

A Manitoba Integrated Knowledge System: for the Primary Prevention of Chronic Disease

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A coalition of the Canadian Cancer Society Manitoba Division, CancerCare Manitoba and the Heart and Stroke Foundation of Manitoba is developing an Integrated Knowledge System. This System will blend local practice-based evidence with external effective practice evidence to produce new and enhanced evidence-based practices. It will assist communities, regional committees and organizational/government partnerships to generate, access and use such evidence in their planning for chronic disease prevention and healthy living programs and policies.

Since the Manitoba Government encourages community-led partnership initiatives for the prevention of chronic disease and promotion of healthy living, it is crucial that capacity be developed in communities, regional committees and organizational/government partnerships to use this approach in their planning. “Capacity” refers to the leadership, skills, resources, knowledge and tools needed by individuals and organizations to take the lead in chronic disease prevention and healthy living. Currently, there is a gap in capacity-building resources for these groups to support using practice-based evidence.

The Integrated Knowledge System will be a source of evidence for community/regional/partnership program planning committees and policy makers related to the Manitoba Chronic Disease Prevention Initiative and In Motion.

This document explains the concepts and design of the Integrated Knowledge System.

Building an Integrated Knowledge System for Manitoba

The coalition members will provide the leadership and support to build an Integrated Knowledge System. The key focus of the System is to ensure that communities, regional committees and organizational/government partnerships and policy makers at all levels of government and organizations have access to community-specific risk factor surveillance information, their own local program evaluation information, and practice-based evidence for intervention, program and policy development. All data and information will be integrated within a systematic evidence-based program planning framework.

The System will integrate three major activities:

- 1. Conduct (in partnership with communities, regions, organizations and governments) primary prevention risk factor surveillance that has sufficient sample size for use at a community level.*

This will be based on the Interlake Regional Health Authority approach of collecting self-report youth and adult information, and will be expanded to include other regions and communities in Manitoba. The System will assist in the collection of risk factor data; analysis of the data; timely production of school and community-specific reports; and the use of the information in planning. Surveillance will also include the collection of information on the types of interventions and programs being used by communities and regions.

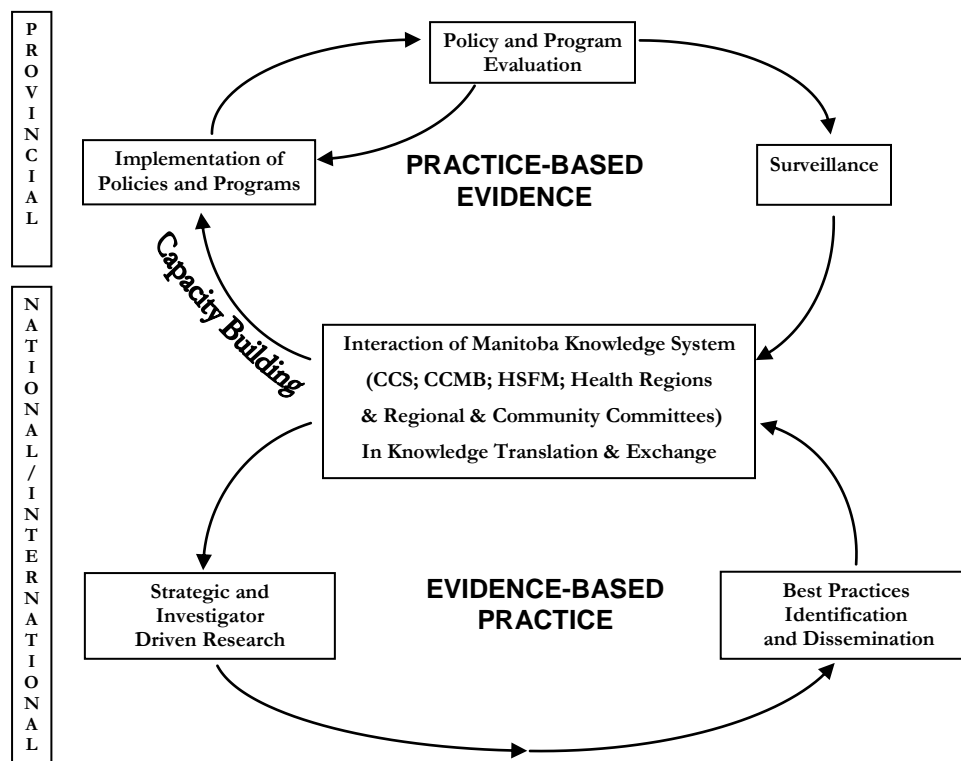
2. *Identify practice-based evidence from research and evaluation that demonstrate program and intervention effectiveness in bringing about behaviour change at a population level.* This will be based on the CCS Knowledge Exchange Network (KEN) approach of searching for and summarizing effective practice (topic and target-specific) programs worldwide for use in program planning. Included with the identification of effective programs are recommendations for adapting effective programs to fit specific community contexts.

3. *Build capacity and support in community, regional, partnership groups to evaluate the programs and interventions as they are implemented.* This activity will highlight program outcome information and will be a combination of surveillance and evaluation studies. The information will determine program effectiveness with respect to specific Manitoba community contexts, and will add to the practice-based pool of effective interventions and programs in Manitoba.

All three activities are integrated within a systems boundary (includes partnership, communities, regions, policy-makers interacting) to function as a whole. Practice-based evidence is not provided by multiple disconnected organizations delivering information in a random manner unconnected to community/regional/partnership activity and contexts. The purpose and operation of the whole is different from, and more than, the sum of its unassembled collection of parts.

Figure 1 (below) depicts the Manitoba Integrated Knowledge System: for the Primary Prevention of Chronic Disease.

Fig 1: Manitoba Integrated Knowledge System: for the Primary Prevention of Chronic Disease (Riley and Harvey-March 2006)



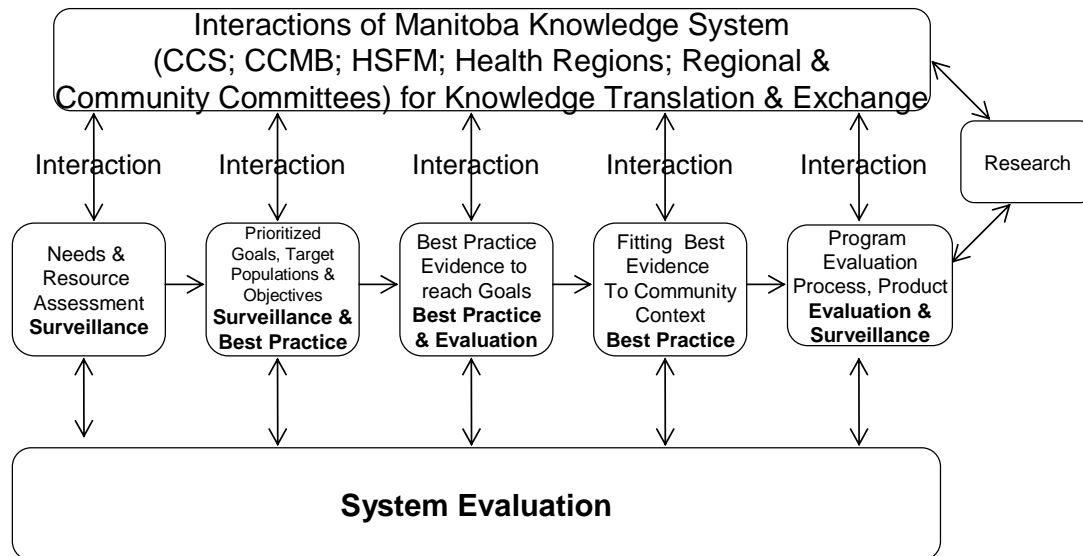
The System diagram depicts:

- Use of practice-based evidence to implement programs and policies, then the conduct and use of program and policy evaluation and surveillance (upper oval)
- Reciprocity with national and international groups and systems for research and effective practice identification and dissemination (lower oval).

The project will focus on the integration of data and information into a decision-making framework that fits into sound program planning and/or policy making for chronic disease prevention and healthy living.

Figure 2 identifies the points in the program planning cycle where practice-based evidence is crucial. It is reflective of the recommendations from *Getting to Outcomes 2004: Promoting Accountability Through Methods and Tools for Planning, Implementation, and Evaluation* sponsored by the Centers for Disease Control and Prevention.

Figure 2 Integrating Evidence with Practice



The top box, Interactions, reflects the interactions within the systems' boundaries (CCS, CCMB, HSFM, Health Regions, Regional and Community Committees). This interaction is crucial to ensure that the evidence that is accessed and researched is reflective of the user needs. Further, the evidence must be friendly and understandable to the user.

Figure 2 identifies five stages in the program-planning decision-making process. At each stage of planning, practice-based evidence is used in decision-making.

1. *Needs and Resource Assessment*: Surveillance evidence is used to identify risk factors and capacity of the community to deliver interventions. Evidence at this stage helps the users to make decisions around need.
2. *Prioritize Goals, Target Populations and Objectives*: Surveillance and Effective Practice evidence is used to make decisions related to degree of change that can be expected from interventions with different populations as per needs. This is an important step in setting priority goals and objectives.
3. *Effective Practice Evidence to reach Goals*: Effective Practice and Evaluation evidence are used from research of programs that address the prioritized goals and objectives.
4. *Fitting Evidence to Community context*: Effective Practice evidence is used to adapt/contextualize these effective practices to fit specific communities. In turn, the adapted interventions are then evaluated.
5. *Program Evaluation*: Program evaluation and surveillance not only tracks how effective the intervention/programs are and their needed changes, but it also adds to the list of effective practices that fit a Manitoba context.

The bottom box, System Evaluation, reflects the need for ongoing system evaluation to ensure that the integrated evidence is effective and reflective of the system's needs. Research is a constant interaction, both through the study of natural experiments in Manitoba communities and through research done in other provinces and countries.

Conclusion

The development of an Integrated Knowledge System will require champions, commitment, and goodwill from among voluntary organizations, governments, communities and other stakeholders. It will require a shared vision that we all are part of the system and it will nurture a learning community where no 'one' has the answers; and there is no 'right' way. We 'learn as we go.' We need to overcome relationship-blindness if we hope to create an integrated knowledge system.

APPENDIX & REFERENCES

Evidence-based Practice

The evidence-based movement in the health sciences first appeared in the late 1980s as evidence-based medicine. The first use of the term "evidence-based medicine" occurred in a document describing the residency program at McMaster University in 1990. While there are notable differences between medicine and public health, it was soon recognized that evidence-based medicine approaches could be applied to public health. Brownson defined evidence-based public health as

"The development, implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program models."

Brownson identified five key characteristics of evidence-based public health programs:

- The best possible scientific information is used to develop intervention approaches.
- Theory and systematic approaches are applied.
- Problem solving is multi-disciplinary, involving understanding who you are serving.
- Sound evaluation principles are applied.
- Results are shared with others who need to know and take action.

The quality of evidence is of greater significance than quantity. Evidence-based decision-making, therefore, is based on using the “best” information available on a particular topic, not the “most” information.

Practice-based Evidence

Lawrence Green, a well-known researcher in health promotion states that, in order to get more evidence-based practice, we need more “practice-based evidence”. It is a circular and systematic process: evidence from the analysis of current practice(s) plus evidence from other researched practice(s) are needed to build an evidence-based system.

Practice-based evidence can be described as the best possible evidence derived from research and evaluation of practice. It requires a series of systematic steps in decision-making and planning interventions. This systematic approach includes:

- Using (current) practice-related surveillance data to determine needs and trends.
- Using practice-based evidence to set priorities, goals, target populations and objectives.
- Using practice-based research and evaluation of interventions to determine intervention effectiveness.
- Using theories and models/guidelines to adapt intervention information to local contexts.
- Evaluating intervention implementation and outcomes to monitor progress and to add to new evidence for a practice-based pool of evidence for Manitoba context.

Brownson, Ross C., Baker, Elizabeth A., Leet, Terry L., and Gillespie, Kathleen N. Editors, *Evidence-Based Public Health*, New York: Oxford University Press, 2003

Chinman, M., Imm, P., Wandersmann, A. *Getting to Outcomes 2004 Promoting Accountability Through Methods and Tools for Planning, Implementation, and Evaluation*, Rand Corporation, Santa Monica, Calif. January, 2004. Sponsored by the Centers for Disease Control and Prevention

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