Evidence-based Nursing

An introduction

Edited by
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EVIDENCE-BASED NURSING

AN INTRODUCTION

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DEDICATION

This book is dedicated to those nurses everywhere who are striving to make more informed decisions in order to deliver the best nursing, health care management and policy development that they can.

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Chapter 1

AN INTRODUCTION TO EVIDENCE-BASED NURSING

Nicky Cullum, Donna Ciliska, Susan Marks and Brian Haynes

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

The term 'evidence-based' is really very new. The first documented use of the term is credited to Gordon Guyatt and the Evidence Based Medicine Working Group in 1992.[1] They described *evidence-based medicine* as 'a new paradigm for medical practice', in which evidence from clinical research should be promoted over intuition, unsystematic clinical experience, and pathophysiology.[1] Shortly thereafter, the term was applied to many other aspects of health care practice and further afield. We now have evidence-based nursing, evidence-based physiotherapy,* and even evidence-based policing[2] (see Box 1.1 for more examples)! Definitions vary, and sometimes the central concept becomes diluted, but at its core evidence-based 'anything' is concerned with using valid and relevant information in decision-making. In health care, most people agree that high-quality research is the most important source of valid information, along with information about the specific patient or population under

Box 1.1 Examples of evidence-based everything[2]

Evidence-based medicine
Evidence-based dentistry
Evidence-based physiotherapy
Evidence-based pharmacy
Evidence-based conservation
Evidence-based crime prevention
Evidence-based education
Evidence-based government
Evidence-based librarianship
Evidence-based social work
Evidence-based software engineering
Evidence-based sports

* We will use the term 'evidence-based practice' to refer to the application of evidence-based principles in any aspect of health care practice.

consideration. Evidence-based ways of thinking have emerged from the discipline of *clinical epidemiology*, which focuses on the application of epidemiological science to clinical problems and decisions (epidemiological science is the study of health and disease in populations). These roots in epidemiology have enabled the development of a clear-sighted framework for thinking about research and its application to decision-making, and it is these concepts and approaches that we discuss in this book.

Evidence-based nursing can be defined as the application of valid, relevant, research-based information in nurse decision-making. Research-based information is not used in isolation, however, and research findings alone do not *dictate* our clinical behaviour. Rather, research evidence is used alongside our knowledge of our patients (their symptoms, diagnoses, and expressed preferences) and the context in which the decision is taking place (including the care setting and available resources), and in processing this information we use our expertise and judgement. The inputs to evidence-based decision-making are depicted in Figure 1.1. Research has shown, however, that many practitioners simply don't see research evidence as being useful and accessible when making real-life clinical decisions.[3] The grand challenge is therefore showing how this can be achieved, and the quality of care enhanced.

Imagine that, as a community-based nurse, you are responsible for providing care to an otherwise fit 74-year-old man with a chronic venous leg ulcer. Your locally relevant, evidence-based, leg ulcer guideline tells you that high-compression bandaging,

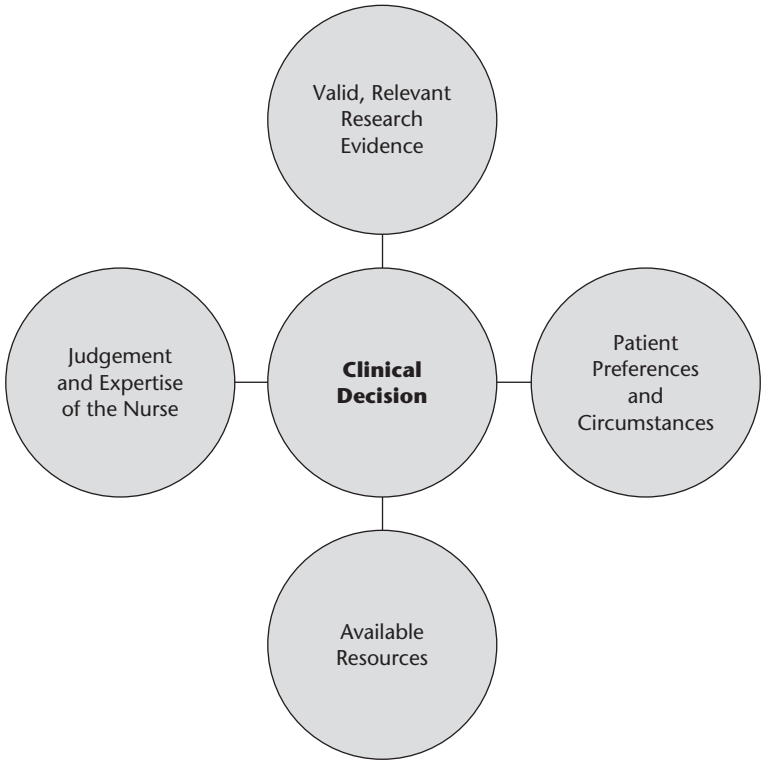

Figure 1.1 The components of an evidence-based nursing decision.

such as the four-layer bandage, should be the first line of treatment, is eminently deliverable in a community setting, and is cost-effective.[4] You have been trained, and are competent, in the application of this bandage and, therefore, proceed to prescribe it for this patient. Contrast this decision with an alternative scenario, one in which all variables are the same, except that you are inexperienced in bandage application. You know that poor bandage application technique can have disastrous consequences for the patient – including amputation. Under these circumstances, you decide to prescribe graduated compression hosiery (stockings) rather than bandages. You know that graduated compression hosiery applies a similar level of compression to the four-layer bandage, and, after determining that the patient is able to apply the stockings himself, you concede that these will also be the safer option given your lack of skill in bandaging. If your patient had arthritic hands and was unable to apply stockings, or did not have the facilities to wash the stockings, your decision would probably have been different (see Figure 1.2). At any given time, the research evidence informing a decision is a constant; however, you must use your professional judgement to determine how you will apply it to the patient in front of you. Obviously, it is also important to remember that, as new research is published, the evidence base will change, and you will need to become aware of important changes in evidence relevant to your practice (see Chapter 5 for information on alerting services).

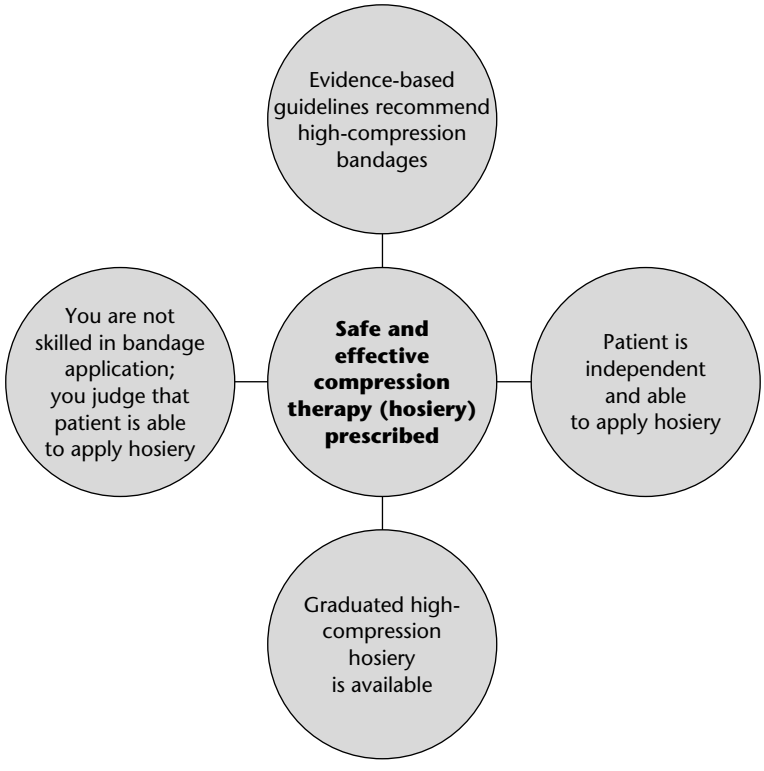

Figure 1.2 Resolution of a decision problem: how research evidence, judgement, patient preferences and circumstances, and knowledge about local resources interplay.

Getting started with evidence-based nursing

There are many ways to begin introducing research evidence into practice. At the simplest level, you might identify an area of practice for which you are responsible, find out if any evidence-based clinical practice guidelines exist, critically appraise them to determine if they are valid, and consider how they might be applied locally. Chapter 26 outlines this very process. In areas where guidelines don't exist, you might, in collaboration with colleagues, identify recurring uncertainties in your clinical area. Next, you would translate your single uncertainty (e.g. *Is it really necessary for people to lie flat for 8 hours after lumbar puncture?*) into a focused, answerable question. Chapter 3 outlines how to develop focused, answerable questions. For the lumbar puncture example, the question might be as follows: *In patients having cervical or lumbar puncture, is longer bed rest more effective than immediate mobilization or short bed rest in preventing headache?* This question is clearly about whether a particular intervention (lying flat for a long time) is better or worse than an alternative (not lying flat or lying flat for a brief time). Chapters 7 and 8 explain how certain types of clinical question demand research evidence from particular research designs because the answers are more likely to be valid, or true. In the above example, where the question concerns an intervention or therapy, the answer is best provided by randomized controlled trials (RCTs) (or, even better, by a systematic review of all relevant RCTs). You would then move into the searching phase to identify relevant RCTs or reviews; Chapters 4, 5 and 6 will guide you through the searching process. The next step is to grapple with assessing the quality of the research you find. We cannot accept the results of research at face value because, irrespective of where research has been published, and by whom, most research is not fit for immediate application. This is best illustrated by the fact that only about 5.4% of the approximately 50 000 articles published in 120 journals, and scrutinized for three evidence-based journals (*Evidence-Based Nursing*, *Evidence-Based Medicine*, and *ACP Journal Club*), reached the required methodological standard (personal communication, A McKibbon, 20 December 2006).

Fortunately several resources of pre-appraised research now exist, and these are discussed in Chapter 4. If your search does not identify any pre-appraised evidence, you will need to appraise the research you find so that you can judge whether the results are valid and ready for use in practice. Chapters 15–26 lead you through the process of critically appraising reports of study designs you will commonly encounter. Finally, Chapters 27–32 consider different aspects of research utilization: theoretical models (Chapter 27), empirical evidence of interventions aimed at changing professional behaviour (Chapter 28), the influence of the organization on research utilization (Chapter 29), use of research in clinical decision-making (Chapter 30), the emergence of computerized decision support systems in nursing (Chapter 31), and one hospital's experiences of promoting evidence-based nursing (Chapter 32).

Context

The emergence of evidence-based practice could not have happened at a more important time for nursing. The role of the nurse is not a fixed phenomenon; it varies by geography and culture and is heavily influenced by parameters such as the national economy and the supply of doctors. As we write this book at the beginning of the

Box 1.2 The Chief Nursing Officer's 10 new roles for nurses[5]

1. Ordering diagnostic investigations
2. Making referrals
3. Admitting and discharging patients within protocols
4. Managing caseloads of people with chronic conditions such as diabetes or rheumatoid arthritis
5. Running clinics (e.g. dermatology)
6. Prescribing medicines and treatments
7. Carrying out a wide range of resuscitation procedures
8. Minor surgery
9. Triage patients
10. Planning service organization and delivery

21st century, never has the demand for health care been so high, and most countries are struggling to meet this demand. The flexibility inherent in the nursing role is widely used to respond to this demand for health care. For example, in 2000, the United Kingdom (UK) Department of Health's Chief Nursing Officer announced 10 new roles for nurses, and nurses are now adopting these new roles widely (Box 1.2).[5] These new roles were previously held only (formally, at least) by doctors (e.g. prescribing drugs,† ordering diagnostic tests, etc.). It is difficult to imagine how nurses will be able to take on these challenging new roles and responsibilities *without* developing knowledge of clinical epidemiology and adopting an approach to decision-making that is informed by evidence.

At this point, it is probably worth pausing to reflect on how quickly nursing research has developed. The first nursing research journal (*Nursing Research*) was only launched in 1952. Early nursing research mainly used methodologies taken from the social sciences and largely focused on nurse education and nurses themselves. The second issue of *Nursing Research* contained nine research articles, four of which were about nursing students and nurse education. Since these early days, nursing research has developed apace, and there are now more than 1200 journals indexed in CINAHL, with 5400 research articles (identified by the search term 'nurs$') entering the CINAHL index in the year 2005 (searched by N. Cullum, 8 January 2007). In 1998, the *Evidence-Based Nursing* journal was launched, only 3 years after the launch of *Evidence-Based Medicine* (both published by the BMJ Publishing Group).

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

Evidence-based practice in general, and evidence-based nursing in particular, can be viewed as complex innovations, and it would be naïve to expect rapid and

† Since 1 May 2006, nurses in the UK can prescribe *any* licensed medication for *any* clinical condition in which they have expertise, after a period of 26 days' training plus clinical mentorship.

comprehensive uptake. Nevertheless, there is ample evidence of the impact of 'evidence-based' thinking on policy and education, paralleled by a rapidly growing research evidence base in clinical nursing topics. The Nursing and Midwifery Council, which governs nursing professional practice and nurse education in the UK, outlines in its Code of Conduct an expectation that nurses will 'deliver care based on current evidence, best practice and, where applicable, validated research when it is available'.[6] The Nursing and Midwifery Council standards for nursing curricula demand that 'the curriculum should reflect contemporary knowledge and enable development of evidence-based practice'.[7] Educational establishments all over the world have responded to demands from policy-makers and practitioners and developed educational programmes in evidence-based practice, ranging from half-day courses through to higher degrees. Paralleling these developments, the research evidence base for nursing decisions is also growing and maturing. In 1995, a systematic review of pressure ulcer prevention and treatment by the Centre for Reviews and Dissemination (CRD) at the University of York identified a total of 28 RCTs evaluating different pressure-relieving support surfaces in the entire international literature.[8] The review concluded that '. . . most of the equipment available for the prevention and treatment of pressure sores has not been reliably evaluated, and no "best buy" can be recommended'.[8] More recent reviews completed to underpin UK national clinical practice guidelines show that the number of trials has increased, with 44 RCTs of support surfaces for pressure ulcer prevention and treatment.[9, 10] Importantly, gaps

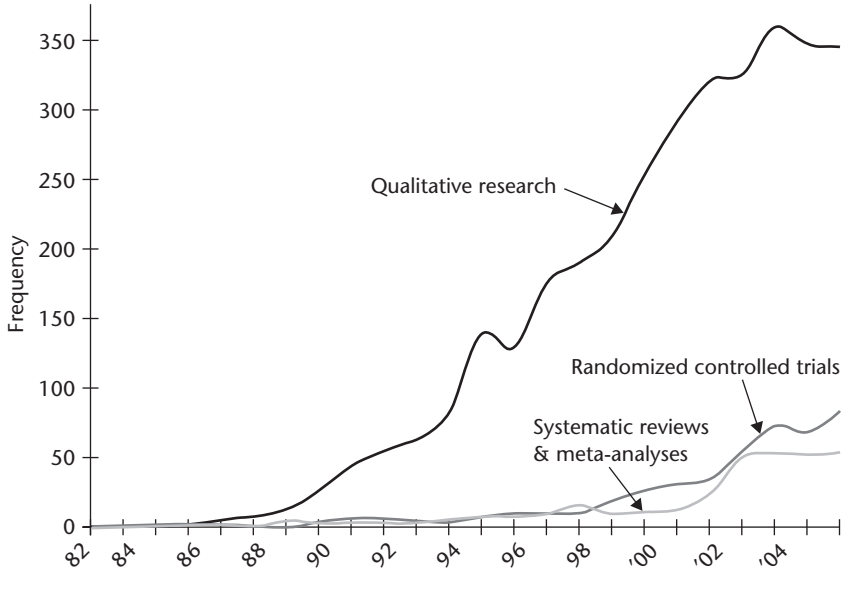

Figure 1.3 Frequency of different types of nursing research published by year (from CINAHL). CINAHL searched using the terms 'phenomenolog$', 'grounded theory', 'ethnograph$', 'randomised controlled trial', 'randomized controlled trial', 'systematic review', 'meta analysis'. Searching was confined to the Nursing Journal subset and research papers (excluding papers *about* research).

Phenomenolog$ + grounded theory + ethnograph$ = qualitative.