added on managing and avoiding sickness absence, and a second on cancer survivorship and work; a former appendix on return to work after critical illness has been married with a chapter on fitness for work after surgery, to provide expert consensual guidance on expected return to work times; and, in all, some 29 new authors have contributed to this new edition. Most chapters have significant new content and there is increased emphasis on evidence, which has become easier to achieve with the further development of National Institute for Health and Clinical Excellence guidelines and the maturing of the Cochrane database. Where systematic off-the-peg evidence does not exist, *Fitness for Work* continues to provide a wealth of useful consensus guidance, codes of practice, and locally evolved standards with practical value to occupational health practitioners.

Although *Fitness for Work* is aimed at practice in the United Kingdom, we feel that most of the topics are universal and are covered in a sufficiently general way as to be of help wherever in the world there is a need to make informed decisions about the medical aspects of fitness for work. This book will be invaluable to anyone practising occupational medicine.

To an extent, occupational medicine, like medicine as a whole, is an art that tailors advice to individual patients under specific and unique circumstances. As with any clinical judgement, the

medical advice that is given remains the responsibility of the doctor concerned and the general guidance contained in this book must always be interpreted in that light. Nonetheless, we believe this book will underwrite the considered opinions of clinicians and other professionals involved in the practice of occupational medicine.

Keith T. Palmer  
Ian Brown  
John Hobson



# Acknowledgements

A book of this size, complexity, and significance would not be possible without tremendous effort on the part of many people and the support of several bodies. We would particularly like to acknowledge the 65 writers for this edition, who tread in the footsteps of previous authors making significant contributions to earlier editions of the work. These specialists have given freely of their time, shared their expertise and knowledge for the benefit of the health of working people, and have helped to create this much revised fifth edition of the Faculty's flagship publication. They have also borne patiently the enquiries of editors and publishers and can take credit for their individual chapters as we the editors take pride in the final book. We also wish to thank our many colleagues within the Faculty of Occupational Medicine of the Royal College of Physicians of London for providing both direct and indirect support throughout the book's gestation, and staff from Oxford University Press for their efforts in helping to coordinate this dauntingly large endeavour.

Keith T. Palmer

Ian Brown

John Hobson

# Abbreviations

ABI	Association of British Insurers	BEA	British Epilepsy Association
ABR	auditory brainstem response	BHA	British Hyperbaric Association
ACC	American College of Cardiology	BM	bone marrow
ACE	angiotensin-converting enzyme	BMI	body mass index
ACJ	acromioclavicular joint	BMT	bone marrow transplant
ACL	anterior cruciate ligament	BNF	British National Formulary
ACOP	Approved Code of Practice	BP	blood pressure
ACP	American College of Physicians	BPH	benign prostatic hyperplasia
ACR	albumin:creatinine ratio	BPT	bronchial provocation challenge test
ADA	Americans with Disabilities Act	BSRM	British Society of Rehabilitation Medicine
ADL	activities of daily living	BTS	British Thoracic Society
AED	antiepileptic drug	CA	Court of Appeal
AHA	American Heart Association	CAA	Civil Aviation Authority
AIDS	acquired immune deficiency syndrome	CABG	coronary artery bypass grafting
ALAMA	Association of Local Authority Medical Advisers	CAPD	continuous ambulatory peritoneal dialysis
ALL	acute lymphoblastic leukaemia	CBI	Confederation of British Industry
ALT	alanine transferase	CBT	cognitive-behavioural therapy
AMAS	activity matching ability system	CCDC	Consultant in Communicable Disease Control
AME	authorized medical examiner	CD	Crohn's disease
AMED	Approved Medical Examiner of Divers	CD4	cluster of differentiation 4 glycoprotein on T-helper lymphocytes
AML	acute myeloid leukaemia	CEDP	Committee for the employment of disabled people
AMRA	Access to Medical Reports Act 1988	CEFEM	'Chance Encounter of Female Exceeding Male' strength
ANHOPS	Association of National Health Occupational Physicians	CEHR	Combined Equality and Human Rights Commission
APD	automated peritoneal dialysis	CFC	chlorofluorocarbons
ARBs	angiotensin II receptor blockers	CFS	chronic fatigue syndrome
ARDS	acute respiratory distress syndrome	CHD	coronary heart disease
ART	antiretroviral treatment	CI	confidence interval
AS	ankylosing spondylitis	CIBSE	Chartered Institution of Building Services Engineers
ATCO	air traffic control officer	CISD	Critical Incident Stress Debriefing
ATS-DLD	American Thoracic Society and the Division of Lung Disease	CJD	Creutzfeldt-Jakob disease
AVC	additional voluntary contribution	CKD	chronic kidney disease
AWT	all work test	CLAW	The Control of Lead at Work Regulations
BAC	blood alcohol concentration		
BBS	Behavioural Based Safety		
BCG	Bacillus of Calmette and Guérin		
BCS	British Crime Survey		

CLL	chronic lymphocytic leukaemia	DSM IV	<i>Diagnostic and statistical manual of mental disorders</i> (American Psychological Association)
CML	chronic myeloid leukaemia	DST	Disability Service Team
CMP	Condition Management Programme	DVLA	Driving and Vehicle Licensing Agency
CMV	cytomegalovirus	DVT	deep venous thrombosis
CNS	central nervous system	DWP	Department of Work and Pensions
COPD	chronic obstructive pulmonary disease	DWR	Diving at Work Regulations 1997
COSHH	Control of Substances Hazardous to Health	EAA	extrinsic allergic alveolitis
CPAP	continuous positive airways pressure	EAGA	Expert Advisory Group on AIDS
CPR	Civil Procedure Rules	EAP	Employee Assistance Programme
CRE	Commission for Racial Equality	EASA	European Aviation Safety Authority
CSAG	Clinical Standards Advisory Group	EAT	Employment Appeal Tribunal
CSF	cerebrospinal fluid	EBMT	European Group for Blood and Marrow Transplantation
CSII	continuous subcutaneous insulin infusion	ECG	electrocardiogram
CT	computed tomography	ECJ	European Court of Justice
CTS	carpal tunnel syndrome	EDH	extradural haematoma
CVD	cardiovascular disease	EDTC	European Diving Technology Committee
CVS	chorionic villus sampling	EEG	electroencephalography
DAS	Disability Advisory Service	EFA	Epilepsy Foundation of America
DAS28	Disease Activity Score-28	ELISA	enzyme-linked immunosorbent assay
DB	defined benefit	EMAS	Employment Medical Advisory Service
DBCP	1,2-dibromochloropropane	EMDR	eye movement desensitization and reprocessing
dB	decibel	EMG	electromyogram
DC	defined contribution	ENT	ear, nose, and throat
DCU	Day Care Units	EOC	Equal Opportunities Commission
DDA	Disability Discrimination Act 1995	EPDS	Edinburgh Post Natal Depression Scale
DDAVP	desmopressin	ERC	Employment Rehabilitation Centres
DDH	developmental dysplasia of the hip	ERS	European Respiratory Society
DEA	Disability Employment Adviser	ERT	emergency response team
DHA	docosahexaenoic acid	ESR	erythrocyte sedimentation rate
DIP	distal interphalangeal joint	ESRD	end-stage renal disease
DIT	Disability Information Trust	ET	Employment Tribunal
DLA	Disability Living Allowance	ETS	environmental tobacco smoke
DLF	Disabled Living Foundation	EU	European Union
DMAC	Diving Medical Advisory Committee	EWDTS	European Workplace Drug Testing Society
DMARD	disease-modifying anti-rheumatic drug	FCA	functional capacity assessment
DMPA	depot medroxyprogesterone contraception	FCE	functional capacity evaluation
DOTS	directly observed short-course treatment	FEFC	Further Education Funding Council
DPA	Data Protection Act 1998	FEV <sub>1</sub>	volume of gas expired in the first second
DSA	Disablement Services Authority	FIX	factor IX of the blood clotting cascade
DSE	display screen equipment		

FOM	Faculty of Occupational Medicine	HSW	Health and Safety at Work etc. Act 1974
FRC	functional residual capacity	HTL	hearing threshold level
FVC	forced vital capacity	HTLV1	human T-lymphotropic virus I
FVIII	clotting factor VIII of the blood clotting cascade	HTLVII	human T-lymphotropic virus II
FXI	factor XI of the blood clotting cascade	HTV	hand-transmitted vibration
G-CSF	granulocyte colony stimulating factor	IAP	intra-abdominal pressure
GCMS	gas chromatography–mass spectrometry	IATA	International Air Transport Association
GCS	Glasgow Coma Scale	IB	Incapacity Benefit
GFR	glomerular filtration rate	IBE	International Bureau for Epilepsy
GGT	gamma-glutamyl transferase	IBS	irritable bowel syndrome
GHJ	glenohumeral joint	ICAO	International Civil Aviation Organization
GMC	General Medical Council	ICD	implantable cardioverter defibrillator
GOLD	Global Initiative for Chronic Obstructive Lung Disease	ICD-10	<i>International Statistical Classification of Diseases and Related Health Problems (WHO)</i>
GORD	gastro-oesophageal reflux disease	ICFDH	International Classification of Functioning, Disability and Health
GP	general practitioner	ICOH	International Commission on Occupational Health
GvHD	graft versus host disease	IDDM	insulin-dependent diabetes mellitus
HAART	highly active antiretroviral therapy	IDH	intradural haematoma
HAD	Hospital Anxiety and Depression Scale	IDRP	internal dispute resolution procedure
HAVS	hand–arm vibration syndrome	IHR	ill health retirement
HbAS	heterozygous sickle cell disease	IIDB	Industrial Injury Disablement Benefit
HBcAB	hepatitis B core antibody	IIDTW	Independent Inquiry into Drug Testing at Work
HbeAG	hepatitis B e antigen	ILEA	International League Against Epilepsy
HbIg	hepatitis B hyperimmune serum	ILO	International Labour Organization
HbS	haemoglobin S (sickle haemoglobin)	IMiDs	immunomodulatory drugs
HBsAg	hepatitis B surface antigen	IMO	International Maritime Organization
HbSC	sickle haemoglobin C disease	INR	international normalized ratio
HbSS	homozygous sickle cell anaemia	IOFB	intraocular foreign body
Hbs $\beta$ thal	sickle beta thalassaemia disease	IPSS	International Prostate Symptom Score
HBV	DNA hepatitis B virus DNA	IPV	inactivated polio vaccine
hCG	human chorionic gonadotrophin	IRLR	Industrial Relations Law Report
HCV	hepatitis C virus	IT	information technology
HD	haemodialysis; Hodgkin's disease	ITP	idiopathic thrombocytopenic purpura
HIV	human immunodeficiency virus	IUCD	intrauterine contraceptive device
HLA	human leucocyte antigen	IUD	intrauterine death
HNIG	human normal immunoglobulin	IVF	<i>in vitro</i> fertilization
HMTI	Her Majesty's Factory Inspectorate	JAA	Joint Aviation Authorities
HMSO	Her Majesty's Stationery Office	JCA	juvenile chronic arthritis
HPS	Heart Protection Study	JRA	juvenile rheumatoid arthritis
HRT	hormone replacement therapy	KCO	carbon monoxide transfer coefficient
HSC	Health and Safety Commission		
HSE	Health and Safety Executive		
HSL	Health and Safety Laboratory		

KS	Kaposi's sarcoma	NIDDM	non-insulin-dependent diabetes mellitus
KSHV	Kaposi's sarcoma associated herpes virus	NIOSH	National Institute of Occupational Safety and Health (US)
L	litre	NMC	Nursing and Midwifery Council
LACS	lacunar syndromes	NMR	nuclear magnetic resonance
LASIK	laser assisted <i>in situ</i> keratomileusis	NNRTI	non-nucleoside reverse transcriptase inhibitor
LBP	low back pain	NPV	negative predictive value
LGV	large goods vehicle	NRR	noise reduction ratio
LMWH	low-molecular-weight heparin	NRTI	nucleoside analogue reverse transcriptase inhibitor
LTD	long-term disability	NSAIDs	non-steroidal anti-inflammatory drugs
MAI	<i>Mycobacterium avium intracellulare</i>	NSE	National Society for Epilepsy
MAOI	monoamine oxidase inhibitor	NSH	National Study of Hearing
MCA	Maritime and Coastguard Agency	NTD	neural tube defects
MCH	mean corpuscular haemoglobin	nvCJD	new variant Creutzfeld–Jakob disease
MCV	mean corpuscular volume	OA	osteoarthritis
MDS	myelodysplastic syndrome	OH	occupational health
ME	myeloencephalitis	OHA	oral hypoglycaemic agent
MED3	medical statements	OHS	occupational health services
METs	metabolic equivalents	OP	occupational physician
MHSW	Management of Health and Safety at Work Regulations 1992	OPCS	Office of Population Censuses and Surveys
MI	myocardial infarction	OPITO	Offshore Petroleum Industry Training Organization
MIT	multiple injection treatment	OR	odds ratio
mL	millilitre	ORIF	open reduction and internal fixation
MND	motor neurone disease	OTC	over the counter
mph	miles per hour	PACS	partial anterior circulation syndromes
MRC	Medical Research Council	PBSC	peripheral blood stem cell
MRI	magnetic resonance imaging	PCP	<i>Pneumocystis (carinii) jiroveci</i> pneumonia
MRO	Medical Review Officer	PCR	polymerase chain reaction; protein:creatinine ratio
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>	PCT	Primary Care Trust
MS	multiple sclerosis	PCV	passenger carrying vehicle
MTP	metatarsophalangeal joint	PD	peritoneal dialysis; Parkinson's disease; Prescribed Disease
NA	nucleoside analogue reverse transcriptase inhibitor	PE	pulmonary embolism
NCYPE	National Centre for Young People with Epilepsy	PEF	peak expiratory flow
NGO	non-governmental organization	PEFR	peak expiratory flow rate
NGPSE	National General Practice Study of Epilepsy	PFEER	Prevention of Fire and Explosion, Emergency Response
Nhanes III	Third National Health and Nutrition Survey		
NHL	non-Hodgkin's lymphoma		
NHS	National Health Service		
NI	National Insurance		
NICE	National Institute for Health and Clinical Excellence		

PFO	patent foramen ovale	RTW	return to work
PGL	persistent generalized lymphadenopathy	RV	residual volume
PHI	permanent health insurance	SAMHSA	Substance Abuse and Mental Health Services Administration
PI	protease inhibitor	SARS	severe acute respiratory syndrome
PID	pelvic inflammatory disease	SCAT	standardized concussion assessment tool
PIP	proximal interphalangeal joint	SCBA	self-contained breathing apparatus
PMS	premenstrual syndrome	SCD	sickle cell disease
PNH	paroxysmal nocturnal haemoglobinuria	SCI	spinal cord injury
POAG	primary open-angle glaucoma	SCID	severe combined immune deficiency
POCS	posterior vertebrobasilar circulation syndromes	sCJD	sporadic Creutzfeldt–Jakob disease
PoM	prescription-only medicine	SCT	stem cell transplantation
PPE	personal protective equipment	SDA	Severe Disablement Allowance
PPI	proton pump inhibitors	SEQOHS	Safe Effective Quality Occupational Health Service
PPV	positive predictive value	SES	socio-economic status
PRK	photorefractive keratectomy	SLE	systemic lupus erythematosus
PRV	polycythaemia rubra vera	SMI	serious mental illness
PSA	prostate specific antigen	SPB	spontaneous preterm birth
PTA	post-traumatic amnesia	SPL	sound pressure level
PTCA	percutaneous transluminal coronary angioplasty	SSP	Statutory Sick Pay
PTSD	post-traumatic stress disorder	SSRI	serotonin selective re-uptake inhibitor
RA	rheumatoid arthritis	TB	tuberculosis
RADAR	The Royal Association for Disability and Rehabilitation	TED	thromboembolic deterrent
RADS	reactive airways dysfunction syndrome	TENS	transcutaneous electrical nerve stimulation
RAST	radioallergosorbent test	TfW	Training for Work programme
RCGP	Royal College of General Practitioners	THC	tetrahydrocannabinol
RCOG	Royal College of Obstetricians and Gynaecologists	TIA	transient ischaemic attack
RECs	research ethics committees	TLC	total lung capacity
RF	rheumatoid factor	TLCO	carbon monoxide transfer factor
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995	TPAS	The Pensions Advisory Service
RNIB	Royal National Institute for the Blind	TU	Trade Union
RoC	receiver operating characteristic	TUC	Trades Union Congress
RP	Raynaud's phenomenon	UC	ulcerative colitis
RPE	respiratory protective equipment; retinal pigment epithelium	UKPDS	UK Prospective Diabetes Study
RRT	renal replacement therapy	UV	ultraviolet
RSD	reflex sympathetic dystrophy	VA	visual activity
RSI	repetitive strain injury	vCJD	variant Creutzfeldt–Jakob disease
RTI	reverse transcriptase inhibitor	VCO <sub>2</sub>	rate of elimination of carbon dioxide
		VDE	visual display equipment
		VDU	visual display unit
		VR	vocational rehabilitation



VTE	venous thromboembolic disease	VO <sub>2max</sub>	maximum oxygen uptake
VZV	varicella zoster	WAI	work ability index
VWF	von Willebrand's factor; vibration-induced white finger	WHO	World Health Organization
VO <sub>2</sub>	oxygen consumption	WRULD	work-related upper limb disorder
		ZDV	zidovudine

# List of contributors

**Jeffrey A. Aronson**

Reader in Clinical Pharmacology  
Green Templeton College  
Oxford, UK;  
Honorary Consultant in Clinical  
Pharmacology and Honorary Consultant  
Physician  
Oxford Radcliffe Hospital NHS Trust  
Oxford, UK

**Tar-Ching Aw**

Professor and Chair of Occupational Medicine  
Department of Community Medicine  
United Arab Emirates University  
Al Ain, UAE

**Mansel Aylward**

Director  
Centre for Psychosocial and Disability  
Research;  
Professor of Public Health Education  
Cardiff University  
Cardiff, UK

**Ian Banks**

President, European Men's Health Forum  
Brussels, Belgium

**Steve Boorman**

Medical Director  
UK Occupational Health Services  
Abermed, London, UK

**Henrietta Bowden-Jones**

Consultant Psychiatrist  
National Problem Gambling Clinic  
London and Honorary Senior Lecturer  
Department of Medicine  
Imperial College  
London, UK

**David Brown**

Consultant Occupational Physician  
EDF Energy (Nuclear Generation)  
Gloucester, UK

**Edwina A. Brown**

Consultant Nephrologist  
Imperial College  
Kidney and Transplant Centre  
Hammersmith Hospital  
London, UK

**Ian Brown**

Director and Head of Department  
Occupational Health Service  
University of Oxford;  
Honorary Consultant Physician  
Occupational Health Medicine  
Oxfordshire Primary Care Trust  
Oxfordshire, UK

**Phil Bryson**

Medical Director of Diving Services  
Abermed Ltd  
Aberdeen, UK

**Tim Carter**

Chief Medical Advisor  
UK Maritime and Coastguard Agency  
and Norwegian Centre for Maritime Medicine  
Department of Occupational Medicine  
University of Bergen, Norway

**Deborah A. Cohen**

Senior Medical Research Fellow  
Centre for Psychosocial and Disability  
Research  
Cardiff University  
Cardiff, UK

**Andrew P. Colvin**

Consultant Occupational Physician  
Atos Healthcare for Scotland and Northern  
Ireland  
Glasgow, UK

**Christopher Conlon**

Consultant in Infectious Diseases  
Nuffield Department of Medicine  
John Radcliffe Hospital  
Oxford, UK

**Roger Cooke**

Consultant in Occupational Medicine  
 Honorary Senior Lecturer  
 Institute of Occupational  
 and Environmental Medicine  
 University of Birmingham  
 Birmingham, UK

**Sally E. L. Coomber**

Clinical Lead  
 Safe Effective Quality Occupational Health  
 Service (SEQOHS)  
 Royal College of Physicians;  
 Consultant Occupational Physician  
 Suffolk Occupational Health  
 The Ipswich Hospital NHS Trust  
 Ipswich, UK

**Paul Cullinan**

Occupational and Environmental Medicine  
 Imperial College and Royal Brompton  
 Hospital  
 London, UK

**Finlay Dick**

Senior Occupational Physician  
 Capita Health and Wellbeing  
 Aberdeen, UK

**Mike Doig**

Regional Medical Manager  
 Health and Medical Services  
 Chevron Ltd  
 London, UK

**Shirley D'Sa**

Consultant Haemato-Oncologist  
 University London Hospitals  
 NHS Foundation Trust  
 London, UK

**Sally A. Evans**

Chief Medical Officer  
 UK Civil Aviation Authority  
 West Sussex, UK

**Ursula T. Ferriday**

Consultant in Occupational Medicine  
 Worcestershire Acute Hospitals  
 NHS Trust and Head  
 Working Well Centre  
 Worcester, UK

**Iain S. Foulds**

Consultant Dermatologist and  
 Senior Lecturer in Occupational Dermatology  
 Institute of Occupational and  
 Environmental Medicine  
 University of Birmingham  
 Birmingham, UK

**Geoff Gill**

Professor and Honorary  
 Consultant Physician  
 Department of Diabetes and Endocrinology  
 University of Liverpool  
 Clinical Sciences Centre  
 Aintree University Hospital  
 Liverpool, UK

**Henry N. Goodall**

Consultant Occupational Physician  
 Hampshire, UK

**Neil Greenberg**

Defence Professor of Mental Health  
 and Co-director of the Academic  
 Centre for Defence Mental Health  
 King's College London  
 London, UK

**Charles Greenough**

Clinical Director  
 The Golden Jubilee Spinal Cord  
 Injuries Centre  
 The James Cook University Hospital  
 University of Durham  
 Middlesbrough, UK

**Paul Grime**

Consultant Occupational Physician  
 Cambridge University Hospitals NHS  
 Foundation Trust  
 Cambridge, UK

**John Grimley Evans**

Professor Emeritus of Clinical Geratology  
 University of Oxford  
 Oxford, UK

**Richard J. Hardie**

Consultant Neurologist and Stroke Specialist  
 Department of Neurology  
 Frenchay Hospital  
 Bristol, UK