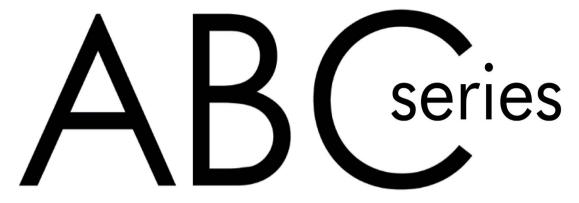


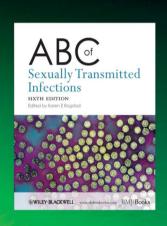
Edited by Lesley A. Colvin and Marie Fallon



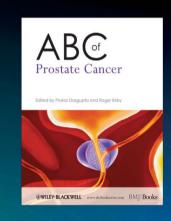
# AB@ Pain

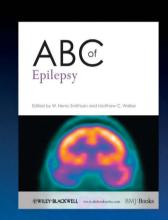


An outstanding collection of resources – written by specialists for non-specialists









The ABC series contains a wealth of indispensable resources for GPs, GP registrars, junior doctors, doctors in training and all those in primary care

- Now fully revised and updated
- ► Highly illustrated, informative and a practical source of knowledge
- ► An easy-to-use resource, covering the symptoms, investigations, treatment and management of conditions presenting in day-to-day practice and patient support
- ► Full colour photographs and illustrations aid diagnosis and patient understanding of a condition

For more information on all books in the ABC series, including links to further information, references and links to the latest official guidelines, please visit:

www.abcbookseries.com



**BMJ**|Books



# **Pain**

EDITED BY

# Lesley A Colvin

Consultant Anaesthetist Department of Anaesthesia, Critical Care & Pain Medicine University of Edinburgh, Western General Hospital, Edinburgh, UK

### Marie Fallon

St Columba's Hospice Chair of Palliative Medicine Edinburgh Cancer Research Centre (CRUK) University of Edinburgh, UK





This edition first published 2012, © 2012 by Blackwell Publishing Ltd.

BMJ Books is an imprint of BMJ Publishing Group Limited, used under licence by Blackwell Publishing which was acquired by John Wiley & Sons in February 2007. Blackwell's publishing programme has been merged with Wiley's global Scientific, Technical and Medical business to form Wiley-Blackwell.

Registered office: John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

Editorial offices: 9600 Garsington Road, Oxford, OX4 2DQ, UK
The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK
111 River Street, Hoboken, NJ 07030-5774, USA

For details of our global editorial offices, for customer services and for information about how to apply for permission to reuse the copyright material in this book please see our website at www.wiley.com/wiley-blackwell

The right of the author to be identified as the author of this work has been asserted in accordance with the UK Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by the UK Copyright, Designs and Patents Act 1988, without the prior permission of the publisher.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

The contents of this work are intended to further general scientific research, understanding, and discussion only and are not intended and should not be relied upon as recommending or promoting a specific method, diagnosis, or treatment by physicians for any particular patient. The publisher and the author make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation any implied warranties of fitness for a particular purpose. In view of ongoing research, equipment modifications, changes in governmental regulations, and the constant flow of information relating to the use of medicines, equipment, and devices, the reader is urged to review and evaluate the information provided in the package insert or instructions for each medicine, equipment, or device for, among other things, any changes in the instructions or indication of usage and for added warnings and precautions. Readers should consult with a specialist where appropriate. The fact that an organization or Website is referred to in this work as a citation and/or a potential source of further information does not mean that the author or the publisher endorses the information the organization or Website may provide or recommendations it may make. Further, readers should be aware that Internet Websites listed in this work may have changed or disappeared between when this work was written and when it is read. No warranty may be created or extended by any promotional statements for this work. Neither the publisher nor the author shall be liable for any damages arising therefrom.

Library of Congress Cataloging-in-Publication Data

ABC of pain / edited by Lesley Colvin, Marie Fallon.
p.; cm. – (ABC series)

Includes bibliographical references and index.
ISBN 978-1-4051-7621-7 (pbk.: alk. paper)

I. Colvin, Lesley, Dr. II. Fallon, Marie. III. Series: ABC series (Malden, Mass.)
[DNLM: 1. Pain Management. WL 704]
616'.0472 – dc23

2011049095

Cover image: © iStockphoto.com/peepo Cover design: Meaden Creative

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

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Set in 9.25/12 Minion by Laserwords Private Limited, Chennai, India

## **Contents**

#### Contributors, vii

Preface, ix

- Epidemiology of Chronic Pain, 1 Blair H Smith and Nicola Torrance
- Pain Mechanisms, 5 Carole Torsney and Susan Fleetwood-Walker
- Evaluation of the Patient in Pain, 11 *Dennis C Turk and Kimberly S Swanson*
- Chronic Musculoskeletal Pain, 16 *Paul Dieppe*
- Management of Low Back Pain, 20 *James Campbell and Lesley A Colvin*
- Neuropathic Pain, 25 Lesley A Colvin and Suzanne Carty
- Visceral Pain, 31 *James Maybin and Michael G Serpell*
- Post-surgical Pain, 37 Susan Nimmo and Lesley Dickson
- Headache and Orofacial Pain, 42 *Anne MacGregor and Joanna M Zakrzewska*
- Cancer Pain, 48 *Marie Fallon*
- Treating Pain in Patients with Drug-dependence Problems, 54 *Jane C Ballantyne*
- Pain in Children, 60 *Suellen M Walker*
- Pain in Older Adults, 65 *Debra K Weiner*
- Pain in Pregnancy, 69 *George R Harrison*
- Psychological Aspects of Chronic Pain, 73 *David Gillanders*

- **16** Interventional Procedures in Pain Management, 79 *Dominic Hegarty and Damian Murphy*
- **17** The Role of Physiotherapy in Pain Management, 86 *Paul J Watson*
- **18** The Role of Transcutaneous Electrical Nerve Stimulation (TENS) in Pain Management, 91 *Mark I Johnson*
- **19** Complementary and Alternative Strategies, 99 *Margaret Cullen and Fiona MacPherson*
- **20** Opioids in Chronic Non-malignant Pain, 103 *Eija Kalso*

Index, 109

### **Contributors**

#### Jane C Ballantyne

Professor of Anesthesiology and Pain Medicine, UW Medicine Professor of Education and Research, Department of Anesthesiology and Pain Medicine, University of Washington, Seattle, WA, USA

#### James Campbell

Consultant in Orthopaedic Medicine, Department of Orthopaedics, Royal Infirmary of Edinburgh, Edinburgh, UK

#### **Suzanne Carty**

Consultant, Anaesthetic Department, Musgrove Park Hospital, Taunton, UK

#### **Margaret Cullen**

Consultant in Anaesthesia and Chronic Pain, Western General Hospital, Edinburgh, UK

#### **Lesley A Colvin**

Consultant/Senior Lecturer in Anaesthesia & Pain Medicine, Department of Anaesthesia, Critical Care & Pain Medicine, University of Edinburgh, Western General Hospital, Edinburgh, UK

#### **Lesley Dickson**

Clinical Nurse Specialist, Department of Anaesthetics, Critical Care and Pain Medicine, Western General Hospital, Edinburgh, UK

#### **Paul Dieppe**

Professor of Medical Education Research, Peninsula College of Medicine and Dentistry, Exeter, UK

#### **Marie Fallon**

St Columba's Hospice Chair of Palliative Medicine, Edinburgh Cancer Research Centre (CRUK), University of Edinburgh, UK

#### Susan Fleetwood-Walker

Chair of Sensory Neuroscience, Centre for Neuroscience Research, Veterinary Biomedical Sciences, Royal (Dick) School of Veterinary Studies, The University of Edinburgh, Edinburgh, UK

#### **David Gillanders**

Academic Director, Doctoral Programme in Clinical Psychology, University of Edinburgh, Edinburgh, UK

#### **George R Harrison**

Consultant in Pain Management and Anaesthesia, University Hospital Birmingham NHSFT and Honorary Senior Lecturer, Department of Pain Management, Queen Elizabeth Hospital Birmingham, Birmingham, UK

#### **Dominic Hegarty**

Consultant in Pain Management & Neuromodulation, Department of Anaesthesia and Pain Medicine, Cork University Hospital, Cork, Ireland

#### **Mark I Johnson**

Professor of Pain and Analgesia, Faculty of Health and Social Sciences, Leeds Metropolitan University and Leeds Pallium Research Group, Leeds, UK

#### Eija Kalso

Professor of Pain Medicine, University of Helsinki/Pain Clinic, Helsinki University Central Hospital, Helsinki, Finland

#### **Anne MacGregor**

Honorary Professor, Centre for Neuroscience & Trauma, Blizard Institute of Cell and Molecular Science, St Bartholomew's and the London School of Medicine and Dentistry, London, UK

#### **Fiona MacPherson**

Clinical Nurse Specialist Chronic Pain, Western General Hospital, Edinburgh, UK

#### **James Mavbin**

Specialist Registrar, Anaesthesia, Glasgow Royal Infirmary, Glasgow, UK

#### **Damien Murphy**

Consultant in Anaesthesia and Pain Medicine, Department of Anaesthesia and Pain Medicine, Cork University Hospital, Cork, Ireland

#### **Susan Nimmo**

Consultant Anaesthetist, Department of Anaesthetics, Critical Care and Pain Medicine, Western General Hospital, Edinburgh, UK

#### Michael G Serpell

Consultant and Senior Lecturer, University Department of Anaesthesia, Glasgow University, Glasgow, UK

#### **Blair H Smith**

Professor of Population Science, Medical Research Institute, University of Dundee, Dundee, UK

#### **Kimberley S Swanson**

Department of Anesthesiology, University of Washington, Seattle, WA, USA

#### **Nicola Torrance**

Research Fellow, Medical Research Institute, University of Dundee, Dundee, UK

#### **Carole Torsney**

Caledonian Research Fellow, Centre for Neuroscience Research, Veterinary Biomedical Sciences, Royal (Dick) School of Veterinary Studies, The University of Edinburgh, Edinburgh, UK

#### **Dennis C Turk**

Department of Anesthesiology, University of Washington, Seattle, WA, USA

#### Suellen M Walker

Clinical Senior Lecturer in Paediatric Anaesthesia and Pain Medicine, University College London, Institute of Child Health and Great Ormond Street Hospital for Children, London, UK

#### **Paul J Watson**

Professor of Pain Management and Rehabilitation, University of Leicester, Leicester, UK

#### **Debra K Weiner**

Associate Professor of Medicine, Anesthesiology and Psychiatry, Geriatric Research, Education and Clinical Center, VA Pittsburgh Healthcare System and University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

#### Joanna M Zakrzewska

Consultant in Oral Medicine, Oral Medicine, University College London Hospitals NHS Foundation Trust, London, UK

## **Preface**

The aim of the wise is not to secure pleasure, but to avoid pain.

Aristotle

Regardless of the area of healthcare we work in, we will meet patients suffering from chronic pain. Pain can cause significant distress and suffering, with a major impact on patients' quality of life and on their families. Careful assessment and management of pain is an integral part of good clinical care, not something that should only be available through specialist teams. The field of pain management is expanding rapidly, with novel approaches to assessment techniques, improved understanding of the pathophysiology and developments in both pharmacological and non-pharmacological management strategies. While there are many excellent textbooks for specialists, there is however a need for a clear and concise evidence-based text, that provides an accessible introduction to this important area. This new title in the ABC series has gathered together a range of internationally recognised experts and practising clinicians to produce a book that we hope will prove of real practical value to primary care staff, trainee doctors, students and allied health professionals.

We have not set out to write a comprehensive text of all aspects of pain management but have attempted to include commonly seen chronic pain conditions, or in areas that may provide particular challenges. The first part of the book explores the epidemiology of pain, where it is clear just how common chronic pain is — something that has not been well-recognised until relatively recently. A clear outline of the basic science of pain mechanisms helps to provide a framework for understanding how chronic pain develops and how treatment may work. This section should also be helpful for students and junior doctors preparing for exams. As with any medical problem, a comprehensive but focused approach to pain assessment underpins any successful management plan, as outlined in the chapter from Prof Dennis Turk.

Subsequent chapters examine very common pain conditions, including musculoskeletal pain, neuropathic pain and also visceral

pain, In these chapters we have suggested various approaches to assessment and management that we hope you will find useful. We then focus on pain in patient populations with particular needs, such as children, the elderly, those with drug dependency issues, cancer pain and also pain in pregnancy.

The final part of the book examines the wide range of therapies that can be used in the management of chronic pain. While this includes pharmacological management, including opioids, we have tried to consider the multidisciplinary strategies that are used successfully in the specialist setting and how these can be used in the non-specialist setting. Thus we have addressed psychological therapies, physiotherapy, and complementary therapies.

Each chapter has used illustrations and text boxes to highlight important points, aiding ease of reading and making it more accessible. For those interested in more details on a particular topic we have provided a further reading list, including useful web-based resources. Each chapter can be read in isolation, although you hope you will find the style persuades you to read chapters that might otherwise not appeal to you.

The specialist nature of complex pain management has been increasingly recognised over recent years, both by professional bodies such as the Royal College of Anaesthetists (London) with the establishment of a Faculty of Pain Medicine in April 2007, and also by politicians. The fact remains however, that the vast majority of pain problems are dealt with by non-specialists: it is essential that all healthcare professionals have the basic training and education required to enable them to confidently address pain problems and thus reduce suffering in our patients. We would like to thank all our contributors for their expert chapters and also their patience, as this book has taken some considerable time to reach fruition. Despite this, we hope that the end result is enjoyed by our readership, and that their patients reap the benefits of this.

Lesley A Colvin Marie T Fallon

#### **CHAPTER 1**

# **Epidemiology of Chronic Pain**

#### Blair H Smith and Nicola Torrance

Medical Research Institute, University of Dundee, Dundee, UK

#### **OVERVIEW**

- Chronic pain persists beyond normal wound healing, with around one in four adults suffering from chronic pain
- The majority of patients with chronic pain will be managed in the primary care setting, but complex cases will require specialist input
- Chronic pain, especially neuropathic pain, has a major impact on all aspects of general health
- Factors predisposing to chronic pain include those not amenable to intervention, such as increasing age and female gender, and also those that can be targeted, such as deprivation, or poor acute pain control
- Early identification and management of chronic pain are essential in order to minimise long term suffering and disability

#### Introduction

Pain is an individual experience, whose subjective nature makes it difficult to define, describe or measure, yet which is common to all human beings. As description and measurement are nonetheless essential, so, therefore, is a definition that suits both patients and professionals. Pain is helpfully, therefore, defined by the International Association for the Study of Pain (IASP) as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described by the patient in terms of such damage'.

Chronic pain is defined by the IASP as 'pain that persists beyond normal tissue healing time'. A range of factors may be involved, including physical and biological factors, and also behavioural and cognitive factors, and these may dominate the experience of chronic pain, which is ultimately primarily subjective (Box 1.1).

Box 1.1 Acute and chronic pain				
Acute pain	$\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow$	Chronic pain		
Physiological		Pathological		
Health preserving		Maladaptive		
Warns of damage		Dysfunctional healing		
Allows evasive		Abnormal response to		
action		injury		

ABC of Pain, First edition. Edited by Lesley A Colvin and Marie Fallon. © 2012 Blackwell Publishing Ltd. Published 2012 by Blackwell Publishing Ltd.

#### What is chronic pain?

There are many similarities in the symptoms and impact of chronic pain between most individuals who experience chronic pain, irrespective of its cause. Consequently, there are also many similarities in approaches to preventing or managing chronic pain of different aetiological or diagnostic backgrounds. This has led some to propose the existence of a 'chronic pain syndrome', and certainly for many clinical and research purposes, there is considerable merit in regarding chronic pain as a single, global, clinical entity (while also paying suitable attention to individual, treatable causes of chronic pain).

#### Why is epidemiology important?

Epidemiology is 'the study of the distribution and determinants of health-related states or events in specified populations and the application of this study to control health problems'.

(Last RJ. (2001) *A Dictionary of Epidemiology*, 4th edn. Oxford: International Epidemiological Association.)

It is the latter part of this definition that makes it such an important science in clinical medicine. The last twenty or so years have seen the publication of many good quality epidemiological studies of chronic pain that have enhanced our understanding of its causes, impact and approaches to management. Good epidemiological research on chronic pain can, and does, provide important information on its classification and prevalence and factors associated with its onset and persistence. This can inform the design and targeting of treatment and preventive strategies (Box 1.2).

#### Box 1.2 How does epidemiology help us with chronic pain?

- 1 Identifies factors associated with chronic pain and those which lead to or favour chronicity
- 2 Aids development of interventions to prevent chronicity or to minimise its impact
- 3 Improving understanding of associated factors in development will inform the clinical management of the condition, thereby possibly limiting severity and minimising disability