A Model for Applying Evidence to Nursing Practice

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Abstract

All clinicians who wish to apply evidence to practice should consider how to do so most effectively and how to incorporate patient preferences into their decision-making. Because nursing practice is commonly embedded in institutional settings, nurses who wish to apply evidence must also consider the relevant institutional resources and constraints. This article describes a five step process for applying evidence to nursing practice and a three step process for evaluating the results of that application.

Keywords: application, evidence-based practice, evaluation

J Nurs Sci. 2012;30(2):7-11

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The goal of evidence-based practice is effective and efficient care. Once we, as nurses, have determined that the potential risks and benefits justify applying some piece of evidence to the care of our patients, we need a plan. How shall we translate the findings of this research into our clinical practice?

This question has unique aspects for nurses. Evidence-based practice evolved in the context of medical resident education[1]. Physicians are traditionally prepared as independent practitioners with primary responsibility for the diagnosis and management of disease in their patients. Nursing practice is both more holistic and more interdependent. Advanced practice nurses may have encounters with patients that are very similar to the medical model. Generalist nurses typically practice in settings where some portion of their clinical activities is prescribed by institutional policy. Therefore, the nursing model for applying evidence to practice must incorporate institutional considerations, as well as patient preferences, into clinical decision-making. This goal can be accomplished by considering five questions about the proposed application of evidence to practice.

How Will I Apply This Evidence to My Practice?

1. What specific actions will I take to apply this evidence to my practice?

Therapy evidence can be applied in many ways. One treatment or procedure can be replaced by another that is more effective or efficient. Some action can be added to the care plan to improve outcomes, or an action that is shown to be ineffective can be modified or abandoned. Evidence-based therapeutic actions can be applied directly to the patient or to the patient's physical or social environment. The content of teaching interventions can be revised. For example, we change our guidance to parents about their children's immunizations when new vaccines are shown to be effective[2-3].

Evidence about harm / etiology questions can be applied in the same ways as therapy evidence. When the source of harm is something under our control, specific actions can be taken to reduce or prevent bad outcomes. For example, we can cluster night-time interventions for hospitalized patients to reduce the harms associated with interruptions of their sleep[4].

Some sources of harm, often described as risk factors, cannot be controlled. Examples include having a strong family history of heart disease or a disease-linked gene like BRCA1. When the source of harm cannot be changed, application of evidence often involves enhanced screening of persons with those risk factors to allow earlier treatment, actions to strengthen protective factors, or strategies to improve coping.

Evidence about prognosis questions can be applied in ways similar to evidence about risk factors. Evidence about prognosis is also frequently incorporated into the content of teaching and counseling interventions.

Evidence about diagnosis questions is commonly applied to nursing assessment strategies. For example, if we are going to screen elderly patients for the risk of falls, we want to know whether a proposed screening tool effectively identifies those patients in need of additional preventive attention[5]. If we are measuring blood pressure in small children, we want to use equipment and techniques that provide accurate values[6].

Evidence about human response / meaning questions, when applied, typically allows us to provide more empathetic, culturally competent and individualized care to our patients[7]. Because we apply this evidence to the ways we understand and relate to our patients, the specific actions we take are more likely to be under our own control and less likely to be institution-prescribed nursing procedures. Like prognosis evidence, evidence about human responses and meaning can be incorporated into teaching and counseling interventions.

2. What specific actions will I take to reduce any potential harms of applying this evidence to my practice?

Most actions have more than one effect. When we decide to apply evidence to practice, we have decided that the risks of doing so are justified by the likely benefits. This question asks us to consider whether we can reduce those risks while maintaining the benefits. Subgroup analyses in therapy evidence may suggest patient characteristics that predict less benefit or more side effects from some intervention. If so, we need to identify those characteristics in our patients and reconsider the risks of applying the evidence to their care. For example, we may suggest

low-dose aspirin for stroke prevention to older women, but not to those under 65 with low scores on cardiac risk factors[8].

In addition to screening patients for less predicted benefit or increased risks from our interventions, we need to consider additional actions that will reduce the risks of evidence application for all patients. For example, when we suggest patients apply a moisturizing lotion to their feet, we also need to recommend that they sit down to do so, to avoid slips and falls. When we encourage mothers to put their babies down for sleep on their backs to reduce the risk of sudden death[9], we also need to recommend "tummy time" during waking hours for muscle development.

A potential harm of applying human response / meaning evidence is assuming that what is true for some is necessarily true for your patient. The remedy is to check your interpretation with your patient. For example, we can ask the parent of a disabled preschooler, "Some parents feel a sense of relief when they finally have a diagnosis for their child's problems[10]. How is that for you?"

3. What changes will applying this evidence make in my current practice?

As nurses, we strive for accountable, reflective practice. This question asks us to consider both our current practice activities and the objectives we aim to achieve for each patient. Will applying the evidence change the amount of time we spend with our patients or the use of that time? Will other care activities need to be rearranged or modified to accommodate evidence-based interventions? Will the new activity address all the same goals as the one it replaces? Will we need to collaborate more closely with our fellow nurses or other caregivers to achieve the outcomes we desire?

Beyond such procedural questions, we need to consider what impact the evidence will have on the performance of our nursing role. Will it enhance our understanding of our patients or ourselves? Does the new evidence challenge our current beliefs about what constitutes effective care? Will applying the new evidence allow us to consider goals we had not previously thought possible, in terms of patient outcomes or interpersonal relationships?

4. What institutional changes and/or supports are needed to allow me to apply this evidence to my practice?

All health care providers practice within some established standards of care. For generalist nurses, these standards are expressed in particular detail as institutional policies and procedures. When we propose applying evidence to our practice within institutions, we must be aware of the institutional policies that guide current practice and the institutional resources necessary to support a change. Ideally, institutional procedures and policies are evidence-based and there is a clear mechanism for reconsidering them as additional evidence becomes available. In this case, the application of new evidence to practice involves identifying the current policies in need of change and activating the mechanism to review them.

The question of institutional support for practice change goes beyond the process of policy and procedure change. Will the application of the evidence require new or additional equipment? Changes in staffing? Changes in space utilization? Staff education to acquire new skills? Institutions are justifiably sensitive to the efficiency and costs of care, as well as the effectiveness.

If current institutional policies and procedures are tradition- or opinion-based, applying evidence contrary to those policies is a political and leadership challenge. The strategies for managing and maintaining change are beyond the scope of this article. When students or new graduates encounter this situation, however, I make the following suggestions as a starting point:

- Assume that the institution and its staff are committed to the best possible care of their patients.
- Identify the persons in a position to advocate effectively for policy change.
- Ask those persons to read and discuss the evidence with you, to help you understand why it has not or should not be applied in this setting.
- If you wish to convince others, you must be open to others convincing you.

5. How will I incorporate my patient's values in the application of this evidence?

Although this is the final question to be answered in the application model, it could just as easily be the

first. Patient values influence the definition of desirable outcomes and the acceptability of means for achieving those outcomes[11]. When those values are known and incorporated early in the process of clinical decision making, the application plan may still need minor modifications to accommodate patient preference. These modifications would usually be described as efforts to individualize care within institutional guidelines.

When previously unrecognized values conflicts arise, the entire plan of evidence application may need to be revised or even abandoned. In these situations, it is especially important to understand the patient and/or family's perspective in order to negotiate the most effective and efficient plan of care that is acceptable to all involved.

How Will I Evaluate My Application of Evidence to Practice?

No application of evidence to practice is complete without an evaluation. Once we have changed our practice in some evidence-based way, how will we know that the change is having the desired effect? The evidence-based practice paradigm encourages a liberal attitude toward generalizability of evidence: evidence should be applied to patients who are similar, but not necessarily identical, to the patients from whom the evidence was derived unless there is a "compelling" reason not to do so[1]. Even the most effective evidence-supported actions do not benefit every single patient who receives them. There are no guarantees. We cannot simply assume that our practice change is accomplishing what was intended. That is why the plan for applying evidence to practice must contain a plan to look at the results.

What specific outcomes will I monitor to evaluate my application of evidence to my practice?

Evidence-based changes to practice are typically generated by a clinical question. Properly formed clinical questions, i.e. those that support the search for evidence, specify the outcomes of interest[12]. So at the end of the process of answering the clinical question by applying evidence to practice, we return to those outcomes. What are we trying to accomplish? What are the markers for that accomplishment? How will I measure those markers?

Measuring the effects of a change in practice – whether or not that change is explicitly evidence-based – is a matter of practice accountability, not necessarily a research project. The most efficient measures of outcomes are those that are already being collected for clinical or institutional management purposes. What information identified the existence of a clinical problem in the first place? What changes in that information would you expect if the practice change is an effective solution?

What is the time frame for monitoring those outcomes?

Another way of asking this question would be, "How long before I know whether my practice change works?" Nursing practice addresses both short-term and long-term goals. If we apply therapies to reduce acute pain, we know within minutes whether those therapies have been effective. If we encourage a heart-healthy lifestyle in young adults, we are trying to prevent disability onset twenty years in the future. Twenty years is a long time to wait for answers about practice effectiveness.

When the time frame for monitoring an outcome is long, it is not realistic to expect an individual nurse or even a single institution to perform that monitoring. In this circumstance, practice accountability would consist of monitoring proxy measures, i.e. near-term outcomes that are related to the desired goal. To assess the effects of a heart-healthy lifestyle intervention, for example, we could measure reported changes in diet and exercise, or even intentions to change, for the young adults who took part.

What are the barriers to conducting an adequate evaluation of my practice change?

Outcomes with a long time frame are not the only challenges to evaluating evidence application. Any outcome that cannot be observed in the setting where the evidence is applied is a potential barrier to evaluation. Nurses on an inpatient psychiatric unit, for example, may provide medication compliance therapy[13] to patients in anticipation of their discharge. If those patients receive their follow-up care from different outpatient clinics and/or do not keep their outpatient appointments, information on their medication compliance at even 30 days post-discharge may not be available to the inpatient nurses. When all patient care is provided within a single system, a system-wide evaluation may be possible.

When outcomes are relatively rare– for example sudden infant death[9] – a single nurse or institution may not be able to collect sufficient data to determine whether their care has had any significant impact on the rate of occurrence. In this circumstance, evaluation can only be conducted as a public health activity at the regional, national or international level.

Thus, the question about barriers to evaluation is an invitation to consider at what level evaluation can be conducted most effectively and efficiently. Often, this mirrors the level at which the evidence was applied to practice. We are individually responsible for evaluation when we apply evidence to the independent aspects of our practice. Institutional application calls for institutional evaluation. Widespread application requires a broad – and often interdisciplinary -- evaluation effort. Whatever the scale of the evaluation plan, nurses who value evidence-based practice will be vitally interested in the results.

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