Dissemination of heart health promotion in the Ontario Public Health System: 1989–1999

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Abstract

This paper reports the results of an analysis of the dissemination of community-based heart health promotion strategies. The research draws on diffusion and socio-ecological theories to study the first 10 years of heart health promotion in the public health system in Ontario, Canada. Using case description and interpretive analysis, the study describes developments in five stages of dissemination, and examines the interplay of factors operating in the internal organizational setting and the external environment in order to explain these developments. Findings demonstrate that dissemination of health promotion is a long-term, iterative process involving multiple stages. Dissemination is influenced by a complex interplay of factors operating within the public health system (especially traditional public health practice and champions) and factors in the environment in which the public health system operates (especially research, practice information and health policies). Implications are that policy makers should take a long-term view of dissemination, identify intermediate and long-term goals consistent with dissemination stages, and capitalize on internal and external forces supporting dissemination goals. Similar case-study research in other public health systems and time periods, and in more advanced stages of dissemination, will add further insight into the dissemination process.

Introduction

The ‘new’ public health emphasizes multiple determinants of health, community-based interventions, a population approach to prevention and intersectoral action (WHO et al., 1986). It is strong on principles, yet weak on implementation (Crichton, 1997). How do new ideas and practices such as those that epitomize the new public health gain currency, acceptance and adoption? That is the fundamental concern of dissemination (Dunn et al., 1994; Tenove, 1999) and of this paper. The specific focus is on heart health promotion—an area in which a concerted effort has been made to integrate strategies of the new public health into the existing public health system.

Dissemination has international and multidisciplinary significance, especially as the gap widens between research evidence for practice and actual practice. The worldwide emphasis on health promotion and disease prevention makes dissemination of public health programs particularly important (Brunbach and Malecki, 1996; MacLean, 1996). A case in point is the international movement to promote heart health. Three international declarations on heart health call for a multi-faceted strategy with an emphasis on community-based programs that promote behavior change in populations, and change social and physical environments to support healthy behaviors (Advisory Board for the International Heart Health Conferences, 1992, 1995, 1998). Within Canada, knowledge development on dis-
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Semination of effective heart health practices is a current priority (Stachenko, 1996). This priority is part of the Canadian Heart Health Initiative (CHHI)—a multi-phase, 15–20-year strategy (launched in 1986) that aims to integrate heart health into the existing system of health. A policy development phase was followed by provincial surveys of cardiovascular risk factors, and a demonstration phase in which communities within each province developed and evaluated programs for possible widespread application. A subsequent dissemination phase, completed in Ontario in 1998 and at various stages in other provinces, aims to increase adoption of best practices in heart health promotion in communities across Canada [see (Elliott et al., 1998) for more detail on the CHHI]. The research in this paper can be used to plan future directions of the CHHI and initiatives in other countries that aim to integrate heart health promotion into existing public health systems. Findings can also inform plans to increase the application of community-based, primary prevention strategies in areas other than heart health.

Despite general agreement on critical elements of dissemination, little is known about the dissemination process (Dunn et al., 1994; Dobbins et al., 1998; Kitson, 1999). What is clear is that dissemination stages do not necessarily occur in a linear, time-ordered sequence (Rogers, 1995; Kitson, 1999). Also, the context in which new practices are introduced is increasingly recognized as central to understanding the dissemination process (Dobbins et al., 1998; King et al., 1998). This paper reports the results of a case study guided by diffusion and socio-ecological theories (Rogers, 1995; Green et al., 1996). It describes and analyses the dissemination of heart health promotion in Ontario’s formal public health system over a 10-year period. The object of dissemination is implementation of comprehensive, community-based programs that: (1) address multiple behaviors (notably, tobacco use, physical inactivity, unhealthy diet), (2) target populations in several community locations (e.g. schools, workplaces, health care settings), and (3) use a variety of population-based approaches (e.g. community-wide education, environmental and policy initiatives (Burns, 1991; Elder et al., 1993; Nutbeam, 1996). The study aims to answer two main questions:

1. How has the Ontario public health system progressed through the dissemination stages for heart health promotion?
2. How does the interplay of factors within and outside the public health system help to explain the dissemination process?

The research focuses on the dissemination process at a provincial level. It provides a temporal and developmental context within which to understand findings from the CHHI Ontario Project (CHHIOP), which was conducted from 1994 to 1998 and examined factors influencing implementation of heart health promotion activities in Ontario public health agencies (Riley et al., 2001).

**Method**

Case-study methodology is particularly useful for exploratory research and when the study phenomenon cannot be disentangled from the context in which it occurs (Yin, 1994)—both characteristic of the dissemination of heart health promotion. The most useful cases to study will display the phenomenon of interest, and will have information available from various perspectives and methods to examine the phenomenon. Heart health promotion in Ontario’s public health system meets these criteria. It has a 10-year history, culminating in the Ontario Heart Health Program (OHHP; which began in 1998) which supports 37 local coalitions to disseminate heart health programs province-wide. The program aims to integrate heart health promotion into the existing public health system. How and why the province-wide program was launched can provide insight into how to disseminate similar public health initiatives. Multiple data sources are also available to study the dissemination process in Ontario. Central among these are quantitative and qualitative data from the CHHIOP conducted from 1994 to 1998.
Research setting
Ontario is Canada’s largest province with a population of 11 million. Public health services are primarily delivered through regional health departments, each administered by a board of health, and regulated by provincial legislation and program guidelines. Public health programs are cost-shared by provincial and municipal governments, with a total combined annual budget of approximately $300 million (1997 level) and 4600 full-time equivalents (FTEs) or approximately 43 FTEs per 100 000 population (in 1997). Local boards range widely in per capita funding ($18–60 in 1997), population served (39 354–721 130 in 1997), and geographic location and size.

Design
The study period began in 1989 with the first evidence of a provincial focus on heart health promotion. The marker event was a new public health mandate to promote healthy lifestyles (Ontario Ministry of Health, 1989). This new mandate shifted the focus of public health to non-communicable disease prevention.

Study question 1 (description of the dissemination process)
Primarily guided by diffusion theory (Rogers, 1995), the case study was expected to show that the dissemination process involves five stages (Table I). Each stage is defined by one or more objectives. Collectively, the stages cover the development, delivery and evaluation of heart health promotion activities. Some activities must happen before others, but activity can take place in more than one stage at a time and movement can be forward or backward through stages. Case description was used as a general analytic technique (Yin, 1994). A chronology of events by dissemination stage was developed for the time period from 1989 to 1999. ‘Events’ included developments related to heart health or multiple risk factor programming in Ontario’s public health system and were classified into stages based on their main purpose.

Study question 2 (explanation of dissemination process)
Guided by a socio-ecological view (McLeroy et al., 1988; Simons-Morton et al., 1988; Green et al., 1996; Orlandi, 1996), the study explored the interplay of factors within the public health system and the broader environment in order to explain the dissemination process. Within the public health system, main factors that may influence dissemination include perceptions of community health promotion (e.g. relative advantage over existing practice) (Rogers, 1995), skills and resources for heart health promotion (e.g. assessment of needs, planning, evaluation, community mobilization) (Schwartz et al., 1983; Goodman et al., 1997), leadership (Rogers, 1995), and mandate (Kreuter, 1992). Within the external system, some main influencing factors include interorganizational relationships or partnerships (Butterfoss et al., 1993; Goodman et al., 1998), technical assistance or capacity-building activities (Florin et al., 1993; Jackson et al., 1994), and contextual factors such as social and physical characteristics of communities and trends in the health and social policy environment (Green et al., 1996). In this study, internal and external factors supporting and constraining major events related to heart health promotion were identified. Factors were classified as ‘internal’ if they were under the direct control of the public health system and ‘external’ if they were not. The relative influence of factors was determined based on: (1) perceptions of factors influencing developments from public health professionals and other provincial and local stakeholders, (2) changes in factors in relation to the timing of events, (3) direct observation and (4) theoretical plausibility.

Data sources
Multiple data sources were used for this study. All written documents were coded manually by the author, for dissemination events (study question 1) and factors influencing these events (study question 2). Data sources are described below and listed in the Appendix.
Table I. Dissemination stages for heart health promotion in the public health system\(^a\)

<table>
<thead>
<tr>
<th>Dissemination stage</th>
<th>Objectives of each stage</th>
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</table>
| Problem/opportunity identification   | ● a need is identified to promote heart health or individual risk factors  
                                         ● an opportunity to improve public health practices to promote heart health is recognized, especially by key decision makers                                                                                       |
| Innovation development or adaptation | ● heart health promotion activities are found or developed that are appropriate for the public health system and the local context  
                                         ● public health professionals responsible for implementation perceive that heart health promotion activities are compatible with public health practice; superior to current practice; easy and flexible to implement; possible to try on a small scale and terminate  
                                         ● heart health promotion activities achieve their intended effect  
                                         ● heart health promotion activities are revised to better suit local conditions                                                                                                                                       |
| Strengthening local predisposition and capacity | ● public health agencies are motivated to undertake heart health promotion activities  
                                                                                                           ● public health agencies are aware of heart health promotion activities and their proper use  
                                                                                                           ● sufficient and appropriate staff and financial resources are available for heart health promotion activities  
                                                                                                           ● champions for heart health promotion exist in the public health system                                                                                                                                 |
| Local implementation                  | ● heart health promotion activities are implemented according to set standards  
                                         ● the meaning of heart health is clarified; heart health promotion activities are re-invented to accommodate public health agency needs and structures; and public health agencies are changed to fit with heart health promotion activities (i.e. redefining/restructuring)  
                                         ● implementation of heart health interventions increases over time  
                                         ● heart health promotion is incorporated into the regular activities of public health (i.e. routinized)                                                                                                               |
| Monitoring, evaluation and research   | ● achievement of goals, objectives and targets for change are evaluated  
                                         ● organizational predisposition and capacity for heart health promotion are monitored  
                                         ● implementation of heart health promotion activities is monitored  
                                         ● outcome evaluations address the scientific and social validity of heart health promotion activities, and are performed commensurate with investment in the program  
                                         ● research is conducted to support the development and dissemination of heart health promotion activities  
                                         ● monitoring, evaluation and research are used to inform other stages                                                                                                                                                     |

\(^a\)The definition of stages is primarily informed by Rogers (Rogers, 1995) and Orlandi (Orlandi, 1996). A main adaptation is the stage to strengthen local predisposition and capacity, informed mainly by Green and Kreuter (Green and Kreuter, 1991) and a growing literature on capacity building in health promotion [e.g. (Schwartz et al., 1993; Goodman et al., 1997)].

**Provincial public health policy documents**

Policy documents were initially identified by the author. A computerized search of Ontario government documents was also conducted using the following key words: population health, health promotion, heart health promotion, cardiovascular disease (CVD) prevention, tobacco, nutrition, physical activity and chronic disease prevention.

**Reports and publications from heart health programs in Ontario**

Major heart health initiatives in Ontario include the Heart Health Action Program (HHAP) (1990–
Dissemination of heart health promotion

1996), the CHHIOP (1994–1998) and the OHHP (1998–2003). Reports from these initiatives were identified by the author, in consultation with government officials. Two major sources used were reports from CHHIOP qualitative studies. In-depth interviews were completed in a subset of eight health units in 1995 and 1997 (with 50% overlap of units). Units were selected to achieve maximum variation on levels of implementation and other characteristics related to heart health promotion (e.g. region, per capita funding, population served). For each study, respondents included five to seven public health staff from each unit who were most involved in managing and delivering heart health programs ($n = 56$ in 1995; $n = 38$ in 1997). The 1995 study also included focus groups with representatives from other community agencies. Using thematic analysis, the qualitative studies were primarily used to explain observed levels of predisposition, capacity and implementation.

*Publications of Public Health and Epidemiology Report Ontario (PHERO)*

*PHERO* is a monthly publication of the Public Health Branch, Ontario Ministry of Health. The primary audience is public health researchers and practitioners in Ontario. A manual search of *PHERO* publications from 1990 to 1999 was conducted to retrieve articles related to heart health promotion and healthy lifestyles programs.

*Administrative staffing and budget reports for local boards of health*

These reports were prepared by the Public Health Branch to show how the financial and staffing resources in public health have been allocated provincially across boards of health in relation to public health goals and their respective mandatory programs.

*CHHIOP surveys of public health units*

Secondary data analyses were performed on quantitative, province-wide surveys of public health departments completed in 1994, 1996 and 1997 [described in detail in (Riley et al., 2001)]. A written, organizational response was completed jointly by the local Medical Officer of Health and staff most involved in heart health promotion in all 42 health units at all three data collection times. The surveys were primarily to describe levels of predisposition, capacity and implementation over time. Predisposition was measured as the perceived importance of undertaking 18 organizational practices to support heart health (on a four-point scale from ‘not at all important’ to ‘very important’). Organizational practices were organized into four areas: assessment, planning, supporting implementation and evaluation. Capacity was measured as the perceived effectiveness of performing the same 18 organizational practices (on a five-point scale from ‘not at all effective’ to ‘very effective’). Implementation was measured for 75 community-based activities, organized by risk factor and setting (on a five-point scale from ‘not aware of any organized activity’ to ‘a high level of implementation’). Measures are described in more detail elsewhere [e.g. (Elliott et al., 1998; Riley et al., 2001)].

*Published and unpublished literature on trends and issues in public health and (heart) health promotion*

Some key sources were identified by the author. Topics included trends and issues in public health nationally and in Ontario, trends and issues in health promotion policy and practice, and descriptions and evaluations of community heart health programs in jurisdictions other than Ontario.

*Direct observation*

As a health promotion researcher, consultant and volunteer, the author was a participant observer throughout the full study period (see specific involvements in the Appendix).

**Results: the first 10 years of heart health promotion in Ontario**

Figure 1 summarizes major events related to heart health promotion in Ontario from 1989 to 1999. It shows multiple developments in all five stages of
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Fig. 1. Summary of heart health promotion activities in Ontario, 1989–1999.

<table>
<thead>
<tr>
<th>DISSEMINATION STAGE</th>
<th>TIMING OF EVENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Definition</td>
<td>New public health mandate: Healthy Lifestyles</td>
</tr>
<tr>
<td>Innovation Development</td>
<td>Community intervention framework</td>
</tr>
<tr>
<td>Strengthening Preposition and Capacity</td>
<td>Ontario Heart Health Network</td>
</tr>
<tr>
<td></td>
<td>Provincal resource system</td>
</tr>
<tr>
<td></td>
<td>HHRC^2 provincial mandate</td>
</tr>
<tr>
<td>Implementation</td>
<td>Gradual, steady increase in local heart health promotion activities</td>
</tr>
<tr>
<td>Monitoring, Evaluation and Research</td>
<td>Ontario Health Survey</td>
</tr>
<tr>
<td></td>
<td>Ontario Heart Health Survey</td>
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</tbody>
</table>

^2 Abbreviations (in alphabetical order): CHHOP (Canadian Heart Health Initiative Ontario Project); CAMH (Chief Medical Officer of Health); HHAP (Heart Health Action Program); HHRC (Health Heart Resource Centre); OHH (Ontario Heart Program); PHREP (Public Health Research and Education Development Program)

Fig. 2. Internal organizational and external system factors influencing the dissemination process.

Results for study questions 1 and 2 are presented by stage. The superscripts refer to numbered data sources in the Appendix.

**Problem definition**

At the provincial level, the primary strategy for defining the problem of CVD was the public health mandate. Specifically, the 1989 guidelines for local boards of health introduced a set of healthy lifestyles programs, including tobacco use prevention, nutrition promotion and physical activity promotion. The healthy lifestyles programs identified a major opportunity to improve public health practice to prevent premature death and disability from cardiovascular and other chronic diseases.

The lifestyle programs were taking a new approach to the challenge of ischemic heart disease, i.e. a population health approach aimed at lowering the risk for the entire population through behavioral and environmental change (Table II).

Several factors contributed to the introduction of the new public health mandate. Intellectual support was one factor, but was insufficient to shift public health policy on its own. A strong
internal champion and political support were other necessary ingredients.10, 18 The Chief Medical Officer of Health (CMOH) for the province championed the efforts internally. New to his position, the CMOH had a vision to re-vitalize public health;1 to shift the emphasis towards chronic disease prevention. His vision was shaped, in part, by external forces. Main forces included an abundant literature on disease and behavioral epidemiology,32 recent work completed by the Premier’s Council on Health Strategy to establish health goals for Ontario,8 innovative practices in other jurisdictions (notably, Minnesota Heart Health Program),15 and a health policy environment aiming to enhance prevention and health promotion, especially by promoting individual behavior change.7

The definition of CVD as a problem of unhealthy lifestyles was reinforced every 3–5 years throughout the study period. It was reinforced in a subsequent public health mandate,6 policy documents5 and heart health programs, including the HHAP15 and the OHHP.14 For each initiative, provincial public health authorities capitalized on circumstances in their internal and external environments. For example, the CMOH capitalized on his authority (internal factor) and the knowledge of prevention (external factor) in order to publish his 1993 report of the CMOH Promoting Heart Health.18, 39 In 1997, internal structural changes (e.g. an upcoming shift to 100% municipal funding for public health programs) were a major stimulus for revising the provincial program guidelines.12 The healthy lifestyles programs were consolidated into a single chronic disease prevention program, and program standards were made more measurable and prescriptive (Table III). These changes were to encourage at least a minimum investment in chronic disease prevention programs by local politicians and to facilitate enforcement.

### Innovation development

During the 10-year study period, Ontario experienced three main phases in innovation development. The first phase was conceptual and involved developing a community intervention framework. In the late 1980s, the Ontario Ministry of Health adopted a comprehensive, population-based framework that was applied to single and multiple behavioral risk factors.3, 4 The framework was maintained throughout the study period with minor refinements.14, 15

An interplay of internal and external factors contributed to the conceptual development. In the late 1980s, a political priority to increase the emphasis on health8 (external), tests of community-wide approaches for the primary prevention of CVD in Europe and the US28, 35 (external), and a new public health mandate1 (internal) set the stage for innovation in Ontario. A critical internal factor

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**Table II. Shifts in public health practice with the healthy lifestyles programs**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Traditional public health</th>
<th>Healthy lifestyles mandate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clients</td>
<td>individuals</td>
<td>populations</td>
</tr>
<tr>
<td>Targets of change</td>
<td>risk factors</td>
<td>health behaviours and social and physical environments</td>
</tr>
<tr>
<td>Dominant public health strategies</td>
<td>health education and screening</td>
<td>education, environmental and policy initiatives</td>
</tr>
<tr>
<td>Responsibility for public health</td>
<td>public health agencies</td>
<td>multiple sectors</td>
</tr>
<tr>
<td>Role of the public health professional</td>
<td>educator and teacher</td>
<td>facilitator and partner</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>hierarchies and disciplinary divisions</td>
<td>networks and multidisciplinary teams</td>
</tr>
</tbody>
</table>

*This table is a synthesis of literature comparing traditional public health practices and the new public health. Some recent comprehensive reviews include Crichton (Crichton, 1997) and Shah (Shah, 1998).*
Table III. Sample provincial public health objectives for heart health promotion, 1989 and 1997

<table>
<thead>
<tr>
<th>Sample provincial public health goals</th>
<th>1989</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disease objectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to reduce the mortality from ischemic heart diseases by 25% by the year 2010</td>
<td>to reduce the proportion of 12–19 year olds who smoke daily to 10% by the year 2005</td>
</tr>
<tr>
<td></td>
<td>to reduce the morbidity from diabetes and hypertension</td>
<td>to reduce dietary fat intake to an average of 30% of calories or less among people age 18 and older by the year 2010</td>
</tr>
<tr>
<td><strong>Behavioral objectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to reduce the proportion of adults and youths who use tobacco</td>
<td>to increase to 40% the proportion of all adults who include at least 30 min of accumulated, moderate physical activity on most if not all days of the week by the year 2010</td>
</tr>
<tr>
<td></td>
<td>to increase the proportion of the population with sound nutritional practices</td>
<td>to increase to 75% the proportion of adults who take part in regular physical activity by 2000</td>
</tr>
<tr>
<td></td>
<td>to increase to 75% the proportion of adults who take part in regular physical activity by 2000</td>
<td>to increase the proportion of smoke-free homes by the year 2010</td>
</tr>
<tr>
<td><strong>Environmental objectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>to reduce the proportion of adults and youths who are exposed to second-hand smoke</td>
<td>to increase the proportion of smoke-free public places and workplaces to 100% by the year 2005</td>
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</tbody>
</table>

to make things happen was a new internal structure—the Community and Health Promotion Branch (CHPB)—with a mandate to catalyze health promotion in Ontario,2 and a Director who had both a vision and passion for a health promotion system in Ontario.18, 39

A second phase of innovation development in Ontario was demonstration projects. The HHAP was launched in 1990 with a goal to develop and test heart health programs at the community level.15 Five diverse locations were selected so that approaches developed would be suitable to various settings in Ontario.

A mix of internal and external factors contributed to the timing and character of the HHAP. The broadest context was a supportive political environment for health promotion8 (external), as well as research and practice information from jurisdictions outside of Ontario (external), such as the CHHI,30 and international CVD prevention research and demonstration projects.35 Two main internal factors supporting the HHAP were the new public health mandate in healthy lifestyles1 and the mandate of the CHPB to catalyze community health promotion.2 Public health authorities (Directors of the Public Health Branch and CHPB) capitalized on these supportive conditions and earmarked funds for heart health promotion when an investment opportunity presented itself in the late 1980s.18

The third phase of innovation development was knowledge synthesis, with a goal to identify promising interventions for widespread application. Near the sunset of the demonstration projects, health units and other agencies across Ontario were looking to the HHAP for guidance on how to apply lessons learned from these projects in their own communities.10 Public health professionals were keenly interested in ‘things that work’, including specific products (e.g. pamphlets, displays, activity kits), statistical and review literature, practical strategy and planning material, media tools, information on risk factor strategies, and evaluation strategies. As a result, 1995–1998 was a transition phase to bridge the gap between demonstration and dissemination. A priority during this phase
Dissemination of heart health promotion was knowledge synthesis to identify and disseminate ‘best practices’ for heart health.\textsuperscript{9, 13, 21, 27}

Efforts to identify best practices were made possible by a growing public health infrastructure in Ontario\textsuperscript{29} (internal factor), as well as complementary efforts outside of Ontario\textsuperscript{28, 31} (external factors). A major support within the public health system was a mandate to promote evidence-based practice in public health,\textsuperscript{33} including community-based heart health programs. Another internal support was the mandate of a provincially funded resource center (i.e. Heart Health Resource Centre) to disseminate heart health programs.\textsuperscript{13, 18}

### Strengthening predisposition and capacity

**Highly motivated...**

At a provincial level, motivation for heart health promotion among local public health professionals remained high throughout the full study period. Over half of health units submitted applications for the HHAP; average levels of predisposition for heart health promotion, measured in CHHIOP from 1994 to 1997, were consistently high;\textsuperscript{16} and all health units were participating in the OHHP.

Levels of motivation were influenced by both internal and external factors. Dominant internal supports were the public health mandate and funding incentives for heart health programs.\textsuperscript{19}

The opportunity for provincial funding was a particularly strong influence in 1997 (with the upcoming change to 100\% municipal funding for public health programs) because of its interaction with competing local priorities (external factor). Staff speculated that ‘the future of heart health promotion will rest largely in the hands of the Health Promotion Branch...through the Ontario Heart Health Program funding’, since ‘it may be a difficult task, especially administratively, to convince municipal governments that heart health deserves the priority that it currently receives’.\textsuperscript{12} (p. 69)

**...but need the skills and resources**

Throughout the 1990s, all skills and resources for heart health promotion (including financial and human resources, leadership, organizational structures, and partnerships) (Table IV) increased steadily, reaching modest levels by 1998. Main areas of strength were provincial funding for health promotion, staff expertise and a strong commitment to community partnerships. All skills and resources, however, had room to improve, especially sustained support for heart health promotion from local boards of health, public interest in heart health promotion and partnerships with agencies not traditionally involved in health promotion.

The intersection of internal and external factors helps to explain the modest levels of skills and resources among Ontario local public health professionals. New directions in public health and health promotion\textsuperscript{10, 17, 18, 32} (external factors) explain the low levels of skills and resources for heart health promotion at the beginning of the study period. Strengthening skills and resources during the 1990s was constrained by several factors, including limited funding for prevention within the health system\textsuperscript{29} (external factor), limited funding for heart health promotion within the public health budget\textsuperscript{19, 24} (internal factor) and an increasingly broad mandate in public health, whereby local public health professionals felt they were being ‘stretched thinner and thinner and thinner’ and ‘...didn’t think [they] could take on any more new mandates and expect [to] do them well’.\textsuperscript{10} (p. 89)

The increases in skills and resources observed in Ontario were also the result of internal and external influences. External factors provided a supportive context for enhancing public health capacity within Ontario; notably, worldwide emphasis on strengthening public health to impact on chronic disease,\textsuperscript{32} and a more established policy focus on disease prevention and community health promotion.\textsuperscript{8} Developments in the public health infrastructure in Ontario were more directly responsible for observed increases in skills and resources.\textsuperscript{10, 12, 17} Locally, changes such as new hiring practices, allocation of time to healthy lifestyles and heart health programs, and new organizational structures enhanced skills and resources for heart health promotion. A provincial resource system to support community health pro-
**Table IV. Trends over time on some skills and resources for heart health promotion**

<table>
<thead>
<tr>
<th>Some skills and resources for heart health promotion</th>
<th>Trends throughout the 1990s</th>
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| Public health budget for tobacco, nutrition and physical activity programs | • approximately 10% of public health resources by 1997¹⁷  
• 3.6% increase from 1992 to 1997²⁴  
• some additional resources through other public health programs (e.g. Healthy Growth and Development Program)²⁴ |
| Provincial funding incentives for heart health promotion | • 1990 (HHAP): $1 million per year for 5 years for 5 communities¹⁵  
• 1998 (OHHP): $3.4 million per year for 5 years for 37 communities¹⁴ |
| Staff time spent on heart health promotion activities | • among those staff most involved in heart health promotion, 12% increase in the average time spent on heart health activities from 1994 to 1997 (71% of time, on average, in 1997) (CHHIOP health unit surveys) |
| Staff expertise | • increases in knowledge and skills related to population health, heart health promotion, community development and organization, partnerships¹⁰, ¹¹  
• by 1997, some areas for further improvement: clarifying the difference between population and individual approaches and learning how to work with other agencies¹⁰, ¹¹ |
| Leadership for heart health promotion | • increased leadership for heart health promotion from health units; the average health unit reported taking a lead role in 31% of an inventory of 75 heart health promotion activities in 1994 and a lead role in 42% of activities in 1997 (CHHIOP health unit surveys)  
• leadership from health units variably present across the province¹⁰ |
| Organizational structure | • shift away from a traditional disciplinary focus to interdisciplinary planning and programming¹⁰, ¹¹  
• many units restructuring and reorganizing at the end of 1997¹¹ |
| Organizational practices to support heart health promotion | • effectiveness of organizational practices improved, including practices related to assessment, planning, mobilizing resources for implementation and evaluation (CHHIOP health unit surveys)  
• by 1997, health units were ‘somewhat effective’, on average; they were most effective with assessment and planning practices and least effective with evaluation practices (CHHIOP health unit surveys) |
| Partnerships with community agencies | • increased number of and participation in networks related to heart health at provincial, regional and local levels (CHHIOP health unit surveys)  
• uniform, strong commitment to community partnerships within public health¹⁰  
• partnerships most advanced with schools and community agencies, and less advanced with non-traditional partners such as municipal government, workplaces and health care offices¹⁰, ¹¹  
• [T]he state of play of relationships with other community agencies is variable with some units still in the initial stages of learning how to work with community agencies. There is still a lot to be learned about how to translate philosophy into practice²¹ (p. 93) |
| Public interest in heart health promotion | • sustained weak relationship between public health and the public. The profile of public health is ‘non-existent’,¹⁰ (p. 66) and the public maintain a traditional view of public health as an organization that ‘gives inoculations’ and goes ‘out to schools to check kids eyes and teeth’¹⁰ (p. 66) |

motion also enhanced local capacity. Since 1992, multiple components of a health promotion resource system were established, including peer networks, funding incentives, training and consultation supports, and written resources.¹⁸ Although the impact of specific components
remains unclear, organizational level research provides evidence of an association between use of resource centers and organizational capacity.\textsuperscript{16}

**Local implementation**

By the end of the study period, Ontario was at an early stage of implementation. As of 1997, although most health units had established heart health programs, the average program only had a 2.6-year history and public health professionals did not yet have a common understanding of heart health.\textsuperscript{10} Reported levels of implementation were also relatively low.\textsuperscript{16} Figure 3 shows that implementation of heart health programs has continued to increase since at least the mid-1990s; however, by 1997, less than one-third of health units were implementing heart health programs at a level that may be considered attainable with limited resources.

Factors influencing implementation of heart health activities at the organizational level are examined in detail in other papers.\textsuperscript{16} Findings show that implementation is influenced by several internal organizational factors, such as health unit priorities, structures, processes and traditional practice, and external factors, such as partnerships with community agencies and community interest in heart health. Nevertheless, approximately 50\% of the variability across health units remains unexplained. The interplay of factors in particular locations may help explain this variability and is the topic of further study (Riley \textit{et al.}, in preparation).

**Monitoring, evaluation and research**

Ontario met several objectives of the monitoring, evaluation and research stage during the 10-year study period. The initial focus of activities was monitoring population health behaviours to identify a need for action.\textsuperscript{4} These surveys demonstrate a commitment from within the public health system (internal factor) to use epidemiology to guide program directions. This commitment was demonstrated by the CMOH, in particular, in his 1993 report in which he described research and analysis as high priorities to support public health activities.\textsuperscript{5} External incentives also influenced monitoring activities; notably, eligibility for research funding.\textsuperscript{18}

Another focus of activities in this stage was process (or implementation) evaluations of heart health initiatives. Major studies with this focus include the HHAP, CHHIOP and benchmarking studies in public health.\textsuperscript{23} A combination of internal and external factors helps to explain a strong focus on process evaluations. A major internal force was a growing infrastructure to conduct public health research.\textsuperscript{20, 22, 37} The evaluation and research needs of this infrastructure were guided mainly by external factors, including the current knowledge base\textsuperscript{15} and external funding incentives for implementation research.\textsuperscript{18}

A third, and most recent, focus in the evaluation stage is on outcome evaluations, including population impacts for knowledge and behavior change.\textsuperscript{14} This focus on outcomes was mainly the result of the policy environment (external factor), which was increasingly focused on accountability, return on investment and evidence-based practice.\textsuperscript{26, 29}

**Discussion**

The findings in this paper support and build on the study propositions. Findings reinforce three main themes in the literature on the dissemination of health promotion.
The dissemination of health promotion programs involves multiple stages. Initiatives in Ontario to promote heart health met objectives consistent with five stages of dissemination. First, CVD was defined as a problem of unhealthy lifestyles and opportunities were identified to improve public health practice to promote healthy lifestyles. Then, during the 10-year study period, several activities (e.g. demonstration communities, knowledge synthesis) were undertaken to identify and test heart health innovations suitable for the Ontario context, to strengthen local capacity (e.g. provincial resource system activities), to evaluate programs (e.g. HHAP), and to conduct research to inform the dissemination process (e.g. CHHIOP, benchmarking in public health). Some objectives, such as sustaining implementation of heart health activities, were not addressed during the 10-year study period, but may become a priority as levels of implementation of heart health promotion increase.

The dissemination process is iterative, while maintaining an overall progression from defining the problem to evaluating solutions. Consistent with study propositions, findings show that dissemination is non-linear. Events happened in more than one stage at a time and each stage was revisited several times throughout the 10-year study period. Events reinforced and extended previous activities. For example, the definition of the problem was reinforced every 3–5 years beginning in 1989 and the program requirements for local boards of health were strengthened from 1989 to 1997 as reflected in provincial guidelines. Similar patterns of reinforcement and extension were apparent in all stages (Figure 1).

Capacity building is an essential component in the dissemination of health promotion. The last 10–15 years have seen a growing literature on capacity building in health promotion, at individual, organizational and community levels. The focus on capacity reflects a recent paradigm shift in public health towards community-based, intersectoral and population approaches. Findings from this study reinforce the need for strengthening capacity within the public health system. They also reinforce the need to focus change efforts on various dimensions within public health organizations, including structures (e.g. multidisciplinary teams), processes (e.g. media advocacy), organizational outputs (e.g. environmental change programs), values (e.g. focus on populations), knowledge (e.g. population health) and skills (e.g. building partnerships). These dimensions reflect many components of capacity described in recent literature [e.g. (Hawe et al., 1997; Goodman et al., 1998)] and are consistent with transformation processes within organizations (Crichton, 1997; Senge, 1999).

Findings also contribute new knowledge on the dissemination of (heart) health promotion, including the time period for dissemination and factors that help to explain the dissemination process.

Dissemination of new health promotion practices takes a long time. Ten years after the problem of unhealthy lifestyles (contributing to CVD) was defined as a public health problem in Ontario, levels of capacity and implementation for heart health promotion were low to modest. These findings suggest that at least 10 years is needed to set the public health agenda and to prepare for change (e.g. developing innovations, strengthening pre-disposition and capacity), especially when new practices represent a departure from traditional ways of working (Rogers, 1995).

Findings also suggest that the time period for dissemination is extended if what to disseminate is unclear. Typically, a program (with objectives, strategies and results) is the basic material for dissemination (King et al., 1998). In Ontario, there was a substantial time delay between the completion of the demonstration projects and province-wide dissemination of heart health promotion activities. A main activity during this transition period was identifying and documenting practices for widespread application. This process was still in early stages at the end of the study period. Much is yet to be learned about how to evaluate the effectiveness of health promotion activities; how to translate research evidence into guidelines for application which take into account the need for adaptation in different jurisdictions;
A prime example of the interplay of internal and external factors was the development of the new public health mandate in 1989 (Figure 4). The CMOH was a strong internal champion for the change in mandate. He was influenced and supported by events and information in the external environment; notably, a health policy environment supportive of enhancing disease prevention and health promotion, innovative practices in other jurisdictions, and epidemiological information.

Findings also provide some insight into the relative influence of each factor. The policy environment emerged as a particularly dominant force. A political desire to enhance health promotion was capable of overpowering incomplete evidence on the effectiveness of heart health promotion and of a poor economy. The policy environment also influenced how information was used in decision making. One example is the strength and persistence of the lifestyles definition of heart health promotion in Ontario. Information on behavioral epidemiology was readily used to support a focus on individual lifestyles. Convincing evidence on social inequality as an important underlying cause of CVD [e.g. (Wilkinson and Marmot, 1998)], however, was not apparent in how the problem of heart health promotion was defined or in any other stages of dissemination. Explaining why this information was not used was beyond the scope of this study, but it may be related
to the relative recency of conclusive evidence and the lack of practical solutions to address the problem of social inequalities.

**Implications for research**

Findings suggest promising areas for research in three main areas. First, replication in other systems is a priority. Results of this single case study are suggestive more than definitive. Propositions about dissemination will be strengthened by conducting similar case study research under different spatial (i.e. public health systems) and temporal (i.e. time periods) conditions. The Canadian Heart Health Dissemination Project, recently launched as part of the CHHI, contributes to this research agenda.

A second priority for research is to conduct more in-depth analyses of the interplay of factors that create change. Complementary research in Ontario provides examples of more in-depth studies, including a path analysis (Riley et al., 2001) and comparative case studies (Riley et al., in preparation) to better understand variability in levels of implementation among Ontario health units.

A third area for research is to study more advanced stages of dissemination. What factors accelerate and constrain the dissemination process over a longer period of time? As health promotion initiatives mature, in Ontario and elsewhere, opportunities for this research will increase. The provincial evaluation of the OHHP is one opportunity, which includes quantitative and qualitative data collection from local public health and other community agencies, similar to CHHIOP, as well as data collection from provincial stakeholders.

**Implications for public health policy and practice**

Findings suggest policy makers should consider a long time horizon for dissemination and set realistic expectations for changes (e.g. 10 years to create capacity for substantial growth in levels of implementation). Applied to the CHHI (and other similar initiatives), the ‘dissemination phase’ needs to extend well beyond 5 years to achieve substantial gains in program implementation. Policy makers must also view dissemination as a dynamic process—one that requires creating and capitalizing on opportunities for change. Furthermore, identifying such opportunities requires constant attention to forces operating in the internal and external environments. Planning for dissemination, therefore, means striving to create a synergy of forces to achieve intermediate and long-term dissemination objectives. For public health policy makers, it means identifying and changing factors that they can influence directly (e.g. mandate, resource allocation) and aiming to influence those factors that are beyond their immediate span of control (e.g. political priorities).

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**References**


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**Appendix: data sources**

**Provincial public health policy documents**


Reports and publications from heart health programs in Ontario


PHERO publications


Administrative staffing and budget reports for local boards of health


Published and unpublished literature on trends and issues in public health and (heart) health promotion


39. Direct observation. The author was involved in health promotion research and practice in Ontario throughout the full study period. Primary involvements were developing resources on community health promotion (e.g. planning guides); evaluation of the Heart Health Action Program; member of the research team for the CHHIOP; and volunteering with the Heart and Stroke Foundations of Ontario and Canada. These involvements contributed to many personal communications with provincial and local professionals from public health and other community agencies.