Organizational capacity for chronic disease prevention: A survey of Canadian public health organizations

Nancy Hanusaik1, Jennifer L O’Loughlin2,3,4, Natalie Kishchuk5, Gilles Paradis4,6,7, Roy Cameron8,9

Background: There are no national data on levels of organizational capacity within the Canadian public health system to reduce the burden of chronic disease. Methods: Cross-sectional data were collected in a national survey (October 2004 to April 2005) of all 216 national, provincial and regional-level organizations engaged in chronic disease prevention through primary prevention or healthy lifestyle promotion. Levels of organizational capacity (defined as skills and resources to implement chronic disease prevention programmes), potential determinants of organizational capacity and involvement in chronic disease prevention programming were compared in western, central and eastern Canada and across three types of organizations (formal public health organizations, non-governmental organizations and grouped organizations). Results: Forty percent of organizations were located in Central Canada. Approximately 50% were formal public health organizations. Levels of skill and involvement were highest for activities that addressed tobacco control and healthy eating; lowest for stress management, social determinants of health and programme evaluation. The few notable differences in skill levels by provincial grouping favoured Central Canada. Resource adequacy was rated low across the country; but was lowest in eastern Canada and among formal public health organizations. Determinants of organizational capacity (organizational supports and partnerships) were highest in central Canada and among grouped organizations. Conclusion: These data provide an evidence base to identify strengths and gaps in organizational capacity and involvement in chronic disease prevention programming in the organizations that comprise the Canadian public health system.

Keywords: Canada, chronic disease prevention, organizational capacity, survey.
The ‘formal’ infrastructure of the preventive health system comprises public health organizations including among others, departments/agencies/units within the regional health authorities mandated by provincial/territorial governments to carry out essential public health functions (i.e. population health assessment, health surveillance, health promotion, disease and injury prevention, and health protection10). However, organizations outside the ‘formal’ infrastructure also provide public health services and are involved in CDP programming. They are an essential component of the preventive health system and include among others, national health charities and their provincial chapters, other nongovernmental and non-profit organizations, and grouped organizations such as coalitions, partnerships, alliances and consortia. These organizations are characterized by wide diversity in mission, structure and funding. In order to see the ‘bigger picture’ in terms of organizational capacity for CDP, we need to consider the preventive health system in its entirety.

While previous reports describe capacity for, or effectiveness of public health units or agencies in carrying out mandated activities or recommended core public health functions.10–13 Others focus on the performance or effectiveness of public health units or agencies involved in CDP programming. For example, several studies assess the performance or outcomes in community-based coalitions14–16 or on coalition sustainability.17 Previous studies of organizational capacity for CDP in Canada have also been limited in the interpretation and generalizability of results because the sample was restricted to one type of organization18–20 or to a single province.21

The capacity of organizations outside the formally mandated public health system has rarely been studied. In heart health promotion22–24 and in non-CDP areas such as HIV,25,26 much of the research has focused on describing the development of organizational capacity in coalitions or community-based organizations. To date, no study has examined differences in capacity between the many different types of organizations involved in CDP.

To develop a portrait of organizational capacity for CDP in the Canadian public health system, we undertook a national survey of all organizations in Canada currently engaged in CDP. Such data are needed to identify strengths and gaps in CDP-related organizational capacity and to provide an evidence base to guide strategic investment in the public health system. This paper presents descriptive findings on levels, determinants and outcomes of organizational capacity according to provincial groupings and across types of organizations. To our knowledge this is the first national survey of organizational capacity for CDP in a public health system to be conducted.

**Methods**

From October 2004 through April 2005, cross-sectional data were collected in a telephone survey of all national, provincial and regional-level organizations in Canada with mandates for CDP programming at the population level, either through the primary prevention of chronic disease (specifically diabetes, cancer, cardiovascular diseases or chronic respiratory illness) or through promotion of healthy eating, non-smoking or physical activity. These organizations comprised: regional health authorities and public health units/agencies (herein referred collectively as formally mandated regional public health organizations), government departments, national health charities and their provincial/district divisions, other non-governmental and non-profit organizations (herein, referred to collectively as non-governmental organizations), para-governmental health agencies (defined as agencies financed by the government but acting independently of it), resource centres, professional organizations and coalitions, partnerships, alliances, consortia (herein, referred to collectively as grouped organizations). The organizations were identified in an exhaustive Internet search using a type of purposive sampling known as snowball or network sampling.27 Just prior to data collection the list of organizations was validated by provincial contacts with in-depth knowledge of chronic disease prevention activity in their province. Based on screening interviews with senior management, organizations that adopt or develop CDP programmes or innovations with the intent to deliver these in specific populations (i.e. organizations directly involved in front-line CDP programming) were categorized as ‘user organizations’. Those that develop and transfer CDP innovations to other organizations, without the intent to implement these innovations in specific populations, were categorized as ‘resource organizations’.28

Structured telephone interviews (mean length 43 ± 17 min) were conducted with one key informant per organization, identified by a senior manager as most knowledgeable about implementation/delivery of CDP programmes, practices, campaigns or activities within the organization. For national health charities that had provincial or regional divisions, interviews were conducted within each division, if it met the inclusion criteria and in addition was judged to be autonomous. Prior to the interview, key informants received a copy of the questionnaire to allow for preparation and consultation with colleagues.29

**Study variables**

The measures used in the survey were based on a new conceptual model of organizational capacity for CDP, which posits that greater levels of organizational capacity will lead to greater involvement in CDP programming defined here as, practices and programmes addressing tobacco control, healthy eating, physical activity, the social determinants of health and stress management. The conceptual model and detailed information on the derivation and psychometric properties of these measures of the constructs comprising the model has been reported.28 Items used to measure study variables were based on a review of the literature, adapted from published instruments,28 or unpublished instruments designed to measure organizational practices/activities as part of the Canadian Heart Health Initiative – Dissemination Phase29 in five provinces (Ontario, Saskatchewan, Alberta, Nova Scotia and British Columbia), or they were developed de novo. All items were translated into French, extensively pre-tested and then subjected to psychometric analyses. Response sets for most items were five-point Likert scales ranging from ‘1’ (very low/strongly disagree) to ‘5’ (very high/strongly agree), and where relevant, the reference period was the past three years. A detailed description of the study variables is provided in the appendix.

**Statistical analyses**

The analyses reported here pertain only to user organizations. Since this study reports data collected in all CDP organizations in Canada (not a sample), significance testing is not relevant. Means for continuous variables and frequencies for categorical variables were compared across three provincial groupings and three types of organizations. To protect confidentiality,
Table 1 | Characteristics of organizations engaged in chronic disease prevention and healthy lifestyle promotion in Canada according to provincial grouping and type of organization

<table>
<thead>
<tr>
<th>Provincial grouping</th>
<th>Type of organization*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total N = 210</td>
</tr>
<tr>
<td>Type (%)</td>
<td></td>
</tr>
<tr>
<td>PHO</td>
<td>49.0</td>
</tr>
<tr>
<td>NGO</td>
<td>23.8</td>
</tr>
<tr>
<td>GO</td>
<td>19.1</td>
</tr>
<tr>
<td>OTHER</td>
<td>8.1</td>
</tr>
<tr>
<td>Size (median)</td>
<td></td>
</tr>
<tr>
<td>Number of FTEs at organization levelb</td>
<td>53.0</td>
</tr>
<tr>
<td>Number of FTEs at CDP unit/division levelb</td>
<td>14.7</td>
</tr>
<tr>
<td>Usual no. volunteers per year</td>
<td>35.0</td>
</tr>
<tr>
<td>Maximum no. volunteers per year</td>
<td>50.0</td>
</tr>
<tr>
<td>Age (median)</td>
<td>27.5</td>
</tr>
</tbody>
</table>

a: PHO = formally mandated regional public health organization; NGO = Nongovernmental organization, national health charity, non-profit organization; GO = Coalition, Partnership, Alliance, Consortium; OTHER = para-governmental, professional association, resource centre, federal or provincial government department

b: FTEs = Full-time equivalents

Table 2 | Levels of determinants (organizational supports, partnerships) of organizational capacity for chronic disease prevention and healthy lifestyle promotion in Canada according to provincial grouping and type of organization

<table>
<thead>
<tr>
<th>Provincial grouping</th>
<th>Type of organization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total N = 210</td>
</tr>
<tr>
<td>Organizational supports, mean (SD)*</td>
<td></td>
</tr>
<tr>
<td>Managerial</td>
<td>4.0 (0.7)</td>
</tr>
<tr>
<td>Staff</td>
<td>3.5 (0.7)</td>
</tr>
<tr>
<td>Evaluation</td>
<td>3.2 (0.9)</td>
</tr>
<tr>
<td>Partnerships</td>
<td></td>
</tr>
<tr>
<td>No. partnerships (median)</td>
<td>15.0</td>
</tr>
<tr>
<td>No. networks (median)</td>
<td>4.0</td>
</tr>
<tr>
<td>Partnership effectiveness [mean (SD)]a</td>
<td>3.8 (0.7)</td>
</tr>
</tbody>
</table>

a: Scored on a five-point Likert scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

Results

Of the 280 organizations screened and eligible, 222 were classified as user organizations. This represents a complete census of all CDP-involved user organizations in Canada in 2004. Data were collected in 212 of the 222 user organizations (95.5%) in a total of 216 interviews. The number of interviews per province ranged from 5 to 70 (mean = 21, median = 17). Central Canada accounted for 40% of all user organizations, 35% were located in the West and 25% in the East (table 1). Approximately half of all organizations were formally-mandated regional public health organizations. In both the West and East, a further one-third were non-governmental organizations. In contrast, in Central Canada, one-third were grouped organizations and only 13% were non-governmental organizations. The median number of paid staff was highest in formally-mandated regional public health organizations. The median age of user organizations was 27.5 years; those in Central Canada were oldest. Non-governmental organizations were older than the other types of organizations.

Table 2 presents levels of organizational determinants of organizational capacity. Among the indicators of internal organizational supports for developing and maintaining organizational capacity, managerial supports for CDP was rated relatively strong, but supports for CDP programme evaluation was rated relatively weak. Scores for organizational supports were higher in Central Canada than in the eastern and western provinces. Compared to other types of organizations, grouped organizations had the highest scores for all indicators of organizational supports. Table 2 also describes indicators of external organizational supports for organizational capacity, namely partnerships and networks. Overall, organizations reported a median of 15 partnerships (range 0–150) and 4 networks (0–100). Formally mandated regional public health organizations had the highest number of partnerships and networks, although partnership effectiveness was rated lower in these than in other types of organizations. Non-governmental organizations had the fewest partnerships, but reported the highest level of partnership effectiveness.

Organizational capacity in this study was conceptualized to include skills and resources. Table 3 describes skill levels for undertaking both core CDP practices and risk-factor specific programming. With regard to core CDP practice skills, identifying relevant practices and planning were rated more favourably than skills for programme evaluation.
With regard to risk factor-specific programming skills, tobacco control and healthy eating were rated highest and stress management and social determinants of health were rated lowest. Few notable differences in skill levels were evident by provincial grouping; those that did exist favoured Central Canada. Formally mandated regional public health organizations and grouped organizations reported similar skill levels.

**Priority for CDP** within organizations was consistently rated ‘high’ across provincial groupings (table 3). **Priority for CDP** was ranked highest in grouped organizations. **Priority for CDP** notwithstanding, access to financial resources for CDP was uniformly rated low across provincial groupings. Key informants in eastern Canada rated **adequacy of resources** lower than those in the rest of the country. The median number of external sources of funding for CDP in the past 3 years was 2 (range 0–9). Grouped organizations rated resource adequacy higher than did other types of organizations. Despite having more external sources of funding, formally-mandated regional public health organizations reported resource availability as less adequate.

The level of involvement in specific CDP programming was highest for tobacco control and lowest for activities related to **social determinants of health** and stress management (table 4). Higher involvement was reported for CDP **planning** practices than for **evaluation** of CDP programmes. These indicators varied little across provincial groupings, except that levels of involvement in tobacco control, healthy eating and physical activity were higher in Central Canada, while involvement in social determinants of health was comparatively high in the East. Involvement in CDP programming activities, most notably physical activity and planning, tended to be highest in grouped organizations.

Table 4 also describes intensity of involvement across multiple delivery settings and using multiple delivery strategies. Scores are shown for programming that is risk factor-specific, as well as for programming that combines all these separate risk factor activities into an ‘all-risk factors’ category. Intensity of involvement across multiple settings and using multiple strategies was highest for addressing a single risk behaviour (tobacco), and lowest for ‘all risk factors’ programming. Intensity of involvement across multiple settings was highest in Central Canada for most risk factor-specific programming, as well the ‘all risk factors’ programming indicator. Although more intensity of involvement using multiple strategies for risk factor specific programming was reported in the East, the highest score for this ‘all risk factors’ type of programming was reported in Central Canada. There was little difference between organization types in intensity of involvement in risk factor-specific programming, but ‘all risk factors’ activity was similar in formally mandated regional public health organizations and grouped organizations.

**Discussion**

This is the first national survey of organizational capacity for CDP in organizations in Canada that implement programmes to reduce the burden of chronic disease. The data show that the infrastructure for CDP comprises many different types of organizations, only half of which are in the formal public health system. Furthermore, there is variability across provinces in the structure of the system, with a greater concentration of non-governmental organizations in the West and East, and of grouped organizations in Central Canada. Comprehensive understanding of the public health system in Canada, including increased knowledge about organizational capacity for CDP programming, must take the complexity of this infrastructure into account.

Among core CDP practices, skills for and involvement in evaluation was rated lowest, both across provincial groupings and types of organizations. Further, supports for evaluation within organizations was rated poorly. Because evaluation is key to providing an evidence-base for best practices in CDP programming, these findings suggest the need for training in evaluation methodology, increased resourcing for evaluation activities, as well as improved funding formulae that recognize and endorse the importance of evaluation.30–32

Our results on risk-factor specific programming suggest that skills were rated strongest, and level of involvement was highest for tobacco control, physical activity and healthy eating, both across provincial groupings and organizational types. Skills and involvement were relatively low for...
programming related to the social determinants of health and stress management. These findings may reflect decades of higher priority, and more intense resourcing of lifestyle risk factor modification programmes, for which there is a solid evidence base. However, as understanding of the determinants of chronic disease from a broader socio-ecological perspective increases, CDP programming may be lagging in less traditional areas, such as the social determinants of health. Training of the public health workforce, enhanced resourcing and increased support for intersectoral collaboration with sectors outside health and disciplines not traditionally involved in public health such as sociology, political sciences, economics and anthropology, may be needed to enhance organizational capacity in these less traditional areas.

Despite the high level of priority accorded to CDP, resource adequacy and stability of resourcing for CDP were consistently rated as inadequate. This corresponds with global survey findings that despite high priority, only 39% of countries (n=65 out of 167) reported that they had specific budgets allocated for non-communicable disease prevention and control. Our data suggest that resource inadequacies may be greatest in eastern Canada, where there are more social, economic and health inequities, and higher rates of chronic disease. Resource adequacy was rated lowest in organizations within the formally mandated public health system. This observation may reflect that in addition to its chronic underfunding, the formal public health system in Canada has had to adjust to significant restructuring due to regionalization of health services that began in most provinces in the early 1990s. National figures estimate that 5.5% of the total health expenditure is spent on public health costs including food and drug safety programmes, health inspections, health promotion activities, community mental health programmes, public health nursing, measures to prevent the spread of communicable disease, promotional activities to improve workplace health and safety. It is not known what proportion of the 5.5% is allocated to CDP. In contrast to organizations, in which the primary focus is CDP, the formally mandated regional public health organizations surveyed in this study were generally divisions or units within larger public health agencies or regional health administrative structures that also undertake activities such as the prevention or control of transmissible disease. Formally-mandated regional public health organizations may have to compete for resources with these other activities and/or a variety of acute care, long-term care and rehabilitation institutions within the same administrative structure.

In 1986, the Ottawa Charter for Health Promotion advocated multi-level interventions that combine complementary environmental and behavioural components and span
multiple settings. Our results suggest that, within the organizations that participated in this study, involvement was greater in activities that address single behavioural risk factors, than in activities that address multiple risk factors concurrently in a variety of settings or using multiple strategies. Further research is needed to determine if this more ‘siloed’ approach to CDP does in fact persist in Canada and if so, what the underlying reasons are.

Limitations include that inter-provincial differences were obscured because of the need for confidentiality. Although key informants were those ‘most knowledgeable about CDP within the organization’, data on organizational characteristics and processes provided by a single person may not reliably reflect the inherent complexity of organizations. The validity of our conceptual model remains to be tested. Finally, the extent to which these findings are generalizable to other national health systems is not known.

In conclusion, the data presented in this manuscript provide the first national description of the CDP system in Canada. They identify areas that may need improvement, and they provide empirical evidence for local calls to build public health capacity.

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Conflict of interest: None declared.

Key points
- Public health systems worldwide are of central importance to chronic disease prevention.
- There are few reports that describe involvement in chronic disease programming within the Canadian public health system, and even fewer that focus on its capacity to deliver effective chronic disease prevention programmes.
- This study shows that the infrastructure for chronic disease programming in Canada comprises many different types of organizations.
- Involvement and skill levels were highest for programming related tobacco control and healthy eating; and lowest for stress management, social determinants of health, and programme evaluation.
- Adequacy of resources for chronic disease prevention programming was perceived as low across the country.

References

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