



National Collaborating Centre
for Infectious Diseases

Centre de collaboration nationale
des maladies infectieuses

Knowledge Translation and the National Collaborating Centre for Infectious Diseases

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National Collaborating Centre for Infectious Diseases Concept Paper

A. Knowledge Translation Model

The main purpose of the National Collaborating Centres for Public Health (NCCPH) is to improve *knowledge translation* in key public health areas in Canada. Knowledge translation is broadly defined as the process of enhancing the application of research and other knowledge sources to improve health outcomes. Two key processes in knowledge translation include *knowledge synthesis* to improve the understanding of the results and implications of research and other knowledge creation, and *knowledge exchange* to improve the availability and use of knowledge to improve public health planning, implementation and systems. Since the six National Collaborating Centres (NCCs) address different public health spheres the knowledge translation process will necessarily need to vary according to the diverse knowledge areas and the public health systems, processes and stakeholders addressed by each NCC. The purpose of this brief note is to convey the current conceptual thinking and proposed knowledge translation process of the National Collaborating Centre for Infectious Diseases (NCCID).

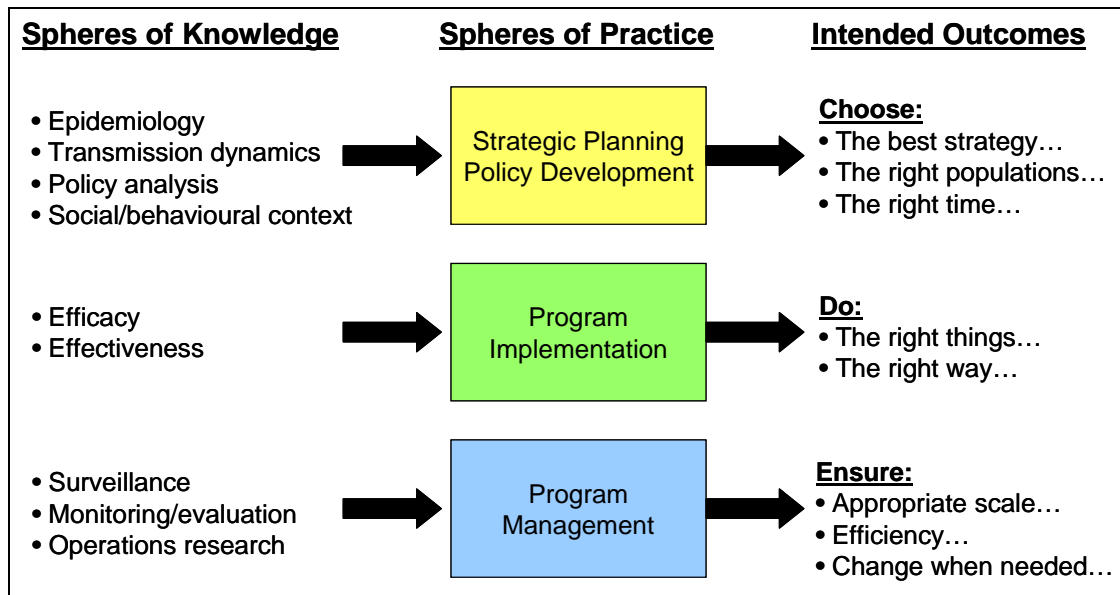
A.1 Knowledge Translation and the Public Health Process

Public health has been defined as “the combination of skills, sciences, and activities directed to the maintenance and improvement of the health of all of the people through collective or social actions.” This somewhat broad definition captures an important essence of the public health process; that achieving better health outcomes usually requires a somewhat complex set of interrelated policies, programs, services and activities. Even the implementation of a straightforward-seeming public health intervention such as immunization against a specific pathogen requires a complex set of decisions, and in many cases, demands innovative strategies to ensure that the program is implemented successfully. In this way, public health presents a more complex challenge for knowledge translation than does clinical practice. Since clinical practice generally focuses on an individual’s health outcome, evidence-based decision making in that context often involves an adjudication of research around a specific medical intervention (e.g. medication or medical procedure). In contrast, in public health a broader set of considerations are usually involved in knowledge translation to improve health outcomes. For example, since public health focuses on populations, and not just individuals, decisions cannot be made with only individual outcomes in mind. Instead, public health policies and programs need to consider variations within and between populations, and the diverse factors that influence these variations. As a consequence, evidence of the effectiveness of single interventions is seldom sufficient for informing a public health response. Instead, interventions need to be considered in light of the particular epidemiological and socio-cultural context. Moreover, highly successful public health strategies generally rely on the application of multiple synergistic interventions. There are at least two important implications for knowledge translation. First, circumspection is required in recommending single interventions based on individual-level research. An intervention that is efficacious at an individual level might not have much impact at the population level. Second, while study methodology is an important criterion for assessing evidence, assessment of public health interventions also requires an appreciation of the epidemiological and socio-cultural context in which interventions have been tested. Therefore, research of efficacy and effectiveness usually must be augmented by knowledge from other types of research such as epidemiology and transmission dynamics, and the social and behavioural sciences. The following schematic diagram illustrates the wide range



of knowledge spheres relevant to various aspects of the development of public health policies and programs.

Figure 1. Schematic diagram of spheres of knowledge and action in public health.



Briefly, to inform strategic planning and policy development requires knowledge of the epidemiological, social and policy context to choose the best strategy, the right population focus and the right time to implement various strategies. Knowledge about the efficacy and/or effectiveness of specific interventions is required for program implementation to select the correct interventions and to implement them to achieve the best outcomes. Finally, knowledge based on surveillance, program evaluation and operations research is required to ensure that public health strategies achieve sufficient scale, are implemented efficiently and change if and when required.

The main implications of this concept for knowledge translation in public health are:

- Knowledge synthesis concerning a particular issue needs to be broad-based, and not focused on an assessment of single interventions.
- The sources of potentially useful knowledge are diverse, including theoretical, observational and intervention research.
- The process of knowledge synthesis should be organized around the particular spheres of public health practice, and integrated appropriately.

B. Knowledge Translation Models

Much has been written to define knowledge translation and its component processes, and there have been useful distinctions between different KT models. Schryer-Roy provides a summary of some of the conceptual models and processes¹, and a simple analysis reveals important

¹ The document can be found at the following link (last accessed September 13, 2007):

http://www.chsrf.ca/kte_docs/Knowledge_Translation_-_Basic_Theories,_Approaches_and_Applications_-_May_2006.pdf.



differences in approach. For the purposes of this paper, we have simplified these into obvious dichotomies in conceptual models and process models:

B.1 Conceptual models - Knowledge-driven vs. Problem-solving²:

“Knowledge-driven” models of knowledge translation have an underlying expectation that the availability of new knowledge from research will lead to new applications and programs. In contrast, a “problem-solving” model is more reactive and is based on the premise that the identification of public health problems will lead to a “drawing down” of knowledge to help solve or ameliorate the problem. A key difference between these two is that the first (knowledge-driven) is essentially involves “pushing” new knowledge into practice, whereby the problem-solving model involves “pulling” knowledge to resolve policy and practice issues.

B.2 Process models - Linear-logical vs. Interactive-learning:

At the process level, knowledge translation can be essentially “linear-logical”, which implies that if new knowledge is compelling enough, it will inevitably make its way into policy and practice with sufficient knowledge transfer. In contrast, an “interactive-learning” model implies that knowledge “producers” and “users” work interactively to translate knowledge into policy and practice. This interactive process involves two-way learning between researchers and practitioners and increases the efficiency of knowledge exchange.

C. Knowledge Translation and the NCCID

Based on an assessment of the content areas and context, the NCCID plans to use a knowledge translation model that has a problem-solving and interactive orientation. The intended benefits of our approach for our topic area are:

- Incorporate a broad range of knowledge spheres to provide guidance that will be instrumental in changing public health practice at all levels.
- Simultaneously engage researchers and academics, policy makers, program managers, front-line practitioners and community members to increase the efficiency of knowledge synthesis and exchange.
- Result in practical public health evidence-based solutions for identified public health problems.

The knowledge translation process proposed by the NCCID will focus on key public health topics in infectious diseases for which the public health community has indicated a need for knowledge translation to improve public health policies, strategies and practice. The selection of these topics will therefore be based largely on a recently completed Environmental Scan and other ad-hoc consultations with public health practitioners and leaders. Within each topic area, the *modus operandi* for the knowledge translation process will be similar, with three main activities: 1) Knowledge Synthesis, 2) Knowledge Exchange and, 3) Capacity Building. The approach to these activities is described below.

C.1 Knowledge Synthesis

The purpose of the knowledge synthesis process is to integrate knowledge from different spheres to generate better policies and strategies related to a public health issue. At the centre of the knowledge synthesis process will be knowledge synthesis forums, which will bring

² Weiss C. Public Administration Review, 39 (5) 1979: 426-431.

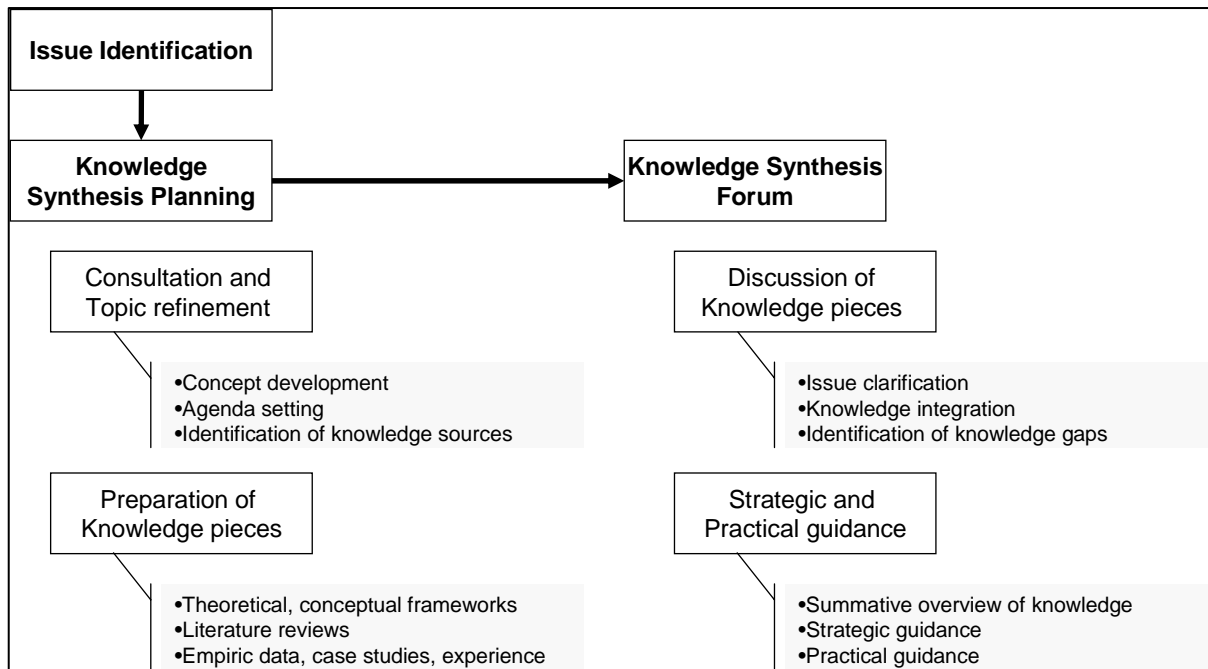


together researchers, policy makers, public health program managers, practitioners and community members. Each forum will be preceded by extensive preparation of knowledge products and other content to be presented and discussed at the forum, including:

- Theory-based analyses and conceptual frameworks.
- Topical literature reviews.
- Policy analyses.
- Empirical data (e.g. surveillance data, descriptive epidemiology).
- Summaries or case studies based on existing public health programs.
- Community experiences and perspectives.

The forums will be planned to facilitate the integration knowledge spheres, discussion of the policy and program implications, and articulation of public health strategies and approaches. Therefore, in addition to a compilation of the products mentioned above, the forums are intended to produce summative recommendations and practical guidance for improved public health responses and solutions. The knowledge synthesis process described above is summarized in the following diagram:

Figure 2. Overview of the Knowledge Synthesis Process



A key feature of the knowledge synthesis process will be the identification of one or more public health organizations (e.g. public health authority, provincial health program) that will participate in the process with the intention of applying the knowledge-based strategies within their jurisdiction. In this way, the knowledge synthesis process is intended to be “anchored” to the needs of program planners and implementation. Conversely, this approach is intended to stimulate public health programs to translate knowledge into better strategies and implementation processes.



C.2 Knowledge Exchange

The NCCID will also actively promote ongoing knowledge exchange between researchers, policy makers, program managers, practitioners and community groups. The knowledge exchange processes will be organized around the same topics as the knowledge synthesis, and will begin through the preparation for and conduct of the knowledge synthesis forums. In addition, more formal **knowledge exchange networks** will be established prior to and as a follow-up to the initial knowledge synthesis process. The knowledge exchange networks will be supported through establishing channels for communication and dialogue (e.g. periodic updates and information sharing, internet-based discussion forums, topical meetings). The role of the NCCID will be to support a secretariat function for these networks, either directly or through another partner (e.g. civil society organization). In addition, the NCCID will stimulate the ongoing knowledge exchange process through initiating discussions on new and emerging topics of interest to the network members.

C.3 Capacity Building

The third main component of the NCCID's support for knowledge translation is capacity building. In this component, the focus will be on building the capacity of public health program implementers to apply knowledge in their public health practice. The main methodology for capacity building will be through support for public health "*learning sites*", which have been identified as having the interest and appropriate context for implementing innovative, evidence-based programs related to topics identified for knowledge translation. The intention is to identify learning sites early in the knowledge translation process for a particular topic, to actively engage them in the knowledge synthesis and exchange processes, and support them to apply new knowledge to program strategies and implementation. The learning sites will subsequently become a resource for building the capacity of other public health implementers through practical, hands-on learning. The NCCID will support these learning sites in several ways:

- Providing technical assistance, as required, for translating knowledge into program design and implementation.
- Supporting the learning sites to develop high quality process documentation, training manuals and job aids, etc.
- Identifying and providing support to public health managers and practitioners from other jurisdictions to receive hands-on training at learning sites.

It should be noted that learning sites will not necessarily be developed for all knowledge translation topic areas, and priority will be given to topics which have clear implications for program implementation.

