EDITORIAL

COACTION PUBLISHING

Knowledge translation in Arctic environmental health

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In April 2012, the circumpolar research community gathered in Montréal, Canada, to discuss their most recent research findings related to the International Polar Year (IPY). The conference was titled *From Knowledge to Action*, and its organisation and structure emphasised the importance of transmission of new knowledge generated by IPY projects to a variety of knowledge users, ranging from community members to national and international policy makers. The issue of knowledge exchange, mobilisation, or translation is critical to Arctic health and has received relatively little attention in the past but is becoming increasingly important for a number of reasons. It raises interesting and important questions for the research, funding and policy communities that are discussed using several case examples in this supplement.

It is not surprising that health researchers have their own specific interests, expertise and agenda. Often, this agenda is formed and influenced by the success of particular aspects of their work and the topics and people they work on, for or with. Regardless, they are engaged in the production of new knowledge, which they hope will be of use and, ultimately, be used by others. This is how the scientific process of discovery and communication works, step by step, incrementally adding to the understanding of important scientific and societal issues. Universities and research centres encourage and expect their scientists to publish their results in high-ranked, peer-reviewed journals, and this is how their productivity is evaluated.

Governments and research funding agencies, often responding to public opinion, have significantly increased expectation for more tangible results from public investments science in recent years. In health research, there is a growing expectation that projects help address health inequities, reduce health care costs or improve individual health and well-being in some way. This poses a challenge to health researchers to shift or expand their research focus to activities that occur after the traditional scientific process is over, activities associated with communication with the general public and outreach to a variety of knowledge users.

The concept of "knowledge translation" or transforming research results into decisions, actions or policy is not new (1). However, it has gained significant momentum in health research in the last two decades. This growth is a response to growing health care challenges among some segments of society, increasing health disparities between certain populations, increased scrutiny towards the use of public funds and growing scepticism in the value and societal benefits of scientific research (2). All of these trends, and others, converge in the context of health research with Indigenous and other populations in the circumpolar North.

For a health care professional, decision maker or researcher, Arctic health is a complex and challenging field. The needs are overwhelming, the research community is relatively small and the demands on both researchers and health professionals are substantial. In most (but not all) circumpolar countries, the health of Northern and Indigenous populations is significantly poorer than their Southern counterparts or national average. Despite significant investments in health research in recent years, the health of many Northern and Indigenous populations has not improved. This has raised questions, in this region, about the utility and impact of research and the knowledge it generates.

The Nasivvik Centre for Inuit health and changing environments (www.nasivvik.ulaval.ca) is a research and training centre funded by the Institute of Aboriginal Peoples Health of the Canadian Institutes of Health Research. Its mandate is to support, encourage and conduct training and research activities to help move along the trajectory *from research on Inuit*, *to research with Inuit and ultimately to research by Inuit* in the Canadian and circumpolar North. The Board and research team members are continuously preoccupied with and challenged by the significant gaps in understanding and action in the area of knowledge translation. It is for this reason that the Nasivvik Centre has organised and supported the

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publication of this special issue on knowledge translation in Arctic environmental health.

The Canadian Institutes of Health Research defines knowledge translation as "a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system'' (www.cihr-irsc.gc.ca/e/29418.html).

In their review of decision maker and researcher perspectives on knowledge translation in environmental health in Canadian Aboriginal communities, Jack et al. (3) argue that the process is not well understood and that differing perceptions of the process and what influences it exist among different actors or participants in the system. However, they argue that early partnerships and strong collaboration between researchers and decision makers promote efficient conduct of research and increase significantly the likelihood of successful knowledge transfer and exchange. The 6 stories or cases presented in this special issue illustrate various aspects of this process and provide insight into some lessons learned.

All the articles address the importance of clarifying the objective in the knowledge generation and translation process. Whether the objective of the activity is to decrease exposure of a specific group of individuals to a hazard or screen food for a potential risk to health among consumers, the clarification of this objective will influence the selection criterion or generation of meaningful data. However, it is important to note that the interpretation of 'meaningful', in the context of data, often differs among individuals involved in the process. For example, the epidemiologist is interested in the relative risk of neurodevelopmental delay among children exposed to mercury compared to those not exposed; the toxicologist is concerned with the mechanism of toxicity; the public health officer would like to know the threshold for toxicity; and finally the individual consumer would like to know whether he or she can continue to eat fish. The cases presented in this series of articles illustrate the many different ways actors or participants in the knowledge translation process see the same environmental health issue. Further, the articles help us understand what this means for communicating clear results upon which decisions can be made or actions can be taken.

The articles also identify and discuss the value and importance of having a clearly identified end user and understanding the context within which they work. For Northern environmental health issues, these end users may range from members of municipal councils, local food retailers, hunters, trappers or fishers' associations, women associations and health committees, up to and including regional and national policy makers. Different target audiences often require very different forms of data presentation. With multiple end users, as is often the case, multiple presentation forms are required. For example, a recommendation on country food consumption to optimise individuals' access to nutritional benefits and minimise exposure to contaminant risks is not only important for individuals at the local-regional level but also at the international level to support domestic positions on an international agreement (e.g. Stockholm Convention). Yet, these two groups of knowledge users likely require very different presentation forms of the same data. The cases of the ban on the use of lead shot in hunting and the reduction of the sale of foods high in trans-fatty acids discussed in this edition are two such examples illustrating this point.

Many of the articles have researchers and public health officials or decision makers as coauthors. True knowledge translation requires a strong relationship between the knowledge generator (i.e. researcher) and the knowledge user (i.e. decision maker). For public health officials, there are many positive aspects associated with direct participation in research. Not only do they update their knowledge in a particular field, they also have access to leading edge discussions on emerging topics in the scientific community of potential relevance to their professional responsibilities. The results of research may even influence their professional practice.

The common argument raised by this collection of articles is that enhanced understanding of knowledge translation is critically important for environmental and public health researchers and professionals. If research is to ultimately help improve the health status of circumpolar populations, it only makes sense that we invest time and effort in both increasing our understanding of the critical health challenges faced, and also in ensuring this knowledge is put to best use.

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