

# Table of Contents

Foreword to the First Edition by Professor Sir David Weatherall, ix

Preface to the First Edition: do you need to read this book?, xii

Preface to the Fourth Edition, xiv

Acknowledgements, xvi

## **1 Why read papers at all?, 1**

1.1 Does 'evidence-based medicine' simply mean 'reading papers in medical journals?', 1

1.2 Why do people sometimes groan when you mention EBM?, 3

1.3 Before you start: formulate the problem, 9

## **2 Searching the literature, 15**

2.1 What are you looking for?, 16

2.2 Levels upon levels of evidence, 18

2.3 Synthesised sources: systems, summaries and syntheses, 19

2.4 Pre-appraised sources: synopses of systematic reviews and primary studies, 23

2.5 Specialised resources, 23

2.6 Primary studies – tackling the jungle, 24

2.7 One-stop shopping: federated search engines, 28

2.8 Asking for help and asking around, 28

## **3 Getting your bearings – what is this paper about?, 31**

3.1 The science of 'trashing' papers, 31

3.2 Three preliminary questions to get your bearings, 33

3.3 Randomised controlled trials, 36

3.4 Cohort studies, 40

3.5 Case-control studies, 41

3.6 Cross-sectional surveys, 42

## vi Contents

- 3.7 Case reports, 42
- 3.8 The traditional hierarchy of evidence, 43
- 3.9 A note on ethical considerations, 44

### **4 Assessing methodological quality, 47**

- 4.1 Was the study original?, 47
- 4.2 Whom is the study about?, 48
- 4.3 Was the design of the study sensible?, 49
- 4.4 Was systematic bias avoided or minimised?, 51
- 4.5 Was assessment 'blind'?, 54
- 4.6 Were preliminary statistical questions addressed?, 55
- 4.7 Summing up, 58

### **5 Statistics for the non-statistician, 61**

- 5.1 How can non-statisticians evaluate statistical tests?, 61
- 5.2 Have the authors set the scene correctly?, 62
- 5.3 Paired data, tails, and outliers, 68
- 5.4 Correlation, regression and causation, 70
- 5.5 Probability and confidence, 72
- 5.6 The bottom line, 74
- 5.7 Summary, 76

### **6 Papers that report trials of drug treatments and other simple interventions, 78**

- 6.1 'Evidence' and marketing, 78
- 6.2 Making decisions about therapy, 80
- 6.3 Surrogate endpoints, 81
- 6.4 What information to expect in a paper describing an RCT: the CONSORT statement, 84
- 6.5 Getting worthwhile evidence out of a pharmaceutical representative, 84

### **7 Papers that report trials of complex interventions, 90**

- 7.1 Complex interventions, 90
- 7.2 Ten questions to ask about a paper describing a complex intervention, 92

### **8 Papers that report diagnostic or screening tests, 98**

- 8.1 Ten men in the dock, 98
- 8.2 Validating diagnostic tests against a gold standard, 99

- 8.3 Ten questions to ask about a paper that claims to validate a diagnostic or screening test, 103
- 8.4 Likelihood ratios, 108
- 8.5 Clinical prediction rules, 109

**9 Papers that summarise other papers (systematic reviews and meta-analyses), 113**

- 9.1 When is a review systematic?, 113
- 9.2 Evaluating systematic reviews, 116
- 9.3 Meta-analysis for the non-statistician, 121
- 9.4 Explaining heterogeneity, 125
- 9.5 New approaches to systematic review, 128

**10 Papers that tell you what to do (guidelines), 132**

- 10.1 The great guidelines debate, 132
- 10.2 How can we help ensure that evidence-based guidelines are followed?, 135
- 10.3 Ten questions to ask about a clinical guideline, 139

**11 Papers that tell you what things cost (economic analyses), 149**

- 11.1 What is an economic analysis?, 149
- 11.2 Measuring the costs and benefits of health interventions, 151
- 11.3 Ten questions to ask about an economic analysis, 156
- 11.4 Conclusion, 160

**12 Papers that go beyond numbers (qualitative research), 163**

- 12.1 What is qualitative research?, 163
- 12.2 Evaluating papers that describe qualitative research, 167
- 12.3 Conclusion, 174

**13 Papers that report questionnaire research, 177**

- 13.1 The rise and rise of questionnaire research, 177
- 13.2 Ten questions to ask about a paper describing a questionnaire study, 178

**14 Papers that report quality improvement case studies, 188**

- 14.1 What are quality improvement studies – and how should we research them?, 188

viii **Contents**

14.2 Ten questions to ask about a paper describing a quality improvement initiative, 190

14.3 Conclusion, 197

**15 Getting evidence into practice, 199**

15.1 Why are health professionals slow to adopt evidence-based practice?, 199

15.2 How much avoidable suffering is caused by failing to implement evidence?, 201

15.3 How can we influence health professionals' behaviour to promote evidence-based practice?, 202

15.4 What does an 'evidence-based organisation' look like?, 208

15.5 How can we help organisations develop the appropriate structures, systems and values to support evidence-based practice?, 209

15.6 Why is it so hard to get evidence into policymaking?, 214

**Appendix 1 Checklists for finding, appraising and implementing evidence, 221**

**Appendix 2 Assessing the effects of an intervention, 230**

**Index, 231**