USING EVIDENCE TO GUIDE NURSING PRACTICE
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Preface

Over the past decade, the Australian healthcare system has come under siege to improve the quality and access of patient care within a context of increasingly limited resources. Greater emphasis is being placed on the need for all health professionals to seek out evidence for best practice and apply it in their everyday work.

Large gaps remain in the amount of robust evidence for much of what nurses do during the course of their daily work. Therefore, the challenge for nurses is to develop and implement well-focused evidence-based nursing interventions to improve the quality of patient care. Evidence-based practice (EBP) is fundamentally about reducing uncertainty in clinical care, in order to achieve efficient and effective service delivery.

In 2005, the first edition of this book provided a guide for both experienced nurses and students of nursing on how to find, appraise and use appropriate evidence in their everyday practice. This theme continues in the second edition, with a greater emphasis on i) how to develop an EBP culture in the workplace that supports clinicians to make healthcare decisions based on finding and using the best available evidence; and ii) how to translate evidence into practice.

The second edition is divided into five parts:

Part one examines what EBP is. It describes the development of the EBP movement and provides an overview of why EBP has spread so rapidly over the past decade. Part one details types of evidence, describes the relationship between clinical questions and research designs to demonstrate evidence, and examines both quantitative and qualitative means of gathering evidence.

Part two focuses on how to develop a workplace culture that supports EBP. It describes important features of a positive evidence-based work culture and outlines how the reader can assess their own work environment. Part two also discusses the development and use of clinical guidelines.

Part three examines how to locate and appraise evidence. It also describes the process of undertaking a systematic review.

Part four focuses on how to evaluate practice by undertaking a clinical audit and program evaluation.

Part five examines how to translate evidence into practice, including a new case study that can be applied to this purpose.

A range of discussion points and case studies are included throughout the book to assist the reader to understand the material provided in the text.

If you find any errors as you read through this book, please let us know. We will acknowledge your good detective work when the book is reprinted. We will also appreciate any feedback you have that might assist in the refinement of subsequent editions of this text.

Finally, many thanks to the contributing authors for providing the expertise and experience required to draw together the material for the complex issues and practices addressed in this book.

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PART ONE

Introduction
1 Learning objectives
After reading this chapter, you should be able to:
1. understand what evidence-based practice (EBP) is
2. understand the benefits and alternatives to using EBP
3. explain what has caused the major spread of the EBP movement
4. list where evidence may be located to support best practice
5. describe two major structures promoting the utilisation of EBP in Australia—the National Institute of Clinical Studies (NICS) and the Joanna Briggs Institute (JBI)
6. explain how evidence may be incorporated into nursing practice, and
7. discuss the challenges the EBP-based movement has posed for both nursing education and nursing research.

1.2 Introduction
This chapter introduces the reader to the development of the evidence-based practice (EBP) movement and provides an overview of why EBP has spread so rapidly over the past 15 years. It explains how evidence may be incorporated into nursing practice and examines the challenges the EBP-based movement has posed for both nursing education and nursing research.

1.3 What is ‘evidence-based practice’?
Health professionals currently advise their patients to stop smoking. Why do they give this advice? Why don’t they advise them to start smoking or increase their smoking intake? The reason is that evidence is available which demonstrates:

- high levels of smoking are associated with increased risk of lung cancer, and
- stopping smoking reduces the risk of lung cancer.

This is an example of evidence that can identify the cause of a disease and the effectiveness of an intervention to improve patient outcomes and decrease illness and disability.
The development of EBP can be traced back to the work of a group of researchers at McMaster University in Ontario, Canada, who set out to redefine the practice of medicine to improve the usability of information (Lockett 1997).

The term ‘evidence-based practice’, or EBP, has been derived from the earlier work of evidence-based medicine. Earlier years saw the development of EBP limited to the discourse of ‘medicine’; however, more recently many other health professional groups have moved to use EBP principles in their practice—for example, orthodontics (Harrison 2000) and allied health therapies (Bury & Mead 1998).

In 1997, Sackett et al (1997:2) published the first textbook on evidence-based medicine and defined it as:

The conscientious, explicit and judicious use of current best evidence in making decisions about the healthcare of patients.

In 2000, Sackett et al (2000) also included patient values as well as clinical expertise:

The practice… integrates clinical expertise and patient values with the best available research evidence.

Critics of EBP have described it as ‘cookbook’ healthcare, or the worship of science above human experience. However, these criticisms are easily defused by an understanding of the three-factor interaction that EBP promotes: the best available research evidence; clinical expertise; and patient values (see Fig 1.1).

The Journal of the American Medical Association (JAMA) has been committed to publishing ‘Users’ guides’ to the research literature, with an excellent series of 25 articles on the topic published from 1993 to 2000. An important resource is a compendium of these articles, with further commentary, published in book form in 2002 (Guyatt & Rennie 2002). Although the guides are aimed primarily at a medical audience, they are highly appropriate for all health practitioners, including not only traditional quantitative/epidemiological approaches but also guides to interpreting qualitative evidence for practice (Giacomini & Cook 2000a, 2000b).

Therefore, EBP is not only applying research-based evidence to assist in making decisions about the healthcare of patients, but rather extends to identifying knowledge gaps, and finding, systematically appraising and condensing the evidence to assist clinical expertise, rather than replace it (Elshaug et al 2009).

![Figure 1.1 The three elements of evidence-based practice](source: Sackett et al 2000)
1.4 What are the benefits of evidence-based practice?
There are benefits of EBP for patients/consumers, nurses, healthcare organisations and the community.

1.4.1 For patients/consumers
To healthcare consumers, it may seem ludicrous, or even frightening, that the EBP concept is relatively new. Patients typically accept recommended care from health professionals with the unspoken assumption that the practitioner knows what works.

1.4.2 For nurses
In an ideal world, nurses could keep up to date by reading all of the published literature in their relevant area. In reality, with approximately a thousand new publications each year relevant just to surgical nursing, for example, this is clearly an impossible task. EBP allows a more structured and streamlined way of keeping abreast of relevant new developments without becoming overwhelmed by information overload.

EBP also allows nurses to communicate effectively with their patients and with the healthcare team about the rationales for decision making and care plans. An EBP nurse is a confident professional, feeling assured that they are providing care which is supported by facts rather than habits, and can take legal accountability for their practice.

1.4.3 For healthcare organisations
A commitment to EBP philosophy allows healthcare organisations to position themselves in the market as quality institutions. An EBP-compliant institution should be less likely to attract litigation, and will be able to successfully defend the care delivered if it was in line with international best evidence at the time of care. In addition, EBP allows the scrutinising of practice for effectiveness. This process often results in practice changes that allow significant cost savings, or alternatively justify necessary additional expenditure. This is attractive to organisations frequently struggling to meet assigned budgetary limits, or lobbying government for additional funds.

1.4.4 For the community
Through the utilisation of EBP, finite resources are not wasted on the delivery of ineffective interventions. Additionally, EBP limits the amount of disability and suffering throughout the community by ensuring the most current and effective care is provided.

1.5 What are the alternatives to evidence-based practice?
You may be wondering how nurses made decisions about their practice before the relatively recent EBP movement, or even what the alternatives to EBP are. If we are honest, for most of our working life we function on ‘automatic pilot’; that is, we ritualistically do things the way we have always done them, the way we were taught as a student or graduate nurse, or just in the ‘accepted’ way of doing things in our current workplace.

However, at times our comfort zone is challenged, and we identify a knowledge deficit when confronting an unusual or challenging problem. At times like these, practitioners may guide their practice by asking the opinion of colleagues or senior practitioners, reviewing employer policies, reading textbooks or lecture notes, leafing through nursing or other journals, and listening to speakers at professional conferences or other education forums. Can you think of some benefits and limitations to these methods of guiding practice? For example, if a decision needs to be made immediately, guidance from an experienced colleague or organisational manual provides a quick and easy reference tool. However, on the downside, even well-meaning and senior practitioners may not have
the latest knowledge, and policy manuals are frequently out-of-date, even if they were prepared using the best evidence at the time of policy development.

1.6 Why the rapid spread of evidence-based practice?
Some of the major reasons cited by Sackett et al (1997) for the spread of the EBP movement have been the:

- lack of research-based information to support clinical decision making
- lack of research-based guidelines and protocols to use in clinical practice
- overwhelming volume and variability of new journal information, and
- inadequacy of traditional sources of information (e.g. textbooks out-of-date).

However, health departments around the world are increasingly being stretched to cover ever-rising health expenditures and, with treatment and care costs increasing all the time, governments need to ensure they are using public funds for treatment and care that is effective with positive health outcomes and benefits for the public.

While it may be commendable to take the view that health departments have encouraged the development of EBP because they genuinely wish for patients to receive the best available care and to have the fewest adverse events possible, unfortunately, the reality may more likely be that ineffective care and adverse events are very costly in terms of extended lengths of stay in expensive hospital beds and require additional costs such as pharmaceuticals, pathology tests and radiography. Additionally, poor patient care and mistakes also lead to threats of litigation (Tarling & Crofts 2002).

While EBP was initially limited to the practice of medicine it became clear that unless all the members of the health team embraced EBP it would have limited impact.

1.7 Where is the evidence located?
Evidence for practice decisions is increasingly available in online format. Some resources are available free of charge, while others attract a fee for use, although staff and students of healthcare facilities and universities can usually access these through the institution at no personal cost. Many electronic resources now provide links to full-text journal articles for some records. New products are constantly being developed to allow practitioners to quickly and easily search for relevant evidence. Some of the currently well-established and recommended sources of evidence are described below.

1.7.1 CINAHL®
The CINAHL® (Cumulative Index to Nursing and the Allied Health Literature) database covers the nursing, allied health and health sciences literature from 1982 to the present. Originally a printed index, the CINAHL database has been available as a web-based product since 1994. CINAHL includes 1.7 million records and is growing weekly. Individuals can subscribe to CINAHL for a fee; however, as most health facilities and universities are subscribers, access is available free to their staff and students. Contact your librarian to find out whether your institution has CINAHL access (see www.ebscohost.com/cinahl).

1.7.2 MEDLINE®
MEDLINE® (Medical Literature Analysis and Retrieval System Online) is compiled by the US National Library of Medicine and is acknowledged as the world’s most comprehensive source of bibliographic information for health. MEDLINE includes literature from the nursing, medicine and allied health disciplines, as well as the health humanities, and dentistry, veterinary, biological, physical and information science. MEDLINE has more than 17 million records dating from 1965 to the present and is
updated weekly. Subscription through various commercial platforms is available for a fee to both individuals and institutions, and is widely available for free to staff and students of subscribing health facilities and universities. MEDLINE is also available free of charge from any computer connected to the internet through a platform called PubMed® (see www.ncbi.nlm.nih.gov/PubMed).

1.7.3 The Cochrane Library
An important resource for EBP is the Cochrane Library, which is produced by the international Cochrane Collaboration. Material included has been prefiltered for quality of evidence and clinical applicability, and is updated quarterly. The Library consists of several databases.

The Cochrane Database of Systematic Reviews (CDSR) was launched in 2000 and includes over 5546 full-text systematic reviews of high-quality research undertaken by Cochrane collaborators that are designed to answer specific clinical questions. The Database of Abstracts of Reviews of Effects (DARE) includes over 9025 structured abstracts of systematic reviews undertaken outside the Cochrane Collaboration. The Cochrane Central Register of Controlled Trials (CENTRAL) includes details of over 550,000 controlled trials published in journals, as well as reports from conference proceedings and other sources not currently listed in other bibliographic databases.

Other materials include the Cochrane Methodology Register (CMR), the National Health Service Economic Evaluation Database (NHSEED) and the Health Technology Assessment (HTA) database. All residents of Australia can access the Cochrane Library for free online due to funding provided by the Commonwealth Government and administered by the National Institute of Clinical Studies (NICS). Follow the link to the Cochrane Library at www.nhmrc.gov.au/nics.

1.7.4 PsycINFO®
The PsycINFO® database is the premier online collection of bibliographic references covering psychological literature from 1872 to the present, including articles from over 1300 journals. Most references include abstracts or content summaries. In addition to journal articles, many books, chapters and academic dissertations are included. PsycINFO is a fee-for-product service that is widely available at no charge to practitioners through subscribing health libraries (see www.apa.org/psycinfo).

1.7.5 Meditext
Meditext was launched in 2001 and contains material from the Australasian Medical Index (AMI) compiled by the National Library of Australia. Indexed are over 150 Australian and New Zealand health journals and other materials such as conference proceedings and government reports. Many Meditext references are materials not included in MEDLINE. Some full-text documents and links to full-text articles are included. The majority of universities and health departments provide fee-free access to their staff and students.

Further discussion on how to locate evidence is provided in Chapter 5, while Chapter 6 provides in-depth coverage on how to locate evidence when undertaking a systematic review.

1.7.6 The Joanna Briggs Institute
The Joanna Briggs Institute (JBI) provides a database of evidence summaries (literature reviews) that review international literature on common healthcare interventions and activities. These summaries are linked to care bundles or procedures that describe and/or recommend practice. A database of systematic reviews, predominantly relevant
to nursing and increasingly to allied health, is also located on the JBI website. These resources are available to subscribing members of the Institute. Many Australian healthcare facilities are members of the Institute and therefore provide free access to this information for their staff. Additionally, Best Practice information sheets—four-page summaries of results and recommendations for practice based on systematic reviews of research—are accessible free of charge (see www.joannabriggs.edu.au).

1.7.7 The ‘grey’ literature
The ‘grey’ literature is a term used to refer to evidence that exists in some format but is difficult to find due to its non-inclusion in searchable bibliographic indexes such as MEDLINE, which predominantly contain references to articles in highly ranked peer-refereed journals. While some grey literature may not be contained in such journals because it is of poor quality, this is not always the case, and a thorough literature search will also make efforts to identify relevant research that may have been published only in conference proceedings, non-refereed journals, government/organisational reports, textbooks or the popular press, as well as academic theses that may not have been followed up with publication. Some efforts have been made to assist clinicians to search or access the grey literature including aspects of the Cochrane Collaboration (see Section 1.7.3) and the following online instruments: the Australasian Digital Theses (ADT) Program and the Conference Papers Index.

1.7.7.1 The Australasian Digital Theses Program
The Australasian Digital Theses (ADT) Program began in 1998 and has been open to all Australian universities since 2000. It consists of a national collaborative of digitised theses produced at Australian universities (PhD and Masters by Research theses only). The program can be accessed free of charge via any internet-connected computer (see www.adt.caul.edu.au).

1.7.7.2 The Conference Papers Index
This database provides over 2.5 million citations to oral papers and poster sessions presented at major scientific conferences internationally from 1982 to the present. Major areas of subject coverage include healthcare, as well as biochemistry, chemistry, biology, biotechnology and many others. The Index is updated bimonthly and is available through subscribing health or academic institutions (see www.csa.com/factsheets/cpi-set-c.php).

1.8 Major structures promoting evidence-based practice
In Australia and New Zealand, the major structures promoting EBP are the National Health and Medical Research Council (NHMRC)’s National Institute of Clinical Studies (NICS), the Joanna Briggs Institute (JBI), and the New Zealand Guidelines Group (NZGG).

1.8.1 The National Institute of Clinical Studies
Reliable data on the gaps between clinical evidence (what research shows that clinicians should be doing in their clinical care) and clinical practice (what is actually done) is often difficult to find. Despite this, there have been sufficient published research studies to suggest that there is a gap problem in many healthcare systems. Dutch and American studies indicate that 30–40% of patients do not receive care based on the best research evidence, and that 20–25% of the care provided is either not needed or may be potentially harmful (Grol 2001, Schuster et al 1998).

The National Institute of Clinical Studies (NICS) is Australia’s national agency for improving healthcare by helping to close the gaps between best available evidence
and current clinical practice. It was established as an Australian Government-owned company, run by a board of directors directly appointed by the Minister for Health, and commenced operations in 2001. On 1 April 2007, the NICS merged with the NHMRC in order to provide the NHMRC with the capacity to drive implementation of the clinical practice guidelines it develops and endorses (NHMRC 2008). The NICS and the NHMRC are working jointly on several projects, including a revision of the national infection control guidelines. In addition, a guide to the development, implementation and evaluation of clinical practice guidelines is underway.

1.8.1.1 Why the need for the NICS?
In an editorial in the Medical Journal of Australia (Silagy 2001), the inaugural Chair of the NICS, the late Chris Silagy, observed that the language and concepts of evidence-based healthcare have become institutionalised in most spheres of healthcare, yet there are still significant gaps between evidence and practice.

Silagy noted that since the inception of evidence-based medicine there has been considerable emphasis on what he termed ‘upstream’ strategies to support EBP, an emphasis characterised by huge numbers of systematic reviews, health technology assessments and clinical guidelines being made available to clinicians. This emphasis, however, had come without adequate consideration of the ‘downstream’ strategies necessary to ensure effective uptake and implementation of best evidence by clinicians. The mission of the NICS is to assist clinicians to turn this evidence into action.

1.8.1.2 What is important?
In planning a strategy to address the evidence–practice gaps in Australia, one of the first tasks of the NICS was to work with clinicians in a series of consultation rounds to identify the gaps that are considered widespread, clinically significant and urgent. Professional colleges, societies, special interest groups and policy-making bodies were all invited to make submissions and the views of nurses, who make up over 70% of the Australian healthcare workforce, were particularly sought. The consultation process identified a number of clinical areas, including the care of patients treated in emergency departments and the care of patients with heart failure, as suboptimal when compared to best research evidence.

In 2002, the NICS established a nursing reference group of clinicians and academics to offer high-level advice on important practice gaps, and as a result of their recommendations, the NICS began work to scope opportunities to close the gaps in pain management and pressure-area management. This led to the NICS embarking on a major project to improve pain management in hospitalised patients with cancer, while the latter recommendation led the NICS to scope pressure-area care in Australia (see www.nhmrc.gov.au/nics).

Identification of EBP gaps is an evolutionary process and, in 2003, the NICS published the first in a projected series of reports highlighting important gaps identified by doctors, nurses, allied health clinicians and policy makers in Australia (NICS 2003). In 2005, a review of this report was undertaken (NICS 2005a) to provide a fresh look at what progress had been made in closing the gaps identified in the original report. Additionally, in 2005, a second volume in the series of evidence–practice gap reports was published, highlighting several areas where gaps between evidence and practice remain in day-to-day practice (NICS 2005b). See Appendix 1.1 for further details of clinical topics covered in these reports.

As our understanding of what actually happens in clinical practice improves and we look more deeply through better integration of routine data-collection systems at the
surgery and bedside, it is anticipated that many more clinically significant gaps will be identified in the coming years.

1.8.1.3 What do we know about what works?
The second task of the NICS was to bring together the disparate body of work on changing clinician behaviour into a coherent whole. Industries such as mining and aviation have approached behaviour change in a two-pronged way, from both a systemic and an individual perspective. While there is still an emphasis on individual responsibility, there has also been a corresponding reduction in the discretion of individuals to act autonomously, in favour of the introduction of industry-wide systems and protocols. This has resulted in significant improvements in safety. Attempts to change clinical behaviour in the healthcare industry have, to date, focused almost exclusively on the role of the individual clinician in areas such as supporting individual clinical decision making, and there have been very few initiatives that have looked at system-wide approaches to change. One important factor that has inhibited more widespread attempts at system-wide improvement is the lack of a sound scientific evidence base for the many strategies that have been proposed to date.

The NICS also aims to use expertise from areas such as behavioural psychology and marketing to better identify ways of systematically changing clinician behaviour in Australia. In 2003, the NICS convened a national workshop of clinicians and policy makers with an expertise in change management to identify better ways to manage change in Australian healthcare; the results of the workshop were published in 2004 (NICS 2004).

1.8.1.4 Clinical leaders
The third task of the NICS has been to foster clinical champions for change in Australia. In a series of programs that offer targeted grants, fellowships, scholarships and research funding in a variety of settings, the NICS hopes to identify and nurture clinicians in their early-to-mid careers who, supported by the NICS expertise in change management, will become Australia’s next generation of clinical leaders.

These leaders face significant barriers. Implementation of research is still the poor relation of primary research and many clinicians face unique pressures as they try to implement change. Potential clinical leaders are often trapped by the competing requirements of teaching and clinical care, particularly in the context of severe workforce shortages, and it is hoped that the fellowship program in particular will allow clinicians ‘space’ to devote time and energy to developing large-scale implementation programs.

One important role the NICS is taking to support clinical leaders is to lobby research funders in Australia to commit a greater proportion of research grants to studies of the implementation of primary research.

1.8.1.5 Working with others
The fourth task of the NICS is to develop tools to assist clinicians in implementing evidence-based healthcare. In 2002, the NICS acted on behalf of the Australian Government to purchase open access to the Cochrane Library, the best available source of appraised clinical evidence on the effects of intervention, for all Australian residents. Recognising the difficulty many clinicians and consumers face in navigating the library’s interface, the NICS has worked with the Australasian Cochrane Centre to produce a comprehensive online users’ guide to the library (see www.cochrane.org.au/libraryguide).

Other tools developed by the NICS for clinicians include a range of literature reviews on diverse topics such as factors supporting high performance in healthcare organisations
and the effectiveness of clinical information services (see Appendix 1.1); a scanning service where relevant journals and websites are regularly monitored; a database linking Australian-based clinical effectiveness researchers; and the development of sophisticated web-based tools to support collaborative projects.

The NICS works closely with colleges, societies and organisations representing primary care, hospital medicine, nursing, allied health and indigenous health, as well as national and state-based organisations working in the areas of quality and safety, rural and remote care, guideline development and health insurance. It is only through close relationships with clinicians and policy makers at the clinical interface that the NICS is able to help close EBP gaps. The NICS will continue to build strong working alliances with both Australian and international organisations to improve healthcare.

Australia is not alone in recognising and addressing EBP gaps; strong relationships have been built with groups in New Zealand, Sweden, the UK, Canada, the USA and the Netherlands. The NICS has embarked on a long-term program inviting overseas experts to Australia to share their experiences and foster international dialogue on common problems. Despite workforce challenges and EBP gaps, most of the healthcare delivered in Australia is of a very high standard, and the NICS has a role both in sharing Australian solutions and seeking answers to local problems.

1.8.1.6 The future

Nursing remains a crucial area of engagement for the NICS. As the numerically largest discipline that delivers most of the direct clinical care throughout all sectors of Australian healthcare, nurses are critical to the success of strategies to effectively close the gaps between evidence and practice. Nurses have been instrumental to the success of the work of the NICS in emergency care and will be central to the NICS strategy to improve the assessment and management of pain in hospitalised cancer patients. As the work of the NICS now moves into primary care and chronic disease management, it is ever-more important to identify, understand and disseminate nursing solutions throughout the Australian healthcare system.

1.8.2 The Joanna Briggs Institute

The JBI was established in 1996 as the Joanna Briggs Institute for Evidence-Based Nursing. The Institute has since expanded to include many disciplines and brings together a range of practice-oriented research activities to increase the effectiveness of healthcare practice and improvement of healthcare outcomes by:

- synthesising evidence (through systematic reviews of quantitative and qualitative research)
- transferring evidence (through education and both hard copy and electronic publications), and
- utilising evidence (through implementation projects and evaluation).

Central to the operations of the Institute is the importance of working with healthcare providers, and the belief that research direction should be derived from the current information needs of practice (global health) and result in improved health outcomes (Jordan et al 2006, Pearson et al 2005).

From its very small beginnings in 1996, the JBI is now a growing, dynamic international collaboration of over 500 researchers across 31 countries.

1.8.2.1 The Joanna Briggs Collaboration

The Joanna Briggs Collaboration (see www.joannabriggs.edu.au/about/home.php) is a coordinated effort by a group of self-governing collaborative centres, coordinated through
the leadership of the JBI. The operations of the Joanna Briggs Collaboration include: the conduct of systematic reviews; the development of Best Practice information sheets; the promotion of evidence-based healthcare; education and training; the implementation of EBP; and the conduct of evaluation cycles and primary research arising out of systematic reviews.

Collaborating centres are partners supported by academic institutions and/or healthcare facilities that accept the terms of the JBI Memorandum of Understanding. Centres receive modest funding from the Institute each year, but are expected to seek funds within their jurisdiction. Some centres have a geographic jurisdiction, while others have a specialist jurisdiction. The Joanna Briggs Collaboration currently consists of 55 collaborating centres and groups across the world. See Appendix 1.2 for a comprehensive list of collaborators.

1.8.2.2 Membership
In 1996, the first chair of the JBI management committee, Associate Professor Kaye Challinger, predicted that the new institute would have a positive influence on nursing and healthcare delivery. Now, the JBI and its membership fees from the broad membership base, consisting primarily of healthcare and education facilities, financially supports research conducted by the JBI. Institute members receive access to a variety of evidence-based information to inform clinical practice, such as journals and other publications of the JBI, as well as online resources and frameworks to assist with the implementation of evidence and evaluation of outcomes.

The JBI website (see www.joannabriggs.edu.au) has also proven to be a useful tool for both students and practising health professionals. To provide access to the best available evidence to as many practising health professionals as possible, a number of the JBI’s resources are available on the website at no cost. Much of the information produced by the JBI is available both electronically and in hard copy to improve accessibility to a wide range of users. Despite the lower cost of providing electronic information, the Institute recognises the continued need for producing hard copy materials for healthcare professionals with limited or no internet access. The Institute works with interested groups in developing countries to provide information and trains local researchers to generate information of most relevance to them.

1.8.2.3 Institute activities
One of the core activities of the JBI is to synthesise and transfer research information relevant to clinical practice. As many nursing questions are not limited to effectiveness, the Institute has used emerging systematic review methodology and developed software to assist in the conduct of comprehensive systematic reviews. SUMARi (System for the Unified Management, Assessment and Review of Information) has been developed to provide researchers with an online system that facilitates the conducting of systematic reviews which consider a variety of research on a specific topic, including qualitative, narrative and opinion, economic data as well as quantitative papers. The inclusion of these research types is most appropriate for healthcare issues that cannot be measured by way of randomised controlled trial. The inclusion of qualitative research has also led to the consideration of the Feasibility, Appropriateness and Meaningfulness of an intervention as well as simply the Effectiveness (i.e. the JBI-initiated FAME scale [Pearson 2004]). This is discussed further in Chapter 6.

Based on the results of systematic reviews, the Institute develops Best Practice information sheets, a series designed specifically to provide health professionals with the best available evidence to inform care delivery. Unlike traditional guidelines, the
information sheets are not developed for a specific context but present the best available international research evidence on a given topic to inform practice, with the expectation that health professionals will use this evidence together with their clinical judgement and due consideration of their client’s preference and the context in which they are providing care. As a reminder of this, each information sheet now includes the JBI ‘pebble’ of evidence-based practice (Pearson et al 2005). The first Best Practice information sheet was produced in September 1997 and distributed through nursing journals in Australia and New Zealand. Dissemination of these information sheets is now global, with copies being freely available on the Institute website, appearing in nursing journals across the world, and being translated into languages other than English including Italian, Spanish, Japanese, Thai and Romanian, with further translation in progress with China.

One of the challenges continuing to face researchers who produce guidelines in the twenty-first century is that of utilisation. It has been recognised for some time that distributing evidence-based guidelines alone does not alter clinical practice and that change management strategies need to be employed to achieve and maintain valuable change (NHS Centre for Reviews and Dissemination 1999). To assist with this critical process, researchers at the JBI have developed and continue to improve the Practical Application of Clinical Evidence System (PACES) tool. PACES is designed to assist healthcare facilities to audit practice using evidence-based audit criteria. This program incorporates the GRIP (Getting Research Into Practice) initiative to assist in the identification and examination of resources and barriers, and facilitate the design of a change plan that may then be followed by a second audit and comparison of outcomes between audits.

Evaluating the influence of the JBI-produced information on healthcare delivery is necessary to determine the benefit of continuing research of this type. Previously the impact of the Best Practice series along with its recommendations was evaluated by way of surveys conducted throughout Australia and New Zealand. Survey results indicated that of those who had read Best Practice, around 25% of first-survey respondents specifically altered their practice. This figure increased to over 35% in the second survey just 3 years later. Currently, ‘before-and-after’-style multisite evaluations are also being conducted to examine the effect of recommendations of Best Practice in the clinical setting using PACES.

Critical appraisal skills are also promoted and supported by the JBI. RAPid (Rapid Appraisal Protocol internet database) has been developed as a training program to organise, conduct and archive an evidence summary of the findings of a single study or systematic review. RAPid facilitates study-type recognition, data extraction and the construction of a final report, which may then be submitted online to the RAPid library for independent critique. If it is accepted, it is uploaded for worldwide access. This program is uniquely suitable for use by university lecturers and facilitators of continuing education in health services for training and integration into curricula. RAPid may motivate students to become active in the publication of their work and to experience the benefits of disseminating knowledge to their profession.

It is anticipated that the resources and services of the JBI will continue to develop and grow according to the changing needs of the healthcare profession. The staff of the JBI are committed to regularly examining the resources and services offered. They value user feedback and further develop and improve resources based on this information.

1.8.3 The New Zealand Guidelines Group
The New Zealand Guidelines Group (NZGG) was established in 1996 by the National Health Committee (NHC) as an informal expert network on practice guideline development and implementation. Since 1999, the NZGG has been an independent government-funded society with offices in Wellington and Auckland. Representatives
CASE STUDY: Should central venous line catheter administration sets be changed regularly or left intact?

Modern healthcare involves many invasive procedures and an older, sicker patient population. Unfortunately, procedures may lead to hospital-acquired infections, which significantly increase patient suffering and risk of death, as well as healthcare costs. The most serious form of nosocomial infection is catheter-related bloodstream infection (CRBSI), which involves an infection of the bloodstream secondary to the use of an intravascular catheter.

Nurses are the primary carers of intravascular catheters, and use many strategies in an attempt to prevent CRBSI. Increasingly, these nursing interventions are being subjected to rigorous testing in an attempt to differentiate EBP from historically based practice. Since 1970, nurses have routinely discarded the administration sets attached to intravenous catheters at regular time intervals, and then replaced them with new sets, in the belief that this may reduce the infection risk. Although several studies showed that infection levels did not differ when the administration sets were replaced at different time intervals, no study had ever been undertaken that measured the value of the practice itself.

A randomised controlled trial assigned patients to either have their catheter administration sets replaced routinely, or to have them left intact. It found no statistically significant difference in infection indicators. The study population comprised high-risk intensive-care patients with short-term (7–10 days) central venous catheters. The results of this study provided Level 1A evidence that the expensive and time-consuming procedure of routine administration set replacement is not effective (Rickard et al 2004).

from nursing, Maori Health, Pacific Health, consumer representation, medicine, disability support, public health medicine and general practice govern the NZGG. The role of the NZGG is to provide tools to promote an evidence-based culture within the New Zealand health and disability sector. Activities include production of evidence-based guidelines, distribution of evidence-based information from New Zealand and overseas, and training in guideline development and implementation (see www.nzgg.org.nz).

1.9 How can evidence be incorporated into nursing practice?

There are a variety of situations in which nursing practice and, therefore, nurses draw on the evidence base. Nurses are not only limited to the medical science evidence, but also extend their EBP to the behavioural and social sciences. Some examples are outlined below.

1.9.1 Nursing care intervention evidence

Nurses make clinical decisions about interventions concerning investigations, observations and treatments, and therefore draw upon evidence from a range of different sources. For example, psychosocial evidence as well as pharmacological knowledge may be sought before instigating a particular nursing intervention, as may evidence on cost-effectiveness. Therefore, it is crucial that nurses understand the variety of perspectives of evidence when undertaking an intervention.
1.9.2 Health-related behaviour evidence

Chronic disease is reaching near-epidemic proportions in the developed world. For example, type 2 diabetes is the fastest growing chronic disease of all, and is rapidly becoming a major health issue for ageing populations due to complications such as blindness, loss of limbs and kidney failure. Most complications are preventable if diabetes is self-managed effectively. However, adequate self-management can be difficult to achieve and maintain for many people because of long-established patterns of health behaviour.

To be effective in improving self-management, nurses working with patients with type 2 diabetes need to understand the role that diabetes plays in people’s lives, and why it is that some people continue not to follow their planned diet and undertake regular blood glucose checks, even though they are aware of the possible risks of complications.

1.9.3 Models of nursing care delivery evidence

Since nursing comprises the largest proportion of personnel in the provision of healthcare services, satisfaction with nursing care has been found to be the most important predictor of overall satisfaction with hospital care (Abramowitz et al 1987). Research into the determinants of patient satisfaction with nursing care has been conducted from a variety of perspectives, such as outcome of care and nursing care delivery models (Courtney & Wu 2000). There is a wide evidence base within the management sciences on which nurses may draw to explore issues of quality and organisational design.

1.9.4 Management practice evidence

Historic changes are occurring in the healthcare industry. The National Health and Hospitals Reform Commission commissioned the Australian Institute of Health and Welfare (AIHW) to undertake projections of Australian healthcare expenditure for the period 2003–2033 and found total expenditure on health and residential aged care is projected to increase from 9.3% of GDP in 2003–2004 to 12.4% of GDP in 2032–2033 (AIHW 2008). Programs of managed care, expanding outpatient services and day surgery, cost containment, and demands for efficiency and quality outcomes, are transforming the roles of healthcare providers. These changes have meant that nursing executives have had to acquire new skills and competencies to develop a corporate focus. Again, nurses are drawn to the wide management science evidence base in order that they may prepare themselves for the changing roles within their organisations.

1.9.5 Cross-cultural evidence

Nursing care goes far beyond providing a set of treatment interventions. People’s experiences, beliefs, attitudes and customs regarding a certain disease or condition can form a stereotype through which physical and emotional sensations may be perceived and interpreted. For example, there is convincing evidence to suggest that menopause is experienced differently by many different ethnic groups (Fu et al 2003). For nurses and other health professionals to provide high-quality care to women undergoing menopause, it is important to look to a range of different evidences. Not only is evidence drawn from medicine, but it is also found in the fields of psychology and sociology, as well as exercise physiology.

The combined results of appropriately appraised international research evidence (see Chs 5 & 6) has value to inform care delivery regardless of the culture in which care is delivered, with the expectation that best available evidence is used along with clinical expertise, consideration of patient values (Sackett et al 2000) and consideration of the context of care (Pearson et al 2005). In different settings and environments, available resources
and/or comorbidities may impact on the relevance of certain evidence. For example, research relating to sponging for the treatment of fever in children based in humid climates may not be transferable to the same treatment in temperate climates (Watts et al 2001).

1.10 What is the state of evidence?

EBP is undertaken to support the decisions of nurses and other health professionals to avoid the use of not only ineffective, inappropriate and dangerous treatments, but also treatments that have the potential to be unnecessarily costly. Conversely, EBP is undertaken to identify safe, effective and cost-appropriate care. The four-step process through which EBP may be undertaken is described below and is used as an overarching framework for this book.

1.10.1 Step 1: Developing a workplace culture that supports evidence-based practice

It is important to develop a workplace culture that supports clinicians to make healthcare decisions based upon finding and using the best available evidence, and combining this with their clinical expertise, knowledge and skill, as well as their knowledge of the patient. Chapter 3 describes important features of a positive evidence-based work culture and how to assess your own organisation in relation to these features. Chapter 3 also suggests a range of strategies for developing and sustaining an EBP culture that may work in your organisation. The development and use of evidence-based guidelines is examined in further detail in Chapter 4.

1.10.2 Step 2: Finding the evidence—how to locate and appraise current best evidence

Within an evidence-based workplace culture, it is important to understand what current best evidence is available to inform practice and how to find it. However, in order to find the evidence, first it is essential to know what types of questions to ask. Chapter 2 introduces the Patient Intervention Comparison Outcome (PICO) framework on how to generate research questions and also overviews a range of both qualitative and quantitative research designs used in studies to answer such questions. Chapter 2 examines why different research designs are used and how they contribute to providing evidence of best practice.

Armed with the right questions and knowledge of the research designs, a comprehensive literature review is undertaken to identify evidence for best practice, and, if it is not there, gaps in evidence. Chapter 5 provides a case study to examine how to generate research questions (using the PICO framework), and how to locate and appraise evidence. Chapter 6 follows with an in-depth step-by-step guide to undertaking a systematic review of the literature.

1.10.3 Step 3: Evaluating evidence in practice—how to critically evaluate nursing practice

Undertaking a clinical audit or a program evaluation provides an excellent opportunity to evaluate the effect of a nursing intervention on clinical practice and/or patients; this is an essential feature of an evidence-based workplace culture. Chapters 7 and 8 provide details on each of these evaluation tools, respectively.

1.10.4 Step 4: Translating evidence into practice—how to implement evidence in practice

Care pathways are one example of a clinical tool that, when developed from the best available evidence, can improve clinical effectiveness and efficiency. Chapter 9 is a capstone chapter that showcases an approach clinicians and students may use to obtain
evidence to justify the need for a more extensive EBP process. A discussion of clinical pathways is provided and the EBP approach is situated within a framework of critical reflection guided by a series of reflective questions. A case study is used to highlight how the approach can be used to examine a clinical question arising from practice. The case study uses a component of a care pathway for a client presenting for an elective total hip replacement and concludes with a scenario-based activity that can be used to apply what you have learned.

1.11 What are the challenges for nursing education and research?

1.11.1 Challenges for nursing research
Over the past 15 years, the Australian healthcare system has increasingly come under siege to improve the quality and access of patient care within a context of increasingly limited resources. Greater emphasis is being placed on all health professionals to seek out best practice evidence and apply it in their everyday practice.

As there are large gaps in the amount of robust evidence for much of what nurses do during the course of their daily work, the challenge for nurses is to develop, trial, evaluate and implement well-focused evidence-based nursing interventions and treatments to improve the quality of patient care.

1.11.2 Challenges for nursing education
Academic schools of nursing are charged with the responsibility of ensuring nursing graduates are adequately prepared to deliver best practice. In addition, graduates need to have instilled an interest and belief that generating evidence (i.e. ‘doing’ research) is a part of their future professional career. Although undergraduate nursing education has been present within universities in Australia for over 25 years, some may question the extent to which an evidence-based culture is embedded within curricula. Indeed, nursing registration authorities require that current best practice for nursing interventions and treatments be included in curricula and that research methods be undertaken.

However, a major challenge for academics is actually teaching EBP throughout a curriculum rather than teaching one stand-alone unit of EBP content. In order to ensure that students are immersed in an evidence-based culture, content on the manner through which evidence may be found, appraised and used in practice should be incorporated very early in a curriculum and then interwoven throughout every unit of study in the full 3 years of the course.

1.12 DISCUSSION QUESTIONS

1. How do you define evidence-based nursing?
2. Why do nurses need good evidence for clinical practice?
3. Where and how can nurses find quality evidence to inform their practice?
4. Briefly list 10 commonly used nursing interventions/procedures/protocols used during the course of your everyday practice. Describe what types of evidence these are based upon (i.e. research study, textbook, experience or opinion).
1.13 References


National Health and Medical Research Council (NHMRC) 2008 Annual report 2008. NHMRC, Commonwealth of Australia, Canberra.


Rickard C, Lipman J, Courtney M et al 2004 Routine changing of intravascular administration-sets does not reduce colonization or infection in central venous catheters. *Infection Control and Hospital Epidemiology* 25(8):650–5.
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National Institute of Clinical Studies (NICS): Resources available (see www.nhmrc.gov.au/nics)

- Advising on smoking cessation
- Advising on smoking cessation in pregnancy
- Screening for lung cancer with chest X-rays
- Preventing stroke in patients with atrial fibrillation
- Using ACE inhibitor and beta-blocker therapies in heart failure
- Measuring glycated haemoglobin in diabetes management
- Prescribing antibiotics for upper respiratory tract infections and acute bronchitis
- Preventing venous thromboembolism in hospitalised patients
- Preparing for elective colorectal surgery
- Using colonoscopy in colorectal cancer surgery follow-up
- Managing acute and cancer pain in hospitalised patients

Evidence–Practice Gaps Report Volume 2 (NICS 2005b)
- Folic acid supplements
- Promoting and supporting breast feeding
- Reducing the risk of sudden infant death syndrome
- Promoting use of preventers in chronic asthma
- Managing acute mild asthma in the emergency department
- Recognising and managing panic disorder and agoraphobia
- Vaccinating against influenza
- Haemodialysis vascular access
- Achieving blood pressure control
- Optimising care for stroke patients
- Preventing osteoporosis-related fractures reoccurring
- Compression therapy for venous leg ulcers
Literature reviews
- Factors supporting high performance in healthcare organisations
- Institutional approaches to pain assessment and management
- Interventions to improve uptake of venous thromboembolism prophylaxis in hospitals
- The impact of the internet on consumer health behaviour

Emergency Care Evidence in Practice brochures
- Lumbar imaging in acute non-specific low back pain
- Pain medication for acute abdominal pain
- Rate or rhythm control for recurrent atrial fibrillation
- Cervical spine X-rays in trauma
- Management of acute migraine
- Use of ipratropium bromide for acute asthma
APPENDIX 1.2

Joanna Briggs Institute Collaboration

At the time of writing, the Joanna Briggs Institute (JBI) collaborates with 55 entities. Collaborating centres are supported by their university and/or healthcare facility to work closely with the Institute by conducting and contributing to research output, promoting evidence-based healthcare and being involved with the strategic planning of the Joanna Briggs Collaboration. Directors of collaborating centres meet by teleconference quarterly and face-to-face annually, providing valuable international networking.

Evidence synthesis groups are self-governing, self-funding collaborators made up of three or more researchers who conduct systematic reviews using the Institute’s framework, peer-review and publication processes.

Evidence utilisation groups are self-governing, self-funding collaborators made up of three or more clinicians, quality managers or other personnel committed to the conduct of clinical improvement projects based on the best available evidence.

Australasia

- New South Wales Centre for Evidence-Based Health Care: a collaborating centre of the Joanna Briggs Institute, University of Western Sydney, New South Wales, Australia
- Australian Centre for Evidence-Based Nutrition and Dietetics: a collaborating centre of the Joanna Briggs Institute, University of Newcastle, New South Wales, Australia
- Western Australian Centre for Evidence-Based Nursing and Midwifery: a collaborating centre of the Joanna Briggs Institute, Curtin University of Technology, Perth, Western Australia, Australia
- Dementia Collaborative Research Centre – Consumers, Carers and Social Research, Queensland University of Technology, Queensland, Australia
- Centre for Allied Health Evidence: a collaborating centre of the Joanna Briggs Institute, University of South Australia, South Australia, Australia
- Centre for Evidence-Based Nursing South Australia: a collaborating centre of the Joanna Briggs Institute, Royal Adelaide Hospital and University of Adelaide, South Australia, Australia
- National Evidence-Based Aged Care Unit: a collaborating centre of the Joanna Briggs Institute, Royal Adelaide Hospital and University of Adelaide, South Australia, Australia
- Royal Adelaide Hospital Multidisciplinary Quality Improvement JBI Evidence Utilisation Group, Royal Adelaide Hospital, South Australia, Australia
- Queensland Centre for Evidence-Based Nursing and Midwifery: a collaborating centre of the Joanna Briggs Institute, Mater Health Services, South Brisbane, Queensland, Australia
- Australian Centre for Evidence-Based Community Care: a collaborating centre of the Joanna Briggs Institute, University of Queensland/Blue Care Research and Practice Development Centre, Toowong, Queensland, Australia
- Australian Centre for Rural and Remote Evidence-Based Practice: a collaborating centre of the Joanna Briggs Institute, Toowoomba Health Service District, Toowoomba, Queensland, Australia
- Austin Health JBI Evidence Utilisation Group, Austin Health, Victoria, Australia
- Royal Perth Hospital JBI Evidence Utilisation Group, Royal Perth Hospital, Western Australia, Australia
- Royal Perth Hospital JBI Evidence Synthesis Group, Royal Perth Hospital, Western Australia, Australia
- Centre for Evidence-Based Healthcare Aotearoa: a collaborating centre of the Joanna Briggs Institute, University of Auckland and Auckland District Health Board, Auckland, New Zealand
- Victoria University Wellington Health Evidence Synthesis Group, Victoria University of Wellington, New Zealand

Africa
- University of Botswana JBI Evidence Synthesis Group, University of Botswana, Gaborone, Botswana
- Joanna Briggs Institute Evidence Synthesis Group, Cameroon, Yaoundé, Cameroon
- Joanna Briggs Institute Evidence Synthesis Group, Ethiopia, Jimma University, Jimma, Ethiopia
- Joanna Briggs Institute Evidence Synthesis Group, Kintampo, Kintampo Health Research Centre, Kintampo, Ghana
- Joanna Briggs Institute Evidence Synthesis Group, Kenya, Kenya Medical Research Institute (KEMRI) Centre for Geographic Medicine Research – Coast, Kilifi, Kenya
- Joanna Briggs Institute Evidence Synthesis Group, Malawi, Malaria Alert Centre, College of Medicine, Chichiri Blantyre, Malawi
- Joanna Briggs Institute Evidence Synthesis Group, Nigeria, Dugbe Ibadan, Oyo State, Nigeria
- Joanna Briggs Institute Evidence Synthesis Group, Nigerian Team, University College Hospital, Ibadan, Nigeria
- Joanna Briggs Institute Evidence Synthesis Group, Rwanda, Kigali, Rwanda
- Centre for Evidence Translation, JBI Evidence Synthesis Group, Stellenbosch University, Stellenbosch, South Africa
- South African Centre for Evidence-Based Nursing and Midwifery: a collaborating centre of the Joanna Briggs Institute, University of KwaZulu-Natal, Durban, South Africa
- Joanna Briggs Institute Evidence Synthesis Group, Swaziland HIV, University of Swaziland, Swaziland
- Joanna Briggs Institute Evidence Synthesis Group, Swaziland Maternal, University of Swaziland, Swaziland
• Joanna Briggs Institute Evidence Synthesis Group, Tanzania, National Institute for Medical Research, Dar es Salaam, Tanzania
• Joanna Briggs Institute Evidence Synthesis Group, Uganda, Kampala, Uganda
• Joanna Briggs Institute Evidence Synthesis Group, Zimbabwe, Harare, Zimbabwe

**Americas**
• Queen’s Joanna Briggs Collaboration: a collaborating centre of the Joanna Briggs Institute, Queen’s University, Kingston, Ontario, Canada
• Saint Elizabeth Health Care JBI Evidence Synthesis Group, Saint Elizabeth Health Care, Ontario, Canada
• Indiana Center for Evidence-Based Nursing Practice: a collaborating centre of the Joanna Briggs Institute, Purdue University Calumet, School of Nursing, Hammond, Indiana, USA
• New Jersey Center for Evidence-Based Nursing: a collaborating centre of the Joanna Briggs Institute, University of Medicine and Dentistry of New Jersey School of Nursing, Newark, New Jersey, USA
• Evidence-Based Practice Center of Oklahoma: a collaborating centre of the Joanna Briggs Institute, University of Oklahoma, Oklahoma City, Oklahoma, USA

**Asia**
• Hong Kong Centre for Evidence-Based Nursing: a collaborating centre of the Joanna Briggs Institute, Chinese University of Hong Kong, Hong Kong
• National and Gulf Centre for Evidence-Based Medicine: a collaborating centre of the Joanna Briggs Institute, Riyadh, Kingdom of Saudi Arabia
• Yonsei Evidence-Based Nursing Centre of Korea: a collaborating centre of the Joanna Briggs Institute, Yonsei University College of Nursing, Seoul, Korea
• Yangon Centre for Evidence-Based Health Care: a collaborating centre of the Joanna Briggs Institute, Military Institute of Nursing and Paramedical Science, Yangon, Myanmar
• Fudan Evidence-Based Nursing Centre: a collaborating centre of the Joanna Briggs Institute, Shanghai, People’s Republic of China
• Center for Research on Movement Science, University of Santo Tomas, JBI Evidence Synthesis Group, University of Santo Tomas, España, Manila, Philippines
• National Healthcare Group Health Science Outcome Research Collaborating Centre for Evidence-Based Health Services Management: a collaborating centre of the Joanna Briggs Institute, National Healthcare Group, Singapore
• Tzu Chi College of Technology JBI Evidence Synthesis Group for Promoting Health and Better Care, Tzu Chi College of Technology, Hualien, Taiwan
• Taiwan Joanna Briggs Institute Collaborating Centre, Taiwan: a collaborating centre of the Joanna Briggs Institute, National Yang-Ming University, Taipei, Taiwan
• Joanna Briggs Institute Evidence Synthesis Group, Mahidol University, Bangkok, Thailand
• Thailand Centre for Evidence-Based Nursing and Midwifery: a collaborating centre of the Joanna Briggs Institute, Chiang Mai University, Chiang Mai, Thailand

**Europe**
• Thames Valley Centre for Evidence-Based Nursing and Midwifery: a collaborating centre of the Joanna Briggs Institute, Thames Valley University, London, England
• University of Nottingham Centre for Evidence-Based Nursing and Midwifery: a collaborating centre of the Joanna Briggs Institute, University of Nottingham, Nottingham, England
• Romanian Centre for Evidence-Based Public Health: a collaborating centre of the Joanna Briggs Institute, National School of Public Health and Health Services Management, Bucharest, Romania
• Scottish Centre for Evidence-Based Multi-Professional Practice: a collaborating centre of the Joanna Briggs Institute, Robert Gordon University, Aberdeen, Scotland
• Scottish Centre for Evidence-Based Care of Older People: a collaborating centre of the Joanna Briggs Institute, Glasgow Caledonian University, Glasgow, Scotland
• Spanish Centre for Evidence-Based Nursing: a collaborating centre of the Joanna Briggs Institute, Institute of Health Carlos III, Madrid, Spain
• Wales Centre for Evidence-Based Care: a collaborating centre of the Joanna Briggs Institute, Nursing Health and Social Care Research Centre, School of Nursing and Midwifery, Cardiff University, Cardiff, Wales