Introducing evidence into nursing practice: Using the IOWA model

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Introducing evidence into nursing practice: using the IOWA model

Catriona M Doody and Owen Doody

Abstract
Evidence-based practice has gained increasing popularity in all healthcare settings. Nurses are urged to use up-to-date research evidence to ensure better patient outcomes and inform decisions, actions and interactions with patients, to deliver the best possible care. Within the practice setting, there is an increasing challenge to provide clearly measurable care of the highest quality, which is evidence-based. In order for nurses to operate from an evidence-based perspective, they need to be aware of how to introduce, develop and evaluate evidence-based practice. This article presents how evidence may be introduced into practice using the Iowa model, offering practical advice and explanation of the issues concerning nurses in practice.

Key Words: Evidence based practice, Nursing, IOWA model

Introduction
Evidence-based practice has gained increasing popularity since its introduction in the latter part of the twentieth century, aspiring to be a dominant theme of practice, policy, management and education within health services across the world (Rycroft-Malone et al, 2004; Ryan et al, 2006). Nurses are urged to use up-to-date research evidence to deliver the best possible care (Haynes et al, 1996; Barnsteiner and Prevost, 2002; LoBiondo-Wood and Haber, 2006). Research-based practice has better patient outcomes than routine, procedural nursing care (Heater et al, 1988; Thomas, 1999) and informs nursing decisions, actions and interactions with patients. Nurses in practice are increasingly challenged by patients and healthcare organizations to provide clearly measurable care of the highest quality (Holleman et al, 2006).

Decision making in health care has changed dramatically, with nurses expected to make choices based on the best available evidence and continually review them as new evidence comes to light (Pearson et al, 2007). Evidence-based practice involves the use of reliable, explicit and judicious evidence to make decisions about the care of individual patients (Sackett et al, 1996), combining the results of well-designed research, clinical expertise, patient concerns and patient preferences (Sackett et al, 1996; Flemming et al, 1997; Grol and Grimshaw, 1999; Holleman et al, 2006). A major criticism of evidence-based practice is the lack of available evidence or inconclusive research. While a lack of evidence can be perceived as a barrier, it should be recognized that the need to base practice on evidence has only become a concern for health professionals relatively recently (Pearson et al, 2007). Although the drive for evidence-based practice has gained momentum, it is still dependent on the nurse's ability to gather and appraise the evidence on which they base their care.

The results of well-designed research provide an obvious source of evidence but these are by no means the only data used in everyday practice (Pearson et al, 2007). The limitations of research conducted became obvious when the nursing profession began to adopt an evidence-based model. Biomedical knowledge alone is inadequate for the

practice of nursing. A holistic approach is necessitated, which acknowledges all aspects of people while also understanding their experiences (Pearson et al, 2007).

All knowledge and information used to make decisions can be referred to as evidence; however, the validity of this evidence may be variable. There is no necessary relationship between quantity and quality, nor between either of these and evidence usage (Newell and Burnard, 2006). Therefore, nurses must take into account the quality of evidence, assessing the degree to which it meets the four principles of feasibility, appropriateness, meaningfulness and effectiveness (National Institute for Health and Clinical Excellence, 2003; Gagan and Hewitt-Taylor, 2004; Pearson et al, 2007). In order for nurses to operate in an evidence-based manner, they need to be aware of how to introduce, develop and evaluate evidence-based practice. This article presents how evidence may be introduced into practice using the Iowa model, offering practical advice and explanation of the issues concerning nurses in practice.

Process of introducing Evidence-Based Practice:
The Iowa model focuses on organization and collaboration incorporating conduct and use of research, along with other types of evidence (Titler et al, 2001). Since its origin in 1994, it has been continually referenced in nursing journal articles and extensively used in clinical research programmes (LoBiondo-Wood and Haber, 2006). This model allows us to focus on knowledge and problem-focused triggers, leading staff to question current nursing practices and whether care can be improved through the use of current research findings (Titler, 2006). In using the Iowa model, there are seven steps to follow. These are outlined in Figure 1.

Figure 1. Seven steps of the IOWA model
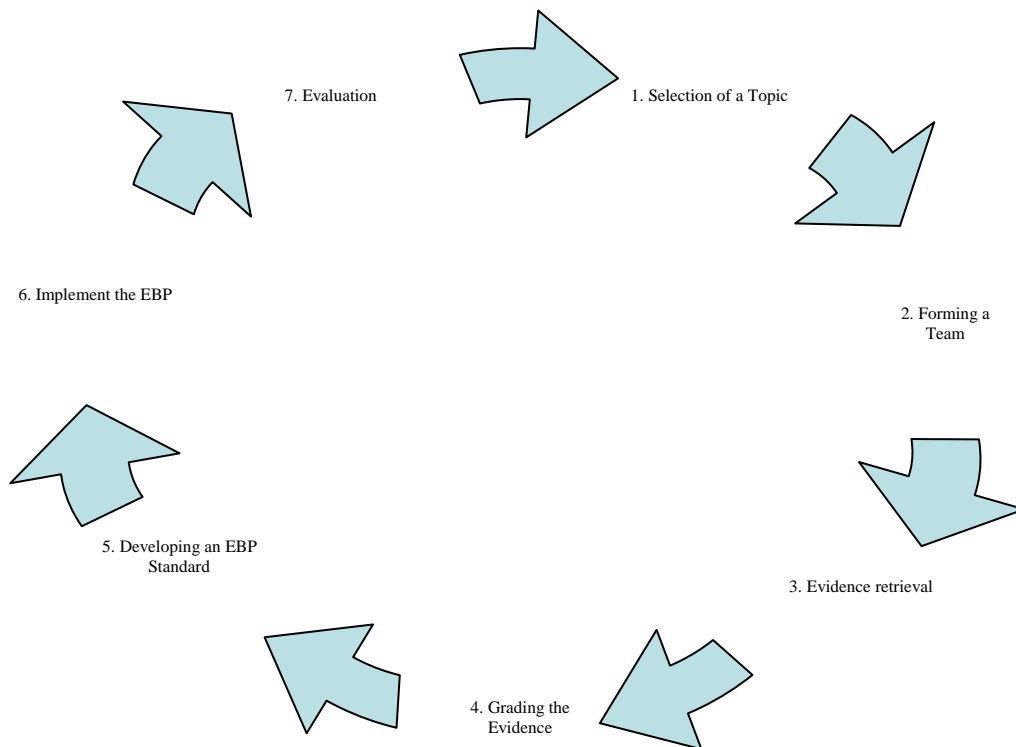
Step 1: Selection of a topic
In selecting a topic for evidence-based practice, several factors need to be considered. These include the priority and magnitude of the problem, its application to all areas of practice, its contribution to improving care, the availability of data and evidence in the problem area, the multidisciplinary nature of the problem, and the commitment of staff.

Step 2: Forming a team
The team is responsible for development, implementation, and evaluation (LoBiondo-Wood and Haber, 2006). The composition of the team should be directed by the chosen topic and include all interested stakeholders. The process of changing a specific area of practice will be assisted by specialist staff team members, who can provide input and support, and discuss the practicality of guideline implementation (Frost et al, 2003; Gagan and Hewitt-Taylor, 2004). A bottom-up approach to implementing evidence-based practice is essential as change is more successful when initiated by frontline practitioners, rather than imposed by management (Gough, 2001). Staff support is also important. Junior staff require support from senior staff to effect change, as senior members or institutions often impede junior members from implementing evidence-based practice (Bhandari et al, 2003). Without the necessary resources and managerial involvement, the team will not feel they have the authority to change care or the support from their organization to implement the change in practice (Feasey and Fox, 2001).

To develop evidence-based practice at unit level, the team should draw up written policies, procedures and guidelines that are evidence-based (LoBiondo-Wood and Haber, 2006). Interaction should take place between the organization's direct care providers and management such as nurse managers, to support these changes (Retsas, 2000; Nagy et al, 2001; Berwick, 2003; LoBiondo-Wood and Haber, 2006). As social and organizational factors interfere with the application of research findings, they need to be identified and addressed prior to the development of evidence-based practice or application of an evidence-based practice initiative to other practice areas within the organisation. The factors identified within the literature include workload, support of management and colleagues, level of education, experience of research, lack of exposure to research, lack of training in research use, preference for practice wisdom rather than research evidence, time availability, accessibility to research, champion to assist efforts, organisation support to use and conduct research (Gerrish and Clayton, 2004; Brown et al, 2009). Nurses or management may perceive task performance as a more justifiable use of time than seeking evidence for action or designing guidelines for existing practice (Gagan and Hewitt-Taylor, 2004; Pearson et al, 2007).

Step 3: Evidence retrieval
From the team formation and topic selection, a brainstorming session should be held to identify available sources and key terms to guide the search for evidence. Evidence should be retrieved through electronic databases such as Cinahl, Medline, Cochrane, Web of Science and Blackwell Synergy, utilizing key terms. Other sources of evidence such as the National Institute of Health and Clinical Excellence (NICE) and Quality Improvement and Innovation Partnership (QIIP) should be consulted with regards to relevant care standards and guidelines.

Step 4: Grading the evidence

To grade the evidence, the team will address quality areas of the individual research and the strength of the body of evidence overall. There is a tendency to classify research as quantitative or qualitative. Qualitative data is collected in order to derive understanding of phenomena from a subjective perspective. The focus is on description, understanding, and empowerment. The theory is developed based on inductive reasoning, and is grounded in reality as it is perceived and experienced by the participants involved. Conversely, quantitative data is based on the process of deduction, hypothesis testing and objective methods in order to control phenomena with its focus on theory testing and prediction.

The relative merits of both of these forms of data are the subject of much heated debate. On one hand, qualitative methods are seen to most certainly increase understanding but they are often criticized as being biased, subjected to the question, 'Well, now that we understand, so what?' (Pearson et al, 2007). On the other hand, quantitative methods are seen to give an apparently unbiased, objective picture of a situation or phenomenon, but they are often criticized as being 'only half the story' or of being overly concerned with numbers and statistics (Pearson et al, 2007). Central to the debate however, must be the paradigmatic stance from which the researcher works, and the stance from which the consumer of research reads. As long as the method is consistent with, or true to, the paradigm that underpins the research, and is the appropriate method to address the research question, in theory the debate becomes redundant. However, the debate still continues to rage largely because of deeply entrenched allegiances to a particular paradigm.

The research question influences the research methodology, which influences the way in which data is collected and analysed, as the methods are also dependent on the methodology adopted. Table 1 identifies a range of methodological approaches, which are consistent with the philosophical view of knowledge embodied in each paradigm and may guide staff in the appraisal of evidence.

Table 1. Paradigms, methodologies and methods for research studies (Pearson et al, 2007)		
Paradigm	Methodology	Method
Positivist paradigm	Randomized controlled trials	Methods that measure outcomes such as temperature, blood pressure, and attitudes
	Cohort studies	Methods that measure outcomes (as above)
	Case series studies	Methods that measure outcomes (as above)
	Time series studies	Methods that measure outcomes (as above)
Interpretive paradigm	Phenomenology	Interviews
	Historiography	Textual analysis; interviews; participant observation; interviews of key informants
	Ethnography	Textual analysis; interviews; participant observation; interviews of key informants
	Grounded theory	Participant observation; interviews
Critical paradigm	Action research	Participative group interaction; observation; interviews
	Feminist research	Participative group interaction; observation; interviews

Review protocols are vital to ensuring practices are based on the most current research evidence. Criteria should be set for retrieval of the evidence so each team member identifies areas for grading and grading criteria sheets should be given to

each staff member to complete on relevant studies. Addressing areas of effectiveness, appropriateness and feasibility, Table 2 highlights the areas and criteria involved. A three-tier grading system can be used: A. Strong support that merits application, B. Moderate support that merits application, C. Not supported (Joanna Briggs Institute, 2008).

Table 2. Grading criteria

Area	Concern	Criteria
Effectiveness	Relates to whether the intervention achieves the intended outcomes.	• Does the intervention work? • What are the benefits and harm? • Who will benefit from its use?
Appropriateness	Concerned more with the psychosocial aspects of care than with the physiological.	• What is the experience of the consumer? • What health issues are important to the consumer? • Does the consumer view the outcomes as beneficial?
Feasibility	Addresses the broader environment in which the intervention is situated and involves determining whether the intervention can and should be implemented.	• What resources are required for the intervention to be successfully implemented? • Will it be accepted and used by healthcare workers? • How should it be implemented? • What are the economic implications of using the intervention?

Step 5: Developing an Evidence-Based Practice (EBP) standard
After a critique of the literature, team members come together to set recommendations for practice. The type and strength of evidence used in practice needs to be clear (LoBiondo-Wood and Haber, 2006) and based in the consistency of replicated studies. The design of the studies and recommendations made should be based on identifiable benefits and risks to the patients. This sets the standard of practice guidelines, assessments, actions, and treatment as required. These will be based on the group decision, considering the relevance for practice, its feasibility, appropriateness, meaningfulness, and effectiveness for practice (Pearson et al, 2007). To support evidence-based practice, guidelines should be devised for the patient group, health screening issues addressed, and policy and procedural guidelines devised highlighting frequency and areas of screening. Evidence-based practice is ideally a patient centred approach, which when implemented is highly individualized. However, poor implementation has the potential to give rise to 'cookbook care' where clinical guidelines are used simply as a recipe for healthcare delivery without due consideration for the individual patient (Pearson et al, 2007). Any practice failing to consider the preferences of the individual patient is not evidence-based, so a partnership approach is needed which takes into account patient autonomy, choice and preference to be expressed (van Hooren et al, 2002).

Step 6: Implementing EPB
For implementation to occur, aspects such as written policy, procedures and guidelines that are evidence-based need to be considered (LoBiondo-Wood and Haber, 2006). There needs to be a direct interaction between the direct care providers, the organization, and its leadership roles (eg. nurse managers) to support these changes (Retsas, 2000; Nagy et al. 2001; Berwick 2003; LoBiondo-Wood and Haber, 2006). The evidence also needs to be diffused and should focus on its strengths and perceived benefits (Berwick, 2003; Rogers, 2003), including the manner in which it is

communicated (Rogers, 1995; Titler and Everelt, 2001). This can be achieved through in-service education, audit and feedback provided by team members (Jamtvedt et al, 2004; Titler, 2004). Social and organizational factors can affect implementation and there needs to be support and value placed on the integration of evidence into practice and the application of research findings (Gagan and Hewitt-Taylor, 2004; Pearson et al, 2007).

Step 7: Evaluation
Evaluation is essential to seeing the value and contribution of the evidence into practice. A baseline of the data before implementation would benefit, as it would show how the evidence has contributed to patient care. Audit and feedback through the process of implementation should be conducted (Thomson O Brien et al, 2003; Jamtvedt et al, 2004) and success will not be achieved without support from frontline leaders and the organization (Baggs and Mick, 2000; Carr and Schott, 2002; Stetler, 2003). Evaluation will highlight the programme's impact but its consistency can only be assessed against an actual change occurring and having the desired effect (Pearson et al, 2007). For any change to take place, barriers that could hinder its progress need to be identified. Information and skill deficit are common barriers to evidence-based practice. A lack of knowledge regarding the indications and contraindications, current recommendations, and guidelines or results of research, has the potential to cause nurses to feel they do not have sufficient training, skill or expertise to implement the change (Pearson et al, 2007). Lack of awareness of evidence will inhibit its translation into practice (Scullion, 2002). A useful method for identifying perceived barriers is the use of a force field analysis conducted by the team leader. Impact evaluation, which relates to the immediate effect of the intervention, should be carried out (Naidoo and Wills, 2002). However, some benefits may only become apparent after a considerable period of time. This is known as the sleep effect. On the contrary, the back-sliding effect could also occur where the intervention has a more or less immediate effect, which decreases over time. If we evaluate too late, we will miss measuring the immediate impact. Even if we do observe the early effect, we cannot assume it will last (Green, 1977; Nutbeam, 1998). Therefore, evaluation should be carried out at different periods during and following the intervention.

Conclusion
The effectiveness of clinical care and treatment is central to the quality of health care (Thompson, 2000) and providing a high quality care based on best practice is the responsibility of nurses. In many clinical settings, nurses are under increased time pressure and evidence-based practice may fail, having a low priority among competing duties (Lawrie et al, 2000; Bhandari et al, 2003; Frost et al, 2003; Thomas et al, 2003). Quality improvement is often seen as an additional task to an already busy workload (Long, 2003). However, it may be that nurses perceive activity to be a more worthy use of time than seeking evidence upon which to act (Gagan and Hewitt-Taylor, 2004). For evidence-based practice to be implemented, this value system and the norms that lead to it need to be addressed as a priority, and this is the responsibility of each practitioner in any given situation (Gagan and Hewitt-Taylor, 2004). As the largest group providing care to patients and having the most contact with them, nurses have the opportunity to influence the course of their illness and recovery. If care is not evidence-based, the potential of harm increases (Newell and Burnard, 2006). Therefore, nurses must actively engage in reading, critiquing and grading the evidence to continually challenge the practice.

Key points

- Nurses need to continuously update their knowledge and act from an evidence-based approach rather than working solely from practice wisdom.
- There is a constant challenge for nurses in the practice setting to provide measurable care and outcomes of the highest standard in an evidence-based manner.
- Evaluation of evidence and development of evidence-based practice will empower nurses.
- Collective work and the use of tools such as the IOWA model can assist nurses with EBP.

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