

# Evidence-based Nursing

*An introduction*

Edited by  
**Nicky Cullum**  
**Donna Ciliska**  
**R. Brian Haynes**  
**Susan Marks**



RCN Publishing  
Company

BMJ | Journals



Blackwell  
Publishing

# CONTENTS

## CONTRIBUTOR LIST

Editors

Contributors

## ACKNOWLEDGEMENTS

## DEDICATION

## COPYRIGHT ACKNOWLEDGEMENTS

## Chapter 1 AN INTRODUCTION TO EVIDENCE-BASED NURSING

What is evidence-based nursing, and why is it important?

Getting started with evidence-based nursing

Context

Early evidence of the impact of evidence-based practice on policy, education and research

Why we wrote this book

References

## Chapter 2 IMPLEMENTING EVIDENCE-BASED NURSING: SOME MISCONCEPTIONS

Evidence-based practice isn't new; it's what we have been doing for years

Evidence-based nursing leads to 'cookbook' nursing and a disregard for individualized patient

care

There is an over-emphasis on randomized controlled trials and systematic reviews in evidence-based health care, and they are not relevant to nursing.

Summary

References

## Chapter 3 ASKING ANSWERABLE QUESTIONS

What is EBN?

Why focus questions?

Where do questions come from?

Elements of a question

Putting it all together

Different types of questions

Finding answers

References

## Chapter 4 OF STUDIES, SUMMARIES, SYNOPSES, AND SYSTEMS: THE '4S' EVOLUTION OF SERVICES FOR FINDING CURRENT BEST EVIDENCE

Systems

Synopses

Syntheses

Studies

Is it time to change how you seek best evidence?

References

## Chapter 5 SEARCHING FOR THE BEST EVIDENCE. PART 1: WHERE TO LOOK

Textbook-like resources: systems

Synopses: distilled information sources

Consolidated information sources

The Internet

Keeping up to date

Searching for statistical data

Summary

References

## Chapter 6 SEARCHING FOR THE BEST EVIDENCE. PART 2: SEARCHING CINAHL AND MEDLINE

What is CINAHL, why should I use it, and how do I access it?

What is MEDLINE, why should I use it, and how do I access it?

Searching for clinically useful articles made easy

How to apply clinical queries in CINAHL

How to apply clinical queries in MEDLINE

Additional search tips and information - CINAHL

Summary

References

## Chapter 7 IDENTIFYING THE BEST RESEARCH DESIGN TO FIT THE QUESTION. PART 1: QUANTITATIVE RESEARCH

[Questions about the effectiveness of prevention and interventions](#)

[Questions about the cause of a health problem or disease](#)

[Questions about the course of a condition or disease \(prognosis\)](#)

[Single studies versus systematic reviews](#)

[Summary](#)

[References](#)

## [Chapter 8 IDENTIFYING THE BEST RESEARCH DESIGN TO FIT THE QUESTION. PART 2: QUALITATIVE RESEARCH](#)

[Sampling, data collection and data analysis](#)

[Qualitative data](#)

[Types of qualitative research](#)

[Summary](#)

[References](#)

[Additional resources](#)

## [Chapter 9 IF YOU COULD JUST PROVIDE ME WITH A SAMPLE: EXAMINING SAMPLING IN QUANTITATIVE AND QUALITATIVE RESEARCH PAPERS](#)

[What is sampling?](#)

[Sampling in quantitative research](#)

[Sampling in qualitative research](#)

[Quantitative and qualitative and sampling: a final word of caution](#)

[Summary](#)  
[References](#)  
[Additional resource](#)

## [Chapter 10 THE FUNDAMENTALS OF QUANTITATIVE MEASUREMENT](#)

[Types of variables](#)  
[Issues in measurement](#)  
[What measurement issues should I consider when reading an article?](#)  
[Summary](#)  
[References](#)

## [Chapter 11 SUMMARIZING AND PRESENTING THE EFFECTS OF TREATMENTS](#)

[Measures of health and disease](#)  
[Measures of effect and association](#)  
[Clinical importance and impact](#)  
[Summary](#)  
[References](#)

## [Chapter 12 ESTIMATING TREATMENT EFFECTS: REAL OR THE RESULT OF CHANCE?](#)

[Sampling error](#)  
[Confidence intervals](#)  
[Hypothesis testing and p-values](#)

[Type I error: the risk of a false-positive result](#)  
[Type II error: risk of a false-negative result](#)  
[Tests for different types of outcome measures](#)  
[Statistical significance is not clinical significance](#)  
[Summary](#)  
[References](#)

## [Chapter 13 DATA ANALYSIS IN QUALITATIVE RESEARCH](#)

[Qualitative data](#)  
[Qualitative analytic reasoning processes](#)  
[Specific analytic strategies](#)  
[Cognitive processes inherent in qualitative analysis](#)  
[Quality measures in qualitative analysis](#)  
[Summary](#)  
[References](#)  
[Additional resources](#)

## [Chapter 14 USERS' GUIDES TO THE NURSING LITERATURE: AN INTRODUCTION](#)

[Introduction to critical appraisal](#)  
[Summary](#)  
[References](#)

## [Chapter 15 EVALUATION OF STUDIES OF TREATMENT OR PREVENTION INTERVENTIONS](#)

[Are the results of the study valid?](#)

What are the results?

Can I apply the results in practice?

The search

Are the results of the study valid?

What are the results?

Can I apply the results in practice?

Resolution of the clinical scenario

References

## Chapter 16 ASSESSING ALLOCATION CONCEALMENT AND BLINDING IN RANDOMIZED CONTROLLED TRIALS: WHY BOTHR?

Allocation concealment

Blinding

Reporting of methods

Summary

References

## Chapter 17 NUMBER NEEDED TO TREAT: A CLINICALLY USEFUL MEASURE OF THE EFFECTS OF NURSING INTERVENTIONS

How can NNTs help me in clinical decision-  
making?

NNTs are only useful for interventions that  
produce dichotomous outcomes

NNTs should always be interpreted in the context  
of their precision



Interpretation of NNTs must always consider the follow-up time associated with them

Clinical decision-making must consider adverse outcomes as well as positive effects

NNTs will vary with baseline risk

Summary

References

## Chapter 18 THE TERM 'DOUBLE-BLIND' LEAVES READERS IN THE DARK

Summary

References

## Chapter 19 EVALUATION OF SYSTEMATIC REVIEWS OF TREATMENT OR PREVENTION INTERVENTIONS

What is a systematic review?

The search

Are the results of the systematic review valid?

What are the results?

Can I apply the results in practice?

Resolution of the clinical scenario

References

Additional resources

## Chapter 20 EVALUATION OF STUDIES OF SCREENING TOOLS AND DIAGNOSTIC TESTS

The search

Are the results of the study valid?

What are the results?

Can I apply the test in practice?

Resolution of the clinical scenario

References

## Chapter 21 EVALUATION OF STUDIES OF HEALTH ECONOMICS

Are the results of this economic evaluation valid?

What are the results of the economic evaluation?

Can I apply the results in practice?

Resolution of the clinical scenario

References

## Chapter 22 EVALUATION OF STUDIES OF PROGNOSIS

Definition of prognosis

Study designs for questions of prognosis

The search

Are the results of the study valid?

What are the results?

Can I apply the results in practice?

Resolution of clinical scenario

Summary

References

Additional resources

## Chapter 23 EVALUATION OF STUDIES OF CAUSATION (AETIOLOGY)

[The search](#)

[Types of research studies](#)

[Measures of effect in studies of causation](#)

[Are the results valid?](#)

[What are the results?](#)

[Can I apply the results in practice?](#)

[Resolution of the clinical scenario](#)

[References](#)

## [Chapter 24 EVALUATION OF STUDIES OF TREATMENT HARM](#)

[The search](#)

[Study designs for assessing questions of treatment harm](#)

[Are the results of the study valid?](#)

[What are the results?](#)

[Can I apply the results in practice?](#)

[Resolution of the scenario](#)

[References](#)

## [Chapter 25 EVALUATION OF QUALITATIVE RESEARCH STUDIES](#)

[The search](#)

[Are the findings of the study valid?](#)

[What are the findings?](#)

[Can I apply the findings in practice?](#)

[Resolution of the clinical scenario](#)

[References](#)

[Additional resources](#)

## Chapter 26 APPRAISING AND ADAPTING CLINICAL PRACTICE GUIDELINES

1. Identify a clinical area in which to promote best practice
  2. Establish an interdisciplinary guideline evaluation group
  3. Establish a guideline appraisal process
  4. Search for and retrieve guidelines
  5. Assess the guidelines
  6. Adopt or adapt guidelines for local use
  7. Seek external review of the proposed local guideline
  8. Finalize the local guideline
  9. Obtain official endorsement and adoption of the guideline by the organization
  10. Schedule review and revision of the local guideline
- Resolution of clinical scenario
- Summary
- References

## Chapter 27 MODELS OF IMPLEMENTATION IN NURSING

- Conceptual models and theories of implementation
- Resolution of the clinical scenario
- Summary
- References

## Chapter 28 CLOSING THE GAP BETWEEN NURSING RESEARCH AND PRACTICE

Evaluation of behaviour change strategies

Getting research into practice

Planning for improving the practice of individual nurses

References

## Chapter 29 PROMOTING RESEARCH UTILIZATION IN NURSING: THE ROLE OF THE INDIVIDUAL, THE ORGANIZATION AND THE ENVIRONMENT

Contexts of research utilization

The individual nurse

The organization

The environment: research quality and dissemination strategies

Summary

References

## Chapter 30 NURSES, INFORMATION USE, AND CLINICAL DECISION-MAKING: THE REAL-WORLD POTENTIAL FOR EVIDENCE-BASED DECISIONS IN NURSING

Methods underpinning this chapter

Evidence-based decision-making involves actively using information

[Information need, 'information behaviour' and clinical decision-making](#)

[Nurses' clinical decisions: a typology](#)

[The cognitive continuum: the decision as driver for information behaviour](#)

[The reality of information behaviour](#)

[Decision-making and models for the implementation of research knowledge](#)

[Summary](#)

[References](#)

## [Chapter 31 COMPUTERIZED DECISION SUPPORT SYSTEMS IN NURSING](#)

[Types of decisions suitable for the use of CDSSs](#)

[Examples of CDSSs used in nursing](#)

[Evaluations of CDSSs](#)

[Summary](#)

[References](#)

[Additional resources](#)

## [Chapter 32 BUILDING A FOUNDATION FOR EVIDENCE-BASED PRACTICE: EXPERIENCES IN A TERTIARY HOSPITAL](#)

[Selecting a model for EBN practice and an EBP model for implementing change in nursing practice](#)

[Prioritizing and disseminating research findings to health care programmes](#)

[Evaluating an important EBP application in direct patient care](#)

[Other progress](#)

[Summary](#)

[References](#)

[GLOSSARY](#)

[INDEX](#)

# EVIDENCE-BASED NURSING

## AN INTRODUCTION

Editors

**Nicky Cullum PhD, RGN**

*Professor and Director of the Centre for Evidence-based Nursing,  
University of York,  
UK*

**Donna Ciliska PhD, RN**

*Professor, School of Nursing,  
McMaster University,  
Canada*

**R. Brian Haynes MD, MSc, PhD, FRCPC, MACP, FACMI**

*Michael Gent Professor and Chair,  
Department of Clinical Epidemiology and Biostatistics,  
McMaster University,  
Canada*

**Susan Marks BEd, BA**

*Research Associate, Health Information Research Institute,  
McMaster University,  
Canada*



**Blackwell  
Publishing**

**BMJ|Journals**



**RCN Publishing  
Company**



© 2008 Blackwell Publishing Ltd, BMJ Publishing Group Limited and RCN Publishing Company Ltd, and American College of Physicians (“ACP”) Journal Club

Blackwell Publishing editorial offices:

Blackwell Publishing Ltd, 9600 Garsington Road, Oxford OX4 2DQ, UK

Tel: +44 (0)1865 776868

Blackwell Publishing Inc., 350 Main Street, Malden, MA 02148-5020, USA

Tel: +1 781 388 8250

Blackwell Publishing Asia Pty Ltd, 550 Swanston Street, Carlton, Victoria 3053, Australia

Tel: +61 (0)3 8359 1011

The right of the Authors to be identified as the Authors of this Work has been asserted in accordance with the 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.

First published 2008 by Blackwell Publishing Ltd

ISBN: 978-1-4051-4597-8

Library of Congress Cataloging-in-Publication Data

Evidence-based nursing : an introduction / editors, Nicky Cullum...[et al.].

p. ; cm.

Includes bibliographical references and index.

ISBN-13: 978-1-4051-4597-8 (pbk. : alk. paper)

ISBN-10: 1-4051-4597-8 (pbk. : alk. paper) 1. Evidence-based nursing. I. Cullum, Nicky.

[DNLM: 1. Nursing Process. 2. Evaluation Studies. 3. Evidence-Based Medicine. WY 100 E93 2007]

RT42.E93 2007

610.73—dc22

A catalogue record for this title is available from the British Library

The publisher's policy is to use permanent paper from mills that operate a sustainable forestry policy, and which has been manufactured from pulp processed using acid-free and elementary chlorine-free practices. Furthermore, the publisher ensures that the text paper and cover board used have met acceptable environmental accreditation standards.

For further information on Blackwell Publishing, visit our website:

[www.blackwellnursing.com](http://www.blackwellnursing.com)

# CONTRIBUTOR LIST

## **Editors**

Donna Ciliska PhD, RN  
Professor  
School of Nursing  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Nicky Cullum PhD, RGN  
Professor and Director of the Centre for Evidence Based  
Nursing  
Department of Health Sciences  
Area 2, Seebohm Rowntree Building  
University of York  
York, UK  
YO10 5DD

R. Brian Haynes MD (Alberta), MSc (McMaster), PhD  
(McMaster), FRCPC, MACP, FACMI,  
Michael Gent Professor and Chair, Department of Clinical  
Epidemiology and Biostatistics,  
DeGroot School of Medicine  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Susan Marks BEd, BA

Research Associate  
Health Information Research Institute (HIRU)  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

## **Contributors**

Joy Adamson PhD  
Lecturer  
Department of Health Sciences  
University of York  
Area 2, Seebohm Rowntree Building  
York, UK  
YO10 5DD

Suzanne Bakken DNSc, FAAN  
Alumni Professor  
School of Nursing and Professor of Biomedical Informatics  
Columbia University School of Nursing  
617 West 168th Street  
New York  
NY 10032  
USA

Jennifer Blythe PhD, MLS  
Senior Scientist  
School of Nursing  
McMaster University  
Hamilton  
ON, Canada

L8N 3Z5

Deborah Braccia RN, MPA  
Doctoral Candidate  
Columbia University School of Nursing  
617 West 168th Street  
New York  
NY 10032  
USA

Esther Coker RN, MScN, MSc  
Assistant Clinical Professor  
School of Nursing  
McMaster University  
Clinical Nurse Specialist  
St. Peter's Hospital  
Hamilton  
ON, Canada  
L8M 1W9

P.J. Devereaux BSc (Dalhousie), MD (McMaster), PhD  
(McMaster), FRCPC  
Assistant Professor  
Department of Clinical Epidemiology and Biostatistics  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Alba DiCenso PhD, RN  
Professor, Nursing and Clinical Epidemiology and  
Biostatistics  
CHSRF/CIHR Chair in Advanced Practice Nursing

School of Nursing  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Dawn Dowding PhD, RGN  
Senior Lecturer  
Hull York Medical School  
Department of Health Sciences  
University of York  
Area 2, Seebohm Rowntree Building  
York, UK  
YO10 5DD

Ellen Fineout-Overholt RN, PhD, FNAP  
Director, Center for the Advancement of Evidence Based  
Practice  
Associate Professor, Clinical Nursing  
Arizona State University  
College of Nursing  
500 N. 3rd Street  
Phoenix  
AZ 85004  
USA

Kate Flemming MSc, RGN  
Research Fellow  
Department of Health Sciences  
Area 2, Seebohm Rowntree Building  
University of York  
York, UK  
YO10 5DD

Ian D. Graham PhD  
Associate Professor  
School of Nursing  
University of Ottawa  
51 Gwynne Ave  
Ottawa  
ON, Canada  
K1Y 1X1

David M. Gregory RN, PhD  
Professor  
School of Health Sciences  
University of Lethbridge  
AH103 (Anderson Hall)  
Lethbridge  
AB, Canada  
T1K 3M4

Margaret B. Harrison RN, PhD  
Professor  
School of Nursing  
Queen's University  
Second Floor  
78 Barrie Street  
Kingston  
ON, Canada  
K7L 3N6

Andrew Jull RN, MA  
Research Fellow  
Clinical Trials Research Unit  
University of Auckland

Private Bag 92019  
Auckland  
New Zealand 1142

Bernice King RN, MHSc  
Assistant Clinical Professor (retired)  
School of Nursing  
McMaster University  
Clinical Nurse Specialist  
Hamilton Health Sciences  
Hamilton  
ON, Canada  
L8V 5C2

Jo Logan RN, PhD  
Adjunct Professor  
School of Nursing  
University of Ottawa  
213 Beech St  
Ottawa  
ON, Canada  
K1Y 3T3

Dorothy McCaughan MSc, RGN  
Research Fellow  
Department of Health Sciences  
University of York  
Area 2, Seebohm Rowntree Building  
York, UK  
YO10 5DD

K. Ann McKibbon MLS, PhD  
Associate Professor



Health Information Research Unit  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Bernadette Melnyk RN, PhD, CPNP, FAAN  
Dean and Distinguished Foundation Professor in Nursing  
Arizona State University  
500 North 3rd Street  
Phoenix  
AZ 85004  
USA

E. Ann Mohide RN, MHSc, MSc  
Associate Professor  
School of Nursing  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Mary Ann O'Brien BHSc (PT), MSc  
Research Fellow  
Supportive Cancer Care Research Unit  
Juravinski Cancer Centre  
699 Concession Street, Room 4-204  
Hamilton  
ON, Canada  
L8V 5C2

Emily Petherick MPH  
Research Fellow

Department of Health Sciences  
University of York  
Area 2, Seebohm Rowntree Building  
York, UK  
YO10 5DD

Jenny Ploeg RN, PhD  
Associate Professor  
School of Nursing  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Pauline Raynor BA, PGCE, RN, RM  
Bradford Health Research Centre  
Bradford Royal Infirmary  
Duckworth Lane  
Bradford  
UK  
BD9 6RJ

Jackie Roberts RN, MSc  
Professor Emeritus, School of Nursing  
Systems Linked Research Unit  
McMaster University  
75 Frid Street  
Building T30  
Hamilton  
ON, Canada  
L8P 4M3

Nicole Robinson BA

Research Coordinator  
Ottawa Health Research Institute  
1053 Carling Avenue  
Ottawa  
ON, Canada  
K1Y 4E9

Joan Royle RN, MScN  
Associate Professor (retired)  
School of Nursing  
McMaster University  
Hamilton  
ON, Canada  
L8N 3Z5

Cynthia Russell PhD, RN  
Professor  
University of Tennessee  
Health Science Center  
College of Nursing  
877 Madison Avenue  
Memphis  
TN 38163  
USA

Kenneth F. Schulz PhD, MBA  
Vice President, Family Health International  
PO Box 13950  
Research Triangle Park North Carolina  
NC 27709  
USA

Trevor A. Sheldon DSc

Professor and Deputy Vice Chancellor  
University of York  
Heslington Hall  
York, UK  
YO10 5DD

Patricia W. Stone PhD, RN  
Assistant Professor of Nursing  
Columbia University School of Nursing  
617 West 168th Street  
New York  
NY 10032  
USA

Jacqueline Tetroe MA  
Senior Policy Analyst  
Canadian Institutes of Health Research  
160 Elgin St, 9th Floor  
Address Locator 4809A  
Ottawa  
ON, Canada  
K1A 0W9

Carl Thompson PhD, RGN  
Senior Lecturer  
Department of Health Sciences  
University of York  
Area 2, Seebohm Rowntree Building  
York, UK  
YO10 5DD

Sally Thorne PhD, RN  
Professor

School of Nursing  
University of British Columbia  
T201-2211, Wesbrook Mall  
Vancouver  
BC, Canada  
V6T 2B5

Jennifer Wiernikowski RN, MN, CON(C)  
Chief of Nursing Practice  
Juravinski Cancer Program  
Hamilton Health Sciences  
Hamilton,  
ON, Canada  
L8V 5C2

# ACKNOWLEDGEMENTS

We thank Laurie Gunderman, Sarah Marriott, Sandi Newby and Emily Petherick for their help in preparing material for this book.