

A Knowledge Transfer Strategy for Public Health Decision Makers

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ABSTRACT

Purpose: The purpose of this study was to discover public health decision makers' preferences for content, format, and channels for receiving research knowledge, so as to begin development of a comprehensive national public health knowledge transfer strategy. A preliminary knowledge transfer strategy developed in part from the views expressed by public health decision makers in an earlier study (Dobbins et al. 2002b) was used as a foundation on which to base discussions. The research team believes strongly that consultation with potential users is crucial to ensure the conduct of relevant and timely research as well as the development of an effective knowledge transfer strategy.

Methods: Nine focus groups of five to seven participants were held in seven Canadian cities. Participants included medical officers of health, public health managers and directors, health promotion managers, and health policymakers at provincial and federal levels. A semi-structured, open-ended interview guide was used to facilitate the discussion. The focus groups were audiotaped, and results were analyzed independently by two members of the research team who then developed key themes through a consensus process.

Results: Generally, participants spoke positively about the knowledge transfer strategy to which they were exposed. In addition, they supported the development of a registry of reviews evaluating the effectiveness of public health interventions rated by methodological quality of the evidence, with a summary statement of the reviews highlighting the results along with specific implications for practice. Participants also indicated they wanted to receive personalized updates of new reviews in their area of interest. Finally, the results highlighted a significant challenge related to knowledge management indicating opportunities for ongoing professional development and training.

Conclusions: These findings were used to create an online registry of reviews evaluating the effectiveness of public health and health promotion interventions. The registry is one component of a comprehensive national public health knowledge transfer strategy.

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INTRODUCTION

The National Forum on Health in Canada in 1997 (National Forum on Health 1997) identified the promotion of research transfer and uptake and evidence-based decision making as two important priorities for the Canadian health care system for the new millennium. Although great strides have been taken toward this end, there is still much work to be done in the public health sector. Authority for public health decision making has devolved from the province to regional health authorities (RHAs) in 9 of 10 Canadian provinces, with Ontario being the exception (Lomas, Woods & Veenstra 1997; Jones &

McFarlane 2002). RHAs are responsible for setting priorities and allocating resources within each respective region, while the province maintains this role in Ontario. Furthermore, the geographic and cultural diversity within Canada dictates that public health and health promotion organizations adapt to meet local needs, further contributing to the variation in the provision of public health services. Despite these differences, public health organizations across the country face similar pressures and demands. The public's demand for accountability, along with other competing interests and finite resources, has led to an environment in which evidence-based decision making is expected (Frankish, Veenstra & Moulton 1999). This provides a unique opportunity to observe if and how research evidence is incorporated into public health decision making and to evaluate the impact of various knowledge transfer (KT) strategies.

The most significant barriers to incorporating research evidence into public health decision making include limited time, expertise, and resources to identify, retrieve, read, synthesize, and translate the best available evidence into practice (Ciliska, Hayward, Dobbins, Brunton & Underwood 1999; Dobbins, Cockerill & Barnsley 2001a). Rigorously conducted systematic reviews can overcome these challenges by providing decision makers with a synthesis of all of the best available research evidence. There are at least two distinct challenges faced by the potential users (decision makers) and producers (researchers) of systematic reviews: (1) facilitating decision-maker access to the evidence and (2) assisting in the translation of this evidence into useable recommendations for policy and practice.

There is little consensus in the published literature as to the most effective ways to reach decision makers and improve research uptake. Although passive KT strategies such as printed educational material and presentations at conferences have been proven ineffective, they continue to be the most commonly used strategies (Bero et al. 1998). Recently there has been a growing trend toward implementation of more active KT strategies that involve interaction between the producers and users of research evidence (Canadian Health Services Research Foundation 1999). However, there is limited empirical evidence evaluating these more interactive approaches.

Dobbins and colleagues have conducted a number of KT studies in the Canadian public health sector (Ciliska et al. 1999; Dobbins et al. 2001a; Dobbins, Cockerill, Barnsley & Ciliska 2001b; Dobbins 2003). Findings from these studies suggest that there is support among Canadian public health decision makers for a single, reliable, and easily accessible information source of systematic reviews evaluating the effectiveness of public health interventions. Dobbins et al. (2002b) have been working on developing such a registry

since 2001, along with a comprehensive KT strategy so as to facilitate decision makers' awareness and use of the registry. The KT strategy was developed based on an extensive review of the literature as well as on the views expressed by public health decision makers in Canada as to their needs and preferences for receiving and using research evidence. The purpose of this study was to obtain feedback on this preliminary KT strategy so as to refine and improve it.

Similar activities have been implemented elsewhere worldwide. For example, the National Institute of Clinical Excellence, the National Electronic Library of Health, and the Centre for Reviews and Dissemination in the United Kingdom, as well as the Department of Veterans Affairs—QUERI project and the National Center for the Dissemination of Disability Research in the United States, utilize multiple KT strategies to facilitate the transfer of research evidence to policymakers, practitioners, and patients. Similarly, in Canada the Institute for Work and Health, the Alberta Heritage Foundation for Medical Research, and the Canadian Centre for Health Technology Assessment facilitate the transfer and uptake of research evidence to various end users.

METHODS

Participants

Nine semi-structured, one-hour focus group discussions were held from October 2002 to January 2003 in seven cities across Canada (Halifax, Montreal, Ottawa, Winnipeg, Calgary, Edmonton, and Vancouver). Key contacts in each region were asked to identify potential focus group candidates. Using purposeful sampling techniques, participation in the focus groups was sought from decision makers from local/regional, provincial, and federal public health units. Since the main target audience of the KT strategy was public health decision makers, representation from the general public was not sought. Participants received a summary of the focus group findings.

Knowledge Transfer Strategy

The KT strategy, pilot tested between September 2002 and January 2003, included a number of activities. A general strategy was initially developed and then tailored to one topic area—tobacco use prevention—for the purposes of conducting this pilot test. It was assumed that knowledge obtained from the pilot study would be transferable across the public health field. The first activity of the KT strategy was the writing of a summary statement by Dobbins & DeCorby (2002c) on a recently published, rigorous systematic review of tobacco exposure and tobacco use prevention interventions (Hopkins et al. 2001). In a previous study, decision makers not only indicated their considerable need

- 1 Preferred methods of research evidence delivery
- 2 Which information formats are most helpful (i.e., abstracts, summaries, full document)
- 3 Preference for ways of accessing research evidence (find yourself, sent to you)
- 4 Effort placed on retrieving evidence
- 5 Factors that promote ease of use
- 6 Preferred functions of a listserv
- 7 Feedback on the KT strategy
- 8 Actions taken since being exposed to the KT strategy
- 9 Suggestions for improving the KT strategy

Figure 1. Focus group interview guide

for summaries of systematic reviews, but also voiced preferences for their format and content (Dobbins et al. 2002b). Plans are currently underway to work with known experts in the public health field in Canada to write summary statements for all reviews in the registry. This is an integral part of the KT strategy. The content of the summary statement focuses on: (1) the scope of the problem in Canada, (2) the results of the review, and (3) implications for public health policy and practice. The summary statement was mailed to public health decision makers electronically and in hard copy. Directions were provided on how the full review could be accessed online or by hard copy.

The KT strategy was pilot tested over a very short time period so as to provide the research team with prompt feedback to refine the strategy. A more comprehensive evaluation of the KT strategy is planned for the future. The short implementation period enhanced participant recall on the strengths and weaknesses of the strategy. A disadvantage to this method was limited opportunity by the participants to use the summary statement, which could have limited their feedback.

Data Collection

One moderator (KD) conducted all of the audiotaped focus groups, with an additional note-taker present during two of the groups. A stipulation of ethics approval from McMaster University was informed consent, which was obtained from all participants before attending the focus groups. Participants were asked questions according to an interview guide regarding their needs and preferences for receiving and using research evidence. Details of the semi-structured interview guide are included in Figure 1. The moderator worked to maintain empathic neutrality to avoid eliciting biased responses from participants (Patton 2002). The cassette tapes were stored in a locked office accessed only by the research team until data analysis was complete. When the analysis was complete, the tapes were recorded over to remove focus group data.

Data Analysis

A modified grounded theory approach guided data analysis (Strauss & Corbin 1998). Data analysis, which began following the first focus group, was conducted by two members of the research team (KD and TT; Guba & Lincoln 1989). KD has a graduate degree and has been involved in KT research among public health decision makers for three years. TT is an RN with experience in emergency, pediatric, and public health nursing. Their personal experience and knowledge in this field provided useful insights during the analysis.

TT became familiar with the context and procedure of the focus groups as well as the interview guide. KD and TT listened to the same audiotapes independently and transcribed quotes in response to each of the interview questions. KD and TT met regularly during the analysis to compare and contrast their impressions and move ahead with developing key themes. A collection of notes and minutes from each meeting were kept in order to provide an audit trail (Guba & Lincoln 1989) to support findings, making it possible to see how interpretations were reached (Koch 1994).

The interview guide allowed for some consistency in the data collected among each focus group. Analysis was done by reviewing responses to each question, and also by reviewing other topics of discussion across the groups. Questions from the interview guide provided a starting point for identifying key themes. Other themes were identified by the frequency with which issues were discussed and the emphasis placed on the issue by focus group members. KD and TT each created a list of themes and met to merge themes by consensus, referring back to the data when necessary. Generally there was close agreement between the two researchers. Themes were ranked by consensus according to three agreed-upon criteria (i.e., number of times the issue was discussed, number of participants who discussed the issues, and time spent on discussions around a particular issue).

RESULTS

Of the 60 decision makers who were asked to participate in the focus groups, 46 (77%) attended. Participants were drawn from a variety of groups: medical officers of health (15%), program managers or coordinators (30%), program directors (24%), and decision makers from provincial or federal ministries (30%). A variety of programming areas within population health, public health, and health promotion were represented. Just over half (54%) of the participants worked in tobacco use reduction, and the remaining worked in addiction prevention and treatment, preschool health, healthy children and youth, cancer prevention, healthy communities, chronic disease prevention, and oral/dental health. Seventy percent of the participants were female.

The feedback obtained was fairly consistent across the focus groups. As a result, saturation of the data was reached relatively early in the analysis process. It is believed that early saturation contributed to the high level of agreement between KD and TT in the identification of key themes.

Key Themes

The most significant theme to emerge from the data was related to decision makers' information needs. In this theme, the important components of a KT strategy as well as opportunities for training and education to optimize decision makers' use of research evidence were identified.

Generally, the summary statement was well received by participants. Assessing the merits of the summary statement led to further discussions concerning decision makers' wish lists for information sources. While there was considerable consistency among participants with respect to the preferred content and format of information, there was much less consistency concerning the delivery and type of information required for decision making.

Important Components of a Knowledge Transfer Strategy

In identifying important components of an effective KT strategy, participants essentially addressed the very real problem of lack of time to locate, appraise, synthesize, interpret, and incorporate research evidence into decision making. Concepts such as credibility, quality of research, timeliness, reliability, customizability, applicability, accessibility, electronic linkages, and knowledge management all attempt in some way to minimize the time required to actually incorporate research evidence within the decision-making process.

Limited time

The scope of the time pressures faced by public health decision makers on a regular basis was demonstrated in the following quotes.

I don't really read books or articles anymore. There really isn't time for that . . . it's a time issue.

[We], in the management position, don't have a lot of time to be searching and looking.

People just don't have the time to spend anything beyond a summary, or even just that.

It was clear from these comments that any attempt at KT must address these significant time issues.

Credibility and reliability

Participants also identified credibility of research evidence as having a significant impact on its use. Decision makers wanted to receive research evidence from sources they considered credible to avoid spending time appraising its methodological quality and merit. Once credibility was established, decision makers were more likely to trust subsequent information received from that particular source. Although the establishment of credibility occurred in many ways, decision makers most often relied on recognizability or familiarity of logos, authors' names, recommendations of peers, and source of the research.

The concept of reliability was closely linked to credibility and often contributed to the degree of credibility awarded to research evidence. For example, decision makers indicated they wanted to anticipate receiving something, have it look familiar upon arrival, and have it work in a consistent manner each time it was used. Decision makers strongly supported a KT strategy that provided them with regular updates of new research in their area(s) of interest as highlighted in the following quote.

[Send information] on a regular basis so that we'd expect it, instead of it just coming randomly.

Decision makers also indicated that knowing what to expect in terms of the amount of information they will receive was an important component of reliability. For example, they did not want information to arrive so frequently that the quantities were very small, but they also did not want information to be sent so infrequently that its sheer quantity overwhelmed them. Striking a balance then is the key to developing reliability and credibility among this target population. Reliability also referred to the functioning of an online/electronic service. It was especially important to decision makers that electronic sources run smoothly and had links that always worked as expected.

For whatever reason, even though I am updated on that stuff, I can't login when I get to the Web site . . . I reach an article, click, crash . . . I'm not sure why. On one hand it works and the other hand it doesn't. Technically there are sometimes problems with doing it and [therefore] you don't get around to using it.

Information quality and timing

The quality of the information was an extremely important concept raised among the focus groups. Quality of

information was also linked with credibility and reliability. Several factors determined the quality of research information:

- had to be current and provide a publication date;
- was framed within the local, provincial, or national context;
- was jargon-free and transparent;
- reported what worked and what didn't;
- listed recommendations ranked in order of effectiveness;
- included cost analyses.

In addition, participants perceived quality to be high when the information was well written, concise, easily understood, well organized, easy to scan quickly, and linked to other relevant, high-quality documents.

The timing for receiving research evidence was also identified as an important aspect of information quality. Decision makers were more receptive to receiving and using research evidence when it related directly to issues on which they were currently working. Decision makers suggested that researchers aim to stay on top of priority issues across the country and dispatch information according to local priorities.

You can kind of go through what we're doing in this province . . . and get a feel for those things that are priority issues . . . that people will be wanting information about.

Applicability and customizability

The applicability of research evidence to current decisions was a particularly important concept. Generally, decision makers wanted recommendations for practice and policy clearly spelled out with the supporting research evidence directly aligned with each recommendation. Decision makers also wanted to know how research findings should be applied at the provincial and local levels to produce the desired impact on population health. They indicated that in many instances, new policies would have to be developed in order to bring about the change in practice; therefore, it was important that at least some of the recommendations be focused on policy development or alteration. Decision makers did not provide suggestions on who should write summaries of systematic reviews other than it should be someone with extensive knowledge in public health, preferably from within the practice setting.

It was clear from the data that decision makers wanted choices and control over the information they received in at least two distinct ways: the amount of detail they received (i.e., abstract, summary, full document) and how information was delivered (i.e., electronic/PDF, hard copy, Internet). Access to additional information, such as the full document, had to occur smoothly and quickly to be of use

to decision makers. It was very important to decision makers that they received information only in their area(s) of interest so that most or all of what they received was relevant to their particular role(s).

In addition to customizing the mode of delivery, the information itself also needed to be customized to accommodate the different ways in which decision makers use research evidence. Decision makers reported using research evidence for the following: cutting and pasting for presentations, passing on to colleagues, printing for their own use, saving and filing electronically, composing a briefing note, or presenting at stakeholder meetings.

I think the method will vary a bit depending on the person and the role and the level of the decision maker. At the executive level, there is virtually no interest in getting a summary or full article because they want just what is the point. Program managers, people working in program development, want a bit more detail. They can go back if they have the time and the inclination to, you know, go to the full article. It depends on the individual and circumstance, and timing.

Mode of delivery

Hard copy versus electronic copy was another important concept identified across the focus groups. Electronic format was the preference of the majority, but there were still instances in which decision makers wanted a hard copy—for a very long document or when they needed to post/share a piece of information.

I like to receive it electronically. That way I can print it off if I want a hard copy, but I can also more easily forward it to other people who might be interested.

For me, it's for filing purposes. If I have it electronically, I don't have to worry about finding a printed copy; I can just store it somewhere and know how to retrieve it. However, I will print it off to read if it's not a long document.

Finally, decision makers indicated that accessibility to information sources continued to be a barrier. For example, a number of decision makers indicated they did not have ready access to the Internet and did not have access to other technology such as high-speed printers. In addition, access to librarians, and others (research assistants/consultants) to assist with searching, retrieval, and interpretation varied widely across the country, and generally there were little to no funds for such roles within most organizations.

Opportunities for training and education

A sub-theme within the Important Components of a KT Strategy theme focused on opportunities for ongoing education and training to assist decision makers in optimizing their ability to manage and thereby use research evidence in their day-to-day work. Though some participants were clearly very knowledgeable and critical consumers of research evidence, the discussions demonstrated variation

across the country with respect to knowledge management and critical appraisal skills. Decision makers indicated that they received information from a variety of sources and that they were overwhelmed with the effort to effectively catalogue and assimilate it.

Especially in an organization like this one, there is so much information sent to you, that most of us are completely bogged down by what's in our inboxes.

For me, information management is slowly becoming problematic.

Decision makers indicated that they would be supportive of education and training opportunities focused on promoting effective methods for managing the considerable number of documents and research reports and other data they receive on a daily basis. They were also interested in learning more about how to effectively incorporate research evidence into decision making and practice by learning more about critical appraisal, organizational change theories, and knowledge brokering.

I don't really have the expertise in evidence-based medicine.

I prefer not to surf for it [information] because I can't tell what is credible and what isn't.

Opportunities for education and training emerged in four topic areas: systematic reviews (definition, significance, and appraisal); purpose and methodology of the registry of systematic reviews; information management; and credibility of online information sources.

DISCUSSION

The data obtained from the focus group discussions demonstrated that public health and health promotion decision makers in Canada support the development of an easily accessible, easy-to-use source of research information. Participants also indicated fairly consistent ideas on how such a resource could be incorporated into a much larger KT strategy, particularly on issues related to the content, format, and delivery of systematic reviews. Many of the concepts to emerge from the data focused on minimizing or controlling the time required to locate, appraise, synthesize, and incorporate research evidence into decision making. This is consistent with findings from other KT studies in which time was found to be a significant barrier to incorporating research into decision making (Ciliska et al. 1999). These concepts will be instrumental in assisting the research team to fine tune the KT strategy in preparation for a randomized control trial to evaluate its impact on a national sample of public health decision makers (Dobbins et al. 2003).

Although a number of concepts were identified, there were a few that will be particularly important in refining

the KT strategy. For example, the data clearly demonstrated that the KT strategy must be customized to meet individual needs at particular points in time. These findings were consistent with recent recommendations (Landry, Amara & Lamari 2001) to move beyond a "one-size-fits-all" approach to improving uptake of health services research. Customization was also particularly important given the great variation in public health structures across Canada. As a result, it will be important to build flexibility into the KT strategy so as to provide decision makers with sufficient choice and control over the content, format, and delivery of research evidence.

The results highlighted the importance of developing audience-specific messages from systematic reviews that are in line with the decision-making environments to which they apply (Lavis, Robertson, Woodside, McLeod & Abelson 2003). Audience-specific messages from the same systematic review may differ among regions as well as among different decision-making groups (i.e., managers versus medical officers of health versus ministry of health consultants). Ongoing assessment of the environment will be a key factor in developing and providing audience-specific messages.

Public health decision makers strongly indicated a need to receive research evidence that appeared user friendly in a concise format. Similar findings were reported among public health nurses while incorporating nursing guidelines into practice (Lia-Hoagberg, Schaffer & Strohschein 1999). The findings also demonstrated that decision makers valued research evidence more when it was relevant to their current role and priorities and felt they had adequate skills to find, appraise, and interpret research evidence. These findings were also supported by other knowledge transfer studies (Rogers 1983; Dobbins, Ciliska, Cockerill, Barnsley & DiCenso 2002a).

One of the most significant findings to emerge from the data related to the amount of research evidence decision makers wanted to receive. For example, participants expressed a need to selectively screen out nonrelevant information and to have staged access to more detailed information only for selected documents. This function will be incorporated into the KT strategy by automatically updating decision makers with recently published reviews only in their area(s) of interest. An electronic resource such as the one proposed by the research team will provide staged access to abstracts, summaries, and full documents in a way that is easily navigable with a quick response time. This is congruent with the findings of another Canadian study in which decision makers indicated they wanted researchers to take on the role of selective screener and provide them with only timely and relevant research (Golden-Biddle et al. 2003).

Decision makers also indicated that reliability and consistency were of utmost importance for their ongoing use of an information source. This means it will be important that the functions of the registry of reviews as well as the KT strategy itself work smoothly and consistently and that links to Internet addresses are regularly updated and maintained. Along with reliable functions, all materials and products disseminated as part of the KT strategy will be sent out on a regular basis and have a consistent look.

Another important concept to emerge from the data was the significance of establishing credibility, particularly through the recognizability of or familiarity with researchers or information sources. Decision makers definitely indicated greater acceptance and use of research evidence that they believed was produced by a credible source. Decision makers also indicated that they sought endorsements from colleagues, field experts, and other opinion leaders when faced with determining the credibility of a new information source. While a consistent look to the products of a KT strategy will assist in establishing familiarity among decision makers, others found that sustained dialogue between researchers and decision makers increased the use of research in health policy decisions (Elliott & Popay 2000). Therefore, important components of the KT strategy include maintaining regular contact with decision makers across the country, utilizing a consistent look for all materials produced, and ensuring buy in from respected leaders in public health and health promotion.

Decision makers clearly articulated that they required assistance in effectively managing the vast quantities of information they received, as well as training in how to optimize available information sources. An important component of the KT strategy will be to provide opportunities for training in a variety of topics including knowledge management. Several methods, including virtual learning networks as well as face-to-face workshops and seminars, will be provided on a regular basis to assist public health and health promotion decision makers in becoming more effective knowledge managers, change agents, and knowledge brokers.

Finally, decision makers indicated a need for capacity building with respect to the critical appraisal of research evidence, particularly systematic reviews. Previous research has shown capacity building to be a priority among decision makers (Cronenwett 1995; Carroll et al. 1997; Lia-Hoagberg, Schaffer & Strohschein 1999), which has been linked with increased research use in decision making (Stachenko 1996; Doust & Silagy 2000; Paluck, Williamson, Milligan & Frankish 2001). Specifically, capacity building should focus on providing decision makers with the skills required to effectively screen, critically ap-

praise, synthesize, and incorporate research evidence into decision making.

Limitations

Unfortunately, time and resources precluded holding focus groups in each province and territory. Six Canadian provinces were involved, but focus groups were not held in any of the territories. Given consistency of the results and having reached the saturation point in the data collected, it is expected that findings will resonate with decision makers from the provinces and territories not involved. Due to workload and timing conflicts with other priorities, one of the nine focus groups was attended by only one participant. Since local priorities changed at the last minute, it was impossible to reschedule this focus group, and the discussion was held with the one attendant. Responses were consistent with those of other, well-attended focus groups.

The summary statement created was written for a review (Hopkins et al. 2001) in which the topic area was tobacco use reduction. Therefore, it is possible that focus groups attracted individuals whose main interests centered around tobacco use reduction, and that views expressed were not representative of the larger public health and health promotion sector. Though it raises the question of whether there are topic areas within public health to which findings may not be transferable, attempts were made by the moderator to keep discussions on a conceptual level during the focus groups. Finally, focus groups were conducted in English, which may have excluded potential French-speaking participants who may otherwise have been interested in taking part. Future work is being done in collaboration with French-speaking researchers in order to ensure inclusiveness.

CONCLUSION

The results of this study identified the important components that must be part of any comprehensive KT strategy in public health. The data demonstrated that in addition to providing decision makers with relevant and timely research evidence, a KT strategy must also provide the information in a reliable and consistent way, and must give decision makers options for customizing how the information will be received. Our KT strategy is being refined and fine-tuned to incorporate the findings presented in this article and will be evaluated using a randomized controlled trial in the coming year.

By addressing decision makers' needs and concerns in the design phase of the KT strategy, it is expected that greater utility of research evidence for decision making will be realized thereby bringing Canada one step

closer to achieving the goals set out by the National Forum on Health in 1997.

Implications

1. It is important when developing a public health strategy to elicit public health decision makers' information needs and preferences.
2. There needs to be an ongoing assessment of environmental factors that affect decision making.
3. There is a need to minimize the time required to locate, appraise, synthesize, and incorporate research evidence into decision making; therefore, readily available, easy-to-use, and customized sources of research evidence are important considerations.
4. Research evidence that comes from credible sources is likely to be more readily accepted.
5. It will be important to maintain regular contact with decision makers as part of the knowledge transfer strategy.

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