Quality, Patient Safety and the Implementation of Best Evidence: Provinces in the Country of Knowledge Translation

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Long a world model, Canada's healthcare system faces many challenges to ensure its sustainability. Research evidence, generated at an exponential rate, is not readily available to clinicians. When available, it is often infrequently or incorrectly applied in clinical practice (Davenport and Glaser 2002; Covell et al. 1985; Ramos et al. 2003). This failure of rapid evidence adoption leads to sizable gaps between high-quality evidence and practice, significant practice variation, and in many cases lapses in patient safety (Chassin and Galvin 1998; Buchan 2004). This gap is deleterious to the health of Canadians, increasing morbidity and mortality and generating serious and detrimental cost implication (Olson et al. 2001; Villar et al. 2001; Boissel et al. 2004; Tsuyuki et al. 2005).

This finding, that providing evidence from research or from quality assessments is a necessary but not sufficient condition for the provision of care, has created the field of *knowledge translation,* the scientific study of the methods for closing the knowledge-to-practice gap and the analysis of barriers and facilitators inherent in the process. As defined by the Cambridge Conference, KT is "the iterative, timely and effective process of integrating best evidence into the routine practices of patients, practitioners, health care teams and systems, in order to effect optimal health care outcomes and to maximize the potential of the health care system" (11th Cambridge Conference 2003). For our purposes, KT is intended to subsume issues of patient safety, continuing education and guideline implementation, in order to achieve, in the words of CIHR, the "optimization of health care and health care systems" (CIHR 2005); they are, in this view, "provinces in the country of KT." Patient safety and quality improvement provide compelling examples of both process (how to improve care) and content innovation (what to do to improve it).

The significant gap in care and the quest for patient safety and in the Canadian context call for a programmatic *approach* to the testing and implementation of evidence-based health knowledge translation strategies.

A FRAMEWORK FOR ACTION BUT WHAT APPROACH?

Although the concept of the "gap" (between best and current practice) is easily grasped, frameworks for action to close it come to mind less readily. Any effective KT framework requires not only the "big picture" environmental or organizational view, but also the highly important microperspective of the individual. In this issue of the *Journal,* Flemons and his colleagues focus on an organizational view of patient safety; this essay, in contrast, focuses on the view from the perspective of the patient and the healthcare provider (Flemons et al. 2005).

KT can lay claim to many theoretical frameworks. Among these, one most tested is that of Lomas, whose research implementation model is widely known and utilized (Lomas et al.

1993). He describes a multidimensional world in which many external factors (for example, the administrative, community and economic environment), education, the practitioner and patient all play a role, clearly important elements in getting practitioners to use best evidence. In this model, however, the dissemination and adoption of new information (such as that related to patient safety methods) is assumed to be linear, resulting in optimal care. We know this is not the case.

Perhaps a more useful, flexible and interactive model is that proposed by Kitson and her nursing colleagues (1998). They describe *interactive variables* in the understanding of the adoption of evidence: the evidence or information; the manner of facilitation (that is, of communicating the information to the clinician), and the context in which these occur. My colleagues' work in the *Knowledge Translation Program* at the University of Toronto provides many examples of each of these (www.ktp.utoronto.ca): the evidence (about best practices) (Jackson 2005); contextual or environmental considerations (the long term or primary care settings) (JCEHP 2005); and facilitation or communication (dissemination methods such as print materials, web-based education, PDA-assisted information) (Flemons et al. 2005; Jackson 2005). Other examples from the perspective of patient safety also exist: the evidence or information (the format and content of patient safety or critical incident reports, for example), the method of dissemination (for example, computer-delivered or discussion in QI sessions) and the context in which they occur (for example, the regulations or culture of a healthcare setting). Where the factors in all or some of these three domains lend themselves to the acquisition of new evidence, Kitson states that adoption is more readily observed.

Clearly, thinking about variables is a step forward. Something is missing, however – an understanding of the clinician and his/her journey in practice, and for that matter, the patient, all citizens in the country of KT.

FOCUSING ON THE HEALTH PRACTITIONER (AND PATIENT) IN PATIENT SAFETY

So here we have a dilemma. On the one hand, adult educators consider the learning and change process on the part of healthcare practitioners and patients to be a subject of great importance (Knowles et al. 1998; Brookfield 1986; Houle 1984; Houle 1984; Knowles 1998; Tough 1979). On the other hand, QI specialists, guideline implementers, health system engineers and analysts and organizational learning scholars hold that macro, contextual or environmental views of KT as key to implementation success (Argyris and Schon 1978a; Dodgson 1993). Marck's article in this issue of the *Journal*, "Thinking Like a System," is a case in point.

To resolve the dilemma, let's look at the educational perspective. Here exist an array of useful ideas about adult learning and education, based mostly on the work of Knowles and others (Knowles et al. 1998; Brookfield 1986; Houle 1984; Houle 1984; Knowles 1998; Tough 1979). They promote a belief in the following success factors in effective education: that any educational content must be of relevance to the practitioner (not necessarily the teacher); that the learners must be able to interact with materials, teachers and others; and that teaching be supportive and respectful of, and sensitive to the needs of the learner (Knowles et al. 1998). Several other educationists describe the stages of change in an individual. Among the most useful is Prochaska's transtheoretical model, derived from the health promotion literature: here, practitioners move from precontemplation about an issue or need for change through contemplation and preparation for action to action itself, and finally to solidification of the action on a regular basis (Prochaska and Velicer 1997). This model is useful in understanding where clinicians (and for that matter, patients) are in this continuum, so that we can tailor-make educational strategies to suit each stage, and encourage change agents to determine the state of and readiness for change (Davis et al. 2003). There are similar stages of change proposed by others (Geertsma et al. 1982; Pathman et al. 1996; Grol and Jones 2000), but, no matter whose theory is described, it's relatively easy to see how practitioners can move along this continuum. Think about patient safety, for example.

The Change Study of Fox, Mazmanian and Putnam (1989) is another study that helps us think about QI or patient safety aspects of knowledge translation. Following in-depth qualitative interviews with over 300 North American physicians, Fox and his colleagues determined a several-step process of change: first, physicians (and one could easily suppose other health professionals), become aware of a need for change from intrapersonal forces (for example, the desire for increased competence or improved quality in a specific area), interpersonal issues (for example, input from team members or patients regarding a patient safety issue) or external forces (such as regulatory changes, utilization review and other information); second, they envisage what that change would look like (for example, improved physician-patient communication, better teamwork, fail-safe mechanisms); and third, they undertake (often) several steps to accomplish the change (consulting with colleagues, attending educational sessions, embarking on a QI process, et cetera). Derived from adult learning theory and studies of continuing medical education, the benefits of this model are obvious to the field of KT.

But how to put these models — and the idea of the learner-clinician — to work for us?

NEXT STEPS IN SOLVING THE KT PUZZLE

First, where we add the learner-clinicians' perspective into the mix of KT and patient safety issues, we need to create a curriculum. We are fortunate that the IOM's call to action, *Crossing*

the Quality Chasm (Institute of Medicine 2001) and its health professional education response possess several clear goals and recommendations in this area: increased training for health professionals to work as teams; teaching skills in informatics; recognizing and dealing with the overabundance of information and evidence; and increasing the attention to improvement in quality (Horak et al. 2004; Katon 2003; Berwick 2002; Bates 2002; Fernandopulle et al. 2003; Grol et al. 1999; Grimshaw et al. 2004).

Second, we must embed these curricular strategies in a cohesive and testable framework. What works? What doesn't work? Why? This process calls for action at the individual and the organizational level. Grol outlines educational tools (feedback and audit, opinion leaders, educational interventions, et cetera) to effect change and also calls for large-scale organizational changes by which this can happen (Grol et al. 1999). This seems a simple solution at the 20,000 feet level, but has some inherent problems — for example, the minute effect size of any intervention when considered by itself (Grimshaw et al. 2004); and the consideration that all evidence/information is the same, the lack of overall organizational change, to name a few. There are more robust frameworks to assist us in understanding clinical performance change and patient safety; we must find, create and test them.

Third and finally, it is apparent that this view, as comprehensive as it is, is still only a part of the story. Issues such as those in patient safety require an understanding of both perspectives, the micro and the macro, in order to be fully understood and ultimately optimized. However, they also require us to embrace an understanding of the patient in this area — also citizens of, and potent effector arms in, the "country" of KT.

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