

Knowledge translation and indigenous knowledge

Janet Smylie ^{1,2}, Carmel Mary Martin ^{1,2}, Nili Kaplan-Myrth ³, Leah Steele ^{4,5}, Caroline Tait ⁶, William Hogg ^{1,2}

¹ Department of Family Medicine, University of Ottawa

² Institute of Population Health, University of Ottawa

³ Department of Public Health Sciences, University of Toronto

⁴ Centre for Addictions and Mental Health, Toronto

⁶ Culture & Mental Health Research Unit, Sir Mortimer-Jewish General Hospital

ABSTRACT

Objective. We wanted to evaluate the interface between knowledge translation theory and Indigenous knowledge. **Design.** Literature review supplemented by expert opinion was carried out. **Method.** Thematic analysis to identify gaps and convergences between the two domains was done. **Results.** The theoretical and epistemological frameworks underlying Western scientific and Indigenous knowledge systems were shown to have fundamental differences. **Conclusion.** Knowledge translation methods for health sciences research need to be specifically developed and evaluated within the context of Aboriginal communities.

Keywords: knowledge translation; indigenous knowledge; Aboriginal health

INTRODUCTION

Canada's major health research funder, the Canadian Institutes of Health Research (CIHR) emphasizes knowledge translation as key to the linkage between academic health sciences research and improved health outcomes and programming. The CIHR challenges researchers to employ knowledge translation theory in an effort to make health research more useful to policy makers, health practitioners, and the public. Our research group is concerned about the fit of the evolving CIHR knowledge translation approach to community-based Aboriginal health research. In addition to scientific excellence, successful health research in Aboriginal communities requires community relevance (1). However, the relevance of the CIHR knowledge translation approach to Aboriginal community contexts is not clear. Indigenous ways of generating and translating knowledge at the community level have been increasingly recognized in social science, native studies, and law. This pa-

per describes the authors' preliminary evaluation of the interface between knowledge translation theory and Indigenous knowledge.

BACKGROUND

Aboriginal communities in Canada suffer from unacceptable levels of ill health, with an overall health status that falls well below that of other Canadians (2-4). Life expectancy is approximately five to seven years less than that of the general Canadian population (5). Chronic diseases, post neonatal mortality, accidental deaths, certain infectious diseases and mental health problems continue to be disproportionately common among Aboriginal peoples (2,3). Despite significant improvements in the health of Aboriginal peoples and rapidly increasing health care expenditures in Aboriginal communities, the Canadian health care system has yet to be successful in rectifying these health disparities (6,7).

There are effective interventions for many of the health conditions that impact Aboriginal com-

munities. However, there remains a paucity of health programming that enables the widespread implementation of maneuvers that could improve Aboriginal health outcomes. With few exceptions, knowledge translation activities that link health research to practice in Aboriginal communities have been overlooked. When knowledge translation does occur, there appears to be little adaptation of mainstream approaches to the Aboriginal community context. For example, despite the hundreds of clinical practice guidelines published for health care practitioners in Canada, only one has specific recommendations for Aboriginal people (8).

When knowledge translation approaches are specifically designed for Aboriginal communities, they are effective. In Australia, a chronic disease guideline specifically designed for Indigenous populations was used to generate individual and population care plans and was implemented by a multi-disciplinary team and local working groups. This program demonstrated local uptake in participant communities and improved screening for chronic disease (9). The participatory research that has been done in Aboriginal communities provides some of the best examples of knowledge translation in an Aboriginal context. For example, the Kahnawake Schools Diabetes Prevention Project (10) incorporated traditional learning styles of First Nations children into three scientific models of health promotion in order to reduce the prevalence of obesity, improve the diet, and increase physical activity levels among Mohawk children.

METHODS

Literature review was supplemented by expert opinion to identify relevant publications in two domains. The first domain encompassed models of knowledge translation in health sciences research, with particular focus on evolving Canadian models. The second domain encompassed Indigenous knowledge theory with particular focus on applications of knowledge theory to Indigenous health. Materials were thematically ana-

lyzed to identify gaps and convergences between the two domains. The desired outcome was to develop an understanding of the fit between evolving knowledge translation models and evolving Indigenous knowledge theory as applied to health.

To identify literature in the knowledge translation domain, we conducted a Medline search using the key word "knowledge translation." We supplemented this search with documentation from a CIHR-conducted knowledge translation workshop (June, 2002) which brought together the key experts and agencies from across Canada. Documents from this workshop listed knowledge translation resources, models and references. We interviewed local experts to identify additional key references. Finally, the principal author participated in the CIHR knowledge translation think tank (October, 2002) which explored strategic directions for the development of knowledge translation in Canada.

To identify literature in the Indigenous knowledge theory domain, we conducted a Medline search using the key words: Indigenous knowledge; knowledge translation; Aboriginal; Eskimo; Inuk; Inuit; First Nations; Metis. Since the majority of Indigenous knowledge resources are not published in academic journals, we used a networking/snowball approach to identify and consult with experts who were familiar with the literature related to Indigenous knowledge theory. Six key informants were identified and interviewed, and consultations were undertaken with two key Aboriginal health organizations (National Aboriginal Health Organization and the Aboriginal Healing Foundation).

RESULTS

The CIHR has defined knowledge translation as: *the exchange, synthesis and ethically sound application of knowledge - within a complex system of interactions among researchers and users* (11). The current CIHR application of this definition is based on an integration of knowledge translation activities into the Western scientific research cycle, as demonstrated in the figure below. *ibid*.

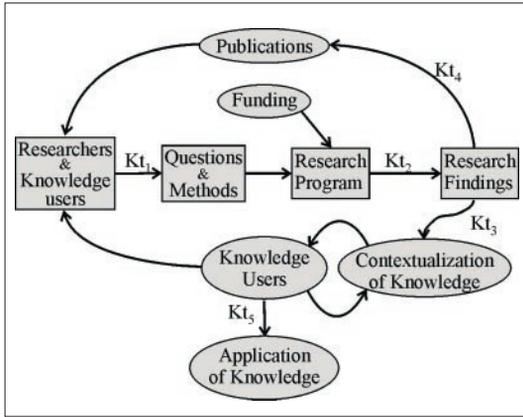


Figure 1. CIHR Knowledge Translation (KT) Model.

An emerging body of literature on Indigenous knowledge has been produced by Aboriginal scholars in Canada over the past 30 years (12-17). Most of this work comes from academic departments of native studies, sociology or law. Rarely, the topic of Indigenous knowledge is discussed in relation to Aboriginal health (14,17). Methods of Indigenous knowledge generation and application are participatory, communal and experiential, and reflective of local geography.

In both Indigenous and Scientific knowledge systems, information is organized to condense both experience and beliefs into "knowledge". In Western knowledge systems this process involves the organization of individual data into abstract theoretical systems, composed of multiple components, each of which requires a "specialist" to be fully understood. Translation of scientific knowledge to members of the larger society is not prioritized, and through processes of self-authentication science is set apart by its practitioners from other forms of knowledge production. In Indigenous knowledge systems, generation of knowledge starts with "stories" as the base units of knowledge; proceeds to "knowledge," an integration of the values and processes described in the stories; and culminates in "wisdom," an experiential distillation of knowledge. This process can be viewed as cyclical, as "wisdom" keeps in turn generate new "stories" as a way of disseminating what they know (Figure 2). Traditionally local forms of knowledge dissemination were in-

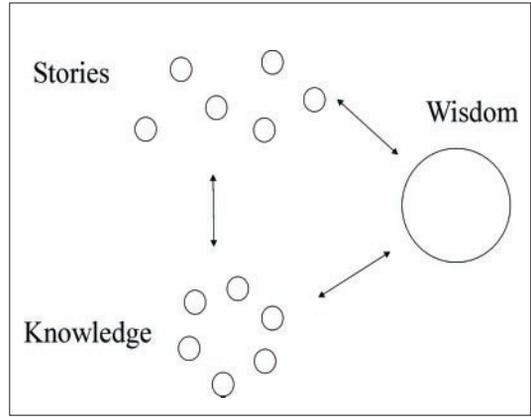


Figure 2. Indigenous Knowledge Generation Process.

terwoven with social, political and kinship structures to reinforce individual and collective well-being and to ensure the protection and sustainability of the physical environment.

DISCUSSION

Indigenous knowledge systems have been described as ecologic, holistic, relational, pluralistic, experiential, timeless, infinite, communal, oral and narrative-based (16,18-20). Keeping in mind the limitations of a dichotomous framework and recognizing that there is also considerable overlap in some areas, Western science has been described as reductionist, linear, objective, hierarchical, empirical, static, temporal, singular, specialized, and written (19,21-24).

Can there be an interface between two theoretical models that seem, at first glance, to be diametrically opposed? Possibly. The compatibility between Indigenous and Western models of knowledge generation and transfer relies critically on the system of interactions among researchers and users that, for interface to exist, *must* be defined by the indigenous context in which the process is occurring. Backer (25) has classified four levels of knowledge utilization. At its most basic (level one), knowledge utilization includes only simple dissemination activities such as information clearinghouses. At its most sophisticated (level four), knowledge utilization includes an "integrated system for knowledge translation", which is described as a

"master plan" for a knowledge utilization system that is integrated into specific policy. Integration of relevant knowledge translation activities within *the context in which the knowledge is to be applied* thus appears to be an important knowledge translation strategy. Larsen (26) calls for attention to situational factors as an acknowledgement of the presence of individual and group differences in the knowledge utilization process. She also identifies a need for theories of knowledge utilization "which recognize the process of utilization as beginning with the preliminary steps of knowledge creation and diffusion".

According to Lester (27), the current knowledge utilization literature has largely adapted a "two communities" theory, which is based on the competing worldviews and belief systems of health researchers and policy makers. In the century following the Indian Act legislation, "official" health researchers and policy makers were clearly external to Aboriginal communities, and largely employed by the Federal government. While health researchers remain external to Aboriginal communities today, health policy makers are increasingly found within the community, as the communities take a larger role in the governance and management of their health care services. This shift has resulted in a widening gap in the worldview between the two groups. Further research regarding knowledge translation in Aboriginal communities can narrow this gap in two ways: by applying a health research methodology that is framed in the indigenous worldview of the community "policy makers"; and by involving Aboriginal academics and community members in the health research process.

The theoretical and epistemological frameworks underlying Western scientific and Indigenous knowledge systems have fundamental differences. For these two systems to interface, knowledge translation methods for health science research must be specifically developed and evaluated within the context of Aboriginal communities. This is likely to require the modification of current knowledge translation frameworks before they will be relevant in Indigenous communities.

REFERENCES

1. Reading J, Nowgesic E. Improving the Health of Future Generations: The Canadian Institutes of Health Research Institute of Aboriginal Peoples' Health. *American Journal of Public Health* 2000; 92(9):1396-1400.
2. Smylie J. A Guide for Health Professionals Working with Aboriginal Peoples: Health Issues Affecting Aboriginal Peoples. *Journal of the Society of Obstetricians and Gynecologists of Canada* 2000; 23:54-68.
3. First Nations and Inuit Regional Health Survey National Steering Committee. First Nations and Inuit Regional Health Survey, National Report, 1999. St. Regis QC: Akwesasne Mohawk Territory, 1999.
4. MacMillan HL, MacMillan AB, Offord DR, Dingle JL. Aboriginal Health. *Canadian Medical Association Journal* 1996; 155(11):1569-78.
5. Department of Indian and Northern Development. Basic Departmental Data – 2000. Department of Indian Affairs and Northern Development, March 2001.
6. Auditor General's Report 2000, Chapter 15: Health Canada, First Nations Health Followup. Available at: <http://www.oag-bvg.gc.ca/domino/reports.nsf/html/0015ce.html>.
7. Auditor General's Report 1997, Chapter 13: Health Canada, First Nations Health. Available at: <http://www.oag-bvg.gc.ca/domino/reports.nsf/html/ch9713e.html>.
8. Meltzer S, et al. 1998 clinical practice guidelines for the management of diabetes in Canada. *Canadian Medical Association Journal* 1998; 159(8 Suppl):S1-29.
9. Weeramanthri T, Connors C et al. Chronic disease guidelines and the indigenous coordinated care trials. *Australian Health Review* 2002; 25(2):1-6.
10. Macaulay AC et al. The Kahnawake Schools Diabetes Prevention Project: Intervention, Evaluation, and Baseline Results of a Diabetes Primary Prevention Program with a Native Community in Canada. *Preventive Medicine* 1997; 26: 779-790.
11. CIHR. RFP: Knowledge Translation Strategies for Health Research. CIHR, 2002.
12. Battiste M. (ed). *Reclaiming Indigenous Voice and Vision*. Vancouver: UBC press, 2000.
13. Couture J. Native Studies and the Academy. In: Sefa Dei GJ, Hall BL, Rosenberg D. (eds), *Indigenous Knowledges in Global Contexts*. University of Toronto Press, 2000.
14. Brant C. Native Ethics and Rules of Behaviour. *Canadian Journal of Psychiatry* 1990; 35:534-539.
15. Battiste M, Youngblood Henderson JS. *Protecting Indigenous Knowledge and Heritage*. Saskatoon: Purich Publishing, 2000.

16. Castellano, M Brant. Updating Aboriginal Traditions of Knowledge. In: Sefa Dei GJ, Hall BL, Rosenberg D. (eds), *Indigenous Knowledges in Global Contexts*. University of Toronto Press, 2000.
17. Dion Stout M, Kipling G. Establishing a Leading Knowledge Based Organization. National Aboriginal Health Organization, 2001 <http://www.naho.ca>.
18. Malloch L. Indian Medicine, Indian Health: Study Between Red and White medicine. *Canadian Woman Studies* 1989;10(2,3):105-112.
19. Little Bear L. Jagged Worldviews Colliding. In: Battiste M. (ed). *Reclaiming Indigenous Voice and Vision*. Vancouver: UBC press, 2000.
20. Shiva V. Foreword: Cultural Diversity and the Politics of Knowledge. In: Sefa Dei GJ, Hall BL, Rosenberg D. (eds), *Indigenous Knowledges in Global Contexts*. University of Toronto Press, 2000.
21. Tuhiwai Smith L. *Decolonizing Methodologies: Research and Indigenous Peoples*. London: Zed Books, 2001.
22. Youngblood Henderson J. Postcolonial Ghost Dancing: Diagnosing European Colonialism. In: Battiste M. (ed). *Reclaiming Indigenous Voice and Vision*. Vancouver: UBC press, 2000.
23. Duran B, Duran E. Applied Postcolonial Clinical and Research Strategies. In: Battiste M. (ed). *Reclaiming Indigenous Voice and Vision*. Vancouver: UBC press, 2000.
24. Castellano, M Brant. Ethics of Aboriginal Research. in press, *Journal of Aboriginal Peoples Health*, Second Edition. National Aboriginal Health Organization.
25. Backer TE. Knowledge Utilization, The Third Wave. *Knowledge: Creation, Diffusion, Utilization* 1991; 12: 225-240.
26. Larsen JK. Knowledge Utilization. *Knowledge: Creation, Diffusion, Utilization* 1980; 1:421-442.
27. Lester JP. The Utilization of Policy Analysis by State Agency Officials. *Knowledge: Creation, Diffusion, Utilization* 1993; 14:267-290.

*Dr. Janet Smylie, MD MPH
 Department of Family Medicine
 University of Ottawa
 Institute of Population Health
 One Stewart Street, Room 230
 Ottawa, Ontario K1N 6N5
 CANADA*

Email: jk.smylie@sympatico.ca