Focus

What is Knowledge Translation?

The term *knowledge translation* (KT) is increasing in importance and use in the fields of public health, medicine, and rehabilitation research (Brandt & Pope, 1997; CIHR, 2004; Davis et al., 2003; Glasgow, Lichtenstein, & Marcus, 2003; Jacobson, Butterill, & Goering, 2003; Tingus, Berland, Myklebust, & Sherwood, 2004). KT is a relatively new term that is used to describe a relatively old problem— the underutilization of evidence-based research in systems of care. Underutilization of evidence-based research is often described as a gap between "what is known" and "what is currently done" in practice settings (Davis et al., 2003; Grol, 2000; Grol & Grimshaw, 2003). KT has also emerged as an important concept for the National Institute on Disability and Rehabilitation Research (NIDRR). NIDRR has remarked that KT plays an important role in enhancing the lives of individuals with disabilities, as science-based knowledge, technologies, and applications must be translated in order to inform disability and rehabilitation policy and improve practice (Tingus et al., 2004).

Knowledge translation involves more than distribution of practical scientific information and reliance on academic publication as a primary mechanism for disseminating results.

How is Knowledge Translation Defined?

The term *knowledge translation* most readily appears in medical and health-care literature and primarily pertains to the assessment, review, and utilization of scientific research. One of the most well-known references for KT hails from the Canadian Institutes for Health Research (CIHR). CIHR defines KT as

> the exchange, synthesis, and ethically-sound application of knowledge—within a complex set of interactions among researchers and users—to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products, and a strengthened health care system (CIHR, 2004).

For the CIHR, the primary purpose of KT is to address the gap between the large volume of research data and its systematic review and implementation by key stakeholders (Ohlsson, 2002). In Canada and the United Kingdom, where the term KT is commonly used, researchers have focused their attention on KT as both a process and a strategy that can lead to utilization of research findings and improved outcomes for consumers, students, and patients (CIHR, 2004; Dobbins, Ciliska, Cockerill, Barnsley, & Di, 2002; Landry, Lamari, & Amara, 2003; Nutley, Walter, & Davies, 2003). While the term *KT* may appear similar to *dissemination or diffusion*, it can be differentiated by its emphasis on the quality of research prior to dissemination and implementation of research evidence within a system. Unlike simple dissemination activities (e.g., distributing user friendly information, developing research briefs, etc.), KT requires coordination and process improvement amongst a complex system to influence behavior change and patient outcomes (Davis et al., 2003). Furthermore, it differs from the traditional diffusion process because KT is primarily an active and manipulated process that involves "all steps between the creation of new knowledge and its application and use to yield beneficial outcomes for society" (CIHR, 2004, p. 4).

In an effort to advance KT, several academic programs and international organizations have established centers that conduct KT-related research, development, and dissemination activities, including the following:

- Agency for Healthcare Research and Quality (AHRQ) Translating Research Into Practice (TRIP) Program: An initiative focusing on implementation techniques and factors associated with successfully translating research findings into diverse applied settings (http://www.ahrq.gov/research/trip2fac.htm)
- Campbell Collaboration (C2): An international organization that conducts systematic reviews of education, social welfare, and social science research (http://www.campbellcollaboration.org)
- Canadian Institute for Health Research (CIHR): The major federal agency responsible for funding health research in Canada that has established charges for KT research, development, and dissemination (http://www.cihr-irsc.gc.ca/e/8505.html)

- Cochrane Collaboration: An international organization that conducts systematic reviews of health and medical research (http://www.cochrane.org)
- Knowledge Translation Program (KTP) at the University of Toronto, Canada: A multidisciplinary academic program developed to address the gap between research evidence and clinical practice and the need to focus on the processes through which knowledge is effectively translated into changed practices (http://www.ktp.utoronto.ca/aboutTheKTP/mission/)
- Knowledge Utilization Studies Program at the University of Alberta, Canada: A health research program focusing on nursing, the social sciences, and research utilization in the nursing profession (http://www.nursing.ualberta.ca/kusp/)
- National Health Service (NHS) Centre for Reviews and Dissemination at the University of York: An organization that conducts systematic reviews of research and disseminates research-based information about the effects of interventions used in health and social care in the United Kingdom (http://www.york.ac.uk/inst/crd/welcome.htm)

- What Works Clearinghouse (WWC): A clearinghouse established by the U.S. Department of Education's (ED's) Institute of Education Sciences to provide educators, policymakers, and the public with a central, independent, and trusted source of scientific evidence of what works in education (http://w-w-c.org)

What is the KT Planning Process?

There are planning models that self-identify as KT approaches (CIHR, 2004; Jacobson et al., 2003) and several more that are frequently cited in reference to KT, such as the Ottawa Model of Research Use (Logan & Graham, 1998) or the Lavis framework (Lavis, Robertson, Woodside, Mcleod, & Abelson, 2003). In addition, numerous authors, particularly in medical and health-care literature, have described the KT process as consisting of multiple stages designed to identify research gaps and plan for evidence-based implementation (Backer, 2000; Glasgow et al., 2003; Little & Houston, 2003; Roy, 1999). These models vary in their descriptions and emphasis; however, most authors agree that KT is a complex and lengthy process, and one that requires innovative and dedicated action on the part of knowledgeable strategic planners and change agents (Brandt & Pope, 1997). Table 1 summarizes several KT planning models.

Table 1. Selected KT Planning Models

Author(s)	Key characteristics
CIHR. (2004). *Knowledge Translation Strategy 2004–2009: Innovation in Action*. Ottawa, ON: Canadian Institutes of Health Research. http://www.cihr-irsc.gc.ca/e/8505.html	CIHR conceptualizes KT as an acceleration of the Knowledge Cycle Model, which consists of seven bilateral stages. There is recognition in the CIHR definition that KT stages must consider coordinated communication, marketing, and training to facilitate KT. The seven stages are the following: • Research priority setting • Research • Knowledge priority setting • Knowledge synthesis • Knowledge distribution and application • Use • Evaluation of uptake
Logan, J., & Graham, I. D. (1998). Toward a comprehensive interdisciplinary model of health care research use. *Science Communication, 20*(2), 227–246.	The Ottawa Model of Research Use (OMRU) is a logic model approach for planning dissemination and knowledge utilization and for managing results. It features six primary elements and requires attention to a continuous assessment, monitoring, and evaluation process. The six elements are the following: • Practice environment • Potential adopters of the evidence • Evidence-based innovation • Research transfer strategies • Evidence of adoption • Health-related and other outcomes

Table 1. Continued

Author(s)	Key characteristics
Research implementation model Various authors	Numerous authors have described research implementation as a process consisting of multiple stages designed to reduce the gap between research evidence and practice (Grol, 2000). These models are described using a circular process, a continuous improvement approach (National Cancer Institute, 2002), and an iterative process (Caburnay, Kreuter, & Donlin, 2001; Demakis, McQueen, Kizer, & Feussner, 2000). In general, this model includes six stages for research implementation summarized as follows: • Identification of quality information/research evidence • Assessment of research findings for target system • Program development; program/content adaptation • Program implementation • Evaluation of knowledge utilization • Sustainability; capacity building
Lavis, J. N., Robertson, D., Woodside, J. M., Mcleod, C. B., & Abelson, J. (2003). How can research organizations more effectively transfer research knowledge to decision makers? *Milbank Quarterly, 81*(2), 221–248. Lavis, J. N., Ross, S. E., Hurley, J. E., Hohenadel, J. M., Stoddart, G. L., Woodward, C. A., et al. (2002). Examining the role of health services research in public policymaking. *Milbank Quarterly, 80*(1), 125–154.	Though describing his research as knowledge transfer, Lavis' (2003) research is often cited in reference to KT strategies. He notes the following five key determinants that should guide planners: • What should be transferred to decision makers (the message)? • To whom should research knowledge be transferred (the target audience)? • By whom should research knowledge be transferred (the messenger)? • How should research knowledge be transferred (the KT process and support system)? • With what effect should research knowledge be transferred (evaluation)?
Jacobson, N., Butterill, D., & Goering, P. (2003). Development of a framework for knowledge translation: Understanding user context. *Journal of Health Services Research & Policy, 8*(2), 94–99.	Similar to Lavis but specifically invoking the phrase "KT model," Jacobson presents a series of questions for researchers and planners to consider. She notes the following six key domains in a framework for audience-centered knowledge translation: • User group • Issue • Research • Researcher-user relationship • Dissemination strategy

Summary: KT and the NCDDR

Knowledge translation (KT) is a relatively new term that is increasing in importance and use. KT involves more than distribution of practical scientific information and reliance on academic publication as a primary mechanism for disseminating results. KT implies an interactive and engaged process between the research and systems of care (i.e., teams, populations, policymakers, and consumers) (Jacobson et al., 2003). Also, there are several planning models that discuss the KT process and KT strategies. However, there is a need to refine the definition of KT to reflect the disability and rehabilitation research and development priorities supported by NIDRR. In refining this concept, the National Center for the Dissemination of Disability Research (NCDDR) suggests that KT is

multi-dimensional and should reflect the context in which end-users of high-quality information will make decisions, solve problems, or use knowledge as practitioners, educators, or consumers in their everyday life (Stetler, 1994). To embrace this wider view, the NCDDR suggests the following as a working definition for KT:

> The collaborative and systematic review, assessment, identification, aggregation, and practical application of high-quality disability and rehabilitation research by key stakeholders (i.e., consumers, researchers, practitioners, and policymakers) for the purpose of improving the lives of individuals with disabilities.

In this working definition, KT involves the reporting, quality assessment, and adaptation of research and development knowledge into an understandable and contextually relevant form that reflects the NIDRR research and development priorities and that will be utilized by and benefit practitioners and consumers. As the ongoing discussion about KT continues, the NCDDR will refine this definition and propose KT-related roles and strategies of interest to NIDRR grantees.

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