

# **The Future of Public Health in Canada: Developing a Public Health System for the 21<sup>st</sup> Century**



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This document would not have been possible without the direction and input from the project's ad hoc committee. It should be noted that no attempt was made to achieve consensus from all Committee members on all of the content and recommendations of this document. The project sponsors take full responsibility for its content.

The key informants from other countries were an invaluable source of information to better understand the current state of public health system development elsewhere in the world. No particular observation regarding other countries' systems should, however, be attributed to the key informants.

A draft version of this document was circulated to attendees at a national Think-Tank on the future of the public health system in Canada that was sponsored by the CIHR Institute of Population and Public Health. The discussions at the Think-Tank, held on May 10<sup>th</sup>, 2003 in Calgary, as well as the specific suggestions made by participants, to improve this document were extremely valuable.

## Executive Summary

Public health measures have been responsible for many of the major improvements in the health of Canadians. Today, Canadians are healthier and live longer than they ever have previously. In the past several decades, the risks to health have been changing. The leading causes of death for all ages are now chronic diseases and injuries. Today's public health challenges include epidemic numbers of obese adults and children, continued high smoking rates, and increasing rates of asthma in children. The threat of infectious diseases has not disappeared, with old foes re-emerging (e.g. syphilis, community water-borne disease outbreaks) and new ones appearing (West Nile, SARS, bioterrorism).

There has been increasing concern regarding the state of Canada's public health system. High profile inquiries have addressed specific events (e.g. Walkerton outbreak) or topics (e.g. Krever Commission). However, current concerns are of a much broader nature. In response, an *ad hoc* committee of public health leaders from across the country has come together to bring attention to the state of Canada's public health system and how it can be better structured and resourced to improve the health of Canadians. This paper presents a brief synthesis of pertinent issues with suggested actions for the future.

Public health is the science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society.<sup>1</sup> The public health system's programs, services, and institutions emphasize the prevention of disease, the promotion of health, and the health needs of the population as a whole. The public health and health care systems share the same goal of maximizing the health of Canadians, and it is just as critical to have a well functioning public health system, as it is to have a strengthened health care system. Furthermore, both systems much work well together in responding to threats to the public's health.

The public health system provides and supports a wide range of program and policy interventions including: the development of health status reports; disease surveillance and responses to outbreaks; health promotion to advocate for and facilitate healthier public policies, improve skills, and support individual and community-level behaviour change; immunization programs; and inspection of restaurants and child care facilities. The essential functions of the Canadian public health system have never been officially defined although a national working group has recommended the following list:

- Population health assessment;
- Health surveillance;
- Health promotion;
- Disease and injury prevention;
- Health protection.

The public health "system" in Canada might be better described as a grouping of multiple systems with varying roles, strengths and linkages. Each province has its own public

health legislation although the age and content of these vary considerably. Most legislation focuses on the control of communicable diseases, although most preventable disability and death is now due to chronic diseases and injuries. Quebec has the most recently updated legislation and it provides a comprehensive approach to public health addressing all of its essential functions. Federal legislation is limited to the Quarantine Act, (which dates predominantly back to 1872), and a variety of health protection-related Acts. Overall, the legislation does not identify the federal government's mandate, roles, and responsibilities in public health.

It is unclear how much money is actually spent on public health in Canada. CIHI estimates are confounded by the inclusion of substantial administrative costs of provincial health Ministries. Ontario budget data suggests that about 2.3% of the provincial health budget is spent on public health. In all provinces/territories but Ontario, public health services are funded by the province/territory. In Ontario, public health services are cost-shared on a 50:50 basis with municipalities.

In most provinces and territories, public health is delivered through regional health authorities or the provincial/territorial government. The primary public health entity within Health Canada is the Population and Public Health Branch (PPHB). The Branch is primarily responsible for policies, programs and systems relating to prevention, health promotion, disease surveillance, community action and disease control. Health Canada's health protection responsibilities are located in two other branches and one agency.

There is little information available on the functioning of Canada's public health system. Since there is no accepted list of expected system functions, it is difficult to assess the extent that these are being fulfilled. As an initial step, a working group of the Advisory Committee on Population Health assessed the capacity of the Canadian public health system in 2001 through a series of key informant interviews and literature reviews. The consistent finding was that public health had experienced a loss of resources and there was concern for the resiliency of the system infrastructure to respond consistently and proactively to the demands placed upon it. Significant disparities were observed between "have" and "have not" provinces and regions in their capacity to address public health problems. This is particularly important since these provinces often have the highest rates of unhealthy behaviours and chronic diseases. The capacity report's findings are consistent with previous assessments by the Krever Commission and the Auditor General of Canada.

The pervasive concern regarding Canada's public health system prompted a review of alternative international models for organizing and funding essential public health programs and services that Canada might want to consider in restructuring its national, provincial/territorial, regional and locally-based public health programs and services. Background documents and key informant interviews were conducted for the following countries: England, Australia, New Zealand, and the United States. The development of the provincial public health system in Quebec was also reviewed.

Concern for public health systems was present in all of the jurisdictions reviewed. The impact of health system restructuring, chronic system underfunding and inattention, a shift in focus from communicable to chronic diseases, as well as the need to address emerging threats such as bioterrorism, had prompted countries to take steps to improve their public health system's infrastructure.

Countries have taken action to define the essential or core functions of the public health system and developed mechanisms to assess their implementation. National level leadership has been critical to articulate the key issues and challenges facing public health and implement comprehensive strategies to address the deficiencies in the system's infrastructure. In all of the countries reviewed, the federal government funds a substantial portion of the public health system infrastructure. A major challenge for public health is arguing for spending now to prevent something in the future. A major economic report from England however, highlighted the potential cost savings to the health care system if adequate investments were made in prevention and health promotion. Nevertheless, the aim of prevention is to spare people from avoidable misery and death, not always to save money on the health care system.

Public health is focused on the health of populations. To do so effectively requires a critical mass of technically expert staff. This has implications for the size of the population base of public health agencies. Achieving the critical mass of expertise to address the breadth of public health issues has prompted the development of central resources to support the fulfillment of essential public health functions. These agencies also play a significant role in system infrastructure development including targeting increased skills for the public health workforce, improving information management, and addressing research and development. A strong governmental public health system is an essential, but insufficient factor to address population health issues. Inter-sectoral partnerships have been important in the development of strategies to improve the public health system in other countries. A major challenge has been the lack of interest in decision-makers to address public health system infrastructure unless faced with a specific health issue or crisis. The challenge for public health leaders is to successfully acquire funding for new/improved issue-related programming while simultaneously attempting to build the necessary infrastructure to support programs.

Based on the collective experience of Committee members, the results of the previous Canadian key informant survey of public health capacity, and the findings from the review of other countries' efforts to improve their public health systems, the following key infrastructure elements of a national public health system need to be achieved:

- Clearly defined essential functions of public health;
- Defined roles and responsibilities at each level of the system (national, provincial/territorial, regional/local);
- Consistent, modern legislation within each jurisdiction across the country to support those functions, roles and responsibilities;
- Appropriate delivery structures to accomplish functions, roles, and responsibilities within each jurisdiction;
- Appropriate funding levels and mechanisms that ensure equitable availability of public health services to all Canadians;
- Appropriate numbers of well-trained staff;
- Appropriate information systems to support assessment and surveillance;
- Access to expertise and support to develop a prospective vision, carry out these responsibilities expertly and efficiently, and support innovation and evaluation;
- Accountability mechanisms at each level of the system.

With sufficient leadership, commitment and resources, Canadians across this country can have a well-functioning public health system. Different parts of the country have developed particular strengths in their public health system, and the system evolution that must occur can build upon these existing strengths. In many ways, Quebec has the most comprehensively developed provincial public health system in the country. While there are many positive attributes of the Quebec system, it is not realistic to expect that all of these could be replicated in a substantial number of provinces and territories. Other mechanisms of system development need to be explored. The changes that need to occur across the country are substantial and will not occur without a dedicated process to achieve the vision outlined above. While there are many potential places one could start, for discussion purposes, some immediate potential action steps include:

- Define the Public Health System:
  - Reach consensus on essential functions of the public health system;
  - Implement system performance assessment;
  - Establish standards for minimum public health programs and services;
  - Strengthen public health legislation;
- Strengthen Public Health System Structures:
  - Establish a national public health leadership position;
  - Develop a strong, national network for public health expertise;
  - Improve funding levels and mechanisms;
- Strengthen Supporting Elements for Effective Service Delivery:
  - Develop and support the public health workforce;
  - Develop and disseminate a comprehensive review of the scientific evidence base for public health;
- Collaboration
  - Target common health goals;
  - Encourage broad partnerships.



There are a variety of options on how these actions could be pursued. Some items may work best with a specific level of government taking the lead, while others could work with a variety of approaches (e.g. national public health partnership, lead governmental or non-governmental agency, etc.). The Committee felt that it was not appropriate to specify implementation processes or action plans, prior to achieving consensus of what needs to be accomplished.

The public health system exists to safeguard and improve the health of Canadians. Great progress has been made in the past century, but many challenges remain. The dawn of a new century is an opportune time to strategically and explicitly build the infrastructure for a strong public health system that will adequately serve all Canadians.

# The Future of Public Health in Canada: Developing a Public Health System for the 21<sup>st</sup> Century

## Introduction

Public health measures have been responsible for many of the major improvements in the health of Canadians (see text box). Today, Canadians are healthier and live longer than they ever have previously. In the past several decades, the risks to health have been changing. Many previous leading causes of deaths and illnesses have been prevented through the control of epidemics, ensuring safe food and water, and better living conditions. While infectious diseases continue to pose risks to the health of Canadians, the leading causes of death at all ages are now chronic diseases and injuries. Today's public health challenges include epidemic numbers of obese adults and children, continued high smoking rates, and increasing rates of asthma in children. Old foes have not disappeared (e.g. syphilis, tuberculosis, community water-borne disease outbreaks), and new threats have emerged (e.g. West Nile virus, SARS, bioterrorism).

Despite the range of increasingly complex health issues facing Canadians, the public health system suffers from inattention and to some degree, is a victim of its own success. Only when something goes terribly wrong as in the Walkerton tragedy, does the important role and

### Ten Great Public Health Achievements: 1900-1999\*

- Vaccination;
- Motor vehicle safety;
- Safer workplaces;
- Control of infectious diseases;
- Decline in deaths from coronary heart disease and stroke;
- Safer and healthier foods;
- Healthier mothers and babies;
- Family planning;
- Fluoridation of drinking water;
- Recognition of tobacco as a health hazard.

\*Ten great public health achievements – United States 1900-1999. MMWR 1999; 48(12): 241-243.

### Public Health and Public Health Care

It is an unfortunate phenomenon in Canada that the term "public health" is often used to describe the health care system. The "public" in "public health care" highlights the role of government as the primary payer and administrator of the health care system. The "public" in *public health* emphasizes a focus on the health of populations. Treatment services (i.e. public health care) and population-based prevention (i.e. public health) are complementary, but different. Both systems need to be effectively working to maximize the health of Canadians. The Canadian Medical Association has stressed "the ability of the public health system to respond to issues directly affects the well-being of Canadians, in a manner as important as the ability of the acute care system to respond to medical emergencies." \*

\*Canadian Medical Association. A prescription for sustainability. Ottawa: CMA, 2002.

contribution of public health become highlighted; and then only temporarily. It had been hoped that the Romanow Commission would consider the public health system since the Commission's intent was to "strike an appropriate balance between investments in prevention and health maintenance, and those directed to care and treatment." While several submissions from public health providers were made to the Commission, the public health system was not explicitly addressed, although the term "public health care" was used to describe publicly funded treatment services (see text box). The earlier report on health care provided by Senator Kirby addressed disease prevention and health promotion in more detail and recommended that the "federal government ensure strong leadership and provide additional funding to sustain, better coordinate and integrate the public health infrastructure in Canada as well as relevant health promotion efforts."

Reflecting widespread concerns regarding Canada's public health system, an *ad hoc* committee of public health practitioners from across the country has come together to assess the state of Canada's public health system and how it can be better structured and resourced to improve the health of Canadians (Committee members are listed in Appendix 2). This paper presents a brief synthesis of pertinent issues with suggested actions for the future. Specifically this paper will:

- Describe public health;
- Present an overview of the public health challenges faced by Canadians;
- Discuss the state of the public health system in Canada;
- Describe how other countries are addressing their public health systems;
- Describe a vision for public health in Canada;
- Identify potential initial action steps to improve Canada's public health system.

## What is Public Health?

Public health is the combination of sciences, skills, and beliefs that is directed to the maintenance and improvement of the health of all the people through collective or social actions. The programs, services, and institutions involved emphasize the prevention of disease and the health needs of the population as a whole.<sup>1</sup> In contrast to clinical services that operate at an individual level, the essence of public health is that it adopts a perspective based on groups of people or the population. There are two fundamental aspects to public health:

- Enquiry:
  - Who is at risk of becoming ill? Why?
  - Who is ill? Why are they ill?
- Action:
  - What needs to be done to improve the health of the population?

The enquiry stage will typically use several sources of data to provide a comprehensive understanding of the health issue. Recognizing the broad range of determinants of health, public health actions are *multi-dimensional* and typically include several synergistic interventions. A good example is effective tobacco control. On one dimension, such interventions may include single strategies or a combination of approaches to educate and build skills; the use of media; support policy development and advocacy; implementing new policy or regulations; and inter-sectoral partnerships. The primary *targets* of the interventions may be individuals, families, neighbourhoods, or the broader community. A variety of *settings* for interventions will also be considered including individuals' homes, schools, workplaces, or health care settings. The mixture of interventions is tailored for the specific health issue of concern and is driven by what needs to change to improve the health of the individuals, families and communities receiving services.

As a form of collective action, government has a critical role in providing the formal public health system infrastructure. While a strong governmental public health system is essential, it is insufficient to be able to address population health issues alone. Collaboration with and active participation of community groups, non-governmental organizations (NGOs), business, and public sector agencies (e.g. schools) are also needed to improve health. The focus of this paper is on the governmental component, which is the backbone of the public health system. It provides the infrastructure upon which programming and inter-sectoral collaboration can be built.

Over the past decade, many countries have defined the essential functions of their public health systems. In Canada, no such official list exists, although a report of the Advisory Committee on Population Health (ACPH) recently recommended the following list of essential functions:

- Population health assessment;
- Health surveillance;
- Health promotion;
- Disease and injury prevention;
- Health protection.

These high level lists of functions tend to mean more to those *within* public health than those standing outside the system. Table 1 provides several programming examples to operationalize each of the essential functions. Definitions of each function in addition to other public health terms and concepts may be found in the glossary of this report.

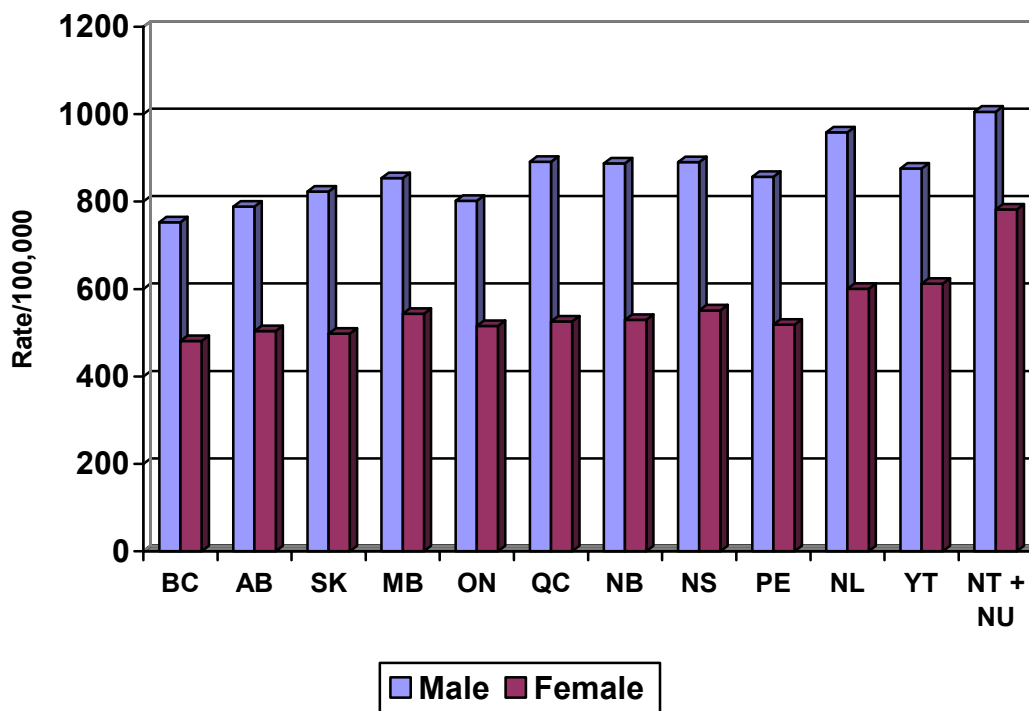
**Table 1: Examples of Public Health Programming for Each Essential Function.**

<b>Essential Function</b>	<b>Programming Examples</b>
Population health assessment	<ul style="list-style-type: none"> <li>• Population/community health needs assessment;</li> <li>• Health status report, system report card.</li> </ul>
Health surveillance	<ul style="list-style-type: none"> <li>• Periodic health surveys;</li> <li>• Cancer and other disease registries;</li> <li>• Communicable disease reporting;</li> <li>• Ongoing analysis of data to identify trends or emerging problems, (e.g. recognition of increasing syphilis cases);</li> <li>• Report to practitioners of increasing threat, what they need to look for, and intervention required.</li> </ul>
Health promotion	<ul style="list-style-type: none"> <li>• Intersectoral community partnerships to solve health problems;</li> <li>• Advocacy for healthy public policies; (including an implicit or explicit responsibility for monitoring and advocating for policies around fundamental determinants of health including income, education, housing, access to affordable and personally acceptable food, safe communities, green-space, etc.)</li> <li>• Improving personal skills;</li> <li>• Creating physical and social environments to support health (e.g. bike paths, brokering access to social networks).</li> </ul>
Disease and injury prevention	<ul style="list-style-type: none"> <li>• Immunizations;</li> <li>• Investigation and outbreak control;</li> <li>• Encouraging healthy behaviours (e.g. not smoking, healthy eating, physical activity, bicycle helmet use);</li> <li>• Early detection of cancers (e.g. breast cancer screening).</li> </ul>
Health protection	<ul style="list-style-type: none"> <li>• Restaurant inspections;</li> <li>• Child care facility inspections;</li> <li>• Water treatment monitoring;</li> <li>• Air quality monitoring/enforcement.</li> </ul>

## Public Health Challenges Facing Canada

Canadians are healthier than ever before. Over the past century, there have been tremendous increases in life expectancy and the virtual elimination of many causes of death. Despite this progress, there continue to be many health challenges for Canadians and these are not evenly distributed across Canadian provinces and territories. As shown in Figure 1, mortality rates vary considerably across the country, with much higher rates in eastern provinces and the territories.

**Figure 1: Provincial and Territorial Differences in Age-Adjusted Mortality Rates, 1997-1999.**



Source: Health Canada, 2003. Age-standardized to the 1991 Canadian population.

Depending on the time and source of the data, reliable estimates are not always available for Canadian territories. A brief overview of public health challenges in the territories is provided (see text box).

### **Public Health Challenges in Canadian Territories**

The nature and scope of public health challenges differ in the territories as compared to the rest of Canada.\* Their populations are younger in age and have lower life expectancies than the Canadian average. This is due to increased rates of many causes of death including higher infant mortality rates in Nunavut and the Northwest Territories; higher lung cancer mortality rates in all three territories; and substantially higher rates of death from unintentional injuries and suicide.

Many health conditions and less healthy behaviours are more prevalent in the territories including infectious diseases such as tuberculosis and chlamydia. Teen birth rates, and rates of smoking, alcohol, and other drugs including solvents, are also elevated compared to the rest of Canada.

The combined population of Canada's territories comprises 0.3% of Canada's overall population, but 39% of its geographic area. Populations residing outside of larger centres tend to have lower levels of education, employment, and income. Housing shortages resulting in overcrowding are additional challenges. A relatively small population distributed over a large geographic area presents substantial difficulties in maintaining an adequate health system infrastructure for preventive and treatment services.

\* Northwest Territories Health and Social Services. The NWT health status report - 1999. Yellowknife: NWT Health and Social Services, 1999.

Nunavut Department of Health and Social Services. Report on comparable health indicators for Nunavut and Canada. Iqaluit: Nunavut Department of Health and Social Services, 2002.

Yukon Health and Social Services. Report to Yukoners on comparable health and health system indicators. Whitehorse: Yukon Health and Social Services, 2002.

Many of the public health challenges faced by the Canadian territories (especially the North West Territories and Nunavut) are pervasive throughout First Nations communities across Canada. Health Canada's recent publication, *A Statistical Profile on the Health of First Nations in Canada*,<sup>2</sup> documents the substantial gains, but continuing pervasive health disparities between First Nations people and the rest of Canadians. Compared with the rest of Canada, the Aboriginal population has poorer health status due to socioeconomic, and environmental factors that contribute to less healthy practices, excess rates of disease, and lower life expectancy due to multiple causes. Many of the public health challenges and infrastructure issues discussed in this paper apply at least to some extent to the Aboriginal population of Canada. However, the magnitude of the public health challenges facing First Nations communities and the difficulties in providing adequate services (e.g. relatively small population sizes over large geographical areas; transfer of responsibility for delivery of health services; need for strong interface between primary care and public health, etc.), demand a separate specific assessment and analysis of public health system infrastructure for First Nations that is beyond the scope of this document.

The remainder of this section will provide an overview of selected public health challenges facing Canadians. The list of topics is intended to be illustrative rather than exhaustive in nature.

## **Safe Drinking Water**

Many of the initial public health measures in Canada focused on ensuring safe drinking water for communities. While the key lessons were learned over a hundred years ago, the risks to water systems will always remain, requiring sustained effort, commitment and vigilance. The recent experiences in Walkerton, Ontario<sup>3</sup> and North Battleford, Saskatchewan<sup>4</sup> (see text box) provide a tragic reminder of the serious impact that contaminated water systems can have on the health of communities.

### **Walkerton, ON 2000**

The contamination of a community well with *E. coli* led to 1,346 reported cases and 7 deaths. Multiple factors were involved in contributing to this outbreak including poor training and oversight of water treatment system staff and the lack of routine notification of the public health department of abnormal water test results.

### **North Battleford, SK 2001**

An estimated 5,800 to 7,100 people (almost half the city's population) were affected by an outbreak of the *Cryptosporidium* parasite. This was due to a breakdown of the filtration system at the water treatment plant.

## **Injuries**

Injuries are the leading cause of death in the first half of the lifetime of Canadians. Hospitalizations and short- and long-term disability are even more common outcomes. The direct and indirect economic costs of injuries in Canada are estimated at \$12.7 billion annually.<sup>5</sup> While many injuries may be unintentional, they are not “accidents”. There are clear causes for the injuries that occur. Motor vehicle crashes are a leading cause of injury-related death and disability and public health efforts have advocated for greater seat belt and child seat use, better road design, and reduced drinking and driving. The recognition of bicycle-related head injuries in children led to campaigns to increase the use of helmets. In the elderly, falls are a major concern and public health has been active in assessing comprehensive strategies to modify a variety of contributing factors (e.g. adverse effects of medications, lack of muscle strength and balance, and cluttered living spaces).

## **Immunizations**

The use of immunization to prevent infectious diseases is the most cost effective medical intervention available to public health. Routine immunizations have resulted in dramatic reductions in the frequency of many serious diseases including polio, diphtheria, measles and several others.

### **National Immunization Strategy**

Recognizing the importance of immunization, practitioners have called for a National Immunization Strategy that would be comprised of an immunization registry, improved vaccine safety monitoring, improved vaccine procurement, harmonization of immunization schedules, and improved education for health care providers and the public. The 2003 First Ministers' Accord on Health Care announced that a National Strategy would be pursued.

While these diseases have become rare in Canada, their presence in other parts of the

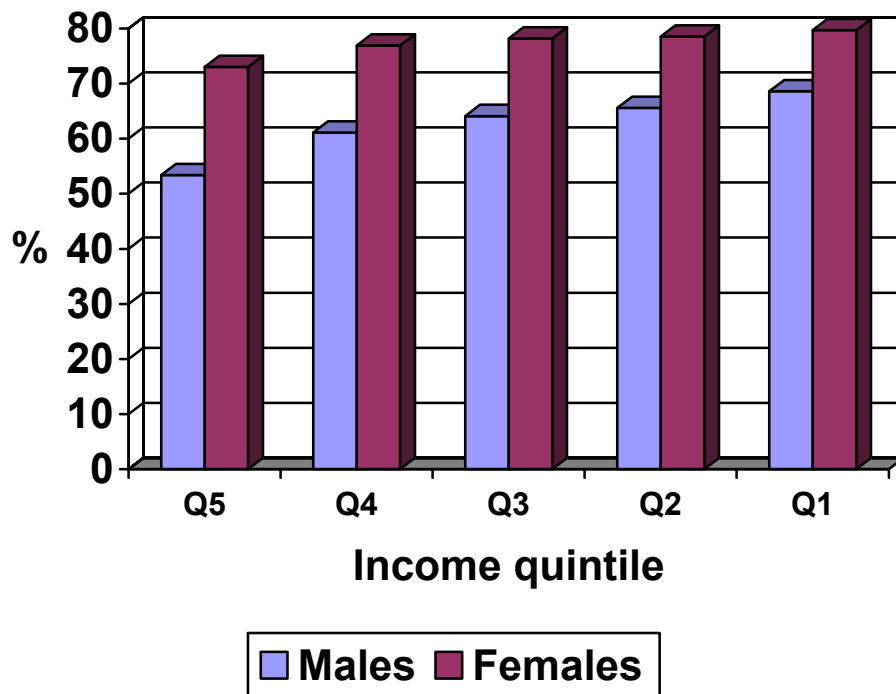


world demands ongoing vigilance. The overall effectiveness of an immunization program is dependent on the proportion of the population that is immunized. Canada lacks adequate and comparable information for this important outcome measure. Individual provinces determine which vaccines are included in immunization schedules for children and adults. There are increasing differences among provinces in the diseases that are covered in the schedules. With the ongoing development of new vaccines, there is the potential for increasing confusion and unequal coverage among provinces.

### **Health Inequalities**

Health is not evenly distributed throughout the population. Many inequalities, including several of those outlined in this section, have their roots in the social, economic, cultural and environmental determinants of population health. A recent Statistics Canada report<sup>6</sup> documents the continuing differences in life expectancy, infant deaths, and mortality rates for multiple causes of death associated with income levels in Canada. Figure 2 shows that there are considerable differences in the probability of surviving to age 75 between income groups in Canada. Similar relationships exist between income and other health outcomes (e.g. heart disease) and health related behaviours (e.g. smoking).

**Figure 2: Probability of Survival to Age 75 by Neighbourhood Income Quintile, Urban Canada, 1996.**



Source: Wilkins et al. Health Reports 2002; 13 Supplement.

To address these inequalities requires inter-sectoral collaboration. Public health's contributions include:

documenting and reporting on inequalities; working with communities to change the conditions that contribute to inequalities in health; and by advocating for healthier public policies to change the health determinants that will reduce health inequalities. Public health's fundamental responsibility to address public health inequalities was included in Quebec's new public health Act<sup>7</sup> (see text box).

**Addressing Health Inequalities – Quebec Public Health Act, 2001.**

Quebec's new Public Health Act discusses focusing on the most effective actions to influence health determinants to improve health inequalities in the population and to decrease risk factors, particularly those in vulnerable populations. The Act also identifies actions to:

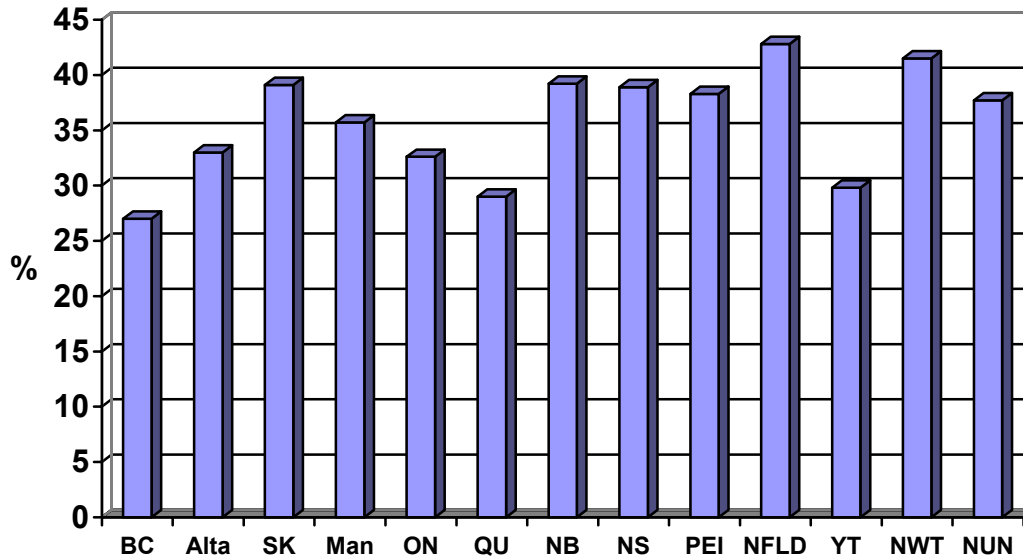
- identify and assess situations involving health risks within the population;
- establish mechanisms for concerted action to act on situations that may cause avoidable morbidity, disability and mortality;
- promote adoption of social policies capable of fostering the enhancement of health;
- support actions that foster the creation of a living environment conducive to health and well-being.

## ***Obesity and Type 2 Diabetes***

In Canada, 36% of men and 27.5% of women are overweight with a body mass index (BMI) of greater than 27. Figure 3 shows that the prevalence of these conditions varies considerably among provinces. The Atlantic and Prairie provinces, as well as the Northwest Territories and Nunavut have the highest prevalences of overweight.

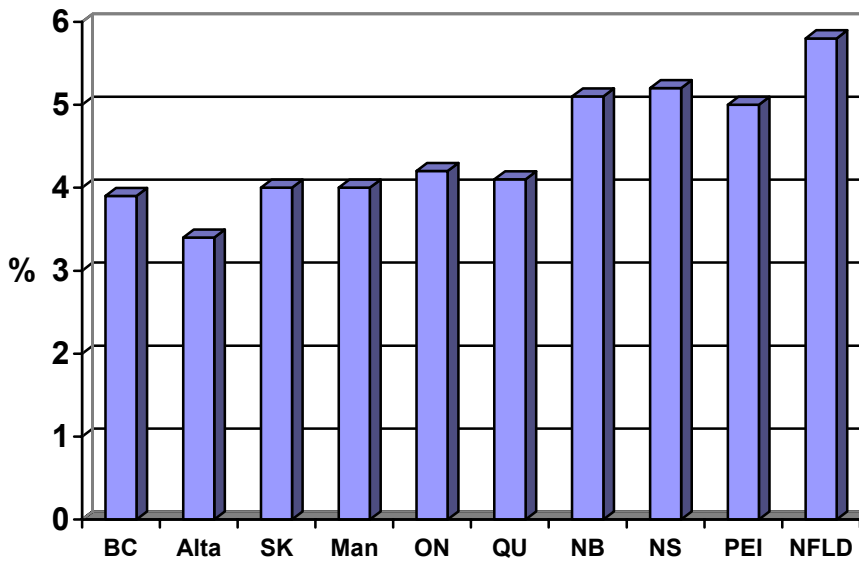
Being overweight or obese is a significant risk factor for diabetes, which in itself is a major cause of kidney failure, loss of vision, and heart disease. As shown in Figure 4, the prevalence of diabetes is much more common in the Atlantic provinces. Comprehensive public health efforts are required to increase physical activity and promote healthy eating.

**Figure 3: Prevalence of Overweight by Province/Territory, 2000/01.**



Source: Statistics Canada, 2003. Canadian Community Health Survey. Population aged 20-64 excluding pregnant women. Overweight: BMI higher than 27.0.

**Figure 4: Prevalence of Diabetes by Province, 2000/01.**

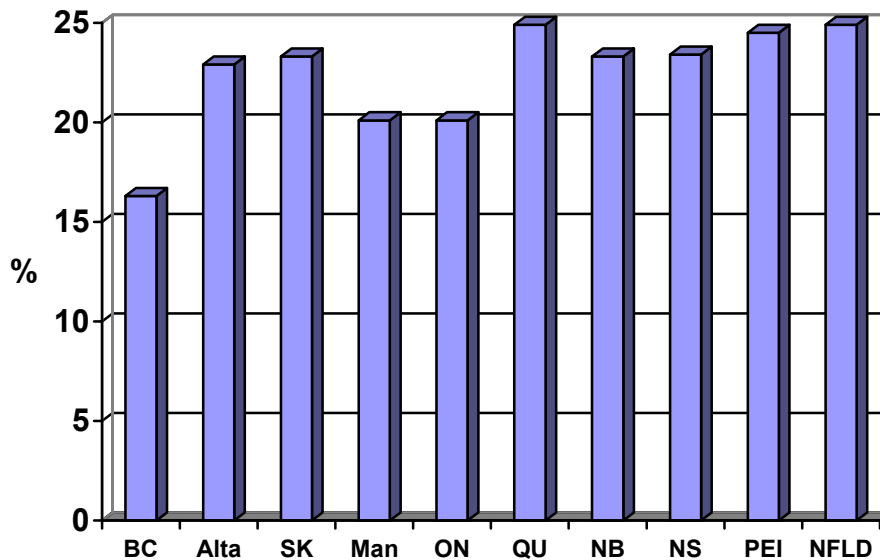


Source: Statistics Canada, 2003. Canadian Community Health Survey.

## Smoking

Tobacco use is the leading cause of preventable death and disability in Canadians. Figure 5 shows that while on average, 21.5% of Canadians aged 12 and above are daily smokers, this varies considerably by province with the highest rates in Newfoundland and Quebec. There are also substantial differences in smoking rates by age, sex and socio-economic status. Aggressive campaigns to reduce tobacco use in other jurisdictions have been associated with considerable reductions in use.

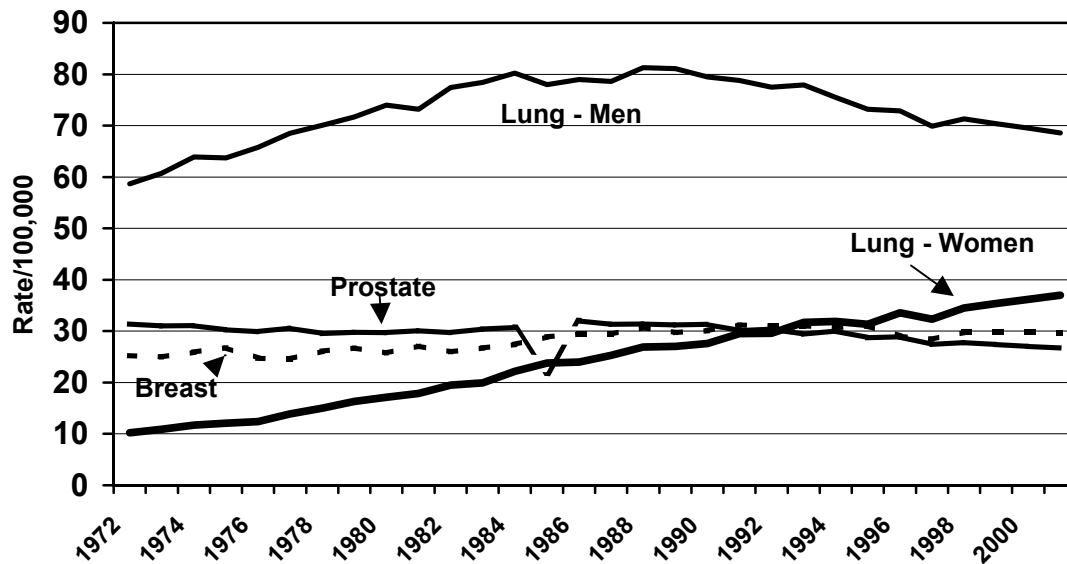
**Figure 5: Percentage of Population who Report Smoking Daily by Province, 2000/01.**



Source: Statistics Canada, 2003. Canadian Community Health Survey.

The vast majority of lung cancers are due to smoking. Lung cancer is the leading cause of cancer death in both men *and* women. Reflecting the widespread increase in smoking in women starting in the 1950s, lung cancer rates in women have been steadily increasing for the past 30 years. As shown in Figure 6, lung cancer deaths in women surpassed those from breast cancer in the early 1990s. While lung cancer deaths have plateaued in men, they remain substantially higher than the second leading cause of male cancer deaths, prostate cancer.

**Figure 6: Leading Causes of Cancer Deaths in Canadian Men and Women, 1972-2001.**



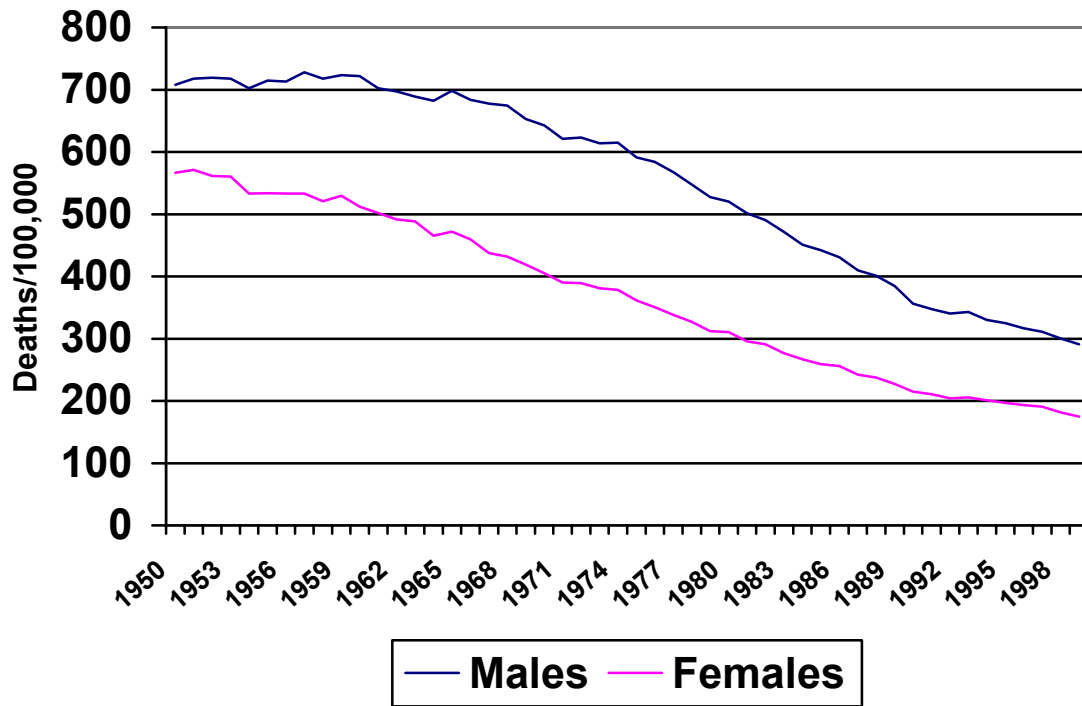
Source: National Cancer Institute of Canada: Canadian Cancer Statistics, 2001. The two leading causes of cancer deaths are shown for men and women. Age-standardized to the 1991 Canadian population. Data for 1998-2001 are estimated.

### **Chronic Diseases**

The leading causes of death in Canada are cardiovascular diseases and cancers. Together these diseases account for over 20% of total direct and indirect costs of illnesses in Canada. Figure 7 shows that the rate of deaths from cardiovascular diseases has been decreasing in men and women for over 30 years. Factors contributing to these reductions include: declines in cigarette smoking, blood cholesterol levels, and dietary fat; decrease in blood pressure levels; and improvements in medical care.<sup>8</sup>

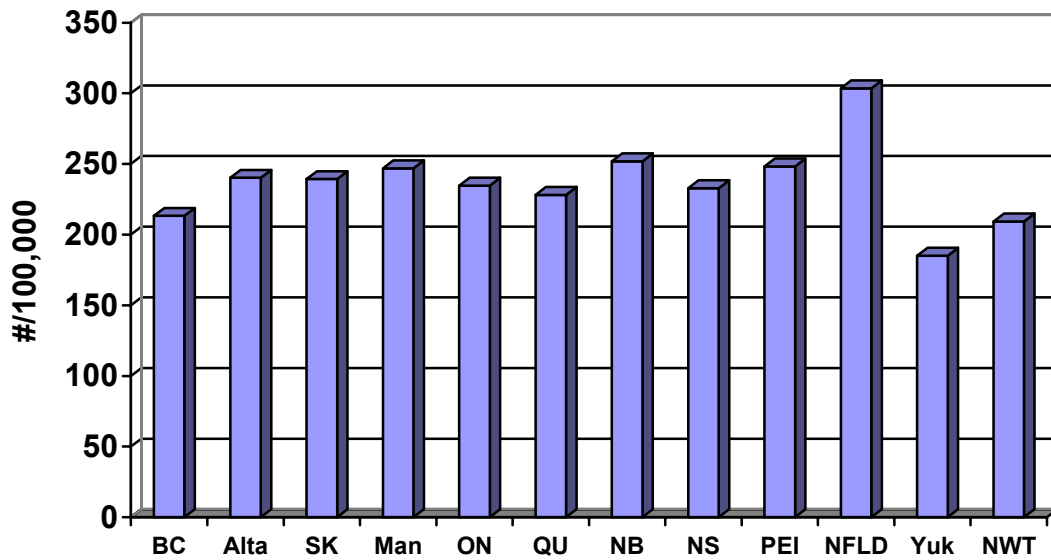
While the overall trend is quite good, deaths from cardiovascular diseases and cancer vary considerably from province to province (Figures 8 and 9 respectively). Deaths from cardiovascular diseases are more common in Newfoundland, New Brunswick, and PEI. Cancer mortality rates are also more common in maritime provinces, Quebec and the territories. Both groups of diseases are multi-factorial with behavioral, genetic and other causal factors. Comprehensive, multiple risk factor programming, including the implementation of healthy public policies, is necessary to reduce the burden of these disorders. The Chronic Disease Prevention Alliance of Canada is an example of a national-level partnership of organizations that share a common vision of an integrated system for chronic disease prevention in Canada.

**Figure 7: Age-Standardized Mortality Rates for Cardiovascular Diseases, Canadian Males and Females, 1950-1999.**



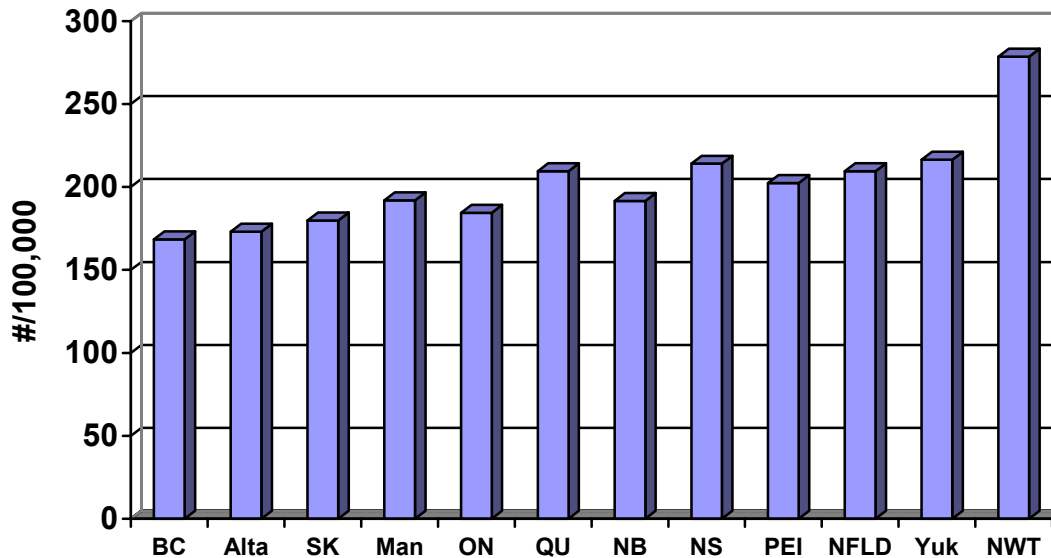
Source: Health Canada, 2003. Age-standardized to the 1991 Canadian population.

**Figure 8: Age-Standardized Mortality Rates for Cardiovascular Diseases by Province or Territory, 1999.**



Source: Health Canada, 2003. Age-standardized to the 1991 Canadian population.

**Figure 9: Age-Standardized Mortality Rates for Cancers by Province or Territory, 1999.**



Source: Health Canada, 2003. Age-standardized to the 1991 Canadian population.

## **HIV and Hepatitis C**

It is estimated that 50,000 individuals were infected with HIV in 1999.<sup>9</sup> Public health surveillance data has demonstrated shifting trends in risk factors for infection with increasing numbers of cases associated with injection drug use occurring through the mid-1990s. More recently, an increasing proportion of cases are being observed in men who have sex with men (MSM). This coincides with outbreaks of syphilis in MSM in large urban centres in Canada and elsewhere in the world.<sup>10</sup>

Injection drug use is also the major risk factor for developing hepatitis C. The majority of those infected with hepatitis C will have ongoing chronic infections with a proportion of these developing liver cirrhosis or liver cancer. Increasing rates of these outcomes are expected in future decades. Comprehensive public health approaches are required to prevent or reduce the risk of transmission of these diseases including education to reduce risk behaviours, drug and mental health treatment programs, and harm reduction initiatives to reduce the risk of disease transmission.

## **West Nile Virus**

The West Nile (WN) virus is transmitted to people by infected mosquitoes. The first North American outbreak of WN virus occurred in New York City in 1999. The virus was detected in Canada in the summer/fall of 2001.<sup>11</sup> While less than 1% of those

infected with WN virus develop serious health effects, a portion of these (3-15%) can be fatal. The public health response in Canada included surveillance of dead birds, mosquitoes, and human cases to determine the location and frequency of the virus. Information on preventing infection has been provided to the public

through a number of mechanisms. Health care providers were provided with disease information, its prevention, and a need to report cases. In 2002, there were over 300 confirmed human cases and 10 deaths that were contributed towards or caused by WN virus infections. The vast majority of cases have been in Ontario, although the virus has been detected in birds in other provinces.

### **West Nile Virus and Blood Transfusions**

Transmission of the WN virus through blood transfusions has been observed in Canada and the United States (US). In response, Canadian Blood Services established a Task Force to examine strategies to maximize safety of the blood system. As a preliminary step, frozen blood products collected in Ontario during the mosquito season were withdrawn in December 2002. Screening of blood donations is scheduled to commence July 1, 2003.

\* Health Canada. West Nile virus - transmission through blood. 2003. Available from: [www.hc-sc.gc.ca/english/westnile/blood.html](http://www.hc-sc.gc.ca/english/westnile/blood.html).



## ***Intentional Threats***

Concerns for the intentional release of nuclear, biological or chemical agents were heightened during the anthrax attack in the United States as well as the terrorist attacks in New York City. Weapon development programs in several countries of the world over a period of many years make these agents a potential threat. As evidenced by the experience in the US, a country's public health system is on the front lines of defense and investigation in attacks of this nature. While Canada *may* not be a primary target, diseases that are highly contagious such as smallpox would not recognize political boundaries. The ability of the public health system to detect and respond to a threat will be highly dependent on the extent of preparedness and existing system infrastructure.

## ***Summary***

The issues presented above provide a sense of the range of public health challenges faced by Canada. The provincial/territorial surveillance data clearly shows a difference in rates of behaviours and diseases across the country. Many of these public health challenges are clustered in smaller provinces and the territories. Some of the issues are sudden and emergent in nature. The ability to respond to these threats reflects the extent of planning and preparation prior to the event and the capacity of the system at the time of the event. Many health risks such as obesity and tobacco use are of an ongoing nature and require continuing comprehensive efforts. While there is a clear role for clinical care for each of these issues, it is the public health system that will identify and monitor health threats, and provide interventions to prevent disease and improve health. Many of these interventions involve public health working collaboratively with community partners representing a variety of sectors to address the determinants of health that are at the root of inequalities in health between Canadians.

The preceding discussion of health challenges addresses some of the issues that are identifiable today. We are, however, already seeing early signs of the new public health challenges related to the aging of the population, urbanization, and mental health issues. Emerging communicable diseases and environmental health concerns will also be prominent. Regardless, one cannot ever predict all the challenges that will appear. A fundamental function of the public health system is to continuously assess the health of the population, to detect and characterize new trends and risks to health, and to develop comprehensive responses to address them. The next section of this paper will discuss what is known about the capacity of Canada's public health system to protect and promote the health of Canadians.

## Public Health System in Canada

The use of the word “system” to describe public health services in Canada is convenient, but inaccurate. A system suggests “a group of interacting, interrelated, or interdependent elements forming a complex whole”. The Canadian situation might be better described as a grouping of multiple systems with varying roles, strengths and linkages.

### **Legislation**

Each province has its own public-health-related legislation. The age and content of these Acts vary considerably by jurisdiction. In many provinces, it is the communicable disease control aspects of public health practice that are given the most attention since it is this area that requires specific powers (e.g. reporting, investigation, control, etc.). However, many of the biggest challenges with respect to preventable disability and death are due to chronic diseases and injuries. These frequently receive much less attention in legislation. An exception is the recent provincial legislation that was enacted in Quebec, which explicitly addresses the full range of functions expected from the public health system.

Federally, there is some public health-related legislation limited to the:

- Quarantine Act: authorizes the Minister to establish quarantine stations and quarantine areas to take protective measures against infested conveyances and their cargo and quarantine persons found infected with infectious or contagious diseases that would constitute a grave danger to public health in Canada.
- Health protection legislation (tobacco, food and drugs, environmental protection, hazardous products, pest control products, radiation emitting devices, food inspection agency, emergency preparedness).

Most provisions of the Quarantine Act date back to 1872. Current legislation does not identify the federal government’s mandate, roles, and responsibilities in public health. In 1998, Health Canada released a discussion paper on renewing federal health protection legislation. The subsequent national consultations recommended that:<sup>12</sup>

“...renewed federal health protection legislation must give Health Canada full authority to collect health-related information across Canada and to provide a mandate for the Department to work closely with the provincial and territorial governments to build a coordinated national health surveillance system. Such a system would include improved co-ordination between public laboratories and other public health surveillance bodies as well as a requirement to report the incidence of communicable disease. It is vitally important that health data be shared across all jurisdictions to create a national picture of health risks and health outcomes.”

“The federal government must be given, either through legislation or through memoranda of understanding among provincial and territorial governments, the

authority it needs to effectively address any outbreak of a communicable disease, where the health risk extends beyond provincial borders.”

“The federal health protection legislation should be amended to give Health Canada authority to act quickly and decisively in the event of a national health emergency...if it poses a serious threat to public health; affects particularly vulnerable segments of the population; exceeds the capacity of local authorities to deal with the risk; and involves pathogens that could be rapidly transmitted across national and international borders.”

Health Canada states it is “committed to conducting a second round of consultations, this time seeking views on a detailed proposal for a new health protection legislation. The final step will be to draft a Bill and initiate the parliamentary process.”<sup>13</sup>

## **Funding**

The amount of money spent on the public health system in Canada is unknown. This is partially due to the lack of uniform definitions, service delivery mechanisms, and accounting practices. In their latest report on health system expenditures, CIHI states that 6% of total expenditures in 2000 were spent on “public health *and administration*”.<sup>14</sup> While the definition of “public health” is somewhat broad in that it includes community mental health programs, much more problematic is the inclusion of “administration” which covers the administrative costs of managing health systems. Public health funding therefore is substantially less than 6% of health system expenditures. For example, in Ontario in 2002/03, public health spending on core programs is 2.3% of the provincial health budget.<sup>1</sup> One would also need to add federal expenditures, but these are spread across the entire Canadian population. A review by CIHI recognizes the problem with current expenditure tracking systems and has recommended separating public health from government administrative costs and prepayment administration in future health system costing estimates.

Funding levels for public health services are not explicitly identified in health system financial transfer arrangements between the federal and provincial/territorial governments. With the exception of some limited program areas (e.g. perinatal nutrition program, sentinel surveillance systems), there is no direct federal funding of the governmental public health system in provinces/territories or regions. With the exception of the small field epidemiology program, the secondment of public health personnel to provinces does not occur in Canada.

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<sup>1</sup> The Ontario Public Health Branch’s budget accounts for 1.9% of the provincial health budget. Since public health is funded on a 50:50 basis with municipalities, the matching funds were assumed to have been provided and are included in the calculation. Some items have also been removed because they are unlikely to be consistently included in public health expenditure estimates in other provinces: community speech and audiology services; breast cancer screening program, early child development home visitation program. If these were included, then the overall public health budget would be 2.8% of the provincial health system budget.

Within provinces, most funding for public health comes from provincial/territorial governments. In provinces with regional health authorities, the public health funds are often located within a larger pool of funds for a range of health services. Ontario is unique in requiring cost-sharing of public health programming with municipalities on a 50:50 basis, although this province had temporarily attempted to download 100% of public health funding to municipalities during a period of re-organizing provincial and municipal funding responsibilities.

### **Organization**

The primary public health entity within Health Canada is the Population and Public Health Branch (PPHB). The Branch is primarily responsible for policies, programs and systems relating to prevention, health promotion, disease surveillance, community action and disease control. Health Canada's health protection responsibilities are located in two other branches and one agency.

In most provinces and territories, there are regional health authorities that are responsible for the delivery of a range of health services (e.g. acute care, long-term care, public health). Most regional structures have been put in place since 1990 and in many cases, continue to evolve with changes in borders and responsibilities. Local/regional public health agencies deliver a range of statutory and non-statutory programs.

### **Fulfilling the Essential Public Health Functions**

The formal public health system is an organized service delivered by government for the collective benefit of society. Since public health is on the front lines to protect and promote health, it is in the interests of society to know whether it is performing this task adequately on an ongoing basis, as well as whether it is prepared to respond to public health emergencies. Ideally, one would start with accepted essential functions of the system and assess the extent that these are being fulfilled. As previously described, there is no accepted list of expected functions for the Canadian public health system.

As an initial step at documenting system capacity, a working group of the ACPH conducted a literature review and survey of key informants within and outside the public health system in Canada.<sup>15</sup> Key findings from the survey were:

- Most provincial and territorial officials reported reductions in province- and territory-wide programming as a result of transfer of funding and responsibility to regional structures;
- Smaller provinces were more likely to have discontinued or reduced health surveillance, health promotion, disease and injury prevention and health protection programs than larger ones.
- The vast majority (36 of 37) of key informants from outside the public health system<sup>ii</sup> stated that Canada did not have a very integrated and effective public health system;
- Resources in many areas had been curtailed, diverted or not replenished in line with ongoing and emerging requirements;
- Concern expressed about the resiliency of the public health infrastructure and ability of the system to respond consistently and proactively to the demands placed upon it;
- Ability to promote and protect the health of Canadians and to prevent disease and injury have been weakened;
- Significant disparities between “have” and “have not” provinces and regions in their capacity to address public health issues. The resources to deliver comprehensive, high quality public health programs and services do not appear to be evenly distributed throughout Canada.

The reported disparity in service delivery between “have” and “have not” provinces is particularly important since as shown in the preceding section, many of the “have not” provinces also have the highest rates of unhealthy behaviours and chronic diseases. Figure 10 shows the proportion of survey respondents who agreed that they could respond to a communicable disease emergency. Higher proportions of community-level staff felt that they could adequately mobilize resources than those at F/P/T levels. Almost all F/P/T respondents and many of those at regional and community levels reported a lack of attention to longer-term health threats such as chronic diseases and injuries.

The subjective nature of the information gathered is a potential limitation of the report’s findings. However the complete lack of any objective data on the functioning of the nation’s public health system is evidence in itself of system deficiencies and an absence of due diligence. The findings are also consistent with the previous observations of independent assessments:

**Krever Commission:** “...public health departments in many parts of Canada do not have sufficient resources to carry out their duties...continued chronic underfunding of public health departments is a disservice to the Canadian public.”<sup>16</sup>

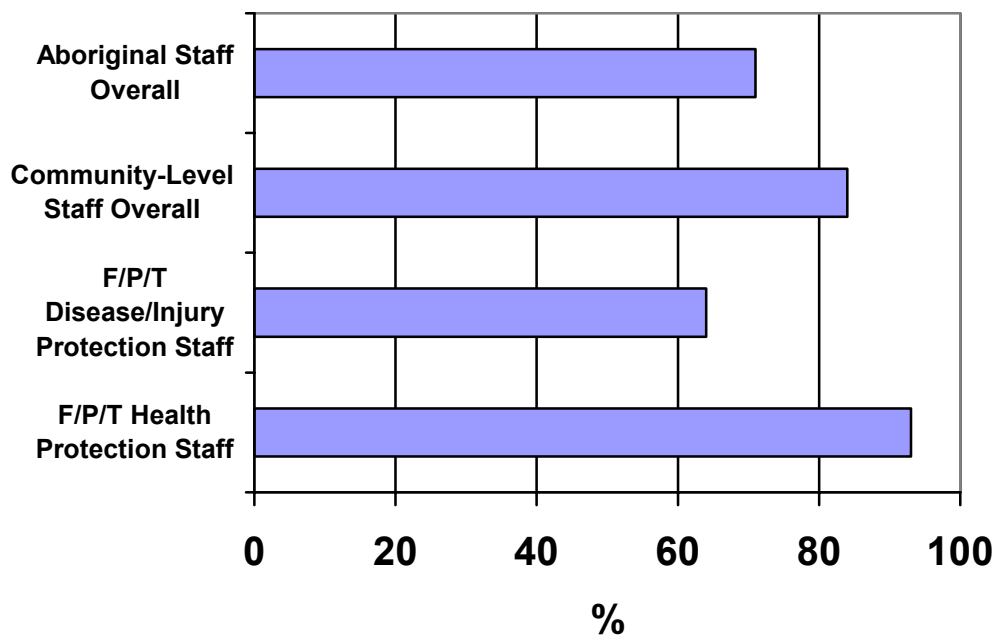
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<sup>ii</sup> Academics, policy researchers, public health advocates, representatives of Aboriginal organizations.

**Auditor General of Canada:** "...weaknesses in national surveillance of diseases and injuries that, taken together, have clear national implications for public health...[they] compromise the ability to plan, carry out and evaluate public health programs and other programs that deal with the causes and treatment of diseases."<sup>17</sup>

Public health interventions are dependent on the availability of information upon which to base action. There are substantial concerns regarding the adequacy of current information systems. The lack of staff resources, particularly at local and provincial/territorial levels, to do timely analysis and reporting hinders the public health effort.

**Figure 10: Proportion of Respondents with Confidence to Mobilize Resources for a Communicable Disease Emergency by System Level of Public Health Staff.**



Source: Advisory Committee on Population Health, 2001.

The next section of this paper will describe the status of activities to address the public health systems of other countries.

## Public Health Systems in Other Jurisdictions

The pervasive concern regarding Canada's public health system prompted a review of alternative international models for organizing and funding essential public health programs and services that Canada might want to consider in restructuring its national, provincial/territorial, regional and locally-based public health programs and services. Background documents and key informant interviews were conducted for the following countries: England, Australia, New Zealand, and the United States (see Appendix 1 for a list of key informants). Information was sought on the following infrastructure issues:

- Essential Functions of Public Health;
- Legislative Organization and Governance Structures;
- Accountability Mechanisms;
- Budget Allocations for Public Health;
- Workforce Planning and Development;
- Information Management;
- Research and Development;
- Supporting Capacity of Smaller/Remote Agencies;
- Specific Efforts to Develop Public Health Infrastructure.

Concern for public health systems was present in all of the jurisdictions reviewed. The impact of health system restructuring, chronic system underfunding and inattention, a shift in focus from communicable to chronic diseases, as well as the need to address emerging threats such as bioterrorism, had prompted countries to take steps to improve their public health system's infrastructure.

In the US and England, highly visible plans for improving the public health system were encountered. In Australia, a national partnership between the federal and state governments had been formed to explicitly address the public health system's infrastructure. Concern for the state of public health systems in other countries was also evident from trans-national organizations such as the WHO and PAHO, who were assisting countries to develop statements of essential public health functions. Highlights of the analysis of the information gathered from the literature review and key informant interviews are described below.

## List of Essential/Core Functions

Many jurisdictions have embarked on a process to identify the essential functions of their public health systems. One of the main incentives of this work is that a country can use the list to “define more clearly and systematically the core areas of public health work for which governments are ultimately responsible.”<sup>18</sup>

Two of the countries (Australia<sup>19</sup> and the US<sup>20</sup>) had explicit processes to identify their lists, and England<sup>21</sup> included theirs in a strategy document. The impact in the US has been much more substantial than in Australia (see text box).

### Impact of Essential Public Health Services in the United States

The American essential public health services were identified in 1994. They have had several positive impacts:

- Giving the public health community a clear and consistent phrasing of the functions of public health; facilitating identification of public health roles relative to other players in the system;
- Improved accountability of the system:
  - Framework for assessing whether the public health system is fulfilling the functions (i.e. performance assessment);
  - Framework for expenditure assessment of public health system;
- Framework for organizing, assessing and developing public health core staff competencies;
- Potential framework for new/revised public health legislation.

The list of functions suggested by the ACPH has many common features with lists from other countries. These countries’ experiences will be helpful in the further development of Canada’s essential public health system functions.<sup>iii</sup>

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<sup>iii</sup> There has been a tendency to include *how* some things are done (e.g. healthy public policy, community development, partnerships) as well as *components* needed to have a strong system (e.g. workforce development, research and quality assurance). Some lists also appear to have substantial overlap between items, which limits their use. Having as clear as possible sense of the intended uses of a list would likely help in the selection and wording of items. Key informants from both the US and Australia commented that their lists seemed to mean much more to those *within* the public health community than those *outside* of public health (i.e. decision-makers, public).



## **Leadership**

The development of a national public health system does not occur by accident. It requires clear identification of the key issues and mobilization of resources to address these. In both the US and England, national leadership has been instrumental in clearly stating the role of the public health system, its key infrastructure elements, and the development of strategies to improve them. While the pace of progress in the US has been limited until recently by the lack of available resources, the public health community was able to document the deficiencies in the system and plan for what was needed. In England, public health has needed to adapt to the dramatic changes in the health care delivery system, and at the same time has ensured the clear articulation of public health's functions and required infrastructure (see text box). In both of these countries, there are individuals who have clear positions of leadership in the public health system. In England, it is the Chief Medical Officer and in the US, it is the head of the Centers for Disease Control and Prevention (CDC) as well as the Surgeon General. No comparable positions exist at the national level in Canada.

### **Report of the Chief Medical Officer – England**

In 2001, *The Report of the Chief Medical Officer's Project to Strengthen the Public Health Function* was released recognizing that "a robust and effective public health function is essential if we are to deliver the government's policies for improving health and well-being. It provides the necessary infrastructure to help change the social, economic and environmental factors which lead to poor health."\* The Report identified priority attention to:

- Leadership and advocacy;
- Partnership skills;
- Community capacity development skills;
- Managing change skills;
- Communication and team working.

In addition, technical skills in a number of areas were identified in short supply: epidemiology, needs assessment, analysis and interpretation of clinical and health information and statistics, critical appraisal, dissemination and use of research evidence.

\* Donaldson L. Report of the Chief Medical Officer's Project to strengthen the public health function. London: Department of Health, 2001.

## **Funding Mechanisms**

In all four countries reviewed, the federal government's role in public health is strongly re-enforced by the fact that it funds a substantial portion of the public health system. This contrasts distinctly with the experience in Canada where it is the responsibility of provincial and in some provinces, local governments, to fund the public health infrastructure. Even in Australia, which has the most similar constitutional structure to Canada, the federal government pays over half of the overall public health system's budget.<sup>22</sup> In the US, substantial funds (and human resources) flow from the CDC to individual States (see text box). Only in the US is there reliance on local governments to fund a portion of local public health departments' budgets and this is the component of the their system that is widely acknowledged as the weakest element. The experience in New Zealand in the late 1980s, when the public health system lost up to 40% of its funding when placed in competition with immediate-focused acute care services, provides caution to such approaches.<sup>23</sup> This loss of funding for public health with regionalization is consistent with results from ACPH's capacity report.<sup>15</sup> Other countries' funding transfer mechanisms earmark public health-specific funding to protect them from diversion to other services.

One of the major challenges faced by public health is that it argues for action now to prevent something in the future. This is a difficult case to make when there are many more voices requesting action to address a problem today. The child walking down the street who did not get polio is not a news story, but the waiting lines for a treatment service are. If one frames the question to ask what will happen in the future as a result of today's actions however, preventive efforts and their impact become more recognizable. A

### **US Centers for Disease Control and Prevention's Role in Supporting Local and State Public Health System Infrastructure**

In addition to CDC's roles as a trusted source of credible, scientific information, CDC contributes to local and state infrastructure:

- Over 75% of the CDC budget is provided to CDC partners, mainly states and local departments;
- Categorical and block grant programs;
- Prevention research agenda at 24 schools of public health;
- Partner with schools of public health to develop and deliver continuing education programs.
- Over 2,000 of CDC's 8,500 staff work outside of Atlanta in regional offices, state and local health departments, and other health agencies.

### **Wanless Report – England**

Derek Wanless is a Commissioner with the Statistics Commission and had been a financial services executive for over 30 years. He was asked by the Chancellor of their Treasury to provide the first ever evidence-based assessment of the long-term resource requirements for the NHS. The Report modeled health costs over the next 20 years under 3 scenarios: solid progress in people becoming more engaged in their health; slow uptake in level of public engagement; and fully engaged. The fully engaged model spent similar amounts of money in the next 10 years but is able to spend less in subsequent years. The model shows that *how* the money is spent among health services is very important. A major assumption in scenario 3 is that a much healthier profile of health behaviours is achieved and that the greatest gains are in those at greatest risk. The report explicitly acknowledges that the major killers are linked to socio-economic inequality. It also recognizes that there are resource implications for a high quality public health system with an estimate of an additional £250 million/year.

2002 financial modeling report from England found that a scenario that fully engaged preventive interventions would ultimately cost less<sup>24</sup> (see text box). The purpose of prevention though is to spare people from avoidable misery and death, not always to save money on the health care system.<sup>25</sup>

### ***Size of Local Public Health System Populations***

Public health is a system based on populations. There needs to be a sufficient population base for a critical mass of technically expert public health staff to be effective. In the US, many states have public health locked into county boundaries. This creates too many local health departments and spreads resources too thinly. This leads to isolation and a decrease in multi-disciplinary interactions critical to effective public health delivery of services. The situation is further compounded by a reliance on local funding sources (see previous sub-section).

In England, the NHS reforms have prompted the establishment of a large number of Primary Care Trusts that may spread public health staff too thinly. The development of regional networks to pool skill sets across Trusts, as well as the formation of a national health protection agency to pool communicable disease control staff, appear to at least be partially motivated as compensatory mechanisms. Concern has also been expressed regarding the inefficient sizes of some local public health agencies in Canada, even at the provincial level.

### ***Strong Robust Central Presence***

A public health system is an *organized* approach to the assessment of population-level health problems and actions to address them. This requires a critical mass of technical expertise to support the essential public health functions. In the US, CDC has been of critical importance in the development and functioning of their system. They are a central resource for technical expertise, credible advice, and resources. In the UK, the department of health has had a strong central public health presence and this is to be re-enforced with the development of a national health protection agency. In New Zealand, the temporary presence of a Public Health Commission was associated with increased output of health status reports, practice guidelines, and other public health products. In Norway, a 600-plus-person national public health institute was recently created to comprehensively address public health issues in that country. The Netherlands' National Institute of Public and Environmental Health (RIVM) conducts research and gathers international data that it then interprets and applies to support policy development, fulfill a supervisory function, and regularly reports on the current status and future trends in matters relating to public health, the environment and nature. In Canada, some provinces have developed centralized areas of expertise, such as British Columbia's Centre for Disease Control and Quebec's National Institute of Public Health.

## **Partnership**

A strong governmental public health system is an essential but insufficient factor to address population health issues. Inter-sectoral partnerships are a common component of public health initiatives in other countries. They are the basis of the multi-state Turning Point project in the US, and form the basis for several recommendations contained in the recent US Institute of Medicine's report on their public health system.<sup>26</sup> In England, addressing inequalities in health outcomes is an explicit goal of the national health system and inter-sectoral partnerships will be critically important.<sup>21</sup> In Australia, the state and federal governments and other partners came together to work towards improving the public health system's infrastructure (see text box).<sup>27</sup> Public health systems in many jurisdictions are searching for ways of ensuring a formal partnership with NGOs, community agencies, and other sectors (e.g. education).

### **National Public Health Partnership – Australia**

The NPHP was established through a Memorandum of Understanding endorsed by Commonwealth (AIHW), State and Territory Health Ministers. The National Health and Medical Research Council (NHMRC) and an Advisory Group are also members.

The initial objectives for the NPHP were to:

- improve the health status of Australians, in particular population groups most at risk;
- improve collaboration in the national public health effort;
- develop better coordination and increased sustainability of public health strategies;
- strengthen public health infrastructure and capacity nationally;
- facilitate the contribution of all providers of public health services, such as Local Government, public health research and education programs, and relevant agencies from the States/Territories and the Commonwealth, including the AIHW and the NHMRC;
- establish two-way exchange with key professional, community, consumer, educational, and industry interests on the development of national public health priorities and strategies;
- enhance the capacity of States/Territories to respond to local priorities.

## **Visibility of Public Health**

A recurring theme in all of the countries, except perhaps England, was the relative invisibility of public health. Most informants had identified that public health infrastructure, as an issue, was not a priority for decision-makers who were much more motivated around specific health issues. Furthermore, it had been the experience of senior public health staff that only when specific health issues got the attention of decision-makers, did funds flow. For example, in the US, the public health community and the Institute of Medicine had argued for over a decade about the crumbling nature of the system. Large outbreaks of drug-resistant tuberculosis, and more recently syphilis, were at least partially attributable to the decline in system infrastructure. However, it was the immediate threat of anthrax and terrorism attacks that mobilized decision makers and encouraged new funding (at least temporarily). The challenge for public health leaders is to successfully acquire funding for new/improved issue-related programming while simultaneously attempting to build the necessary infrastructure to support programs.

## ***Impact of Health Care Delivery Reforms on Public Health***

Major decisions are made to reform the health care system without immediate consideration of their impact on public health service delivery. The loss of substantial levels of funding for public health in New Zealand in the late 1980s, as well as some aspects of current reforms in England, suggest decision-making primarily for health care delivery rather than in the interests of the public health system. The regionalization reforms in many Canadian provinces and the attempted downloading of funding responsibilities to municipalities in Ontario appear to have given little attention to the impact on the public health system. In Canada, the recent Romanow Commission report makes several recommendations regarding the health care system, but does not explicitly acknowledge the existence of the public health system. Many chronic disease control initiatives and specific infectious disease prevention initiatives (e.g. immunizations) rely on a partnership between public health and primary care. But many challenges, (e.g. pollution control, epidemic of youth obesity, West Nile virus), cannot be addressed by the clinical care system.

## ***Collaboration of Primary Care and Public Health***

Public health systems worldwide are struggling with how best to integrate public health services with primary care. In Australia there is active debate about how best to do this. In the US, the priority has been to re-focus the system on the delivery of public health core services and away from just providing health care to under-served populations. In England however, the system has moved in the direction of active integration at the local level, so that a local public health department per se does not exist, but rather the role of the public health “team” is to influence other providers within the Primary Care Trusts in a matrix fashion. The expectation is that the public health staff are to influence effective prevention practices in primary and secondary care and that the extended primary care staff (e.g. home visitors, school nurses, etc.) are to have a greater public health orientation. Time will be required to assess whether this vision is achieved. In the Canadian context, with the range of health care delivery structures among provinces/territories (i.e. different stages of reform, regionalization, etc.), it is more difficult to identify an organizational solution for all settings. In Quebec, the collaboration of local public health service delivery and comprehensive primary care has been formalized with a provincial network of CLSCs. The integration is further formalized within Quebec’s Public Health Act in which one of the specified roles for public health is in promoting and supporting preventive health care practices among health care professionals.

## **Infrastructure Development**

Once a system's functions have been defined, there is a need to develop a mechanism by which to assess its performance. The US and England have developed different accountability mechanisms. In the US, the list of essential public health services has been operationalized by identifying objectives and performance indicators for State and local level public health systems<sup>28</sup> (see text box). The underlying premise is: "what gets measured, gets done." The questionnaires are intended to give an overall measure of the capacity of the system to deliver the essential services. Pilot studies have found substantial gaps and helped substantiate the need for attention to the system's infrastructure. The Performance Standards program will include all States over the next decade.

**National Public Health Performance Standards – US** Program was developed to: create objective measures that define performance expectations, collect data for benchmarking, provide impetus for action. Performance measures are based on the list of essential services. For each, key activities are listed and a series of indicator questions addresses the extent of activity of the local public health system. Further questions ask for an overall impression of the extent that the local system collectively achieves the indicator and what proportion is done by the local health department. Several potential benefits have been identified including:

- Quality improvement: define performance expectations, provide benchmarking data, and become an impetus for action;
- Accountability: objective data for defining the value of public health, initiating community action and highlighting best practices;
- Increased science base for public health practice: provide a scientific basis for better decision making, useful comparative data for evaluation and will strengthen external leverage in partnership.

Three instruments have been developed: state, local and governance. Field testing in 131 local public health systems in three states found average performance scores of 55, 62 and 53%. State systems scored 51, 40 and 56%. National implementation has been initiated.

In England, public health activities are contained within national service frameworks that have been developed for a variety of health conditions and population groups. Each of the Primary Care Trusts will be performance managed by one of the Strategic Health Authorities, most of which contain public health specialist staff. In addition, the high-level performance indicators for the NHS contain a variety of public health-related measures, which in effect hold the health care system accountable for public health outcomes.

All of the countries reviewed have identified public health workforce development as a key infrastructure issue. While there is consensus on its importance, it is less clear how best to address the issue. Three of the four countries are at various stages of assessment, planning and implementation of strategies. Competency-based learning needs' assessment tools are being increasingly developed, as are competency-based continuing education modules. Some countries have also begun a process of credentialing certain types of public health practitioners (e.g. in England, have created a designation of "public

health specialist” that would be competency-based, not discipline-based. These specialists will then be eligible to work as Primary Care Trust Directors of Public Health).

Internet connectivity has become a basic prerequisite for effective practice. Large gaps were identified in some local health departments in the US and CDC has been providing funding to address these.

Providing greater access to information to improve decision-making is a common theme. In England, substantial resources have been committed to develop a searchable evidence-base for public health practice<sup>29</sup> (see text box). In Australia, web-based mapping

**Health Development Agency (HDA) – England**

The HDA gathers evidence of what works, advises on standards and develops the skills of all those working to improve people’s health. The HDA was established in April 2000 will have a staff of approximately 120 and an estimated annual budget of £10 million.

In partnership with other organizations, the HDA will develop and maintain:

- an accessible evidence base
- guidance on how to translate evidence into practice
- the skills of those working to improve the public’s health
- the standards and tools to measure the results
- resources to help those working locally.

tools for several datasets have been developed. The US has also been increasing web-based access to data (e.g. CDC Wonder) as well as evidence-based guidelines for effective community preventive practices. Development of standards for information was a common theme in countries and was one of the identified benefits of the NPHP in Australia. Health Canada has also been active in improving access to on-line surveillance information and in the development of a national health surveillance infostructure (e.g. portal development, skills enhancement, data standards).

Common themes emerged from many countries on the issue of public health research and development: overall lack of funding; lack of funding for implementation research; prominence of investigator-driven research versus targeted research; lack of transparent process of prioritizing public health research; fragmentation of funding across many bodies without any coordination. A variety of strategies are emerging to deal with these issues. In the US, there is the attempt to link research priorities to the list of essential services as well as gaps identified by the Guide to Community Preventive Services.<sup>30</sup> In the UK, the various funding bodies have been brought together by the Department of Health with the recognition that the Department has a responsibility for funding public health research.<sup>31</sup>

## Discussion

The preceding sections have provided an overview of the nature of public health, the state of the public health system in Canada, and the work occurring in other countries to develop their systems. There are several key points:

- ❖ Public health services are a critical societal response to promote and protect the health of the Canadian population;
- ❖ Public health services are complementary to those of the health care system. Together they reduce premature death and reduce the effects of disease, injury and disability. A well-functioning public health system can contribute to sustaining the health care system;
- ❖ Canadians face a multitude of health challenges including:
  - Potential emergent risks to health (e.g. communicable disease outbreaks, environmental disasters, bioterrorism);
  - Ongoing risks to health (e.g. smoking, obesity, injuries, chronic diseases);
- ❖ There is extremely limited information on the functioning of Canada's public health system and its costs;
- ❖ There are a number of structural limitations to the current system's infrastructure:
  - Lack of consistent legislation;
  - Lack of identification of essential functions for the system;
  - Lack of integrated information systems;
  - Dependency on inequitable provincial and municipal funding sources;
  - Competition for resources with immediate care services;
  - Significant disparities among provinces/territories and regions in their capacity to address public health issues.

Other countries have identified the need to improve their public health systems and have taken active steps to comprehensively address identified problems. Canada, similarly, needs to explicitly address the infrastructure of its public health system.

### ***Vision for a Canadian Public Health System***

The public health system is only as strong as its weakest link and as discussed above, the Canadian public health system has a number of limitations. A strong national public health system is critical because:

- Infectious diseases and other threats do not respect political boundaries (provincial or international);
- Need for common standards to allow sharing and comparison of information;
- Potential efficiencies of avoiding duplication of initiatives (e.g. evidence-base for practice, skills training, information management, research and development);
- Positioned to lead a systematic approach to promoting health and preventing disease and injuries.



Based on the collective experience of the Committee's members, the results of the previous Canadian key informant capacity survey, and the findings from the review of other countries' efforts to improve their public health systems, the following key infrastructure elements of a national public health system need to be achieved:

- Clearly defined essential functions of public health;
- Defined roles and responsibilities at each level of the system (national, provincial/territorial, regional/local);
- Consistent, modern legislation within each jurisdiction across the country to support those functions, roles and responsibilities;
- Appropriate delivery structures to accomplish functions, roles, and responsibilities within each jurisdiction;
- Appropriate funding levels and mechanisms that ensure equitable availability of public health services to all Canadians;
- Appropriate numbers of well-trained staff;
- Appropriate information systems to support assessment and surveillance;
- Access to expertise and support to develop a prospective vision, carry out these responsibilities expertly and efficiently, and support innovation and evaluation;
- Accountability mechanisms at each level of the system.

The ultimate success of the public health system depends upon the capacity and effectiveness of regional/local public health agencies. They are at the front-end of service delivery as they interact with individuals, families, health care providers and institutions, and community structures (e.g. schools, municipal governments, non-governmental organizations). A key role for provincial/territorial and federal system levels is to ensure that these front-line public health agencies have the ability and support to fulfill the core functions of the public health system.

Experience in other countries as well as in Canada has generally indicated a lack of sustained interest in public health infrastructure by decision-makers unless faced by a crisis. The circularity of the argument is evident since one will not be able to adequately respond to the crisis unless the necessary infrastructure is already in place. Incremental system development by public inquiry and royal commission is not a preferred option. Addressing the deficiencies in the "system" is challenging since there are varying points of accountability within each jurisdiction. Since the system's functions and performance are not clearly defined, it is difficult to explicitly address systematic gaps. Considering that the purpose of the system is to protect Canadians and improve their health, a lack of clear accountabilities is not in our collective interest.

On an ongoing basis, governments periodically announce initiatives for specific issues such as smoking, physical activity, and obesity. At the local level, one needs the capacity to deliver the programming for these various initiatives and do so in an integrated fashion. It is the formal governmental public health agency (e.g. provincial public health departments, regional/local public health agencies) in collaboration with community

partners (e.g. NGOs) that are the stable delivery vehicle. Without this structure in place, one is faced with propping up temporary, unsustainable, issue-specific structures. Many multi-sectoral initiatives currently in development assume and will depend on the existence of a strong public health system infrastructure upon which to build (e.g. Healthy Living Agenda; Chronic Disease Prevention Alliance of Canada; Emergency Preparedness). The reality is that a strong, consistently and equitably resourced and integrated system does not exist across the country.

With sufficient leadership, commitment and resources, Canadians across this country can have a well-functioning public health system. Different parts of the country have developed particular strengths in their public health system, and the system evolution that must occur can build upon these existing strengths. In many ways, Quebec has the most comprehensively developed provincial public health system in the country. It is characterized by:

- Modern comprehensive public health legislation;
- Clearly articulated core functions that are operationalized into the expected activities at each level of the system;
- Creation of a provincial public health institute with explicit functions and expertise;
- Ensuring public health involvement at senior government level;
- Explicit encouragement of inter-sectoral partnership;
- Workforce development including ongoing investment in continuing education, numbers of post-graduate trained staff, and unique remuneration schemes for public health physician specialists.

Recognizing the differences in geography and health care systems across the country, flexibility in how services are delivered will need to be maintained. However, this should not be a barrier to ensuring that essential functions are delivered.

The changes that need to occur across the country are substantial and will not occur without a dedicated process to achieve the vision outlined above. While there are many potential places one could start, for discussion purposes, some immediate potential action steps are outlined below.

### ***Potential Action Steps***

Following the review of the findings from other countries as well as the positive model of system development exhibited in Quebec, several potential action steps that could be initiated between and within each jurisdiction to improve the infrastructure of Canada's public health system. These have been grouped under four main headings and are described in further detail below. There are a variety of options on how these actions could be pursued. Some items may work best with a specific level of government taking the lead, while others could work with a variety of approaches (e.g. national public health partnership, lead governmental or non-governmental agency, etc.). It was felt that it was

not appropriate for it to specify implementation processes or action plans, prior to achieving consensus of what needed to be accomplished.

## **Define the Public Health System**

It is difficult to discuss, measure, and improve upon the public health system when the system and its functions are not defined. The group of actions outlined below is intended to clearly define the essential functions of the public health system and provide a mechanism to measure the extent to which they are in place. Legislation plays a key role in defining roles and mandate, and has been included in this grouping. A related and complex issue is that of governance mechanisms in the public health system. This topic is not addressed further in this paper and will require attention in future public health system development.

## **Reach Consensus on Essential Functions of the Public Health System**

There is a critical need to reach consensus on the core essential functions of the public health system. It will not be possible to assess and develop system infrastructure if these are not defined. ACPH has suggested five functions and this would be a reasonable place to start. Once decided upon, the relative roles of, and linkages among, the different levels of government should be mapped out and agreed upon in order to truly build a national public health system.

## **Implement System Performance Assessment**

There is little information available on whether the public health system is fulfilling its essential functions. A series of performance measures for each essential function could provide this information. Performance measures could also be included for key infrastructure elements (e.g. workforce development). Such a process would allow the ongoing identification of areas of system deficiency requiring attention. The performance measures would be an intermediate level between high-level health status indicators and program-specific indicators. A performance measurement-based approach has been a key capacity building strategy in the US.

## **Establish Standards for Minimum Public Health Programs and Services**

A follow-up step to the development of core functions for public health is to identify the corresponding programs and services that should be delivered. Some provinces have substantial experience in this area, which would be valuable in developing a national template. The development process would need to include national, provincial/territorial and local public health leaders as well as decision-makers in health and human services outside of public health. The focus here is on the “minimum” or “basic” set of programs recognizing that communities may decide to cluster additional programs with public health at the service delivery level and individual communities may have specific public health needs that need to be addressed.

### Strengthen Public Health Legislation

Public health services are essential health services that should be available to all Canadians. There is ample room for improvement of provincial/territorial and federal public health legislation. Some countries have developed model public health legislation to assess and renew current legislation at the level comparable to our provinces and territories. Once key functions, roles and linkages have been specified and agreed upon, federal legislation could explicitly address the federal role in supporting a national public health system (i.e. essential functions, chief public health officer, etc.). The legislative renewal of health protection legislation is a potential window of opportunity to rectify the currently sparse and out-dated public health legislation at the national level.

### **Strengthen Public Health System Structures**

The findings from other countries' public health systems suggest several areas for improvement in Canada's public health system. Strategies are required to address the inequity in public health challenges and in public health system capacity across the country.

### Establish a National Public Health Leadership Position

There is currently no focal point or formal office for national public health issues. Other countries' public health leaders have been instrumental in ensuring that public health issues are brought to the attention of the public and decision-makers. Effective leadership depends on a combination of position, mandate and skills, (the latter is addressed in further detail under workforce development). There are several potential roles for a national public health leadership position and options for the position to be placed either within Health Canada or be external to the Ministry. Some potential roles include:

- National spokesperson on public health issues;
- Issue an annual "Report on the Nation's Health";
- Independence (as with Canada's Environment Commissioner) to comment on critical public health issues;
- Report independently to parliament on public health issues including progress towards health goals and system performance;
- Lead processes to identify and address gaps in the nation's public health system.

### Develop a Strong, National Network for Public Health Expertise

There is tremendous inequity in the public health system capacity among different provinces and territories. Some of the bigger provinces have established centres of public health expertise, although some of these are for specific areas of practice (e.g. communicable diseases). Considering the breadth of public health issues, the relative population sizes of provinces and territories, and their relative wealth, it will never be feasible to have comprehensive centres of public health expertise for each province and territory. Even if one achieved this, there would increasingly be issues of unnecessary duplication among centres. This issue is not unique to Canada and most countries have

developed critical masses of public health expertise at the national level. The roles for these agencies include national health surveillance, provision of apolitical scientific expertise, system development including standards and guideline development, developing and disseminating an evidence base for public health interventions, skills training, and transfer of expertise (i.e. secondment of staff) and resources to other levels of the system (e.g. provincial and local). Currently, the PPHB at Health Canada only partially fulfills these characteristics. Such an approach does not negate the usefulness of centres of expertise within selected provinces. Such centres would allow the national level of the system to provide greater support for other provinces/territories with less resident expertise. The national level could also facilitate the dissemination of knowledge and best practices from provincial centres to other jurisdictions.

A central agency could also promote new federal initiatives in the context of a broad public health agenda (e.g. Healthy Living agenda). A truly effective system has higher levels of government providing support and expertise to lower levels (i.e. federal supports provincial/territorial, which in turn supports regional/local agencies). Expertise is of course not unidirectional. Higher levels of the system need the wealth of experience from program implementation and working with communities at the local level.

### **Improve Funding Levels and Mechanisms**

There is an urgent need to have a more consistent and appropriate approach to the funding of public health in Canada. Many local public health departments lack sufficient infrastructure and leadership to be effective, and are not of sufficient size to be effective/efficient in the delivery of services or to attract and retain appropriate specialist staff. The regionalization of public health in many provinces has resulted in an unintended loss of visibility of public health within communities.

Consideration should be given to public health system funding shared by the federal and provincial/territorial governments. The formula could be agreed upon by both levels of government with clear accountabilities consistent with their relative roles. Public health agencies require sufficient, stable and predictable funding especially since many preventive programs need to be planned and implemented on a multi-year basis. While it is critical to maintain local input into decision-making, municipal-based funding of core public health services is not consistent with the required funding characteristics. In the absence of greater infrastructure development (i.e. defined functions, performance measurement system, etc.), establishment of explicit funding targets for the public health system is not feasible at the current time.

### **Strengthen Supporting Elements for Effective Service Delivery**

For the essential functions of the public health system to be realized, public health agencies need a workforce with appropriate and constantly updated skills, tools to support evidence-based practice, and integrated information systems to support public health practice. The latter item is an area of ongoing development (e.g. Centre for Surveillance Coordination) and is not addressed in further detail in this paper.

## Develop and Support the Public Health Workforce

Any information-based field needs to be concerned with the skill development of its workforce at all levels of the system. Front line practitioners require a broad range of knowledge and skills to allow them to work effectively in a variety of settings and on increasingly complex public health issues. Many of these practitioners are public health nurses, but also include staff from many other disciplines (e.g. health inspectors, nutritionists, health promoters, community development specialists, etc.). The public health system appears to have too few graduate-level public health professionals (i.e. holding Masters degrees, as well as physicians who are certified specialists in community medicine) and those that do exist are not equitably distributed across jurisdictions. There are virtually no resources currently dedicated to address the continuing education needs of public health staff. Public health systems in other jurisdictions have developed specific training programs to improve leadership skills (e.g. joint initiatives between schools of public health and schools of business administration). Central public health agencies have also taken on the task of developing plans to address skill levels of staff and work with existing academic providers. There are a number of tasks that could be pursued:

- Develop a plan that would assess and address the substantial educational needs of new and existing public health staff;
- Address the coordination of the various academic training programs to meet the needs of the field;
- Identify funding for:
  - Staff training;
  - More equitable distribution of numbers and skills among jurisdictions (examples might include staff secondment, cost-sharing of staff, upgrading skills and/or increase recruitment of graduate-level staff);
- Develop a national school or institute of Public Health (which could be a “virtual” network of centres nationwide) in order to develop and implement national core competencies for public health both for new graduates and continuing education needs of public health professionals.

## Develop and Disseminate a Comprehensive Review of the Scientific Evidence Base for Public Health

Similar to the efforts in clinical care to support the use of evidence-based practices, public health needs to ensure that interventions are based on evidence and best practices. These include the best approaches to areas of practice such as outbreak management, community behaviour change, information dissemination, and building community capacity. A national effort should be undertaken to develop and make widely available, on an ongoing basis, a comprehensive and up-to-date review of the evidence base for public health programs. This information would support effective practice, enhance public health research capacity, and support other infrastructure elements (e.g. minimum programs and services, performance measurement, system funding). It could also reduce unnecessary duplication of efforts by different public health agencies. This action step is

but one component of a comprehensive research and development strategy to support/strengthen the public health system.

## **Collaboration**

The governmental public health system is essential, but insufficient to improve population health. Not only do the various levels of the public health governmental system need to work together in an effective and efficient manner, but active partnership is required with other governmental and non-governmental sectors.

### Target Common Health Goals

Goals identify a desired state that we are striving to achieve. A potential starting point would be to examine the various provincial and territorial health goals documents and to collate those goals that have congruence and overlap. This was carried out by ACPH several years ago and was the basis of the health challenges identified in the first report on the Health of Canadians. The development and targeting of common goals could serve as a partnership tool among jurisdictions in the formal governmental public health system and with non-governmental organizations and other interested stakeholders.

### Encourage Broad Partnerships

Public health actions depend upon active collaboration with other partners. For example, one strategy to address childhood obesity is to ensure daily physical activity in schools. This cannot be accomplished without the active participation of schools, school boards, parent councils, students and provincial ministries of education. Currently, inter-sectoral partnerships are often developed to a greater extent at the regional/local level where public health services are delivered rather than at provincial or national levels. Partnership at these levels is needed to develop the public health system and its programming. The multi-agency initiatives to systematically address chronic diseases (e.g. Chronic Disease Prevention Alliance of Canada) are examples of emerging national partnership models.

One possible mechanism to address some of the infrastructure development outlined in this paper would be to develop a national public health partnership similar to Australia or the US. This partnership would bring together federal and provincial/territorial governments, national voluntary health organizations, public health academics and other key stakeholders around such common tasks as agreeing on common health goals, identifying national strategies to achieve those goals, identifying the evidence base for public health, and strengthening national public health capacity in areas such as information systems, training and development, and research and management.

## **Conclusion**

The public health system exists to safeguard and improve the health of Canadians. Great progress has been made in the past century, but many challenges remain. The dawn of a new century is an opportune time to strategically and explicitly build the infrastructure for a strong public health system that will adequately serve all Canadians.



# **Glossary of Public Health Concepts and Terms**

## **Determinants of Health**

The range of personal, social, economic and environmental factors which determine the health status of individuals or populations.<sup>32</sup>

## **Disease Prevention**

Disease prevention covers measures not only to prevent the occurrence of disease, such as risk factor reduction, but also to arrest its progress and reduce its consequences once established.<sup>32</sup>

## **Equity, Inequalities, and Inequities in Health**

Equity means fairness. Equity in health means that people's needs guide the distribution of opportunities for well-being. Inequalities in health status between individuals and populations are inevitable consequences of genetic differences, of different social and economic conditions, or a result of personal lifestyle choices. Inequities occur as a consequence of differences in opportunity that result, for example, in unequal access to health services, to nutritious food, adequate housing, etc. In such cases, inequalities in health status arise as a consequence of inequities in opportunities for life.<sup>32</sup>

## **Health Promotion**

Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and realize their aspirations, to satisfy needs, and to change or cope with the environment.<sup>33</sup>

## **Health Protection**

Health protection refers to actions that protect Canadians against health and safety risks. Science (providing evidence), surveillance (monitoring and forecasting health trends), risk management (assessing and responding to health risks) and program development (taking action) form the basis of health protection activities.<sup>34</sup>

## **Health Status**

A description and/or measurement of the health of an individual or population at a particular point in time against identifiable standards, usually by reference to health indicators.<sup>32</sup>

### **Health Surveillance**

Surveillance is the ongoing, systematic collection, analysis and interpretation of health data essential to the planning, implementation, and evaluation of health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link of the surveillance chain is in the application of these data to prevention and control. A surveillance system includes a functional capacity for data collection, analysis and dissemination linked to public health programs.<sup>35</sup>

### **Public Health**

Public health is the combination of sciences, skills, and beliefs that is directed to the maintenance and improvement of the health of all the people through collective or social actions. The programs, services, and institutions involved emphasize the prevention of disease and the health needs of the population as a whole.<sup>1</sup>

The science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society.<sup>32</sup>

### **Inter-sectoral Collaboration**

A recognized relationship between part or parts of different sectors of society which has been formed to take action on an issue to achieve health outcomes or intermediate health outcomes in a way which is more effective, efficient or sustainable than might be achieved by the health sector acting alone.<sup>32</sup>

## **Population Health Assessment**

Population health assessment results in a profile of the health of the population. It attempts to answer the following basic questions: How healthy is the population? Is its health getting better or worse? Are some areas or subgroups much healthier than others? What is the impact of ill health on society? What are the population's health needs? What risks does it face? What explains the differences in health? Assessments of this nature might be used to support development or review of health policy, a health goals process, a needs assessment for health programs, or resource allocation.<sup>36</sup>

## Appendix 1 – List of Key Informants

Several individuals participated in telephone interviews to share their knowledge and experiences with public health system development in their countries. The interviews supplemented the information that had been retrieved from policy documents, web-site searches, and published literature. The participating key informants are listed below.

<b>Jurisdiction</b>	<b>Informant</b>	<b>Position</b>
US	Jeffrey Koplan	Former Director CDC; Currently the Vice President for Academic Health Affairs, Emory University
	Leslie Beitsch	Health Commissioner, Oklahoma; Former Deputy Director of Public Health, Florida.
	Lloyd Novick	Health Commissioner, Onondaga County Health Department; Editor, <i>Journal of Public Health Management and Practice</i> ; Editor, <i>Public Health Administration: Principles for Population-Based Management</i> , 2001.
England	Fiona Sim	Head, Public Health Development, UK Department of Health.
	Sian Griffiths	President, Faculty of Public Health Medicine. Previous Director of Public Health at Oxfordshire Health Authority
Australia	Vivian Lin	Chair of Public Health and Head of School at La Trobe University; Former Executive Officer for the National Public Health Partnership (1997-2000)
	Andrew Wilson	Director, Queensland Centre for Public Health. Former Chair of National Public Health Partnership, Former Chief Medical Officer for State of New South Wales.
	Marilyn Wise	Executive Director, Australian Centre for Health Promotion
New Zealand	Colin Tukuitonga	Director of Public Health. New Zealand Ministry of Health

## **Appendix 2 – Ad Hoc Committee on the Future of Public Health in Canada**

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