

Demystifying Evidence-based Practice: Tips for Diabetes Educators

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Have you ever observed the different approaches used by diabetes educators and wondered which are most effective – say, for example, what are the best ways of providing group education? Have you wondered if written handouts are less or more effective than electronic ones? Do you consider yourself a supporter of evidence-based practice but know there are times when your own practice is not evidence-based?

If you answered “yes” to any of these questions, the ideas and suggestions that follow may serve as a primer to get you started and build your confidence for evidence-based/informed practice.

What is evidence-based practice?

Evidence-based practice (EBP) refers to a process directed at minimizing patient risk, eliminating unsafe or unnecessary practices, and achieving the best outcomes. The term was coined by Sackett and colleagues (1), and has become a central construct in healthcare in just over 10 years. But how does EBP integrate into “real” diabetes care and practices?

Melnik and Fineout-Overholt (2) provide one definition of EBP that is relevant to diabetes education and care, in which they explicitly acknowledge the importance of considering various types of research evidence, as well as additional contextual information. They define EBP as “a problem-solving approach to clinical practice that incorporates the best evidence from well-designed studies, patient values and preferences and a clinician’s expertise in making decisions about patient care” (2). Because of this decision-making focus, some authors use the term “evidence-informed practice” (EIP) (3,4). Melnik (5) notes that “there is no magic bullet to determine how to weigh evidence” as well as client, family and professional practice factors when making decisions about patient care.

Diabetes educators, like other healthcare professionals, must thoughtfully consider the best evidence available, and place it within the context of patient preferences, resources

and clinical experience when making decisions about how to provide appropriate, effective and safe education and care. As part of the process of EIP, clinicians also need to evaluate any changes they make in the way things are done, which in turn contributes to the body of evidence that can be used by all to guide future decisions and actions.

What is evidence?

The question of what constitutes evidence has been debated and is important to consider. A growing number of academic leaders and practitioners support the inclusion of clinical observation and expert opinion as valid forms of evidence that can play a vital role in information decisions. For this reason, the term EIP may be more user-friendly and is used in this article. Thorne and Sawatzky (6) suggest that the inclusion of clinical wisdom as a form of evidence is a slippery slope, and caution us not to confuse the two. Implicit in this message, which in no way minimizes the importance of “non-scientific” ways of knowing something, is the idea that practice is not evidence based unless it is supported with systematic research.

Regardless of the position taken on what constitutes evidence, the importance of the application of research findings to best possible practice is well accepted. Several publications provide rating systems or hierarchies for different levels of evidence. The Canadian Diabetes Association (CDA) Clinical Practice Guidelines (CPGs), for example, include a clear hierarchy used by reviewers and authors to rank evidence and formulate clinical practice recommendations (7). These and other published rating systems can be used by diabetes educators when reviewing evidence and making decisions about whether it is appropriate to incorporate findings into practice.

Several authors address hierarchies of evidence as useful tools evaluating the strength of evidence (8). The strongest evidence comes from meta-analyses and synthesis of randomized controlled trials (RCT), which are considered the highest or strongest level

of evidence. As one moves down the levels of evidence as shown in Table 1, evidence is said to be weaker, and therefore needs to be considered more cautiously and in relation to other available evidence. Table 1 includes qualitative studies and clinical observations, which are important to consider in multidisciplinary, human-based diabetes care (2). When reviewing the list, it is helpful to keep in mind that EIP generally involves using evidence from several sources of information (i.e. a body of knowledge) although, depending on their rigour, single studies may also be used to support practice change.

Steps for EIP

The CPGs are one example of a valuable and efficient source of evidence-based information for clinical decision-making, although the emphasis has primarily been on clinical management issues. The interdisciplinary nature of diabetes education requires a broad base of evidence to inform practice and answer many questions that arise in care. Educators can look forward to a chapter on self-management education in the 2008 version of the CPGs, and can use the following steps in the continual development of their own evidence-informed practice.

Table 2 summarizes several steps in EIP. These steps serve as a practical framework that condenses a relatively complex process in a manner that can be used by individuals, groups and organizations that are interested in improving their education programs and outcomes by asking and answering questions.

Although the process of EIP may appear to be linear, it is really quite iterative, with one step informing another and going on simultaneously. Step 1 provides an important basis for all subsequent steps. Beginning with a well-constructed practice question can make a literature search more efficient and rewarding. Questions should be clear and precise from the outset, though we often struggle with this and discover only after reviewing some literature that the initial question was not the one we really needed answered. Conversely, in the absence of a clear and answerable question, it is easy to lose one’s focus.

Table 1. Levels of evidence (Adapted from references 2 and 3)

- Systematic reviews or meta-analyses (e.g. evidence-based clinical practice guidelines)
- At least one well-designed, randomized controlled trial
- Well-designed, non-randomized controlled trials
- Cohort and case-control studies
- Systematic reviews of descriptive and qualitative studies
- Single descriptive or qualitative study
- Expert opinion

Table 2. Steps in evidence-informed practice

1. Formulate a meaningful, answerable practice question/issue/problem.
2. Conduct an efficient literature search.
3. Critically appraise the evidence.
4. Apply the results in healthcare decisions.
5. Evaluate the outcome.

“PICO” is an approach to formulating practice questions (2,9). It identifies 4 key elements to help ensure that questions are phrased in ways that are directly relevant to patients’ problems and specific enough to elicit relevant and precise answers (9). Using PICO reminds educators and clinicians to include a brief, precise description of:

1. **Patient/population/problem** (e.g. adolescents with type 2 diabetes)
2. **Intervention(s) or interest** (e.g. computer-assisted diabetes education)
3. **Comparison interventions** (if necessary) (e.g. didactic instruction) or status
4. **Outcomes of interest** (e.g. diabetes knowledge and self-efficacy)

Here are 2 examples of questions that use all elements of PICO:

1. For adolescents with type 2 diabetes, how effective is computer-assisted diabetes education in improving knowledge and self-efficacy when compared with didactic instruction?
2. For parents of children with diabetes, what types of education or support help to decrease fear of hypoglycemia?

The PICO structure was used to formulate questions and search the literature for the 2008 CPGs and can be a useful tool for educators. However, not all inquiry in diabetes education and counselling involves interventions and examination of outcomes; some very important questions are exploratory in nature and seek to better understand the experiences and perspectives of our clients and their families. These questions may be written without a PICO structure, while still specifying the patient population or problem of interest in sufficient detail to direct an efficient literature search. Questions of this nature will tap into an enlightening body of both qualitative and

quantitative research.

When doing a literature search, a key challenge is “being able to quickly select and evaluate just what is needed from numerous sources, databases and websites” (10). As educators dealing with people’s experiences in learning and living with diabetes, it is necessary to consider evidence from both quantitative and qualitative inquiries. When appraising reports of studies that employed various methods, it is helpful to have an understanding of some commonly used terminology. A basic research text, a key website on EIP, or a glossary of terms can be quick and helpful resources for reviewing studies and assessing their quality.

Although it has been suggested that “the assumptions underlying evidence-based medicine are a poor fit for qualitative inquiry” (11), it is important not to lose sight of the value of qualitative research. While clinicians in diabetes care are fortunate to be able to base many practice recommendations on the results of strong RCTs such as the Diabetes Control and Complications Trial (12), qualitative research can also provide important new insight relevant to diabetes education and psychosocial care. As Morse states, classic quantitative inquiry in healthcare is more likely to “focus on a pill and how it works,” whereas qualitative inquiry is more likely to ask why patients may decide to take, refuse or modify the use of a pill – or how a pill may affect their quality of life (11).

Today, most descriptions of evidence include findings from both quantitative and qualitative studies, although qualitative studies are placed lower in the hierarchy. This raises an important question: if one reviews the literature on a problem or question of interest and finds the strength of published evidence to be a “lower level,” can it be used? The answer to this could be, “Well, that depends;” however, it is often “Yes.” Qualitative research has its own rigour and can be used to deepen professional understanding of the experiences of clients and their circumstances. There is great value in research that can be used to expand or advance thinking. When apprais-

ing the literature, it is helpful to remember that research findings can be used practically or conceptually, and that almost all research serves as a springboard for further inquiry.

Several publications and websites are available to help identify, locate and/or rate evidence. While each resource has its own strengths and some are more focused on diabetes than others, the following list provides online resources of use:

- National Guideline Clearing House: www.guideline.gov
- The Cochrane Library: www.thecochranelibrary.com
- Health Evidence: <http://health-evidence.ca>
- Evidence Based Nursing Online: <http://ebn.bmjournals.com>. (Note: There is a fee to access information on this site.)
- PubMed: <http://pubmed.gov>
- McMaster Online Rating of Evidence (MORE): <http://hiru.mcmaster.ca/more/AboutMOREebn.htm>
- The College of Nurses of Ontario and the Registered Nurses Association of Ontario (RNAO): www.cno.org/prac/rnaobpps.htm (This site includes several Best Practice resources that are relevant to diabetes.)

If you are looking for a brief, practical guide to reading research, you may wish to read Davies and Logan’s *Reading Research: A User-Friendly Guide for Nurses and Other Health Professionals* (13). The authors provide advice and worksheets to help readers review research publications.

Many resources are available to help educators and clinicians negotiate the world of evidence and make decisions about using evidence in practice. Once a decision is made to use published research to improve practice, and a plan is made for implementing change, it is equally important to evaluate the outcomes of our efforts. This brings the building of solid, scientifically based care “full circle.”

The challenge

As diabetes educators and clinicians, there is no time like the present to strengthen and share evidence on which to base our practice. So we close with a challenge to readers. We invite you to identify a compelling question that you have about diabetes education or clinical practice. Use the PICO model or an alternative question format to narrow down and specify your area of interest: a good question is the beginning and essence of EIP. Share your question

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Research Frontier

Research Ethics and the Diabetes Educator

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Diabetes educators are heavy users of research results and are accustomed to being translators of knowledge generated by researchers. But the involvement of diabetes educators in research is not limited to that of knowledge broker: they are increasingly called upon to contribute to the research process itself.

The researchee

Sometimes you are the one being researched – you might be asked to complete a survey or answer questions posed by an interviewer. In these cases, you should be informed about the study purpose, how research results will be used and how your identity will be protected.

The recruiter

Other times, you might be asked by researchers to post a flyer on the clinic notice board to recruit your clients to participate in a research project. This seemingly innocuous act may have legal and ethical implications (1). As you may already know, the use of patient health information is protected by legislation nationally, and by most provinces and territories across Canada. It is thus important that you be aware of the requirements for the legal conduct of research in healthcare settings in your province. Furthermore, when you agree to recruit in your clinic, this might be viewed by patients as your endorsement of the project (1). In these instances, it is important to verify that appropriate ethical clearance has been granted by a recognized research review board to ensure that ethical principles are respected. These principles are: requirement for informed consent, respect for vulnerable persons, respect for confidentiality, respect for justice and inclusiveness, balancing harms and benefits, minimizing harm and maximizing benefit (2).

The researcher

Finally, you might be involved in a project as a researcher or co-researcher. The Canadian Diabetes Association has compiled a manual (3) to guide novices through the basics of conducting practice-based research. In this

manual, researchers are encouraged to seek a review of their research protocols by a research ethics board (REB) or human subjects committee before proceeding with their project. Most hospitals have such a board and many diabetes educators have access to academic or community review boards that can fulfill this requirement. Most REBs in Canada follow guidelines set out by the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2).

Too often, the ethics review process is perceived by researchers as superfluous, or as a hurdle that must be traversed. Although the preparation of an ethics submission does constitute an additional step in the research process, the advantages to undergoing this type of project review are not to be underestimated. Taking the time to articulate your protocol, and to draft recruitment advertisements and participant letters of information and consent for ethics review, can provide an opportunity to clarify and enhance your methods and procedures. Obtaining the approval of your REB can also safeguard you against legal and ethical mistakes, and provide you with support in the event that others challenge any of your research actions.

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with other educators by submitting it to *The Diabetes Communicator*. All questions received will be considered for publication in an upcoming issue and one questioner will receive a copy of Davies and Logan's *Reading Research: A User-Friendly Guide for Nurses and Other Health Professionals*. So seize this opportunity to get some "practice" with the first step of Evidence-Informed Practice!

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