PHRED
Public Health Research, Education & Development Program

REDSP
Programme de recherche, d'éducation et de développement en santé publique

NATIONAL COLLABORATING CENTRE: PUBLIC HEALTH METHODOLOGIES AND TOOLS

ENVIRONMENTAL SCAN

FINAL REPORT

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Purpose and Objectives
The purpose of this environmental scan was to support the identification and setting of priorities to guide the launch and development of the National Collaborating Centre for Public Health Methodologies and Tools (NCC: MT). It was conducted on behalf of the Ontario Public Health Research Education and Development (PHRED) program.

The objectives of the scan included:
1. To identify and define what public health methodologies and tools mean to the target users.
2. To identify the existing methodologies and tools.
3. To identify methodologies and tools that are needed but not yet available (i.e., the gaps).
4. To prioritize the action plan based on reported gaps for the initial workplan of the NCC: MT.
5. To identify 'experts' across Canada who are interested in and available to assist with the establishment of the network and the NCC: MT Advisory Board.

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The environmental scan included four components: a review of published and grey literature; key informant interviews; an environmental scan survey; and, a series of three surveys using a modified Delphi technique to reach a consensus on the priority activities for the NCC: MT.

Conclusions
The primary conclusion of the environmental scan was the following top five work activities for the NCC: MT:
1. Create a support structure for sharing of information across health units, agencies, and institutions;
2. Strengthen leadership to support the use of evidence in practice and policy;
3. Create user-friendly summary statements from systematic reviews;
4. Create an online resource (the 'go to place') of evidence for public health practice;
5. Integrate front line practitioners with the NCC: MT from its inception.

EXECUTIVE SUMMARY

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5. Integrate front line practitioners with the NCC: MT from its inception.

Recommendations
The following recommendations are proposed for consideration by the new NCC: MT.

1. As the literature found few high quality intervention studies in knowledge translation within public health, this NCC: MT should consider recommending that various funding agencies establish a dedicated fund for knowledge translation research in public health.

2. The limited work to date has shown little impact on changing practitioner behavior regarding using research findings. The NCC: MT should itemize lessons learned from the literature, in order to make recommendations for future trials, based on

survey and qualitative findings that imply the need for leadership development and culture change to support individual behavior change.

3. Synthesis topics related to the literature collected for this scan should be prioritized in order to produce documents, such as tools and criteria for assessment of applicability/transferability; specific tools and products for knowledge transfer; and a compendium of critical appraisal tools.

4. Recommendations to improve the use of research by policy makers include: personal and close two-way communication; brief summary of research with clear policy recommendations; timely, relevant and high quality summaries which include effectiveness data; demonstrated relevance to current policy and community needs.

5. Different interventions need to be developed for cross-disciplinary groups within different content areas and for different disciplines within a content area.

6. Focus on organizational and policy changes may be strategic areas for the NCC: MT to prioritize in their research.

7. Leadership development in knowledge translation should be a priority in order to achieve organizational change.

8. The language used by the NCC: MT should be considered in consultation with the Public Health Agency of Canada and the other NCCs. In particular, the results suggest that it would be preferable to use 'methods' instead of 'methodologies' and 'knowledge exchange' rather than 'knowledge translation'.

9. The work priorities identified in this scan should be discussed with the Public Health Agency of Canada, the other NCCs, and approved by the NCC: MT Advisory Board.

10. The results clearly suggest that the NCC: MT should work in cooperation and collaboration with other knowledge translation organizations and services within the Public Health Agency of Canada (PHAC) and across the country. In the start-up period of the NCC: MT, consultations should be conducted with the different divisions within PHAC, the other NCCs, and knowledge translation experts across Canada.

11. The NCC: MT should not waste time and resources creating another online resource for public health information. Instead, it should explore the feasibility of joining with another portal, such as the Best Practices Portal for Health Promotion and Chronic Disease Prevention, to include all aspects of public health and health promotion.

12. An ongoing program of marketing/communications should be established to inform the public health community about the role, functions and resources of the NCC: MT.

13. From the beginning, the NCC: MT should create effective and efficient ways to work collaboratively with members of its target audiences, including front line practitioners, managers, policy makers, researchers, and the five other NCCs.

ACKNOWLEDGEMENTS

The authors of this environmental scan report are very grateful for the opportunity provided by the Ontario Ministry of Health and Long-Term Care, Public Health Division to conduct this project for the Ministry and the Public Health Agency of Canada. This project has been challenging, stimulating and above all a valuable learning experience. We want to thank Phil Jackson, Paulina Salamo, Beata Pach and Karen Singh for their assistance, support and valuable input.

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Finally, we want to express our sincere appreciation to the many individuals who contributed their time and effort to participate in the key informant interviews, the environmental scan survey and the priority setting Delphi process.

DISCLAIMER

The views expressed in this report are the views of the authors and do not necessarily reflect those of the Ministry of Health and Long Term Care.

INTRODUCTION

Background

The Public Health Division of the Ontario Ministry of Health and Long-Term Care contracted the authors to conduct an environmental scan on behalf of the Public Health Research, Education and Development Program (PHRED). The scan was commissioned by the Ontario Ministry of Health and Long-Term Care, Public Health Division and the Public Health Agency of Canada. The environmental scan had a very specific purpose and did not follow some of the conventional approaches to environmental scanning such as the identification and analysis of strengths, weakness, opportunities, and threats (SWOT Analysis).

Purpose and Objectives

Purpose: Set the priority activities for the NCC: MT

The purpose of this environmental scan was to support the identification and setting of priorities to guide the launch and development of the National Collaborating Centre for Public Health Methodologies and Tools (NCC: MT).

The objectives of the scan included:

1. To identify and define what public health methodologies and tools mean to the target users.
2. To identify the existing methodologies and tools.
3. To identify methodologies and tools that are needed but not yet available (i.e., the gaps).
4. To prioritize the action plan based on reported gaps for the initial workplan of the NCC: MT.
5. To identify 'experts' across Canada who are interested in and available to assist with the establishment of the network and the NCC: MT Advisory Board.

Overview of Components

The environmental scan included four components briefly described as follows:

Review of Literature - The initial scan component was an extensive review of the published and grey literature. The report includes a description of the review methods and results.

Key Informant Interviews - A series of twelve telephone interviews were conducted to clarify the meaning of 'public health methodologies and tools' and to develop questions for the environmental scan survey.

Environmental Scan Survey - Over 2500 public health practitioners, managers, policy makers and researchers were invited to participate in an environmental scan survey designed to gather data relevant to the scan objectives.

Priority Setting Delphi Surveys - Finally, the fourth component of the environmental scan was the online administration of a three-part modified Delphi survey to determine the initial work priorities for the NCC: MT.

Ethics Review

Ethics approval was granted by the Hamilton Health Sciences/McMaster University Research Ethics Board

Given that the environmental scan included the collection of demographic data and other information from individuals, an ethics review application was prepared and submitted on March 28, 2006 to the Hamilton Health Sciences/McMaster University Research Ethics Board. The application included the signed application form, information sheet, consent form, and interview questions. The application was approved on April 19, 2006.

Limitations

This is not a comprehensive environmental scan. Because the time available was limited (four months), the scan was designed to address the defined purpose and specific objectives.

The report of the review of literature was restricted to the fields of public health, health promotion, population health, and environmental health. Many potentially applicable articles were retrieved. The authors were well aware that there is a large body of literature pertinent to the question in other domains such as other areas of health care, business, education and many of the social sciences.

Personal interviews are a very effective way to gather information and opinions for environmental scans. It was necessary to restrict the key informant interviews to a small, purposive sample of representatives of the four target public health groups: practitioners, managers, policy makers and researchers.

The rest of the data collection was carried out using the more efficient process of online surveys. We acknowledge the low rates of response to the online surveys. The level of response may have been affected by an

unknown number of duplicate names and addresses in the three databases. In addition, May, June and July are not the best months of the year to gather data from busy people.

REVIEW OF LITERATURE

The first component of the environmental scan was an extensive review of the published and grey literature related to possible tools and methodologies in public health, health promotion, population health and environmental health.

What are the concepts, information, systems, methodologies and tools that facilitate the use of and access to information and improve decision-making capacity of public health practitioners, mangers, policy makers and researchers?

The review was designed to answer the following question:
What are the concepts, information, systems, methodologies and tools that facilitate access to and use of information and improve decision-making capacity of public health practitioners, managers, policy makers and researchers?

Methods

A comprehensive, sensitive search of the published literature was conducted by Elena Goldblatt, Library Coordinator, Public Health Services Library. Searches used MEDLINE, CINAHL, EMBASE, PsychInfo, Sociological Abstracts, and The Cochrane Library over a ten-year period (1996 to 2006). The searches targeted only English references including systematic reviews, narrative reviews, randomized controlled trials, other quantitative and qualitative studies, and discussion papers. Appendix 1 lists the key words used to search the literature. Reference lists of retrieved publications were scanned for other relevant papers.

Two primary sources of grey literature (not formally published in peer-reviewed journal) were also searched (M. Dobbins, personal communications, July, 2006). Electronic letters were sent to 45 public health and knowledge transfer key informants asking them to share any electronic or paper documents relevant to the scan. Contributions were received from 14 respondents (Appendix 2). Additionally, Internet searches were conducted using the same keywords as in the database search (e.g., knowledge transfer, knowledge exchange, dissemination, utilization, and uptake). Twenty-nine relevant websites were identified and searched (Appendix 3).

Titles and abstracts were screened for relevance. Two people independently rated all articles for inclusion. To be included, the topic of the article had to consist of at least one of the following areas: methods of

synthesis; translation of evidence; tools/products for knowledge transfer; creating/placing/marketing research messages; pathways/frameworks/models for access or use of evidence; networks to access/share/use evidence; applicability/transferability; planning for use of evidence; critical appraisal tools; or, decision-making regarding uptake. Further explanation of these categories is provided in the results section. For all quantitative studies, two people independently rated the quality using standard criteria (which assess selection bias, randomization, confounder, blinding, reliability and validity of data collection tools, withdrawals and dropouts). In each case, discrepancies in ratings were discussed and agreement reached. An online systematic review software program (SRS Trial Stat) was used to determine relevance and for quality assessment of the quantitative studies.

Results

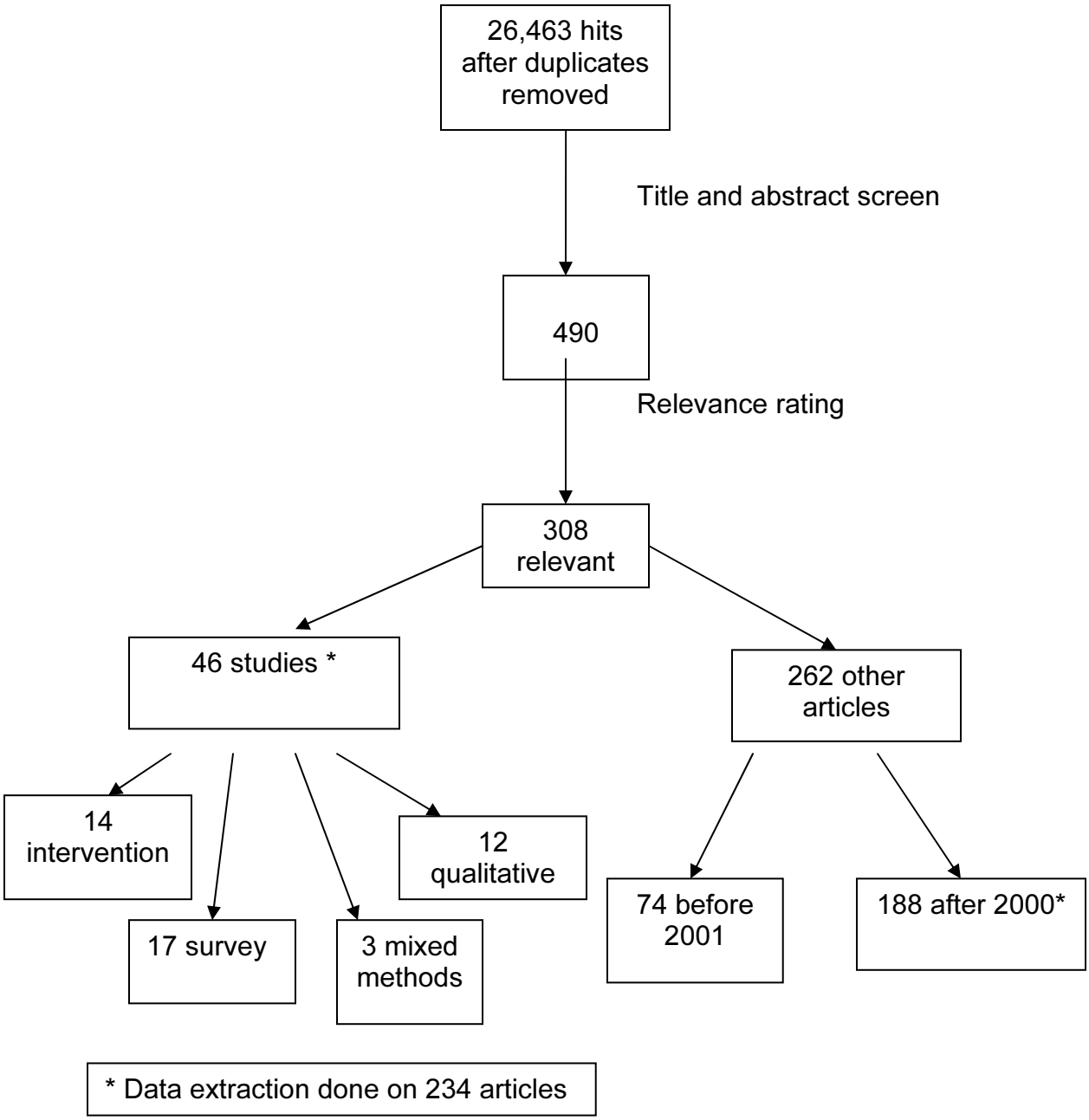
The search yielded 26,463 hits. Title and abstract screening reduced the database to 490 articles that were subsequently reviewed for relevance screening; of these, 308 passed. We were unable to retrieve seven articles for relevance screening.

110 of the 308 papers focused specifically on public or community health.

One hundred and ten of the 308 papers focused specifically on public or community health. Forty-six of the articles were studies - either quantitative intervention studies (14), qualitative (12), mixed methods (3), or surveys (17) (see Figure 1). Full data extraction was done for the 46 studies, and validity ratings on the 14 quantitative interventions. The other 262 articles were a mixture of tools (quality assessment, or transferability assessment) and theoretically based articles. Due to the volume of articles, we completed data extraction on the 188 articles that were published in 2001 or more recently. Therefore, full data extraction was done on a total of 234 articles (46 studies and the 188 “other” articles published after 2000).

Full data extraction done on a total of 234 articles.

Figure 1: Flow of Articles in Review



Overview of publications

Of the 234 articles that were reviewed in depth, 58 were Canadian (Table 1).

Table 1: Review of Literature - Country of Publication

Country	Number of Articles (%)
USA	84 (36)
Canada	58 (25)
UK	47 (20)
International (authors from >1 country)	25 (10)
Australia	10 (4)
Other	10 (4)
Total	234

This literature could be categorized in several ways; each category could form a unique synthesis as separate review. The topics are listed in Table 2. The total number is greater than 234 as several articles fit more than one category. The definitions utilized for the categorizations are as follows:

The largest number of articles (154) was about the translation of evidence.

Methods of synthesis - the "how to" of conducting systematic reviews
Translation of evidence - dissemination or transfer of evidence to target users
Tools /products for knowledge transfer- (electronic databases such as The Cochrane Library and health-evidence.ca
Creating/placing/marketing research messages - communicating messages, motivational strategies, marketing
Pathways, frameworks, and models for access, appraisal or use of evidence - theoretical aspects of knowledge translation or application or a model or theory
Networks - communities of practice, not IT networks
Applicability and transferability assessment - criteria for deciding if and how evidence can be transferred to the local situation
Planning for use of evidence - how to use and apply evidence in decision-making
Critical appraisal tools - how to assess quantitative and qualitative research
Decision-making re research uptake - utilization of guidelines in policy or practice

Table 2: Topics of Publications

Topic	Number of Articles
Translation of evidence	154
Planning for use of evidence	97
Decision-making re evidence uptake	56
Pathways/frameworks/models	57
Assessment of feasibility, transferability	46
Marketing the message	41
Methods of synthesis	34
Networks/communities of practice	30
Critical appraisal tools	25
Tools/products for knowledge transfer	4

Note- one article could be coded for more than one topic

A priority for the NCC: MT will be making a decision about which of these syntheses would be priorities. It would be wise to capitalize on the search, relevance and quality ratings, before the search is outdated. In particular, it would be useful to have syntheses of literature related to: 1) assessment of applicability/transferability: 2) a compendium of tools and products for knowledge transfer; and, 3) critical appraisal tools.

Several syntheses could be done from literature retrieved for this scan. The decision of which syntheses will be a priority for the NCC: MT.

For this report, only studies will be highlighted. There are numerous theoretical papers, as well as highly valuable critical appraisal tools and criteria and discussions of applicability/transferability assessment that can be applied in public health. However, they were not a priority for this report. Studies were grouped by interventions studies – quantitative, qualitative or mixed methods; and surveys.

Only studies are highlighted in this report.

By far, the location of the majority of studies was a hospital setting. For this report, we were concerned about applicability and transferability, and focused on articles specifically in public health or community health. Studies in primary care were also included if community health staff were involved (for example, see Cheater et al., 2006).

With regard to quality, only one randomized trial was located. For the most part, post-test only studies and surveys were found. Most studies used questionnaires specifically developed for that particular study, and very few conducted any testing of the questionnaire for reliability or validity. Most questionnaires were subject to volunteer bias and recall bias. The qualitative studies were primarily at the level of descriptive studies and did not follow any particular philosophical paradigm.

Quantitative Intervention Studies

Fourteen studies were found that included an intervention and at least a post-test assessment of outcomes; seven reports of six studies involved public or community health personnel (Camiletti & Huffman, 1998; Lia-Hoagberg et al., 1999; Dobbins et al., 2001a; Dobbins et al., 2001b; DePue et al., 2002; Andreasson et al., 2000; Cheater et al., 2006).

Only 1 RCT was included – it found no differences in practice of community health nurses after an intervention of audit and feedback, educational outreach, both combined or control.

The only randomized trial found in this review, took place in family practice and included 167 community nurses attached to family practices in the U.K. (Cheater et al., 2006). The study compared four interventions: audit and feedback; educational outreach; both combined; and, a control group who received printed educational materials. One hundred and fifty-seven family practices were randomized, which had a total of 167 community nurses attached, and outcomes collected on 1078 patients. Cluster randomization was done, with appropriate analysis by practice. The topic of the practice change was management of incontinence, not usually part of practice within public health in Canada, yet the testing of the interventions with the community health nurses is relevant. There were no statistically significant differences at six-month follow-up in compliance scores of community nurses across any intervention compared with the control group. Also, there were no differences in patient symptoms, severity scores, or absorbent pad use. Adjustment for caseload size, severity and duration of urinary incontinence did not alter results.

Two before/after studies were found (DePue et al., 2002; Andreasson et al., 2000). In the USA, DePue and colleagues reviewed family practice charts for *Ask, Advise, Assist* and *Arrange* follow-up before and after dissemination of the AHCPR guidelines “Smoking cessation clinical practice guideline” to community health centres (DePue et al., 2002). Three one-hour training sessions were provided on effective tobacco interventions, use of office systems and counseling skill building for all disciplines (physicians, nurses, social workers, dentists, dieticians, medical assistants). Seventy-five percent of practitioners attended at least one training session. Outcomes were measured by chart audit at the most recent primary care visit. *Ask* increased overall from 30% to 44% (statistically significant). However, different counseling rates were evident by patient gender and reason for visits. Patients at yearly physicals were more likely to be *Asked* and *Advised*; males were more likely to be *Asked* at acute visits than were females. There were no significant increases in *Advise, Assist* or *Arrange*.

Andreasson and colleagues in Sweden conducted a survey of 39 general practitioners and 45 district health nurses before and after an intervention which featured a project nurse who visited once (45-60 minutes), with information, a patient booklet and a provider manual about methods for

secondary prevention of alcohol problems (Andreasson et al., 2000). Uptake of the intervention was high, but three-month follow-up indicated low use of materials.

Dobbins and colleagues reported on a posttest-only survey of public health decision-makers in all 41health units in Ontario, two years after five systematic reviews on public health interventions had been disseminated in 1996 (Dobbins et al., 2001a; Dobbins et al., 2001b). Sixty-three percent of respondents reported using at least one systematic review in past two years and 50% felt the systematic review had a great deal of influence on program planning decisions. However 37%, 40% and 47% felt the review did not influence decisions related to program evaluation, staff development or policy development, respectively. The most important individual predictors of use included: position (program managers and directors were more likely to use reviews); perceptions that systematic reviews were easy to use; and, perception that the reviews overcame the barrier of lack of critical appraisal skills. Organizational characteristics related to the use of systematic reviews included: perception that the organization valued the use of research evidence for decision-making; and organizational provision of training in the critical appraisal of the literature.

Camiletti & Huffman (Camiletti & Huffman, 1998) conducted a post-test only survey of public health nurses following initiatives aimed at increasing research utilization. The intervention was a self-help manual, with inservice to review the manual and delivery of 12 research utilization modules during team meetings. Nurses reported valuing research and feeling comfortable with concepts of research utilization, but 68% were not changing their practice based on research. Time was reported to be the biggest barrier with valuing use of team meeting time for discussion of research utilization.

As usual, time was reported to be the biggest barrier to the access and use of research evidence.

In a US study, Lia-Hoagberg conducted a post-test only survey of 230 public health nurses and telephone interviews of 61 agency directors to assess the impact of dissemination of two different guidelines via in-service, with accompanying manuals (Lia-Hoagberg et al., 1999). Respondents viewed the guidelines as important but identified numerous barriers to their use: lack of time; complex guideline structure; and, competing agency demands and priorities.

Qualitative Studies

Twelve qualitative studies were found. One study was related to primary care in Chile (Bedregal & Ferlie, 2001), and another was conducted by the National Health Service in Scotland. The latter examined the managed clinical networks, and concluded that they support a more ‘knowledge-based work model than traditional structures within health services

(Burnett et al., 2005). These two will not be addressed further in this paper as they are not directly relevant to public health in Canada.

One literature review was combined with interviews of key informants from 33 Canadian, five U.S. and nine U.K. research organizations (Kiefer et al., 2005). This report formed the basis of some of the recommendations which led to the development of the current National Collaborating Centres initiative. The project was responding to identified critical issues in public health in Canada, such as:

- lack of primary studies and evidence syntheses;
- need for more active knowledge exchange and to develop and use electronic dissemination means;
- need for relevant and timely knowledge to reach users in useable form;
- ongoing training to access, consult and produce relevant research,
- need to value research;
- need to evaluate knowledge exchange strategies, knowledge uptake and incorporation into policy and decision-making.

The recommendations were to create a National Centre of Population and Public Health including a nation-wide network of practitioners and research experts. Other recommendations were:

- creation of linkages between researchers and users;
- involvement of policy makers in knowledge generation and exchange;
- agreement about appropriate methods and standards of evidence;
- integration and linkages between evidence databases;
- encouragement and stimulation of knowledge exchange and uptake;
- elimination of regional disparities and improvement of research and collaboration between regions and organizations (Kiefer et al., 2005).

Manitoba's "The Need to Know" Project found quality of relationships and trust were important contexts for knowledge translation.

Over 100 interviews of stakeholders were conducted in a participatory evaluation of Manitoba's "The Need to Know" Project (Bowen et al., 2005). The results suggest that insufficient emphasis has been put on personal factors in knowledge translation. The quality of relationships and trust between research producers and users were identified as connecting different components of knowledge translation. Community partners identified that the barriers to using research included lack of confidence, some organizational issues and costs.

Four qualitative studies investigated needs and preferences in relation to electronic access to information. Dobbins and colleagues held focus groups with Canadian public health decision-makers, who supported the development of a registry of reviews evaluating the effectiveness of public

health interventions rated by quality of the evidence, and the notion of the "push" of updates of new reviews sent directly to them (Dobbins et al., 2004a). The American Medical Informatics Association developed a national agenda for public health informatics and made two main recommendations: 1) that stakeholders need to be engaged in coordinated activities related to public health information architecture, standards, confidentiality, best practice and research; and, 2) informatics training is needed throughout the public health workforce (Yasnoff et al., 2001). A similar group in the United States identified the need for a single portal access with a good search engine, automatic notification of new information, and access to best practice information and grey literature (LaPelle et al., 2006). A third qualitative study, conducted in the US, recommended the need for improved and formalized development of evaluation standards across private and public sectors, additional research on the technology needs and preferences of underserved populations and long-term epidemiologic studies on the impact of ehealth (Ahern et al., 2006).

Support for the development of a registry of reviews evaluating the effectiveness of public health interventions rated by quality of the evidence.

Bradley used four diverse clinical case studies to identify key factors influencing diffusion and adoption of evidence-based innovations. The community case study concerned the giving of behavioral/development advice to parents of children in the community. Analyzing themes across all case studies, the authors concluded that the success and speed of adoption of evidence depends on:

- the support of senior management and clinical leaders;
- the generation of credible, supportive data;
- an infrastructure dedicated to translating innovation from research into practice;
- the degree to which changes in organizational culture are required;
- the amount of coordination needed across disciplines or departments;
- the resources of the organization;
- the degree to which people believe that innovation responds to immediate and significant pressures in their environment (Bradley et al., 2004).

Supportive leadership and a culture supportive of the use of evidence are related to the diffusion of evidence based innovations.

The other two studies outside of public health were conducted in Canada (Feightner et al., 2001; Egan et al., 2004). They are mentioned briefly here as the results are relevant to this project. One involved focus groups with physicians, studying how best to provide guidelines on the Internet (Feightner et al., 2001). They found that their participants expected one-screen algorithms, a brief summary of the evidence, and trustworthy, current information that was simple, quick and easy to access. The other study involved occupational therapists in trying to develop online communities of practice (Egan et al., 2004). About 11% of participants had technical difficulties and never joined, and only half of the remaining

participants stayed with the group at the end of one year. Those who remained felt their involvement led to increased awareness, motivation and confidence regarding their use of evidence in practice.

Mixed Methods

Three relevant mixed methods studies were found (Riley et al., 2001; Weatherly et al., 2002; Thompson et al., 2001). One took place in public health (Riley et al., 2001). In repeated surveys and interviews of individuals most familiar with heart health programming within a health unit, Riley described dissemination studies for the Ontario Heart Health Initiative (Riley et al., 2001). Key findings included consistently high levels of motivation for the health promotion activities, medium levels of capacity and low levels of implementation. Associations between predisposition and capacity, and capacity and implementation were consistent and strong. The following all positively influenced the implementation of heart health programs:

- leadership for heart health within the health unit;
- human and financial resources dedicated to heart health;
- organization structure that supports integration of tobacco, nutrition and physical activity programs;
- partnerships with community agencies;
- technical assistance to support local programs.

The other study in this category was a study of decision-makers in the UK, addressing if and how economic evidence was incorporated into local health policies for Health Improvement Programs (Weatherly et al., 2002). A survey and in-depth interviews were used to gather information. They found there were multiple objectives for program development, only some of which would require evidence. When evidence was used, it was a mixture of experiential and empirical. Government reports and guidelines were the main source of evidence, rather than published papers.

Surveys

Seventeen reports of 15 surveys were retrieved. Two studies dealt with hospital nurses only (Estabrooks et al., 2005; Profetto-McGrath et al., 2003). Two reports of one study with predominately hospital nurses (Estabrooks, 1999a; Estabrooks, 1999b) and one of physicians only (Borenstein et al., 2003) were reported. One was concerned with guideline development and use across 10 European countries (Thomason et al., 2000) and one on the same topic in Canada (Graham et al., 2003). Another dealt with factors related to use of evidence in policy development in six European countries (von Lengerke et al., 2004). An additional one dealt with care for women with pre-eclampsia in developing countries (Aaserud et al., 2005). One article reported on a survey of how Canadian

health researchers promoted the uptake of their research (Graham & and Grimshaw, 2005); and another on applied research organizations in Canada and current practices in transferring research knowledge to decision-makers (Lavis et al., 2003). Several other reports surveyed decision-makers in Canada (Ouimet et al., 2006; Alberta Heritage Foundation for Medical Research, 1999; Birdsell et al., 2005; Estabrooks & and Chong, 2003; Milner et al., 2005). Further, two surveys were conducted in public health; one in Canada (Dobbins et al., 2004b) and one in Australia (Adily et al., 2004).

A Canadian survey to assess the use of systematic reviews in policy development.

The Canadian survey was done in public health in Ontario, to assess the use of systematic reviews in policy development when Ontario Mandatory Health Programs and Services Guidelines were under revision (Dobbins et al., 2004b). Ninety-six percent of respondents reported that systematic reviews played a part in developing the new guidelines; 47% felt the reviews contributed "a great deal" to the development of new recommendations for practice. Population health workers in Australia were surveyed about the use of a web-based portal and evidence databases (Adily et al., 2004). Half the respondents reported receiving encouragement to use the portal, but only 21% used it weekly. Use was associated with having a masters' degree or higher education, and was not associated with age, gender, or years of experience.

Relationships foster transfer and use of evidence.

Organizational cultures need encouragement to transfer and use research.

Users must consider the research to be relevant and credible in order for transfer to take place.

The Alberta Heritage Foundation for Medical Research conducted an analysis of written responses to a consultation document regarding research in practice (Alberta Heritage Foundation for Medical Research, 1999). They identified many barriers at the interface between the researchers and the decision-makers, such as lack of shared language or opportunity for dialogue, suspicion of each other's motives, differing needs and timelines, and lack of appreciation and valuing of each other's worlds. Further organizational and system barriers were also identified.

Three related reports came from a telephone survey in Alberta about the current state of research utilization by key groups in all areas of health (policy decision-makers, physicians, nurses and researchers) (Birdsell et al., 2005; Milner et al., 2005). Key conclusions were that relationships foster transfer and use of evidence; organizational cultures need encouragement to transfer and use research; users must consider the research to be relevant and credible in order for transfer to take place; and, that specific roles and responsibilities within occupational groups may optimize transfer and use (Birdsell et al., 2005). Estabrooks analyzed the nurse respondents (Estabrooks & Chong, 2003). She found that urban nurses spend more time in acquiring and analyzing research than small-urban or rural area nurses; there were few regional differences and that nurse educators had the highest scores on research utilization and staff nurses the lowest (Estabrooks & Chong, 2003). Further, Milner found that

among clinical nurse educators, attitudes towards research, awareness of information based on research, and involvement in research activities predicted research utilization (Milner et al., 2005).

Lavis and colleagues (Lavis et al., 2003) surveyed 265 directors of applied research organizations in Canada about their current practice in transferring research knowledge to decision-makers. They found that directors are at least reasonably aware of and knowledgeable about what the research literature suggests they should be doing. Recommendations included the development of actionable messages; the development of knowledge uptake skills among the target audience, and in their own organization; and, the evaluation of any knowledge transfer strategies.

Finally, a survey of Canadian healthcare decision-makers (provincial health ministries, regional health authorities, and hospitals) explored their use of clinical guidelines (Ouimet et al., 2006). Hospitals were most likely to use guidelines (52%) and provincial ministries were the least likely (31%). Factors related to use differed by sectors, suggesting that any interventions would need to be customized by sector to increase utilization.

"Other articles"

The category of translation of research evidence was the largest of all, with almost twice as many articles as the next largest category. Several good reviews (Thomson et al., 2006c; Thomson et al., 2006d; Thomson et al., 2006a; Thomson et al., 2006b; Grimshaw et al., 2006; Grimshaw et al., 2004; Fixsen et al., 2005; University of British Columbia, 2006; Innvaer et al., 2002), background documents (Estabrooks et al., 2003; Lavis et al., 2003; Grimshaw et al., 2001; Lavis et al., 2006; Lavis, 2006) and reports/discussion/ consultation documents (Kiefer et al., 2005; Canadian Institutes of Health Research, 2006; Canadian Institutes of Health Research & Canadian Population Health Initiative, 2002; Canadian Health Services Research Foundation, 2003; World Health Organization, 2005; Canadian Population Health Initiative, 2006) were retrieved and rated as relevant. There is much to be learned, by the NCC: MT, from this literature.

Discussion

The literature retrieved is very diverse, and would best be approached through separate syntheses with particular sub-questions. However, key learnings gleaned from these references are briefly highlighted as follows:

1. There are multiple barriers to knowledge translation, with practitioners and policy makers consistently rating the greatest barrier as time, followed by access and ease of use. Research producers and users have multiple conflicting goals, different cultures and languages.
2. Factors associated with the innovation, the individual practitioner, the organization and the broader environment all impact on knowledge translation.
3. The only trial in this review found no effect of different interventions on changing practitioner behavior. However, other reviews have found that most interventions working to produce some behavior change under some, but not all, circumstances.
4. Individual practitioner behavior change may follow organizational changes. More is known about individual barriers and some predictors of evidence use than is known about organizational change required to facilitate and support the use of evidence.
5. Similarly, leadership within an organization has been repeatedly identified as a crucial factor in supporting the necessary resource requirements and culture to support knowledge utilization.

Leadership within an organization has been repeatedly identified as a crucial factor in supporting the necessary resource requirements and culture to support knowledge utilization.

KEY INFORMANT INTERVIEWS

Purpose

Purposes of Interviews:

To clarify the meaning of 'methodologies and tools' in the context of public health in Canada.

To develop the questions for the environmental scan survey.

One of many challenges involved in conducting this environmental scan was determining a clear operational definition of 'public health methodologies and tools'. The second component of the scan was a series of telephone interviews with key informants designed to accomplish two purposes:

1. To clarify the meaning of 'methodologies and tools' in the context of public health in Canada.
2. To develop the questions for the environmental scan survey.

Participants

Purposive sampling was used to identify 14 key informants who met the following recruitment criteria:

1. Representatives from the four target groups: public health practitioners, managers, policy makers and researchers;
2. Individuals from different parts of the country.

Two of the identified key informants were not available to participate. Among the 12 who were interviewed, four were practitioners, four were managers, two were policy makers, and two were researchers. Although most on the key informants came from Ontario (7), we were able to interview people in Nova Scotia (3), Quebec (1) and Alberta (1). Two respondents were employed at the national level, five at the provincial level and the remaining individuals worked at the local/regional level. Ten of the twelve participants were women. The key informants represented a variety of disciplines, and some of the participants were from rural areas and contributed their particular perspective to the scan.

Methods

The 12 telephone interviews were conducted by the project manager (KC) in April and May 2006. The semi-structured interview guide is provided in Appendix 4. The interviews were audio taped and lasted 20 to 60 minutes. They were transcribed, checked and analyzed using N-Vivo software. A qualitative researcher (RV) trained and supervised two students in the use of N-Vivo for coding qualitative data. This software program allows the development of codes that were organized in a tree

structure revealing themes within the data analysis. The two students initially created codes independently and then met with the qualitative researcher to review and determine a master list of codes. This led to the identification of major themes. All coding was checked by the researcher who also prepared the summary of the results.

Results

Meaning of 'public health methodologies and tools'

The understanding and interpretation of the term 'public health methodologies and tools' varied considerably depending on the role of the respondent. The practitioners tended to think more in terms of public health practice methods and tools (e.g., best practice guidelines) whereas the mangers, policy makers and researchers were more familiar with and had greater understanding of the concept of knowledge translation and the continuum of synthesis, dissemination, access, use, and integration.

'Public health methodologies and tools can be interpreted extremely broadly...from my perspective, they would be decision aids, decision algorithms, synthesized information packed in a useable manner to assist in priority setting or decision making at the local or provincial level.'

Methodologies and tools - currently in use

The key informants identified several existing methods and tools that they currently use (Appendix 5). The qualitative analysis organized the responses into the following categories: national and provincial organizations; networks; resources and tools; and, management support mechanisms.

Key informants were asked to comment on the usefulness of these methodologies and tools but the responses were quite general. It was concluded that it would not be informative to include a question in the environmental scan survey about the usefulness of existing methods and tools. If the NCC: MT requires a formal evaluation of public health methods and tools, then a specific project should be designed to achieve such a purpose.

Methodologies and tools - not available ('gaps')

In addition to documenting the methods and tools currently being used, the authors of the environmental scan were interested in identifying if there were gaps in the available knowledge translation methods and tools. The interviewer (KC) asked the participants to identify the public health methodologies and tools they thought were needed but not available. Appendix 6 provides the lengthy list of identified gaps in knowledge translation methods and tools as well as the gaps related to public health practice issues.

The qualitative research analyst (RV), abstracted the following themes from the list of knowledge translation gaps:

- Limited access to quality literature;
- Need for marketing of knowledge resources;
- Lack of knowledge translation expertise;
- Need for improved evidence-based resources and access to them;
- Need for more sharing of information between health units;
- Lack of training in knowledge translation;
- Lack of evidence reporting failed public health interventions.

The gaps related to practice environment issues included the lack of adequate and skilled human resources, lack of time to access evidence, lack of financial resources, insufficient focus on public health research in Canada, and a lack of standardized methods for public health data collection (Appendix 6).

Priorities

Based on the 'gaps' that were identified, the key informants were asked what should be the initial work priorities for the NCC: MT. The qualitative analysis abstracted forty different priorities including *processes* (e.g., integrate the NCC: MT into the field from the very beginning), *outcomes* (e.g., create an online compendium of evidence-based practice for public health), and *resources* (e.g., involve public health informaticist and evaluation experts). The suggested priorities (Appendix 7) were examined and used to construct the list of possible priority work tasks included in the environmental scan survey.

An extensive list of people in diverse roles from across the country has been compiled and will be provided to the Ministry of Health and Long-Term Care, the Public Health Agency of Canada, and the Directors of the NCC: MT.

Key informants

One of the goals of the environmental scan was to identify 'experts' across Canada who are interested in and available to assist with the establishment of the network and the NCC: MT Advisory Board. Each of the key informants was asked to suggest people that they thought should be involved in the establishment of the NCC: MT network and/or Advisory Board. They were asked to identify people in public health as well as those from other sectors.

An extensive list of people in diverse roles from across the country has been compiled and will be provided to the Ministry of Health and Long-Term Care, the Public Health Agency of Canada, and the Directors of the NCC: MT.

Discussion

The key informant interviews were very helpful in providing direction for the NCC: MT. They served to clarify that the focus of the NCC: MT should be on the development, dissemination and use of up-to-date, quality evidence for decision making in public health. Although there is a need for new and improved practice methods and tools, in the opinion of the key informants, the roles of the NCC: MT should be to promote the synthesis of good health information, to foster the dissemination of and access to evidence across the country, as well as to facilitate the use of evidence in public health decision-making.

The target audiences for the NCC: MT are the other five NCCs as well as the public health practitioners, managers, policy makers and researchers across Canada.

The target audiences for this work are the other five NCCs as well as the public health practitioners, managers, policy makers and researchers across Canada. The key informants stressed the need for clear communication and education about the mission and mandate of this particular NCC.

The 12 interviews also helped to evaluate and improve the questions designed for the environmental scan survey. While an online survey may be a more efficient method of data collection, personal interviews are a source of rich information that can be clarified and explored in depth at the time of the interview.

ENVIRONMENTAL SCAN SURVEY

Purpose

The third component was an environmental scan survey carried out over a four-week period (May 24 to June 19, 2006). The purpose of this survey was to gather information from as diverse a sample as possible of public health practitioners, policy makers, managers and researchers across Canada. The questions were designed and pilot tested to obtain information and opinions that would help define the mandate and priorities of the NCC: MT.

Participants

Due to the limited time available to complete the scan, the investigators asked three key public health organizations to assist with the identification of study samples from their 'membership' lists, and the distribution of the environmental scan survey recruitment message. The Canadian Public Health Association (CPHA), the Canadian Institutes for Health Research -

Institute for Population and Public Health, (CIHR-IPPH), and health-evidence.ca each agreed to select samples from their distribution lists according to the same criteria used for the key informant interviews: representatives of the four target groups - public health practitioners, managers, policy makers and researchers; and, individuals from different parts of the country.

539 respondents (21%) (539)

Recruitment messages were sent by email to 2582 potential participants (CPHA [341], CIHR-IPPH [929], health-evidence.ca [1312]) between May 24 and June 5, 2006. There was some overlap in the three databases, but we were unable to identify how much overlap. One follow-up reminder was sent to each list. A total of 539 questionnaires were completed for a conservative response rate of 21%.

The detailed demographic characteristics of the respondents are presented in Appendix 8. The following is the overall profile of the contributors:

- The respondents were mostly from Ontario (44.9%) but others came from every Province and Territory;
- The largest number of contributors were public health nurses (24.1%) but respondents represented twenty other disciplines;
- The primary job functions included research/program evaluation (28.9%), education (28%), and direct service provision (26.7%);
- 82% of the respondents were women;
- 36.4% of the contributors were 50-59 years of age and 30.7% were 40-49 years of age.

Methods and analysis

The survey was conducted using SurveyMonkey, an efficient and effective software program that gathers and analyzes survey data. For more information about SurveyMonkey please go to http://www.surveymonkey.com/. The environmental scan questionnaire is presented in Appendix 9.

Although SurveyMonkey compiles and analyzes responses to quantitative questions, it was necessary to use N-Vivo to analyze the answers to the open-ended qualitative questions. The students and the qualitative researcher (RV) coded and extracted the themes from these questions as they did with the data from the key informant interviews.

Results

Methodologies and tools - currently in use

The survey questionnaire included 13 knowledge translation methods and tools developed from the responses to the key informant interviews (Appendix 10). None were used daily but those used most frequently (weekly or monthly) included:

- Journals;
- Practice guidelines (protocols, best practice guidelines, medical directives);
- Theoretical models and frameworks;
- Books;
- Public health websites with access to evidence/literature.

Most frequently used methods and tools: journals; practice guidelines; theoretical models and frameworks; books; and public health websites

In addition to the listed methods and tools, the respondents were asked to identify others that were missed. The respondents contributed 138 suggestions that included communication methods such as conferences, discussion with colleagues, listserves, meetings, and communities of practice. They mentioned the Internet, workshops, and seminars. Key informants were also identified, in particular, colleagues with expertise.

Methodologies and tools - not available ('gaps')

There were 16 knowledge translation methods and tools included in the survey that were listed as possibly NOT available to the respondents (Appendix 11). Of the 377 respondents who answered this question, 188 (49.9%) indicated that they did not have access to a standardized format for reviews and guidelines, decision aids and algorithms. 181 (48%) responded that they did not have 'how to' guides for conducting systematic reviews. In addition, concise, user-friendly summaries of systematic reviews were not available to 169 (44.8%) of those who responded to this question.

When asked about 'other' knowledge translation methods and tools not available, only 53 (14.1%) of the 377 responded. Nine stated they had no problems with availability, but seven identified lack of time as their challenge.

Priorities - ratings

Sixteen priority activities were abstracted from the responses of the key informants and included in the survey (Appendix 12). Participants were asked to rate each potential activity of the NCC: MT using a five-point scale ranging from 'very low priority' to 'very high priority'.

The following is the list of the top ten rated priorities based on the accumulated score of 'somewhat high priority' and 'very high priority':

1. Create an online compendium of evidence-based practice for public health;
2. Create user-friendly summary statements from systematic reviews;
3. Create a support structure for sharing of information across health units and agencies;
4. Evaluate the impact of the application of evidence in practice;
5. Develop knowledge transfer skills (how to get evidence into practice and policy development);
6. Influence leadership to help uptake of application of evidence in practice;
7. Develop skills in knowledge synthesis and dissemination;
8. Develop and test dissemination strategies for improving uptake of evidence;
9. Close the gap between NCC: MT and providers of direct services;
10. Provide standardized methods of quality assessment of evidence.

Although some people told us in the interviews that they do not have easy access to the information technology required to access quality health information, the lowest rated priority for the NCC: MT was 'increase access to computers, the Internet and other information and communication technologies'.

Priorities - other

The importance of working cooperatively and collaboratively with other knowledge translation and knowledge brokering organizations and services.

When asked to suggest other priority activities, 57 respondents offered their ideas. Several contributions identified the importance of working cooperatively and collaboratively with other knowledge translation and knowledge brokering organizations and services. In particular, the Best Practices Portal for Health Promotion and Chronic Disease Prevention was mentioned several times. The need to avoid duplication of effort was stated repeatedly. Many of the other suggestions represented variations of the presented list of possible priority activities.

Other terms

In an attempt to deal with the uncertainty and debate surrounding the terms 'knowledge translation' and 'methodologies and tools', the authors included a question in the survey asking the respondents if there were 'other terms that ... are more commonly used to mean the same things'?

Of the 98 people who responded to this question, 12 stated that the simpler term 'method' is used more commonly than 'methodologies'. Other terms included 'processes', 'strategies', and 'resources'. Rather than

'knowledge translation', 13 respondents said they use 'knowledge exchange' and another eight use 'knowledge transfer'. At the 2006 NCC Summer Institute the term 'knowledge synthesis, transfer and exchange' (KSTE) was frequently used.

Organizations

Appendix 13 summarizes the survey data collected in relation to the open-ended question ‘Please identify any organizations in public health or in healthcare research in general that you consider effective at dissemination of public health methodologies and/or tools for knowledge translation to policy makers and/or practitioners?’

162 organizations were identified as effective in the dissemination of public health methods and tools to policy makers and practitioners.

There were 211 responses to the above question and 162 distinct organizations were identified. Organizations that were identified most frequently were the Public Health Research, Education & Development Program (PHRED) (28), the Centers for Disease Control and Prevention (CDC) (22), the Public Health Agency of Canada (PHAC) (20), The Cochrane Collaboration (15), the Canadian Public Health Association (CPHA) (14), various universities (14), the Canadian Health Services Research Foundation (CHSRF) (12), health-evidence.ca (12), the Canadian Institute for Health Information (CIHI) (8), Health Canada (8), and the Registered Nurses Association of Ontario (RNAO) (8).

"Other' responses included dissemination methods that people considered effective (e.g., conferences), specific disciplines that respondents thought were good disseminators (e.g., epidemiologists), and particular individuals. These data have not been included in the appendices but are available from the authors.

Key informants

As before with the key informants who were interviewed, the online respondents were very helpful identifying more than 300 people across Canada who they thought should be involved in the NCC: MT National Advisory Board. The names and contact information are not included in the report but will be provided to the Ministry of Health and Long-Term Care, the Public Health Agency of Canada, and the Directors of the NCC: MT.

Discussion

With the assistance of the three public health organizations and the environmental scan survey tool (SurveyMonkey), it was possible to administer the survey to a large number of people in public health over a

short period of time, and at little direct cost. Although the response rate was low (21%), the authors were pleased to obtain input from a total of 539 respondents across the country.

The knowledge translation methods and tools currently in use are conventional sources of information (e.g., journals and books). A couple of the more advanced resources (e.g., sources of synthesized information or systematic reviews and networks for knowledge exchange) were cited as being used weekly or monthly. Clearly, public health practitioners, managers, policy makers and researchers need to be informed about the many other sources of evidence for public health decision-making. This conclusion is reinforced by the number of knowledge translation methods and tools reported to be not available to the respondents (e.g., user-friendly summaries of systematic reviews).

As before, the authors' primary interest was in the identification and rating of the potential priority activities for the NCC: MT. It was valuable to get input from so many people working in various roles and different settings and circumstances. The activities included in the environmental scan survey were carried forward to the Priority Setting Modified Delphi Surveys.

Language is important.

Language is important in any endeavour. The words used to label, define and describe concepts are critical to effective communication and shared understanding. The feedback from the online respondents would suggest that the NCC: MT should use 'methods and tools', and 'knowledge exchange' rather than 'knowledge translation'.

The key informants' call for collaboration and cooperation by the NCC: MT with the many other existing knowledge translation organizations was reinforced by the large number of organizations identified in the survey as engaged in the effective dissemination of public health methodologies and tools for knowledge translation to policy makers and practitioners. Another environmental scan currently being conducted by John Lavis and Sonya Corkum includes a survey of organizations on 'Knowledge Development and Exchange (KD&E) Practices in Chronic Disease Prevention and Control'. The results of this survey will contribute to a better understanding of many of these organizations.

PRIORITY SETTING MODIFIED DELPHI SURVEYS

Purpose

The fourth, and final, component of the environmental scan was designed to provide a clear set of initial work priorities for the NCC: MT. A modified Delphi technique was used to facilitate quick decision making of a fairly large group of public health practitioners, managers, policy makers and researchers.

A modified Delphi technique was used to facilitate quick decision making of a fairly large group of public health practitioners, managers, policy makers and researchers.

Since the NCC: MT will be a national resource for people working in public health in all Canadian jurisdictions, the authors thought it was important to enable the participation of a diverse group of people from across Canada. Although a face-to-face meeting would have had some advantages, arranging such a meeting in July was prohibitive in terms of time as well as cost. A series of three online surveys was judged to be more feasible and efficient.

Participants

A total of 188 people were invited to participate in the final priority setting process. The selected list included the 106 respondents from the environmental scan survey who volunteered to participate in the Delphi Survey. In addition, 55 individuals identified as key informants by the environmental scan survey respondents were included. The Directors of the five existing NCCs were added to the list along with the Directors of the Public Health Research, Education and Development Program in Ontario. Finally, a group of the Phase 2 key informants and some knowledge translation experts were asked to assist with the priority setting process.

The invitation and initial survey were sent by email on Monday, June 26, 2006. The potential participants were informed that the three-phase survey would be conducted over a three-week period starting June 26 and concluding July 14. If the participants were not available to participate for the full three weeks, they were asked to withdraw and their names were removed from the list.

Sixty of the 188 invited participants responded to the first survey and committed to complete the subsequent two surveys.

Sixty of the invited participants responded to the first survey and committed to complete the subsequent two surveys. This represented a 32 % response rate. Forty-nine completed the second survey and 51 responded to the third. Demographic questions were only included in the final survey in order to keep the questionnaires as short and easy to complete as possible.

The general profile of the 51 respondents follows and the detailed results are presented in Appendix 14:

- Consistent with previous results, the largest group of respondents was from Ontario; unfortunately this time there were no contributors from Nunavut, Nova Scotia, Prince Edward Island, or the Yukon Territories.
- The disciplines of the three largest groups of respondents were policy makers (11), researchers (11) and program evaluators (10).
- In keeping with the predominant disciplines, the most common job function was research/program evaluation.
- The women out numbered the men 4 to 1; one person did not answer this question.
- Twenty (41%) of the respondents were in the 50-59 years category.

Methods and analysis

Once again the authors used SurveyMonkey to administer three consecutive online surveys and analyze the results. The first survey was sent out Monday, June 26, a reminder was mailed on June 28, and participants were asked to respond by Friday, June 30. The second survey was sent on Monday, July 3, the reminder was mailed on July 6, and the respondents were asked to respond by Friday, July 7. The third, and final survey, was sent out Monday, July 10, the reminder was mailed on July 17; respondents were given additional time to respond until July 21.

Because of the similarity of the instrument and results, only the third questionnaire has been included in Appendix 15 (others are available upon request). Twenty-four potential priorities were derived from the results of the environmental scan survey and included in phase one of the Delphi process. In this initial survey, participants were asked to rate the priorities as high, medium or low and they could respond 'don't know'. They were also encouraged to suggest additional priorities.

Fourteen of the priorities rated 'high' by 40% or more of the respondents were then included in the second survey along with one from the open-ended question that added a new perspective. In this survey, the participants were asked to rank order the 15 priorities so that the top ten activities could be included in the third and final survey.

#1 Priority was to create a support structure for sharing of information across health units, agencies, and institutions.

Results

The Delphi process allowed us to reduce the data; only the responses to the final survey have been reported.

The full priority list is presented in Appendix 16. The top five work activities for the NCC: MT are:

1. Create a support structure for sharing of information across health units, agencies, and institutions;
2. Strengthen leadership to support the use of evidence in practice and policy;
3. Create user-friendly summary statements from systematic reviews;
4. Create an online resource (the 'go to place') of evidence for public health practice;
5. Integrate front line practitioners with the NCC: MT from its inception.

Discussion

There was some shifting in the ranking of the activities over the three surveys but the final results provide a clear list of recommended activities for the NCC: MT as it begins its work. The need for a mechanism to share information across health units, agencies and institutions was identified in the initial key informant interviews and persisted as a priority throughout the various surveys. The importance of leaders informed about and supportive of knowledge translation in public health was also mentioned by the key informants and rated a priority by the survey respondents. The creation and dissemination of user-friendly statements from systematic reviews is an obvious function of the NCC: MT.

The need for an online ('go to place') for evidence to support public health decision-making is generally accepted. However, rather than 'creating' another resource, the Centre was advised by respondents to coordinate its efforts with other initiatives such as the new Best Practices Portal for Health Promotion and Chronic Disease Prevention. The implementation of this priority will need to be carefully evaluated and planned by the Centre. Finally, ‘integrating front line practitioners’ persisted as a priority throughout the various stages of the environmental scan. Given the literature that argues the need for involving target users in all phases of knowledge translation (synthesis, dissemination, access, use and integration), the NCC: MT should consider integrating not only the front line practitioners but also the managers, policy makers and researchers as well as representatives of the other NCCs.

The NCC: MT should consider integrating not only the front line practitioners but also the mangers, policy makers, and researchers as well as representatives of the other NCCs.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Any new organization is well advised to conduct an environmental scan as part of its start-up activities. The Public Health Division of the Ontario Ministry of Health and Long -Term Care contracted with the authors, on behalf of the Ontario PHRED program, to conduct an environmental scan for the National Collaborating Centre for Public Health Methodologies and Tools (NCC: MT).

The scan was carried out over a four-month period from April to July 2006 with the following four components:

1. An extensive review of the published and grey literature;
2. A series of 12 telephone key informant interviews;
3. An environmental scan survey with over 500 public health people from across Canada;
4. A three-phase priority setting modified Delphi survey.

With the input and assistance of many individuals and organizations, the objectives were achieved:

1. To identify and define what public health methodologies and tools mean to the target users.
2. To identify the existing methodologies and tools.
3. To identify methodologies and tools that are needed but not yet available (i.e., the gaps).
4. To prioritize the action plan based on reported gaps for the initial workplan of the NCC: MT.
5. To identify 'experts' across Canada who are interested in and available to assist with the establishment of the network and the NCC: MT Advisory Board.

Conclusions

The primary conclusion of the environmental scan was the top five work activities for the NCC: MT:

1. Create a support structure for sharing of information across health units, agencies, and institutions;
2. Strengthen leadership to support the use of evidence in practice and policy;
3. Create user-friendly summary statements from systematic reviews;
4. Create an online resource (the 'go to place') of evidence for public health practice;
5. Integrate front line practitioners with the NCC: MT from its inception.

Recommendations

The following recommendations are proposed for consideration by the new NCC: MT.

1. As the literature found few high quality intervention studies in knowledge translation within public health, this NCC: MT should consider recommending that various funding agencies establish a dedicated fund for knowledge translation research in public health.

2. The limited work to date has shown little impact on changing practitioner behavior regarding using research findings. The NCC: MT should itemize lessons learned from the literature, in order to make recommendations for future trials, based on survey and qualitative findings that imply the need for leadership development and culture change to support individual behavior change.

3. Synthesis topics related to the literature collected for this scan should be prioritized in order to produce documents, such as tools and criteria for assessment of applicability/transferability; specific tools and products for knowledge transfer; and a compendium of critical appraisal tools.

4. Recommendations to improve the use of research by policy makers include: personal and close two-way communication; brief summary of research with clear policy recommendations; timely, relevant and high quality summaries which include effectiveness data; demonstrated relevance to current policy and community needs.

5. Different interventions need to be developed for cross-disciplinary groups within different content areas and for different disciplines within a content area.

6. Focus on organizational and policy changes may be strategic areas for the NCC: MT to prioritize in their research.

7. Leadership development in knowledge translation should be a priority in order to achieve organizational change.

8. The language used by the NCC: MT should be considered in consultation with the Public Health Agency of Canada and the other NCCs. In particular, the results suggest that it would be preferable to use 'methods' instead of 'methodologies' and 'knowledge exchange' rather than 'knowledge translation'.

9. The work priorities identified in this scan should be discussed with the Public Health Agency of Canada, the other NCCs, and approved by the NCC: MT Advisory Board.

10. The results clearly suggest that the NCC: MT should work in cooperation and collaboration with other knowledge translation organizations and services within the Public Health Agency of Canada (PHAC) and across the country. In the start-up period of the NCC: MT, consultations should be conducted with the different divisions within PHAC, the other NCCs, and knowledge translation experts across Canada.

11. The NCC: MT should not waste time and resources creating another online resource for public health information. Instead, it should explore the feasibility of joining with another portal, such as the Best Practices Portal for Health Promotion and Chronic Disease Prevention, to include all aspects of public health and health promotion.

12. An ongoing program of marketing/communications should be established to inform the public health community about the role, functions and resources of the NCC: MT.

13. From the beginning, the NCC: MT should create effective and efficient ways to work collaboratively with members of its target audiences, including front line practitioners, managers, policy makers, researchers, and the five other NCCs.

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APPENDICES

APPENDIX 1

KEY SEARCH TERMS

method:
model:
tool:
tool kit:
portal:
guide:
best practice:
clearinghouse:
framework:
instrument:
knowledge transfer:
knowledge exchange:
knowledge management:
knowledge dissemination:
knowledge translation:
diffusion of innovation:
pathway:
recommendation:
knowledge broker:
public health:
community health:
population health:
preventi:
health promotion:
practitioner:
professional:
provider:
stakeholder:
administrator:
policy maker:
health personnel:
setting:
physician:
decision maker:
organisation:
organization:
communit:
government:
societ:
agenc:
workforce:
nurse:
opinion leader:
change agent:
systematic review:
literature review:
critical appraisal:
synthesi:
access:
utiliz:
utilis:
transfer:
implement:
adopt:
translat:
guide:
disseminat:

APPENDIX 2

LIST OF GREY LITERATURE CONTRIBUTORS

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Amanda Sowden, University of York, UK

Kathleen Stevens, The University of Texas Health Science Center at San Antonio, USA

Marita Titler, University of Iowa, USA

Paul Wilson, University of York, UK

APPENDIX 3

LIST OF RELEVANT WEBSITES

Agency for Healthcare Research and Quality (AHRQ)
(http://www.ahrq.gov/)

Alberta Heritage Foundation for Medical Research (AHFMR)
(http://www.ahfmr.ab.ca/)

Campbell Collaboration
(http://www.campbellcollaboration.org/)

Canadian Health Services Research Foundation (CHSRF)
(http://www.chsrf.ca/)

Canadian Institutes of Health Research (CIHR)
(http://www.cihr-irsc.gc.ca/)

Canadian Population Health Initiative (Canadian Institute for Health Information)
(http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=cphi_e)

Canadian Public Health Association (CPHA)
(http://www.cpha.ca/english/index.htm)

Centre for Health Evidence (CHE)
(http://www.cche.net/)

Centre for Reviews and Dissemination (CRD)
(http://www.york.ac.uk/inst/crd/)

Centers for Disease Control and Prevention (CDC)
(http://www.cdc.gov/)

Critical Appraisal Skills Programme (CASP)
(http://www.phru.nhs.uk/casp/casp.htm)

Effective Public Health Practice Project (EPHPP)
(http://hamilton.ca/ephpp)

Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre)
(http://eppi.ioe.ac.uk/EPPIWeb/home.aspx)

Evidence-Based Practice for Public Health Project
(http://library.umassmed.edu/ebpph/)

Institute for Clinical Evaluative Sciences (ICES)
(http://www.ices.on.ca/webpage.cfm)

Knowledge Translation Program (UofT)
(http://www.ktp.utoronto.ca/index.htm)

Knowledge Utilization Studies Program (KUSP)
(http://www.nursing.ualberta.ca/kusp/)

Multidisciplinary Collaborative Primary Maternity Care Project (MCP)
(http://www.mcp2.ca/)

National electronic Library for health (NeLH)
(http://www.nelh.nhs.uk/)

National Institute for Health and Clinical Excellence (NICE)
(http://www.nice.org.uk/)

Netting the Evidence
(http://www.shef.ac.uk/scharr/ir/netting/)

Ontario Ministry of Health and Long Term Care
(http://www.health.gov.on.ca/)

Public Health Agency of Canada
(http://www.phac-aspc.gc.ca/new_e.html)

Public Health electronic Library
(http://www.phel.gov.uk/)

Registered Nurses Association of Ontario (RNAO)
(http://www.rnao.org/)

SEARCH Canada
(http://www.ahfmr.ab.ca/search.php)

The Cochrane Collaboration
(http://www.cochrane.org/)

UK Government Social Research
(http://www.gsr.gov.uk/)

World Health Organization
(http://www.who.int/en/)

APPENDIX 4

KEY INFORMANT INTERVIEW GUIDE

The purpose of this interview is to gather information that will provide information and guidance to develop the National Collaborating Centre for Public Health Methodologies and Tools.

Demographic Information:

First I would like to ask you for some basic demographic information.

1. At what level do you currently work?
__ National
__ Provincial
__ Territorial
__ Regional
__ Local

2. In which geographic area do you currently work?
__ Province (please specify) _____
__ Territory (please specify) _____

3. Which best describes your discipline?
__ Policy developer/ analyst
__ Physician
__ Nurse
__ Inspector/environmental health specialist
__ Dentist
__ Epidemiologist
__ Health promoter
__ Nutritionist/ Dietitian
__ Health educator
__ Program evaluator
__ Librarian
__ Information Technologist
__ Toxicologist
__ Infection Control Practitioner
__ Administration/Management
__ Other (please specify) _____

4. Which best describes your main job function?
__ Executive officer
__ Medical Officer of Health
__ Associate Medical Officer of Health
__ Program Manager/Program Director
__ Direct service provision
__ Research
__ Program evaluation
__ Policy development
__ Other (please specify) _____

5. Gender: ___ Male ___ Female

Other Questions:

1. What does the term “public health methodologies and tools”, *which provide guidance in public health decision-making*, mean to you?

    1. a. What key methodologies and tools in public health do you currently use?

    1. b. Comment on how useful these methodologies and tools are in your work?

    1. c. What other key methodologies and tools in public health currently exist that you know of?

2. What if I told you that by *methodologies and tools* we are referring to the processes (methodologies) and products (tools) that facilitate your access to and use of information in public health decision-making - does this alter your opinion about 'public health methodologies and tools'?

    Does this operational definition change in any way your response to the following questions?

    2. a. What key methodologies and tools in public health do you currently use?

    2. b. Comment on how useful these methodologies and tools are in your work?

    2. c. What other key methodologies and tools in public health currently exist that you know of?

3. What public health methodologies and tools are missing that you feel are needed?

4. Based on the gaps that you have identified, which should be priorities for this National Collaborating Centre to address?

5. Are there other key people in public health that you think we should be interviewing or who should be involved in the establishment of the National Collaborating Centre for Public Health Methodologies and Tools Network and/or Advisory Board?

    Prompts: practitioners, decision-makers, policy makers, or researchers.

6. Is there anything else you think we should know?

7. Is there anything you would like to ask us?

Thank you for your valuable input.

APPENDIX 5

KEY INFORMANT INTERVIEW RESULTS: LIST OF EXISTING METHODOLOGIES AND TOOLS

National and Provincial Organizations

- CPHA, CASN, PHAC, Atlantic Region Health Promotion Research Centre, Nova Scotia Public Health Research and Knowledge Translation Network, Public Health Association of Nova Scotia)

Networks

- National Networks (CHNETWorks!)
- Provincial Networks (Tobacco Network, there's the Healthy Babies, Healthy Children Network)
- Regional Networks (Central /South-West)
- Electronic Networks (Online Communities of Practice)

Resources / Tools

- Information Resources (health-evidence.ca, web sites linking to summaries [concise synthesis of information] and guidelines, PHRED systematic reviews, summaries, journals [online and hard copy], critically appraised literature, Best Practice Guidelines, Benchmarking Project)
- Library Resources (librarians, library services, comprehensive electronic library, The Cochrane Collaboration web site, online databases)
- Internet
- Workshops and conferences (including conference accessibility)
- Critical Appraisal Tools
- Evaluation Tools
- Economic Analysis Tools
- Best Practice Guidelines (RNAO)
- Skills enhancement for integration of research into practice

Management support for participation in continuing education

Management support for active participation in research (practitioners as research subjects)

- Epidemiology
- Cross-jurisdictional analysis of community data
- Legislation (Mandatory Core Programs)
- Decision algorithms

APPENDIX 6

KEY INFORMANT INTERVIEW RESULTS: LIST OF METHODOLOGIES AND TOOLS NOT AVAILABLE ('GAPS')

Gaps Related to Knowledge Translation Methodologies and Tools

- Limited access to quality literature
    - No up-to-date resources: no website; no checks for new updated systematic reviews; no books
    - Few systematic reviews; lack of synthesis of evidence in public health
    - Need better access to grey literature
    - Need to provide everyone an opportunity for networking (spread meetings across province)
    - Public health evidence is difficult to search
    - Need concise structured reviews of evidence
    - Need “Redbook” (Canadian Task Force for Preventive Health Care) for key public health practice issues on web
    - Need to have highly accessible information
- Need for marketing
    - Need more marketing of library resources
    - Need to market guidelines to the public health practice community
    - NCC: MT to help with web design
- Lack of expertise
    - No access to specialized skills of knowledge brokers
    - Lack of expertise in searching for evidence
    - NCC: MT needs to have knowledge transfer expertise
    - NCC: MT needs scientific writers to prepare summary statements
- Need for improved evidence-based resources and access to them
    - Need better public health search engines
    - Systematic reviews lack how-to's
    - NCC: MT to put guidelines in standard format
    - Use of meta-analysis
    - More knowledge brokers to sift through information
- Need for more sharing of information between health units (not to reinvent the wheel)
    - Need web site for sharing information
    - Communication networks to share resources
    - Communication networks for program listings and program updates
- Lack of training
    - Lack of accessible training tools for continuing education in various disciplines
    - Lack of training in finding evidence
    - Lack of training in using and integrating the evidence
    - NCC: MT needs to provide training on how to critically appraise evidence
    - NCC: MT needs to show how to summarize evidence
    - Skills enhancement online modules are useful but not sufficient
    - Weak tools for web-based learning
- Lack of evidence reporting of failed interventions

Gaps Related to Practice Issues

- Lack of human resources
  - Lack of human resources
  - Need chairs in public health-oriented research
  - Need expertise on program evaluation
  - No access to health planners
  - No access to trained epidemiologists
- Lack of public funds
- Lack of time
  - Want E-journal access from desktop
  - Need quick access to research evidence
  - Need quick access to epidemiological information
- Approaches to measurement in health care
  - Lack of standardized public health data in Canada to compare jurisdictions
  - Heterogeneous system of data collection in Canada
  - Paucity of data collection, lack of standards, no standard data inputs in public health across Canada
  - Public health driven by population health perspective
- Little focus on public health research in Canada
- Available standardized evidence-based packages of information for application in practice
- Lack of decision aids for practice
- Need more focus on social research; attitude on public health is too technical – biomedical
- Need multidisciplinary practice guidelines
- Having to deal with micro issues
- Inclusion of health units that are not identified as PHRED
- Standardized packages of information (algorithms)

APPENDIX 7

KEY INFORMANT INTERVIEW RESULTS: LIST OF SUGGESTED NCC: MT WORK PRIORITIES

Knowledge translation priorities

A compendium of evidence-based practice for public health online

Summary Statements

- Break down detailed systematic reviews
- Short summary statements for lay audience
- Summary statements on web sites for each or all NCCs

Applicability and transferability

- Factoring contextual effects into syntheses
- Synthesizing a complex issue without losing content or significance

Standardized methods

- Centralized capacity for knowledge synthesis and dissemination
- Standardized easy-to-use methods of quality assessment of evidence
- Standardized easy-to-use methods for searching
- Standardized easy-to-use methods to summarize the evidence
- Standardized way of evaluating

Sharing information

- Don't duplicate work already done
- NCC: MT human resources need to be grounded in health units to increase relevancy
- Sharing of information across different agencies

Accessibility

- Access to technology
- Find processes that enable people to take advantage of tools
- Limited access to grey literature
- Need for accessibility of methodologies and tools for practitioners in Canada
- Need to improve access to what's out there already

Tools that are up-to-date and easy to use

Teaching critical appraisal skills

NCC: MT 'dream team'

- Need experts in evaluating quality of evidence
- Needs change agent
- Needs public health informaticist

Integration

- Close gap between national bodies and field workers
- Integrate the NCC: MT into the field from the very beginning
- Integrate PHRED programs more into the field

Marketing NCC: MT

- Define and disseminate NCC: MT products and role
- Define public health methodologies and tools
- Disseminate meaning of public health methodologies and tools
- Disseminate the purpose of the NCC: MT

Workload management issues for NCC: MT

- Have enough human resources to do identified work

- Focus on only a few specific projects at once
- Prioritization is needed for NCC: MT to manage workload
- Content of reviews should focus on common public health interventions

Evaluation of the impact of the application of evidence in practice

Public health practice priorities

- Tools driven by evidence ("What's the algorithm that goes into the hand of the inspector and what's the best package of understanding the different regions of Canada")
- NCC: MT should not include massive IT systems for public health
- Need for key criteria regarding evaluation
- Development of evidence-based decision aids

APPENDIX 8

ENVIRONMENTAL SCAN SURVEY: DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

1. In which geographic area do you currently work?

Province	Response Percent	Response Number
Alberta	9.3%	50
British Columbia	12.3%	66
Manitoba	6%	32
New Brunswick	5%	27
Newfoundland and Labrador	3%	16
Northwest Territories	1.1%	6
Nunavut	0.7%	4
Nova Scotia	4.9%	26
Ontario	**44.9%**	**240**
Prince Edward Island	0.2%	1
Quebec	6%	32
Saskatchewan	6%	32
Yukon Territories	0.6%	3
Total Respondents		**535**
Skipped this question		4

2. Which best describes your discipline (Check all that apply)

Discipline	Response Percent	Response Number
Policy Maker	8.6%	46
Researcher	23.3%	124
Physician	4.9%	26
Public Health Nurse	**24.1%**	**128**
Registered Nurse	9.4%	50
Registered Practical Nurse	0%	0
Nurse Practitioner	0.6%	3
Public Health Inspector	1.9%	10
Public Health Dentist	0.2%	1
Dentist	0.6%	3
Dental Hygienist	0.8%	4
Dental Assistant	0%	0
Epidemiologist	8.5%	45
Health Promoter	15.4%	82

Nutritionist	4.1%	22
Dietitian	4.5%	24
Speech/Language Pathologist	0.6%	3
Health Educator	7.9%	42
Program Evaluator	10.3%	55
Data Analyst	2.8%	15
Librarian	3.2%	17
Information Technologist	1.5%	8
Toxicologist Infection Control Practitioner	0.2%	1
Environmental Health Coordinator	0.8%	4
Business Administrator/Business Manager	5.5%	29
Other	19.2%	102
Total Respondents		**532**
Skipped this question		7

3. Which best describes your main job function(s)? (Check all that apply)

Job Functions	**Response Percent**	**Response Number**
Executive Officer	4.9%	26
Medical Officer of Health/Associate Medical Officer of Health	1.3%	7
Senior program manager/Program Director	11.1%	59
Middle management	12%	64
Direct service provision	26.7%	142
Research/Program evaluation	**28.9%**	**154**
Data analysis	10.3%	55
Policy development	10.7%	57
Education	28%	149
Coordinator	18%	96
Other	14.1%	75
Total Respondents		**532**
Skipped this question		7

4./5. Gender and Age

	Response Percent	Response Number
Gender		
Male	18%	96
Female	**82%**	**436**
Total Respondents		**532**
Skipped this Question		7
Age		
20-29 years	8%	42
30-39 years	18.2%	96
40-49 years	30.7%	162
50-59 years	**36.4%**	**192**
Over 59 years	6.8%	36
Total Respondents		**528**
Skipped this Question		11

APPENDIX 9

ENVIRONMENTAL SCAN SURVEY QUESTIONNAIRE

National Collaborating Centre for Public Health Methodology and Tools: Environmental Scan

1. Introduction

The National Collaborating Centre for Public Health Methodologies and Tools is one of six Centres established by the Public Health Agency of Canada to promote evidence-based public health decision-making. For more information please go to http://www.phac-aspc.gc.ca/php-psp/ncc_e.html .

The mission of each Centre is to translate existing and new evidence produced by academics and researchers into easily accessible and useful information for public health practitioners, managers, and policy makers.

The National Collaborating Centre for Public Health Methodologies and Tools will focus on ways to facilitate the synthesis, dissemination and use of up-to-date, quality public health information. By 'methodologies and tools' we mean the knowledge translation processes and products such as user-friendly summaries of systematic reviews and decision aids. We are not including public health practice tools such as clinical assessment tools.

We anticipate that this survey will take 15- 20 minutes to complete. It is part of a study organized by the Ontario Public Health Research, Education & Development (Program) and has been approved by the Hamilton Health Sciences/ McMaster University Research Ethics Board. Please direct any questions about the study to Dr. Donna Ciliska at 905-525-9140, ext. 22529.

2. Demographics

3. In which geographic area do you currently work?
   - □ Alberta
   - □ British Columbia
   - □ Manitoba

- □ New Brunswick
- □ Newfoundland and Labrador
- □ Northwest Territories
- □ Nunavut
- □ Nova Scotia
- □ Ontario
- □ Prince Edward Island
- □ Quebec
- □ Saskatchewan
- □ Yukon Territories

4. Which best describes your discipline? (Check all that apply)
   - □ Policy Maker
   - □ Researcher
   - □ Physician
   - □ Public Health Nurse
   - □ Registered Nurse
   - □ Registered Practical Nurse
   - □ Nurse Practitioner
   - □ Public Health Inspector
   - □ Public Health Dentist
   - □ Dentist
   - □ Dental Hygienist
   - □ Dental Assistant
   - □ Epidemiologist
   - □ Health Promoter
   - □ Nutritionist
   - □ Dietitian
   - □ Speech/Language Pathologist
   - □ Health Educator
   - □ Program Evaluator
   - □ Data Analyst
   - □ Librarian
   - □ Information Technologist
   - □ Toxicologist Infection Control Practitioner
   - □ Environmental Health Coordinator
   - □ Business Administrator/Business Manager
   - □ Other

5. For question 2, if other, please specify.

6. Which best describes your main job function(s)? (Check all that apply)
   - □ Executive Officer
   - □ Medical Officer of Health/Associate Medical Officer of Health
   - □ Senior program manager/Program Director
   - □ Middle management

- □ Direct service provision
- □ Research/Program evaluation
- □ Data analysis
- □ Policy development
- □ Education
- □ Coordinator
- □ Other (please specify)

7. Gender
   - □ Male
   - □ Female

8. Age
   - □ 20-29 years
   - □ 30-39 years
   - □ 40-49 years
   - □ 50-59 years
   - □ Over 59 years

3. Identifying Methodologies and Tools

Methodologies (processes) and tools (products) refer to knowledge synthesis and the translation of concepts, information, systems and tools that will facilitate better access to and use of information. These methodologies and tools will improve the decision-making capacity of policy makers, managers and practitioners in the public health system.

9. Below are listed several methodologies and tools that can be used to promote and support evidence-based decision-making in public health. Please indicate how often you use them.

	Never Used	Rarely Used/ Yearly	Sometimes Used/ Monthly	Often Used/ Weekly	Heavily Used/ Daily
Practice guidelines (protocols, best practice guidelines, medical directives)					
Decision aids (e.g. algorithms)					
Theoretical models and frameworks					
Sources of synthesized information or systematic reviews (PubMed, The Cochrane Library)					
Books					
Journals					
Public Health Websites with					

access to evidence/ literature (such as health-evidence.ca, Effective Public Health Practice Project)					
Critical appraisal tools (e.g. User's Guides to assess the rigor/ strength of the research)					
Guides for synthesizing literature					
Networks for knowledge exchange (e.g. CHNET Works!, NS Public Health Research and Knowledge Translation Network, on-line communities of practice)					
Web-based learning (e.g. PHAC Skills Enhancement Modules)					
People who can help with transfer of evidence to our practice and policy development (knowledge brokers)					
Library services					

4. Other Methodologies and Tools?

10. We are sure there are other useful knowledge translation methodologies and tools that were not listed above. Please take a moment to add any that we missed.

5. Unavailable Methodologies and Tools

You have completed 50% of the survey.

11. Below are listed several methodologies and tools for decision-making in public health that may exist, or may be needed, but are NOT available to you. Please check those that are not available to you.
    - □ Access to computers
    - □ Access to the Internet
    - □ Access to library services
    - □ Access to library search tools
    - □ Access to paper or electronic journals
    - □ Access to "grey" literature (material which has not been peer-reviewed)
    - □ Access to people who can help with transfer of evidence to our practice and policy development (knowledge brokers)
    - □ Systematic reviews in my area of practice or policy development
    - □ Practice guidelines in more areas of public health
    - □ Concise, user-friendly summaries of systematic reviews
    - □ Library / database search skills
    - □ Critical appraisal skills

- □ “How to” guide for conducting systematic reviews
- □ Knowledge transfer skills; how to get evidence into practice and policy development
- □ Skills to determine if the research fits your context (applicability and transferability assessment skills)
- □ Standardized format for reviews and guidelines; decision aids, algorithms
- □ Please indicate any others

6. Priorities

12. It is necessary for the National Collaborating Centre for Public Health Methodologies and Tools to set its priority activities. Rate each potential activity listed below indicating its level of priority.

	Very low priority	Somewhat low priority	Medium priority	Somewhat high priority	Very high priority
Create an online compendium of evidence-based practice for public health					
Create user-friendly summary statements from systematic reviews					
Develop skills in knowledge synthesis and dissemination					
Develop knowledge transfer skills (how to get evidence into practice and policy development)					
Develop skills to determine if the research fits your context (transferability and applicability)					
Provide standardized methods of quality assessment of evidence					
Provide standardized methods for searching					
Provide standardized methods to summarize the evidence					
Create a support structure for sharing of information across health units and agencies					
Increase access to computers, the Internet and other information and communication					

technologies					
Increase access to library search tools					
Increase access to library resources, including "grey" literature					
Develop and test dissemination strategies for improving uptake of evidence					
Influence leadership to help uptake of application of evidence in practice					
Close the gap between NCC: MT and providers of direct service (Integrate the NCC staff/ activities into the field from the very beginning)					
Evaluate the impact of the application of evidence in practice					

13. Can you suggest any other priority activities?

7. Terminology

14. We have used the terms knowledge translation 'methodologies' and 'tools'. Are there other terms that you think are more commonly used to mean the same things? Please explain.

8. Key Informants

15. Please identify any organizations in public health or in healthcare research in general that you consider effective at the dissemination of public health methodologies and/or tools for knowledge translation to policy makers and/or practitioners?

16. Please provide the names and contact information of key people in public health who you think should be involved in the National Advisory Committee for the National Collaborating Centre for Public Health Methodologies and Tools.

    Please consider practitioners, decision-makers, policy makers, and researchers.

9. How you can become more involved!

17. Are you willing to participate in any of the following: (Check all that apply)
    - □ Assist in the NCC: MT Advisory Board
    - □ Participate in a follow up interview for clarification of your survey responses
    - □ Participate in an electronic priority setting survey using the Delphi technique

16. Please provide your name and contact information (including email address and business phone number) if you are willing to participate in any of the activities you agreed to above.

APPENDIX 10

ENVIRONMENTAL SCAN SURVEY: FREQUENCY OF USE OF KNOWLEDGE TRANSLATION METHODOLOGIES AND TOOLS TO PROMOTE AND SUPPORT EVIDENCE-BASED DECISION-MAKING IN PUBLIC HEALTH

3. Identifying Methodologies and Tools

7. Below are listed several methodologies and tools that can be used to promote and support evidence-based decision-making in public health. Please indicate how often you use them.

	Never Used	Rarely Used/ Yearly	Sometimes Used/ Monthly	Often Used/ Weekly	Heavily Used/ Daily	**Response Average**
Practice guidelines (protocols, best practice guidelines, medical directives)	8% (39)	13% (64)	29% (144)	**32% (159)**	17% (85)	**3.38**
Decision aids (e.g. algorithms)	21% (100)	**32% (153)**	29% (139)	14% (68)	3% (14)	**2.46**
Theoretical models and frameworks	4% (19)	20% (91)	**41% (191)**	24% (109)	11% (53)	**3.19**
Sources of synthesized information or systematic reviews (PubMed, The Cochrane Library)	5% (24)	13% (63)	**36% (176)**	33% (160)	13% (65)	**3.37**
Books	2% (11)	14% (70)	**40% (197)**	31% (153)	12% (57)	**3.36**
Journals	1% (6)	6% (30)	31% (151)	**41% (198)**	20% (99)	**3.73**
Public health websites with access to evidence/ literature (such as health-evidence.ca, Effective Public Health Practice Project)	4 % (21)	16% (76)	**36% (177)**	31% (149)	13% (62)	**3.32**
Critical appraisal tools (e.g. User's Guides to assess the rigor/ strength of the research)	18% (89)	**39% (132)**	31% (149)	10% (49)	1% (7)	**2.37**

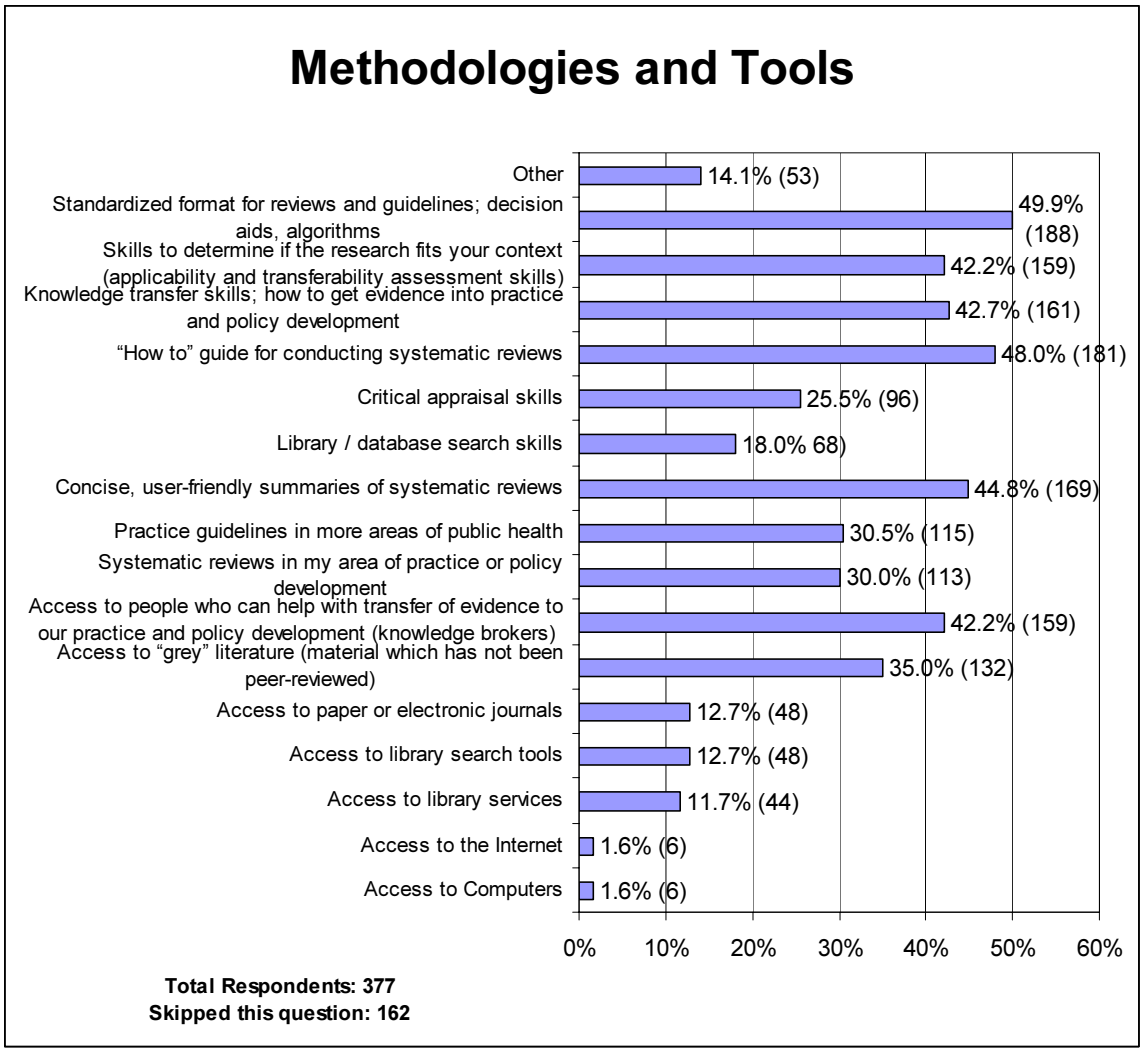
Guides for synthesizing literature	28% (134)	**45% (212)**	20% (94)	7% (31)	0% (2)	**2.06**
Networks for knowledge exchange (e.g. CHNET Works!, NS Public Health Research and Knowledge Translation Network, on-line communities of practice)	18% (85)	27% (132)	**32% (157)**	17% (83)	6% (27)	**2.66**
Web-based learning (e.g. PHAC Skills Enhancement Modules)	28% (138)	**41% (200)**	20% (97)	9% (44)	1% (7)	**2.14**
People who can help with transfer of evidence to our practice and policy development (knowledge brokers)	23% (108)	**31% (148)**	27% (130)	14% (67)	5% (25)	**2.48**
Library services	6% (29)	25% (120)	**36% (171)**	24% (115)	9% (45)	**3.06**
Total Respondents						**494**
Skipped this Question						**45**

APPENDIX 11

ENVIRONMENTAL SCAN SURVEY: KNOWLEDGE TRANSLATION METHODOLOGIES AND TOOLS NOT AVAILABLE

5. Unavailable Methodologies and Tools

9. Below are listed several methodologies and tools for decision-making in public health that may exist, or may be needed, but are NOT available to you. Please check those that are not available to you.



APPENDIX 12

ENVIRONMENTAL SCAN SURVEY: PRIORITY ACTIVITIES

6. Priorities

10. It is necessary for the National Collaborating Centre for Public Health Methodologies and Tools to set its priority activities. Rate each potential activity listed below indicating its level of priority.

	Very low priority	Somewhat low priority	Medium priority	Somewhat high priority	Very high priority	**Response Average**
Create an online compendium of evidence-based practice for public health	3% (12)	5% (23)	17% (78)	33% (149)	**42% (191)**	**4.07**
Create user-friendly summary statements from systematic reviews	2% (9)	5% (21)	18% (80)	36% (165)	**39% (179)**	**4.07**
Develop skills in knowledge synthesis and dissemination	3% (12)	8% (34)	32% (143)	36% (161)	21% (93)	**3.65**
Develop knowledge transfer skills (how to get evidence into practice and policy development)	2% (9)	6% (26)	19% (85)	37% (170)	36% (1650	**4.00**
Develop skills to determine if the research fits your context (transferability and applicability)	2% (10)	14% (64)	30% (134)	**36% (164)**	18% (82)	**3.54**
Provide standardized	4% (17)	12% (54)	29% (130)	**39% (175)**	17% (78)	**3.54**

methods of quality assessment of evidence						
Provide standardized methods for searching	6% (25)	19% (88)	**33% (148)**	31% (140)	12% (53)	**3.25**
Provide standardized methods to summarize the evidence	4% (20)	14% (64)	31% (138)	**36% (164)**	14% (64)	**3.42**
Create a support structure for sharing of information across health units and agencies	2% (11)	6% (26)	18% (81)	31% (141)	**43% (195)**	**4.06**
Increase access to computers, the Internet and other information and communication technologies	18% (81)	**25% (111)**	22% (99)	18% (78)	18% (79)	**2.92**
Increase access to library search tools	11% (47)	23% (103)	23% (105)	**24% (109)**	19% (83)	**3.17**
Increase access to library resources, including "grey" literature	8% (35)	23% (104)	26% (115)	**28% (124)**	15% (68)	**3.19**
Develop and test dissemination strategies for improving uptake of evidence	3% (12)	15% (66)	25% (113)	**37% (169)**	20% (91)	**3.58**
Influence leadership to help uptake of application of evidence in practice	2% (9)	10% (43)	20% (90)	34% (152)	**35% (156)**	**3.90**

Close the gap between NCC and providers of direct service (Integrate the NCC staff/ activities into the field from the very beginning)	4% (19)	11% (49)	27% (117)	**37% (163)**	20% (89)	**3.58**
Evaluate the impact of the application of evidence in practice	2% (7)	5% (22)	20% (90)	**37% (164)**	37% (163)	**4.02**
Total Respondents						**459**
Skipped this question						**80**

APPENDIX 13

ENVIRONMENTAL SCAN SURVEY: ORGANIZATIONS EFFECTIVE AT DISSEMINATION OF PUBLIC HEALTH METHODOLOGIES AND TOOLS

Organizations mentioned more than once

Organization	Times Mentioned
Public Health Research, Education and Development (PHRED) Programs/Units	28
Centers for Disease Control and Prevention (CDC) / Centers for Disease Control and Prevention (CDC) Community Guide / Centers for Disease Control and Prevention (CDC) - with their open access policy and their tools such as 'how to evaluate a surveillance system' etc	22
Public Health Agency of Canada (PHAC) / Public Health Agency of Canada (PHAC) Skills Enhancement Project	20
The Cochrane Collaboration / The Cochrane Library	15
Canadian Public Health Association (CPHA)	14
Universities / Universities in their teaching of public health and outreach activities / Centre for Faculty Development at the University of Toronto / University of Waterloo / University of Alberta/ Mc Master University/ Boston, Oxford and McMaster University Groups/ Ryerson University/ University/ York University	14
Canadian Health Services Research Foundation (CHSRF)	12
health-evidence.ca	12
Canadian Institute for Health Information (CIHI) / Canadian Institute for Health Information (CIHI) with the "flagship" reports they produce	8
Health Canada	8
Registered Nurses Association of Ontario (RNAO) / Registered Nurses Association of Ontario (RNAO) - Best Start Practice Guidelines / Registered Nurses Association of Ontario (RNAO) - Best Practices / Registered Nurses Association of Ontario (RNAO) has Toolkit for implementing Best Practice Guidelines	8

Manitoba's Centre for Health Policy & Evaluation (MCHPE)	7
The Health Communications Unit (THCU)	7
Effective Public Health Practice Project (EPHPP)	6
Ontario Public Health Association (OPHA) / Ontario Public Health Association (OPHA) Nutrition Resource Centre	6
British Columbia Centre for Disease Control (BCCDC)	5
Institut national de santé publique de Québec (INSPQ) (Institute of Public Health of Québec) / Journées annuelles de santé publique du Québec (JASP) (Annual Québec public health conference-training)	5
Institute of Clinical Evaluative Sciences (ICES)	5
KU-UC (Knowledge Utilization - Utilisation des Connaissances) / KUCC research bulletin (University of Laval)	5
National Institute of Clinical Evaluation (NICE)	5
Saskatchewan's Health Quality Council	5
World Health Organization (WHO) / World Health Organization (WHO) - Observatory on Health Care and Chronic Conditions – Best Practices / World Health Organization (WHO) Health Evidence Network (HEN)	5
Canadian Evaluation Society (CES) / Canadian Evaluation Socety (CES) public health interest group	4
Canadian Institutes of Health Research (CIHR)	4
Community Health Centers, Community Health Departments, Community medicine	4
Alberta Centre for Active Living	3
Best Start: Ontario's Maternal Newborn and Early Child Development Resource Centre / Best Start Resource Center’s Maternal, Newborn and Child Health Promotion Network Survey (MNCHP)	3
Canadian Institute of Public Health Inspectors (CIPHI)	3
Canadian Population Health Initiative (CPHI) / Center for Public Health Informatics (CPHI) with the "flagship" reports	3

they produce	
Canadian Tobacco Control Research Initiative (CTCRI) / Canadian Tobacco Control Research Initiative (CTCIR) Better Practices	3
Dietitians of Canada / Dietitians of Canada Practice-based Evidence in Nutrition (PEN)	3
Ontario Health Promotion E-mail Bulletin (OHPE)	3
Ontario Heart Health Resource Centre (HHRC) / Heart Health Resource Centre (HHRC) / Ontario Heart Health Resource Centre Tools	3
Ontario Prevention Clearinghouse (OPC)	3
OTRU-NET (Ontario Tobacco Research Unit) active listserv called OTRU-NET: Tobacco Research Network / Ontario Tobacco Research Unit (OTRU)	3
Program Training and Consultation Centre (PTCC) / Program Training and Consultation Centre (PTCC)'s Better Practices Toolkit in Tobacco Control	3
Public Health Units / Public Health Working Groups within the Province / Provincial & Public Health Groups	3
SEARCH Canada	3
SMARTRISK	3
Swift Efficient Application of Research in Community Health (SEARCH) Canada - affiliated with Alberta Heritage Foundation for Medical Research (AHFMR)	3
University of Alberta Centre for Health Promotion Studies	3
Agency for Healthcare Research and Quality (AHRQ) / Agency for Healthcare Research and Quality (AHRQ) Quality Tools	2
Alberta Healthy Living Network (AHLN)	2
Association of Public Health Epidemiologists of Ontario (APHEO)	2
British Columbia Centre for Excellence for Women's Health (BCCEWH)	2
Canadian Consortium for Health Promotion Research	2

Canadian Diabetes Association	2
Canadian Nurses Association (CNA)	2
Cancer Care Ontario Practice Guidelines Initiative	2
Centre for Behavioral Research and Program Evaluation	2
CHNET-Works! (Community Health Network)	2
KEN / KEN – Manitoba	2
Listservs	2
Public Health Department of Montreal / Public Health Agency of Montreal Public Health Unit	2
Some non-government organizations (NGO) groups which work closely with Health / Non-government organizations (NGOs)	2
Towards Evidence-Informed Practice (TEIP)	2

APPENDIX 14

DELPHI SURVEY RESULTS: DEMOGRAPHIC CHARACTERISITCS OF THE RESPONDENTS TO THE FINAL SURVEY

1. In which geographic area do you currently work?

Geographic Area	Response Percent	Response Number
Alberta	12%	6
British Columbia	20%	10
Manitoba	6%	3
New Brunswick	4%	2
Newfoundland and Labrador	2%	1
Northwest territories	4%	2
Nunavut	0%	0
Nova Scotia	0%	0
Ontario	**44%**	**22**
Prince Edward Island	0%	0
Quebec	2%	1
Saskatchewan	6%	3
Yukon Territories	0%	0
Total Respondents		**50**
Skipped this question		1

2. Which best describes your discipline? (check all that apply)

Discipline	Response Percent	Response Number
Policy Maker	**22.4%**	**11**
Researcher	**22.4%**	**11**
Physician	10.2%	5
Public Health Nurse	14.3%	7
Registered Nurse	8.2%	4
Registered Practical Nurse	0%	0
Nurse Practitioner	0%	0
Public Health Inspector	2%	1
Public Health Dentist	2%	1
Dentist	2%	1
Dental Hygienist	0%	0
Dental Assistant	0%	0

Epidemiologist	16.3%	8
Health Promoter	16.3%	8
Nutritionist	6.1%	3
Dietitian	6.1%	3
Speech/Language Pathologist	2%	1
Health Educator	14.3%	7
Program Evaluator	20.4%	10
Data Analyst	4.1%	2
Librarian	2%	1
Information Technologist	2%	1
Toxicologist Infection Control Practitioner	2%	1
Environmental Health Coordinator	0%	0q
Business Administrator/Business Manager	6.1%	3
Other	18.4%	9
Total Respondents		**49**
Skipped this question		2

3. Which best describes your main job function(s)? (Check all that apply)

Job Functions	**Response Percent**	**Response Number**
Executive Officer	6%	3
Medical Officer of Health/Associate Medical Officer of Health	8%	4
Senior program manager/Program Director	18%	9
Middle management	10%	5
Direct service provision	18%	9
Research/Program evaluation	**40%**	**20**
Data analysis	14%	7
Policy development	22%	11
Education	28%	14
Coordinator	14%	7
Other	12%	6
Total Respondents		**50**
Skipped this question		1

5. and 6. Gender and Age

Gender	**Response Percent**	**Response Number**
Male	20%	10
Female	**80%**	**40**
Total Respondents		**50**
Skipped this Question		1
Age		
20-29 years	12.2%	6
30-39 years	18.4%	9
40-49 years	22.4%	11
50-59 years	**40.8%**	**20**
Over 59 years	6.1%	3
Total Respondents		**49**
Skipped this Question		2

APPENDIX 15

DELPHI SURVEY:
THIRD QUESTIONNAIRE

National Collaborating Centre for Public Health
Methodologies and Tools:
Priority Setting Survey
PART 3

1. Introduction

The Ontario Public Health Research, Education & Development (PHRED) Program is in the final phase of conducting an environmental scan for the National Collaborating Centre for Public Health Methodologies and Tools. The mandate of the Centre is to promote and support evidence-based decision-making in public health. For more information, please go to http://www.phac-aspc.gc.ca/php-psp/ncc_e.html .

This is the **last survey** of the 3-stage modified Delphi process to determine the initial priorities of the Centre. It concludes on July 14th. We anticipate that this current survey will take you no more than 10 minutes to complete.

Everyone's input is valuable and needed. Your help with defining the priorities of the Centre is much appreciated.

The environmental scan has been approved by the Hamilton Health Sciences/McMaster University Research Ethics Board. Please direct any questions about the study to Dr. Donna Ciliska at 905-525-9140, ext. 22529.

2. Priorities

1. It is necessary for the National Collaborating Centre for Public Health Methodologies and Tools to set its priority activities. Rank each potential activity listed below indicating its level of priority.

Your TOP priority should be given a ranking of 1. The second highest priority should be given a rank or 2, and so on up to 10. Your lowest priority should be given a ranking of 10.

The survey automatically sums all rankings. The sums must add up to 55 for your response to be accepted. If you get an error message, you likely have missed a ranking.

___ Integrate front line practitioners with the NCC: MT from its inception
___ Create an online resource (“the go to place”) of evidence for public health practice
___ Strengthen leadership to support the use of evidence in practice and policy
___ Create user-friendly summary statements from systematic reviews

___ Create a support structure for sharing of information across health units, agencies and institutions
___ Develop communication plans and strategies designed specifically for each target group (front line practitioners, managers, researchers, and policy makers)
___ Build collaborative relationships with knowledge exchange organizations and systems
___ Develop and test strategies for improving uptake of evidence
___ Develop a support team / consultation service for practitioners
___ Provide standardized methods of quality assessment of evidence

3. Demographics

2. In which geographic area do you currently work?

□ Alberta
□ British Columbia
□ Manitoba
□ New Brunswick
□ Newfoundland and Labrador
□ Northwest Territories
□ Nunavut
□ Nova Scotia
□ Ontario
□ Prince Edward Island
□ Quebec
□ Saskatchewan
□ Yukon Territories

3. Which best describes your discipline? (check all that apply)

□ Policy Maker
□ Researcher
□ Physician
□ Public Health Nurse
□ Registered Nurse
□ Registered Practical Nurse
□ Nurse Practitioner
□ Public Health Inspector
□ Public Health Dentist
□ Dentist
□ Dental Hygienist
□ Dental Assistant
□ Epidemiologist
□ Health Promoter
□ Nutritionist
□ Dietitian
□ Speech/Language Pathologist
□ Health Educator
□ Program Evaluator

□ Data Analyst
□ Librarian
□ Information Technologist
□ Toxicologist Infection Control Practitioner
□ Environmental Health Coordinator
□ Business Administrator/Business Manager
□ Other

4. For question 2, if other, please specify.

5. Which best describes your main job function(s)? (Check all that apply)
□ Executive officer
□ Medical Officer of Health/Associate Medical Officer of Health
□ Senior program manager/Program Director
□ Middle management
□ Direct service provision
□ Research/Program evaluation
□ Data analysis
□ Policy development
□ Education
□ Coordinator
□ Other (please specify)

6. Gender
□ Male
□ Female

7. Age
□ 20-29 years
□ 30-39 years
□ 40-49 years
□ 50-59 years
□ Over 59 years

APPENDIX 16

DELPHI SURVEY:
PRIORITY ACTIVITIES

1. It is necessary for the National Collaborating Centre for Public Health Methodologies and Tools to set its priority activities. Rank each potential activity listed below indicating its level of priority.

Priority Activities	Response Total	Response Average
Create a support structure for sharing of information across health units, agencies and institutions	247	4.84
Create an online resource ("the go to place") of evidence for public health practice	263	5.16
Integrate front line practitioners with the NCC: MT from its inception	278	5.45
Develop and test strategies for improving uptake of evidence	294	5.76
Strengthen leadership to support the use of evidence in practice and policy	256	5.02
Provide standardized methods of quality assessment of evidence	315	6.18
Develop communication plans and strategies designed specifically for each target group (front line practitioners, managers, researchers, and policy makers)	302	5.94
Build collaborative relationships with knowledge exchange organizations and systems	308	6.04
Create user-friendly summary statements from systematic reviews	262	5.14

Develop a support team/consultation service for practitioners	280	5.49
Total respondents		**51**
Skipped this question		0