

Chapter 2

IMPLEMENTING EVIDENCE-BASED NURSING: SOME MISCONCEPTIONS

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The past 10 years have seen a strong movement towards evidence-based clinical practice. In 1997, the Canadian National Health Forum, chaired by Prime Minister Jean Chrétien, recommended that ‘a key objective of the health sector should be to move rapidly toward the development of an evidence-based health system, in which decisions are made by health care providers, administrators, policy makers, patients and the public on the basis of appropriate, balanced and high quality evidence.’^[1] In the United States (US), the Agency for Healthcare Research and Quality (AHRQ) leads national efforts in the use of evidence to guide health care decisions through funding of evidence-based practice centres, systematic reviews, evidence-based practice guidelines, and studies that evaluate strategies to disseminate research findings to practitioners and policy makers.^[2] In the United Kingdom (UK), the Department of Health has advocated for evidence-based practice to enhance the quality of patient care, nursing, midwifery, and health visiting.^[3]

Specific to nursing, the Sigma Theta Tau International Honor Society of Nursing issued a position statement on evidence-based nursing in 2003 and made a commitment to being a leading source of knowledge and resources that foster evidence-based nursing practice globally.^[4] Centres for Evidence-Based Nursing have been established in many countries to provide educational sessions to help nurses learn to use evidence in clinical practice.^[5] Journals such as *Evidence-Based Nursing* and *Worldviews on Evidence-Based Nursing* and textbooks such as this one are designed to help nurses to become evidence-based practitioners.

There have, however, been misgivings, sometimes generated by a misunderstanding of evidence-based nursing. Three of these misconceptions will be addressed in this chapter: (1) evidence-based practice isn’t new: it’s what we have been doing for years; (2) evidence-based nursing leads to ‘cookbook’ nursing and a disregard for individualized patient care; and (3) there is an over-emphasis on randomized controlled trials (RCTs) and systematic reviews in evidence-based health care, and they are not relevant to nursing.

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

The plea that 'each nurse must care enough about her own practice to want to make sure it is based on the best possible information' is not new. It was written over 25 years ago. In the same article, Hunt^[6] noted that the words 'nursing should become a research-based profession' had already become a cliché. In 1976, Gortner *et al.*^[7] lamented the lack of research evidence in many areas of nursing practice, and one year later Roper^[8] spoke of nursing performing 'far too many of its tasks on a traditional base and not within a framework of scientific verifications'.

While recognition of the importance of evidence-based nursing practice is not new, two studies, one conducted in Canada in the mid-1990s and one conducted in the US in 2005, reported worrisome findings about the lack of reliance on research findings in the nursing profession. Estabrooks^[9] surveyed 1500 randomly selected staff nurses in Alberta, Canada, to identify the frequency of use of various information sources. The respondents most frequently used experiential information sources (patient data and personal experience), followed by basic nursing education programs, in-service programs and conferences, policy and procedure manuals, physician sources, intuition, and 'what has worked for years'. Articles published in nursing research journals ranked second to last in frequency of usage (15th of 16 ranked sources). Estabrooks^[9] identified several troubling issues including the reliance on non-scientific knowledge and on basic nursing education, even though these nurses had graduated from their nursing education programs an average of 18 years earlier.

More recently, Pravikoff *et al.*^[10] surveyed 3000 nurses across the US and found that while nurses reported frequently needing information for practice, they felt more confident asking colleagues or peers and searching the Internet than using bibliographic databases such as PubMed or CINAHL to find information. Fewer than half of respondents (46%) were familiar with the term 'evidence-based practice'. Asked to rank the top three barriers to nurses' use of research in practice from a list of 10 (excluding lack of time, which is a well known barrier), the most highly ranked barriers were lack of value for research in practice, lack of understanding of electronic databases, difficulty accessing research materials, and difficulty understanding research articles. Consistent with the findings of Estabrooks,^[9] nurses were relying on what they had learned in nursing school even though they had graduated many years before. Pravikoff *et al.*^[10] concluded that although nurses acknowledged their need for information to guide effective practice, they received little or no education or training in information retrieval, didn't understand or value research, and were generally unprepared for a practice built on evidence.

The reliance on 'human sources' of information found by Pravikoff *et al.* was also found among nurses in acute care settings,^[11-13] nurse practitioners and practice nurses in primary care,^[14-16] and physicians.^[16-18] These consistent findings suggest that a human dimension to knowledge transfer is important for effective research implementation strategies.^[19]

Many researchers have studied the barriers to evidence-based practice and have identified strategies to overcome these barriers. At an individual level, nurses lack skill in accessing research and evaluating its quality,^[10, 20] they are isolated from knowledgeable colleagues with whom to discuss research,^[21] and they lack confidence to implement change.^[20, 22] Organizational characteristics of health care settings are the most significant barriers to research use among nurses.^[20-23] Nurses report a lack of

time to seek out research information and to implement research findings.^[21–25] Mitchell *et al.* found that health care institutions that reported making changes based on the research process were more likely to have at least one nursing research committee and to have access to nurses with expertise in nursing research.^[26] Nurses have identified a lack of organizational support for evidence-based nursing and noted a lack of interest, motivation, leadership, and vision among managers.^[20]

In a systematic review, Estabrooks *et al.*^[27] examined how individual nurse characteristics influenced research utilization and found that, apart from attitude to research, there was little to suggest that any individual determinant influenced research use. The individual nurse cannot be isolated from other bureaucratic, political, organizational and social factors that affect change. The implementation of research-based practice depends on an ability to achieve significant and planned behaviour change involving individuals, teams and organizations.^[28]

Ciliska *et al.*^[29] suggested strategies to facilitate organizational support for evidence-based nursing practice. These include allowing nurses time for activities that foster evidence-based practice, such as going to the library, learning how to conduct electronic searches, and holding journal club meetings; establishing nurse researcher positions and formalizing nursing research committees; linking staff nurses with advanced practice nurses; linking advanced practice nurses with nurse faculty researchers; ensuring that health care institution libraries have print or online subscriptions to nursing research journals; and making resources such as *Clinical Evidence*, the *Cochrane Library*, and abstraction journals, such as *Evidence-Based Nursing*, available.

Kitson *et al.*^[30] proposed that the most successful implementation of evidence into practice occurs when evidence is scientifically robust and matches professional consensus and patient preferences; the environment is receptive to change, with sympathetic cultures; strong leadership and appropriate monitoring and feedback systems exist; and there is appropriate facilitation of change, with input from skilled external and internal facilitators.

Evidence-based nursing leads to ‘cookbook’ nursing and a disregard for individualized patient care

Those who judge evidence-based nursing as ‘cookbook’ nursing mistakenly believe that evidence-based practitioners consider only research evidence in the clinical decision-making process. In fact, evidence-based clinical decision-making involves integrating the knowledge arising from one’s clinical expertise; patient preferences and actions; patient clinical states, settings, and circumstances; and research evidence within the context of available resources (Figure 2.1).^[31] Let’s consider an example to illustrate. A nurse practitioner in a cardiology clinic reads a recently published, high quality study that showed that a telephone intervention for people with chronic heart failure reduced admission to hospital for worsening heart failure.^[32] Those in the telephone intervention group received an education booklet and frequent, standardized, telephone follow-up by nurses. The purpose of the telephone calls was to educate patients and to monitor their adherence to diet and medication, symptoms, signs of hyposaline retention, and daily physical activity.

The nurse practitioner shares this *research evidence* with the administrator of her unit, who must decide whether the savings resulting from reduced readmissions are sufficient to cover the costs of the additional nursing time required to make the

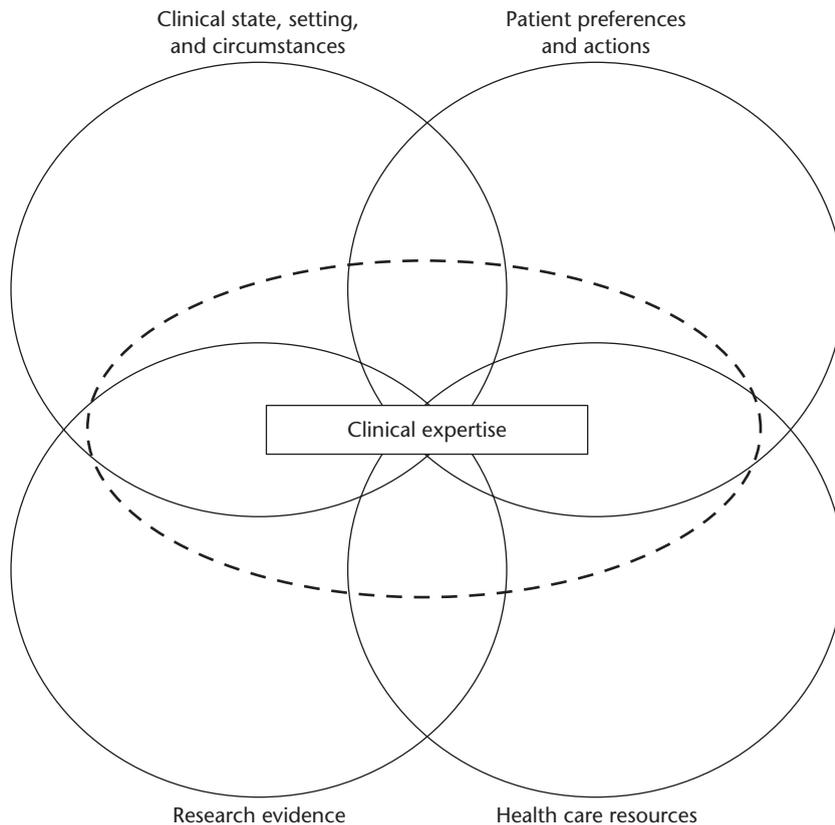


Figure 2.1 A model for evidence-based clinical decisions. Modified and reproduced with permission of the American College of Physicians from Haynes RB, Devereaux PJ, Guyatt GH. Clinical expertise in the era of evidence-based medicine and patient choice. *ACP Journal Club* 2002;**136**:A11–14.

telephone calls (*health care resources*). Assuming that the administrator supports the intervention, the nurse practitioner uses her *clinical expertise* to assess the health state of patients who are potentially eligible for telephone follow-up, their risks, their preferences and actions, and the potential benefits of the intervention; to communicate information about the intervention to patients and their families; and to provide them with an environment they find comforting and supportive. Clinical expertise is the crucial element that separates evidence-based nursing from cookbook nursing and the mindless application of rules and guidelines.

When the nurse practitioner describes the intervention to various patients, those who are feeling very sick or weak, those with hearing problems, or those who do not have a telephone will likely choose not to receive telephone follow-up (*clinical state, setting, and circumstances*), whereas others who do not have these issues may welcome the opportunity for telephone follow-up. Patients who loathe talking on the telephone or who like to sleep during daytime hours because they don't sleep well at night may choose not to receive telephone follow-up even though they have been informed about the benefits of the intervention (*patient preferences and actions*).

Clinical expertise and patient preference may override the other components of the model for a given decision. For example, clinical expertise must prevail if the nurse decides that the patient is too frail for a specific intervention that is otherwise 'best' for his condition, and a patient's preference will dominate when he declines a treatment that clinical circumstances and research evidence indicate is best for his condition. Patients exercise their preferences for care by choosing alternative treatments, refusing treatment, preparing advance directives ('living wills'), and seeking second opinions. Today's patients have greater access to clinical information than ever before, and some, particularly those with chronic conditions, become more knowledgeable about their conditions than their care providers. Although a patient's role in clinical decisions is usually not formalized and is sometimes ignored by care providers, it is an important component of most clinical decisions. Clearly, the best possible scenario is one in which the patient is able to play a full part in making decisions about his or her own health care, having been given an accurate assessment of the current state of knowledge.

When we consider Figure 2.1, the challenge for nursing is to give appropriate weight to research evidence. Nursing training and experience ensure that nurses have clinical expertise. Traditionally, nurses have been respectful and sensitive to patients' clinical circumstances and preferences, and they are frequently reminded about the need to consider limited health care resources. However, based on the research of Estabrooks^[9] and Pravikoff *et al.*,^[10] many nurses do not understand or value research and have had little or no training to help them find evidence on which to base their practice. It is the research evidence circle in the figure that requires the most attention from the nursing profession if we are to help patients make evidence-based clinical decisions related to their 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

Evidence-based health care is about incorporating the best available evidence in clinical decision-making. Nursing practice generates numerous questions related to, for example, the effectiveness of nursing interventions, the accuracy and precision of nursing assessment measures, the power of prognostic markers, the strength of causal relations, the cost-effectiveness of nursing interventions, the meaning of illness, and patient experiences, beliefs, and attitudes. Each of these types of questions can be addressed by different study designs, and an important challenge for evidence-based practitioners is to determine whether the best design has been used to answer the question posed, be it an RCT to evaluate a nursing intervention, a cohort study to examine a question of prognosis, or a qualitative study to learn more about the meaning of illness.

McCaughan *et al.*^[14] found that most decisions made by primary care nurses related to questions about interventions. The rest of this section will focus on the importance of RCTs and systematic reviews in evaluating the effectiveness of nursing interventions. In an RCT, individuals are randomly allocated to receive or not receive an experimental intervention and then followed up over time to determine the effects of the intervention. For example, in an RCT of techniques for intramuscular thigh vaccination, 375 healthy children up to 18 months of age were randomized to the Australian, US or World Health Organization (WHO) technique and followed up for

24 hours to assess local and systemic adverse reactions.^[33] The WHO technique resulted in less bruising and infant irritability. The reason that an RCT is the most appropriate design to address this type of question is that through random assignment of study participants to comparison groups, known and unknown determinants of outcome are most likely to be distributed evenly between groups, thus ensuring that any difference in outcome is due to the intervention being evaluated (see Chapters 7 and 15).

There are numerous examples of interventions in both nursing and medicine that initially appeared beneficial but were shown to be of doubtful value or even harmful when they were evaluated using randomized trials. Examples include the use of cover gowns by nurses when caring for healthy newborns in the nursery,^[34] and shaving of patients before surgical procedures.^[35] Few of us would want to begin a drug regimen that had not been proven safe and effective in an RCT.

Many research questions have been addressed by more than one study. This is a positive development because given the play of chance, any single study, even a methodologically rigorous RCT, may arrive at a false conclusion. However, how does an evidence-based practitioner cope with the myriad of studies addressing the same research question, some with discrepant findings? The first step is to look for a systematic review. A *systematic review* is a process that consolidates the findings of all studies addressing the same research question. In a systematic review, all studies that address a specific research question are identified, relevant studies are evaluated for methodological quality, data are extracted and summarized, and conclusions are drawn. When possible, data from individual studies are statistically combined to, in effect, create one large study. This process, known as *meta-analysis*, results in a more precise estimate of effect than can be obtained from any individual study included in the meta-analysis. Through systematic reviews, nurses are provided with a summary of all methodologically sound studies related to a specific topic. Chapters 5 and 6 describe how to find systematic reviews, and Chapter 19 describes how to critically appraise them.

A rich source of high quality systematic reviews is the *Cochrane Library*, an electronic resource that focuses on systematic reviews of controlled trials of health care interventions. Recent systematic reviews of relevance to nursing have examined whether multidisciplinary interventions reduce hospital admissions and all-cause mortality in patients with heart failure,^[36] whether early supported discharge with rehabilitation at home improves outcomes in patients admitted to hospital with stroke,^[37] and whether preventive psychosocial and psychological interventions reduce the risk of postpartum depression.^[38]

Those who believe that RCTs and systematic reviews are not relevant to nursing need only browse issues of the *Evidence-Based Nursing* journal. Each quarterly issue contains abstracts summarizing 24 studies or systematic reviews, two-thirds of which focus on the effectiveness of nursing interventions. To be eligible for inclusion in the journal, all intervention studies must be RCTs or systematic reviews of RCTs, a strong indication of the number of such studies relevant to nursing that exist.

Summary

While we would like to believe that we have been providing evidence-based nursing practice for years, we are not there yet. What we have been able to do is to conduct research that has identified barriers to evidence-based practice. We must now work

to overcome these barriers so that we can create an environment that facilitates evidence-based practice.

Evidence-based nursing does not lead to ‘cookbook’ nursing and a disregard for individualized patient care. In clinical decision-making, research evidence is integrated with knowledge about a patient’s clinical state, setting and circumstances; patient preferences and actions; health care resources; and clinical expertise.

Finally, there are many different study designs, each ideally suited to answering different nursing practice questions. The RCT is the study design of choice when evaluating the effectiveness of a nursing intervention because, through random assignment of study participants to comparison groups, known and unknown determinants of outcome are evenly distributed between groups ensuring that any difference in outcome can be attributed to the intervention. When more than one study has been conducted to address the same research question, one should look for a systematic review. Through consolidation of research findings, a systematic review provides a more definitive answer to a research question.

LEARNING EXERCISES

1. Think about times when you have needed information related to your nursing practice. How did you obtain this information? If you did not seek out electronic databases such as PubMed, the *Cochrane Library*, or *Evidence-Based Nursing* journal, why not? What characteristics of your work setting facilitate the use of evidence in your practice, and what characteristics impede the use of evidence in your practice? What might be changed in your work environment to increase evidence-based nursing practice?
2. Identify some of the clinical decisions you have recently made related to patient care. Refer to Figure 2.1, and consider the role each component in the figure played in your decision-making. Did you consider research evidence, and, if so, how did it influence the decision process? If you did not consider research evidence, why not?
3. Identify three nursing interventions that you carry out in your clinical practice. Conduct a search of *Evidence-Based Nursing* (<http://ebn.bmjournals.com>) and the *Cochrane Library Database of Systematic Reviews* (<http://www.cochrane.org>) to determine if there are any RCTs and systematic reviews evaluating the effectiveness of the three nursing interventions. Are the results of the RCTs or reviews consistent with your current practice? If not, do you plan to change your practice to reflect the study findings, and, if so, what challenges does that present?

References

- 1 National Forum on Health. *Canada Health Action: Building on the Legacy*. Vol. I. Ottawa: National Forum on Health, 1997:3–43.
- 2 Titler MG. Use of research in practice. In: LoBiondo-Wood G, Haber J, editors. *Nursing Research: Methods, Critical Appraisal, and Utilization*. 5th edition. St. Louis: Mosby-Year Book, 2002:411–44.
- 3 UK Department of Health. Making a difference: strengthening the nursing, midwifery and health visiting contribution to health and healthcare. 1999. <http://www.dh.gov.uk/assetRoot/04/07/47/04/04074704.pdf> (accessed 15 May 2006).
- 4 Dickenson-Hazard N. Foreword. In DiCenso A, Guyatt G, Ciliska D, editors. *Evidence-Based Nursing: A Guide to Clinical Practice*. St. Louis: Elsevier Mosby, 2005: xxiii–xxiv.
- 5 Ciliska D, DiCenso A, Cullum N. Centres of evidence-based nursing: directions and challenges. *Evid Based Nurs* 1999;2:102–4.
- 6 Hunt J. Indicators for nursing practice: the use of research findings. *J Adv Nurs* 1981;6:189–94.

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- 7 Gortner SR, Bloch D, Phillips TP. Contributions of nursing research to patient care. *J Adv Nurs* 1976;1:507–18.
- 8 Roper N. Justification and use of research in nursing. *J Adv Nurs* 1977;2:365–71.
- 9 Estabrooks CA. Will evidence-based nursing practice make practice perfect? *Can J Nurs Res* 1998;30:15–36.
- 10 Pravikoff DS, Tanner AB, Pierce ST. Readiness of U.S. nurses for evidence-based practice. *Am J Nursing* 2005;105:40–51.
- 11 Thompson C, McCaughan D, Cullum N, Sheldon TA, Mulhall A, Thompson DR. The accessibility of research-based knowledge for nurses in United Kingdom acute care settings. *J Adv Nurs* 2001;36:11–22.
- 12 Thompson C, McCaughan D, Cullum N, Sheldon TA, Mulhall A, Thompson DR. Research information in nurses' clinical decision making: what is useful? *J Adv Nurs* 2001;36:376–88.
- 13 Thompson C, Cullum N, McCaughan D, Sheldon T, Raynor P. Nurses, information use, and clinical decision making—the real world potential for evidence-based decisions in nursing. *Evid Based Nurs* 2004;7:68–72.
- 14 McCaughan D, Thompson C, Cullum N, Sheldon T, Raynor P. Nurse practitioner and practice nurses' use of research information in clinical decision making: findings from an exploratory study. *Fam Pract* 2005;22:490–7.
- 15 Cogdill KW. Information needs and information seeking in primary care: a study of nurse practitioners. *J Med Libr Assoc* 2003;91:203–15.
- 16 Gabbay J, le May A. Evidence based guidelines or collectively constructed “mindlines?” Ethnographic study of knowledge management in primary care. *BMJ* 2004;329:1013.
- 17 Covell DG, Uman GC, Manning PR. Information needs in office practice: are they being met? *Ann Intern Med* 1985;103:596–9.
- 18 Tomlin Z, Humphrey C, Rogers S. General practitioners' perceptions of effective health care. *BMJ* 1999;318:1532–5.
- 19 McCaughan D. Commentary on ‘Primary care practitioners based everyday practice on internalised tacit guidelines derived through social interactions with trusted colleagues.’ *Evid-Based Nurs* 2005;8:94. Comment on: Gabbay J, le May A. Evidence based guidelines or collectively constructed ‘mindlines?’ Ethnographic study of knowledge management in primary care. *BMJ* 2004;329:1013.
- 20 Parahoo K. Barriers to, and facilitators of, research utilization among nurses in Northern Ireland. *J Adv Nurs* 2000;31:89–98.
- 21 Nilsson Kajermo K, Nordstrom G, Krusebrant A, Bjorvell H. Barriers to and facilitators of research utilization, as perceived by a group of registered nurses in Sweden. *J Adv Nurs* 1998;27:798–807.
- 22 Rodgers S. An exploratory study of research utilization by nurses in general medical and surgical wards. *J Adv Nurs* 1994;20:904–11.
- 23 Retsas A. Barriers to using research evidence in nursing practice. *J Adv Nurs* 2000;31:599–606.
- 24 Retsas A, Nolan M. Barriers to nurses' use of research: an Australian hospital study. *Int J Nurs Stud* 1999;36:335–43.
- 25 Thompson C, McCaughan D, Cullum N, Sheldon T, Raynor P. Barriers to evidence-based practice in primary care nursing—why viewing decision-making as context is helpful. *J Adv Nurs* 2005;52:432–44.
- 26 Mitchell A, Janzen K, Pask E, Southwell D. Assessment of nursing research utilization needs in Ontario health agencies. *Can J Nurs Adm* 1995;8:77–91.
- 27 Estabrooks CA, Floyd JA, Scott-Findlay S, O'Leary KA, Gushta M. Individual determinants of research utilization: a systematic review. *J Adv Nurs* 2003;43:506–20.
- 28 Rycroft-Malone J. The politics of the evidence-based practice movements: legacies and current challenges. *Journal of Research in Nursing* 2006;11:95–108.
- 29 Ciliska DK, Pinelli J, DiCenso A, Cullum N. Resources to enhance evidence-based nursing practice. *AACN Clin Issues* 2001;12:520–8.

- 30 Kitson A, Harvey G, McCormack B. Enabling the implementation of evidence-based practice: a conceptual framework. *Qual Health Care* 1998;7:149–58.
- 31 Haynes RB, Devereaux PJ, Guyatt GH. Clinical expertise in the era of evidence-based medicine and patient choice. *ACP J Club* 2002;136:A11–14.
- 32 GESICA Investigators. Randomised trial of telephone intervention in chronic heart failure: DIAL trial. *BMJ* 2005;331:425.
- 33 Cook IF, Murtagh J. Optimal technique for intramuscular injection of infants and toddlers: a randomised trial. *Med J Aust* 2005;183:60–3.
- 34 Rush J, Fiorino-Chiovitti R, Kaufman K, Mitchell A. A randomised controlled trial of a nursery ritual: wearing cover gowns to care for healthy newborns. *Birth* 1990;17:25–30.
- 35 Hoe NY, Nambiar R. Is preoperative shaving really necessary? *Ann Acad Med Singapore* 1985;14:700–4.
- 36 Holland R, Battersby J, Harvey I, Lenaghan E, Smith J, Hay L. Systematic review of multidisciplinary interventions in heart failure. *Heart* 2005;91:899–906.
- 37 Langhorne P, Taylor G, Murray G, Dennis M, Anderson C, Bautz-Holter E, Dey P, Indredavik B, Mayo N, Power M, Rodgers H, Ronning OM, Rudd A, Suwanwela N, Widen-Holmqvist L, Wolfe C. Early supported discharge services for stroke patients: a meta-analysis of individual patients' data. *Lancet* 2005;365:501–6.
- 38 Dennis CL, Creedy D. Psychosocial and psychological interventions for preventing postpartum depression. *Cochrane Database Syst Rev* 2004;(4):CD001134.