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How to Translate Health Research Knowledge into Effective Healthcare Action

Ian D. Graham and Jacqueline Tetroe

Recently, we wrote in the *Hill Times*, a publication read widely by parliamentarians and policy wonks, that “Canadian researchers are doing an exceptional job in making discoveries and generating new knowledge that has the potential to improve the health of Canadians and strengthen Canada’s healthcare system and economy but *unless this knowledge is actually put into action, these benefits will not be realized*” (Graham and Bernstein 2007). This call to action is representative of the resolve of CIHR to enact the second portion of our mandate: “to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge *and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system.*” In other words, a cornerstone of our work at CIHR is translating health research into improved health. Our researchers produce excellent research. This research needs to be put in the hands of policy makers, healthcare managers and practitioners, the private sector and the public so that it can be turned into action. But what do we mean by “turning knowledge to action”?

Despite the billions spent annually on health research around the world and the roughly \$700 million spent by CIHR on high-quality health research, a consistent finding from the literature is that the transfer of research findings into practice is often a slow and haphazard process (Agency for Health Research and Quality 2001). This means that patients are denied treatment that has been clearly demonstrated to work because the time it takes for research to become incorporated into practice can be unacceptably long. For example, researchers from the United States and the Netherlands have estimated that 30–45% of patients are not receiving care according to scientific evidence and 20–25% of the care provided is not needed or could potentially cause harm (Grol 2001; McGlynn et al. 2003; Schuster et al. 1998).

Similarly, it is estimated that cancer outcomes could be improved by 30% with optimum application of what is currently known (Canadian Strategy for Cancer Control 2001), and that at least a 10% reduction in cancer mortality could be achieved in the United States through widespread use of available “state-of-the-art therapies” (Ford et al. 1990).

Illustration by Eric Hart.

At the same time, there are problems with premature adoption of some treatments, before they have been shown to be beneficial (Arnold and Straus 2005). When this occurs, patients are exposed to potentially ineffective and even harmful treatments (Reaume et al. 2005). So the issue is a complex one – research findings need to be translated from knowledge to action in order to decrease the gap between what we know and what we do (the “know-do” gap), but this needs to be done judiciously.

At CIHR, we use the term *knowledge translation* (KT) to describe this rather vague notion of closing the know-do gap. This term has historically been used to describe a variety of activities, including applied health research, dissemination, linkage and exchange and implementation research. At CIHR, however, KT is defined as “the exchange, synthesis and ethically-sound application of knowledge – within a complex system 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 2005). While some consider this definition rather complex, each of the words in the beginning of the definition was carefully chosen and has implications for what is meant by the *judicious* translation of research into practice and policy. *Synthesis* is used to emphasize the importance of understanding how the results from a single research study mesh with the larger body of knowledge and research on the topic. It is only by conducting synthesis of the global literature that the effectiveness of most interventions and practices can be truly determined. The *exchange* of knowledge refers to the interaction between the research user and the research producer that results in mutual learning. An *ethically sound* application of knowledge implies that the findings being applied are consistent with ethical principles and norms, social values and legal and other regulatory frameworks. The term *application* is used to refer to the iterative process by which research findings are put to use.

Beyer has outlined three ways in which knowledge can be used: instrumental use, in which research results are applied in specific, direct ways; conceptual use, in which results are used for general enlightenment but influence actions more indirectly and less specifically than in instrumental use; and symbolic use, in which research results are used to legitimate and sustain predetermined positions (Beyer 1997). We see from our definition that the purpose of KT is ultimately to improve the healthcare system and health of Canadians – making monitoring and evaluation of KT outcomes implicit aspects of the process. The judicious translation of research into practice is therefore implied in the CIHR definition by specifying the importance of synthesis and of the ethically sound application of knowledge – keeping in mind how the knowledge could be used. An important implication is that while researchers are encouraged to translate the results of their studies, they need to be thoughtful about their message and who the appropriate audience is for this message.

KT at CIHR can be divided into two broad categories: (1) end-of-grant KT, which is initiatives undertaken once a research project has been completed, and (2) integrated KT, KT that is woven into the research process.

End-of-grant KT refers to what is commonly known as dissemination or communication activities undertaken by most researchers – KT to their peers such as conference presentations and publications in peer-reviewed journals. But CIHR also supports more intensive end-of-grant dissemination activities that tailor the message and medium to a specific audience, such as summary briefings to stakeholders; more interactive approaches such as educational sessions with patients, practitioners or policy makers; media engagement; and even the use of knowledge brokers. Developing the commercialization potential of scientific discoveries can also be a form of end-of-grant KT.

Integrated KT at CIHR represents a different way of doing research and involves active collaboration between researchers and research users in all parts of the research process, including the shaping of the research questions, decisions about the methodology, involvement in the data collection and tools development, interpretation of the findings and dissemination and implementation of the research results. This new way of doing research, with the expectation that the findings will more likely be relevant to and used by the end-users, is also known by such terms as collaborative research, action-oriented research and co-production of knowledge. Research users can be other investigators from different disciplines, teams or countries but more often are policy and decision-makers, clinicians or the public.

Should every researcher be involved in integrated KT? In a word, no – not necessarily. For many researchers, disseminating research results to the *appropriate* audience (which is often other researchers) is usually sufficient. In those cases where there is very strong evidence that the research findings will have significant beneficial effects if applied in the real world, more intense KT may be warranted to make the results accessible and to facilitate their implementation. Generally, the intensity of knowledge translation should depend on factors such as the potential importance or impact of applying the findings, the amount and strength of the evidence supporting the findings (often determined by synthesis), the target audience(s), what is known about effective strategies to reach the audience(s), what is practical and feasible to do under the circumstances and considerations of who else should be involved in KT efforts.

Translating knowledge into improved health, more effective health services and a strengthened Canadian healthcare system is a key part of CIHR’s mandate. Our funded researchers are making important discoveries and generating knowledge that has the potential to improve the health of Canadians and to strengthen our healthcare system. But if this research is not turned into action, it will not have the impact that it could and should.

CIHR has developed a suite of funding opportunities and policies to facilitate the exchange, synthesis and ethically sound application of knowledge. But we cannot do this alone; we need our stakeholders – healthcare managers, executives and other potential users of health research – to seek out and judiciously apply research findings. Help us turn knowledge into action, and in the process strengthen the healthcare system and improve the health of Canadians. **HQ**

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