Knowledge integration: A framework for putting knowledge to action in complex systems

A summary of

How to cite this NCCMT summary:

Categories:
Method, Communication, Knowledge exchange

Method

Relevance For Public Health
The knowledge integration model is relevant across all public health topics. The model described here was developed in the area of cancer control, which includes strong behaviour, environmental and genetic factors in its occurrence.

Description
This framework helps translate knowledge related to cancer into cancer innovations across sectors, coined as knowledge integration. Different expertise, terminology and terms are barriers to the effective communication of knowledge gained in basic science, clinical services and public health practice. Suboptimal communication results in a gap between knowledge production and knowledge application.

This framework goes beyond "bench to beside" and "bench to trench" models and considers the complex multi-level and multi-sectoral system in which knowledge must be transferred and translated to improve population health.

Implementing the Tool

Who is Involved?
Health professionals who work in knowledge integration, from researchers up to public health policy decision makers, are involved in this model.

Steps for Using Tool
Knowledge integration is defined as the effective incorporation of knowledge into the decisions, practices and policies of organizations and systems.

The framework advances a systems approach to knowledge translation and the need to change or enhance individual, organization and network connections. The nature of "systems" includes:

- Organizational structures
- Processes and contexts
- Funders
- Timelines
- Expectations
- Accountability
- Decision making and incentives for change

The framework outlines the following elements that aim to guide both research and application:

1. Shared language

These summaries are written by the NCCMT to condense and to provide an overview of the resources listed in the Registry of Methods and Tools and to give suggestions for their use in a public health context. For more information on individual methods and tools included in the review, please consult the authors/developers of the original resources.
2. Illustration of key linkages across sectors
3. Systematic approach to synthesize existing knowledge and identify priority initiatives
4. Reflection on values

The model depicted involves the following key areas in linking intervention research, fundamental research, program delivery, and surveillance and monitoring:

- Accountability
- Ethics
- Efficiency
- Empowerment

The authors also performed a review of the evidence that supports the concept of knowledge integration.

**Conditions for Use**

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**Evaluation and Measurement Characteristics**

**Evaluation**
Information not available

**Validity**
Not applicable

**Reliability**
Not applicable

**Methodological Rating**
N/A Not applicable

**Tool Development**

**Developers**
National Cancer Institute of Canada Joint Working Group on Translational Research and Knowledge Integration of the Advisory Committee for Research and the Joint Advisory Committee for Cancer Control

**Method of Development**

A mixed methods approach was used to consider the evidence on knowledge integration, including a series of meetings with multidisciplinary experts, a selective literature review, validation of the framework with the expert working group and its standing committees, and a collaborative concept mapping project with the U.S. National Cancer Institute.

The framework was created as part of a three-year effort at the National Cancer Institute of Canada Working Group on Translational Research and Knowledge Transfer. The goal of the framework was to outline a process by which a multi-sectoral and complex system can better translate "what we know" into "what we do." It builds on Mode I science (i.e., discovery and investigator driven) and Mode II science (i.e., problem/solution-based).

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