A survey of Public Health Agency of Canada (Ontario Region) employees on their knowledge and attitudes towards the "*population health approach*".

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TABLE OF CONTENTS

TABLE OF CONTENTS

ABSTRACT

This study develops and advances an understanding of a population health approach by surveying employees at the Public Health Agency of Canada (PHAC) (Ontario Region). It was expected that the research would provide valuable information about the current level of knowledge among the employees within an organization that has expressed a specific approach – to practice the population health approach. Further, it was to determine if there was a need to develop in-service programs that could inform the employees about the "organization's objective" and how they might apply the population health approach. The survey examined a select cohort of the PHAC (Ontario Region) employees. The format of the survey included a pencil and paper self-administered questionnaire which was distributed through the PHAC's internal lotus notes e-mail system. The questionnaire included ordinal scaled questions, binary (yes/no) questions, open-ended questions and multiple choice items. It was noted that of the twenty five participants of the study, 80% (twenty) either agreed or strongly agreed that people who understand the population health approach are likely to use it in their daily work and twenty one people either agreed or strongly agreed that those who understood the population health approach were likely to share their knowledge with their co-workers. It was concluded that although some employees could identify the twelve key determinants of health and they could define the population health approach similar to the PHAC, in-service programs should be developed to assist those who do not understand the concept and those who do not use the approach in their work.

CHAPTER ONE – INTRODUCTION

Historically, when one thinks of health, the words: medicine, disease, illness, prescription drugs, dental care, doctors, chiropractors, and hospital are some of the first words that come to mind. However, over the past several decades, scholars have argued that health involves much more and according to Health Canada, there is strong evidence indicating that other determining factors outside the health care system significantly affect health (Health Canada, 1998). These factors are referred to as the "determinants of health" and include income and social status, social support networks, education, employment and working conditions, physical environments, social environments, biology and genetic endowment, personal health practices and coping skills, healthy child development, health services, gender and culture (Health Canada, 1998). This paper explored concepts and frameworks associated with the population health approach; therefore, was not a review of the health care system.

The population health approach is a concept that has been explored by levels of government and scholars for several decades. This paper also explored one organization's definition of the population health approach, that being the Public Health Agency of Canada and how the approach influenced the work of federal employees. Health Canada (1998) claims that the overall goal of a population health approach is to maintain and improve the health of the entire population and to reduce inequalities in health between population groups. In a population health approach, the entire range of known (i.e., evidenced-based) individual and collective factors and conditions that determine population health status – and the interactions among them – are taken into account in planning action to improve health (Health Canada, 1998). Population health

strategies are effective because they recognize and address the complexities of the individual determinants of health (Health Canada, 1998). At the same time, population health addresses health issues along the entire health continuum and this ranges from prevention and promotion to health protection, diagnosis, treatment and care as well as integrates and balances actions between them (Health Canada, 1998). As a result, a broad range of partners can be effectively engaged in action on health issues, many of which no single jurisdiction or sector of government could tackle on its own (Health Canada, 1998).

Health Canada (1998) also claims that adoption of a population health approach has important implications for the way in which they do their work. Future successes in health will hinge on their ability to address the major factors that determine the health of Canadians (Health Canada, 1998). Future success will also depend on evidence based on decision-making and meaningful involvement and participation of individuals, families, local groups and the broader community in the planning, policy, program development and implementation phases (Health Canada, 1998). Health Canada (1998) recognizes that the most exciting challenge will be to a take a leadership role in an area that is still in development and this will include actively seeking out opportunities to build the population health approach into its existing activities and into new plans.

Rationale

The Public Health Agency of Canada (PHAC), formerly Health Canada (HC), Population and Public Health Branch (PPHB) has identified population health as a key concept and approach for policy and program development aimed at improving the health of Canadians (Health Canada, 2002). The concepts and ideas presented in the paper,

"*The Population Health Template: Key Elements and Actions That Define a Population Health Approach*," support the PHAC's initiative to promote a population health approach in Canada (Health Canada, 2002). Further, according to the Public Health Agency of Canada's website, the Centre for Health Promotion "is the centre responsible for implementing policies and programs that enhance the conditions within which healthy development takes place. Through action founded on the principles of population and public health, the Centre addresses the determinants of health and facilitates successful movement through the life stages" www.phac-aspc.gc.ca. The purpose of the following study was to develop and advance an understanding of a population health approach and to spark debate and discussion about the nature of a population health approach and how it can be implemented in the work of the federal employees (Health Canada, 2002).

The Public Health Agency recognizes that there will continue to be challenges for their staff in implementing a population health approach because the population health approach is a comprehensive multi-sectoral concept (Health Canada, 1998). Staff will need to devote considerable effort to enriching the current understanding of the approach within the Branch and contribute to building awareness and knowledge beyond the Department's boundaries (Health Canada, 1998). Health Canada (1998) is aware that the process will be ongoing and iterative, as many of the required changes in thinking, planning and action call for system-wide change.

Objectives

The Public Health Agency of Canada has a mandate to deliver a population health approach. Given this mandate, the present study set out to:

(1) determine the attitudes of a group of employees (Ontario Region)

(2) determine the level of knowledge of these employees

(3) determine the extent to which the employees actually use the population health approach in their daily work; and

(4) determine which participants have and received training in the population health approach.

Research question and hypothesis

The broad research hypothesis for this study was that many employees work in organizations that have explicitly stated mandates and approaches; however, few employees either subscribe to the "institution's objective" or demonstrate the practice that the "organization" has suggested it represents. To this end, it is expected that the information gathered from this study will provide valuable information about the current level of knowledge, attitudes and behaviour among survey participants within an organization that has expressed a specific approach – to practice the population health approach and to determine if there is a need to develop in-service programs that can inform employees about the "organization's objectives" and how they might apply the population health approach.

There is currently little information available on the actual use of the population health approach by an organization that has their specific mandate to deliver a population health approach. Employees and managers, as well as the internal learning centre of the organization will be able to use the information collected in this study to assist with future planning of educational programs about the understanding and application of the population health approach.

Glossary of terms

CIAR	Canadian Institute for Advanced Research
GNP	Gross National Product
HC	Health Canada
PHAC	Public Health Agency of Canada
PC	Program Consultant
PM	Program Manager
PPHB	Population and Public Health Branch
SDOH	Social determinants of health
WHO	World Health Organization

CHAPTER TWO – LITERATURE REVIEW

Defining key concepts

Although the concept of the population health approach has been around for several decades, as noted in the work of Thomas McKeown during the 1950s, the definition of it varies among organizations, scholars, and critics. Each one takes its own approach to defining the concept based on its varying definitions of other popular terms: health, wellness and the determinants of health, otherwise known as the social determinants of health (SDOH). Although each of these concepts is unique in their definition, they all have commonalities among them as noted by Donatelle et al. (2004) in their use of the six components of health. These concepts generally take into consideration the entire realm of physical, emotional, spiritual and mental wellbeing, which include the whole environment people live in and the conditions surrounding people that may affect their wellbeing. When considering the population health approach, it is best to take these concepts into consideration to provide a holistic, all encompassing appreciation of population health.

What is wellness?

It is noted that there are a variety of definitions for the term wellness and although they could not all be incorporated into this document, below highlights three of them. One of these definitions focuses on the term wellness which was coined by Dunn (1959) to extend what seemed like a static notion of health to one that explained the dynamic relationship arising between people and their environment when individuals use that environment to maintain balance and purposeful direction (McMurray, 2003). High level wellness is considered by Dunn (1961) to be living life at maximum potential and in

harmony with the circumstances of one's life (McMurray, 2003). McMurray (2003) notes that the key determinants of health include: biological factors such as heredity and genetic constitution, individual behaviours, beliefs and responses; the social and physical environment, including early nurturing, cultural and economic conditions as well as the accessibility and quality of health services. She comments that each of these influences an individual's potential for health and any combination of these factors may also interact to determine lifestyle choices, which in turn have a profound impact on health and feelings of well-being (McMurray, 2003).

In addition, Hales and Lauzon (1994) define wellness as "purposeful, enjoyable living or, more specifically, a deliberate lifestyle choice characterized by personal responsibility and optimal enhancement of physical, mental, and spiritual health". "More than freedom from disease, it means taking steps to prevent illness and involves a capacity to live life to the fullest and they believe that a healthy and well individual has a greater capacity for personal potential" (Hales and Lauzon, 2004).

Donatelle et al. (2004) claim that well individuals take an honest look at their personal capabilities and limitations and make an effort to change factors that are within their control. People try to achieve a balance in each of the health/wellness dimensions while trying to achieve a positive wellness position on an imaginary continuum (Donatelle et al., 2004). Many people believe that wellness can best be achieved by adopting a holistic approach in which a person emphasizes integrating and balancing mind, body and spirit (Donatelle et al., 2004). Persons on the illness and disability end of the continuum may have failed to achieve this integration and balance and may be seriously deficient in one or more of the wellness dimensions (Donatelle et al., 2004).

Further, Donatelle et al. (2004) notes that typically, the closer you get to your potential in the six components of health (social health, intellectual health, emotional health, environmental health, spiritual health and physical health), the more you will be well. Both health and wellness are ongoing, active processes that include the positive attitudes and behaviours that continually improve the quality of your life (Donatelle et al., 2004).

What is health?

Like the term wellness, there are a variety of definitions for health. A typical textbook definition for the term health can be found in the book, *An Invitation to Health: First Canadian Edition.* This book indicated health had its beginning from the World Health Organization (WHO), an agency that has shaped our understanding of health as many Canadians know it today (Hales and Lauzon, 2004). The World Health Organization emphasized the importance of the preventative side of health and a declaration was adopted in 1947 that states, "the employment of the highest attainable standard of health is one of the fundamental rights of every human being" (Hales and Lauzon, 2004). The WHO defined health as "not merely the absence of disease or infirmity," but "a state of complete physical, mental, and social well-being" and they claimed that this marked the beginning of a new era in health care (Hales and Lauzon, 2004).

Further, *The Dictionary of Epidemiology* notes that in 1984, the WHO Health Promotion Initiative led to expansion of the original WHO description, which can be abbreviated to "the extent to which an individual or a group is able to realize aspirations and satisfy needs and to change or cope with the environment" (Last, 2001). "Health is a

resource for everyday life, not the objective of living; it is a positive concept, emphasizing social and personal resources as well as physical capabilities" (Last, 2001). Other definitions from *The Dictionary of Epidemiology* include: "a state characterized by anatomic, physiologic and psychological integrity; ability to perform personally valued family, work and community roles; ability to deal with physical, biologic, psychological and social stress; a feeling of well-being; and freedom from the risk of disease and untimely death" (Last, 2001). Health is "a state of equilibrium between humans and the physical, biologic and social environment, compatible with full functional activity" (Last, 2001).

In contrast, Donatelle et al. (2004) notes that before the 1800s, people viewed health simply as the opposite of sickness. A person was healthy if he or she wasn't suffering from a life-threatening infectious disease (Donatelle et al., 2004). When deadly epidemics such as bubonic plague, pneumonic plague, influenza, tuberculosis and cholera killed millions of people, survivors were considered healthy and congratulated themselves on their good fortune (Donatelle et al., 2004). In the late 1800s and early 1900s, researchers began to discover that the victims of these epidemics were not simply unhealthy people, but were the victims of microorganisms found in contaminated water, air and human waste (Donatelle et al., 2004).

As more people considered the term "health," the concept began to include many different aspects of life (Donatelle et al., 2004). Eventually the term wellness came to mean "achievement of the highest level of health in each of several key dimensions and today, health and wellness are often used interchangeably to mean the dynamic, ever-changing process of trying to achieve one's individual potential in each of several

interrelated dimensions" (Donatelle et al., 2004). These key dimensions are noted above as the six components of health.

What are the social determinants of health (SDOH)?

The terms "determinants of health" and "social determinants of heath" are used interchangeably. There are also varying degrees in which the determinants of health are defined. One of these definitions includes the idea that the "determinants of health" is a "collective label given to the factors and conditions which are thought to have an influence on health" (Health Canada, 1996). The list includes: income and social status, employment and working conditions, social environments, physical environments, biology and genetic endowment, personal health practices and coping skills, healthy child development, health services, gender and culture (Appendix A) (Health Canada, 1996). "Crucial to this definition is the notion that these determinants do not act in isolation of each other" (Health Canada, 1996). According to the Public Health Agency of Canada (2002), "their understanding of what makes and keeps people healthy continues to evolve and further refine". "A population health approach reflects the evidence that factors outside the health care system or sector significantly affect health" (PHAC, 2002). In addition, it also "considers the entire range of individual and collective factors and conditions – and their interactions – that have been shown to be correlated with health status" (PHAC, 2002).

Raphael (2004) claims that the social determinants of health are the economic and social conditions that influence the health of individuals, communities and jurisdictions as a whole. Social determinants of health determine whether individuals stay healthy or become ill and he considers this as a narrow definition of health (Raphael, 2004). Social

determinants of health also determine the extent to which a person possesses the physical, social and personal resources to identify and achieve personal aspirations, satisfy needs, and cope with the environment (Raphael, 2004). Social determinants of health are about the quantity and quality of a variety of resources that a society makes available to its members (Raphael, 2004). According to Raphael (2004), these resources include – but are not limited to – conditions of childhood, income, availability of food, housing, employment and working conditions and health and social services. An emphasis upon societal conditions as determinants of health contrasts with the traditional focus upon biomedical and behavioural risk factors such as cholesterol, body weight, physical activity, diet and tobacco use (Raphael, 2004). Since a social determinant of health approach is largely based on how a society organizes and distributes economic and social resources, it directs attention to economic and social policies as a means of improving it (Raphael, 2004).

On the other hand, the World Health Organization (2003) lists ten determinants of health: the social gradient, stress, early life, social exclusion, work, unemployment, social support, addiction, food and transport. The WHO (2003) believes that even in the most affluent countries, people who are less financially well off have substantially shorter life expectancies and more illnesses than the rich. Not only are these differences in health an important social injustice, they have also drawn scientific attention to some of the most powerful determinants of health standards in modern societies (WHO, 2003). They have led in particular to a growing understanding of the remarkable sensitivity of health to the social environment and to what have become known as the social determinants of health (WHO, 2003).

What is the Population Health Approach?

The population health approach has also been defined in a variety of ways. According to *The Dictionary of Epidemiology*, the population health approach focuses on "the health of the population, measured by health status indicators; it is influenced by physical, biological, social and economic factors in the environment, by personal health behaviour, health care services, etc." (Last, 2001). The distinction between population health and public health is clearly defined as population health describing the condition, whereas public health is the practice, procedures, institutions and disciplines required to achieve the desired state of population health (Last, 2001). The population health approach includes the disciplines involved in studying the determinants and dynamics of a population's health status and this term is popular with those who consider social and economic determinants of health to be of paramount importance (Last, 2001).

Several people also agree that population health is defined as "the epidemiological and social condition of a community (defined by geography or by common interests) that minimizes morbidity and mortality, ensures equitable opportunities, promotes and protects health and achieves optimal quality of life" (Frankish and Veenstra, 1999). In addition, population health can also be defined as "the health of a population as measured by health status indicators and as influenced by social, economic and physical environments, personal health practices, individual health capacity and coping skills, human biology, early childhood development and health services" (Frankish and Veenstra, 1999).

According to Health Canada (1999), "a population health approach focuses on interrelated conditions that underlie health and uses what is learned to support actions

that will improve the well-being of Canadians". "A population health approach uses both short and long term strategies to improve the underlying and interrelated conditions in the environment that enable all Canadians to be healthy and to reduce inequalities in the underlying conditions that put some Canadians at a disadvantage for attaining and maintaining optimal health" (Health Canada, 1999).

Health Canada (1996) also identifies several underlying assumptions of the population health approach and these include:

(1) health which is determined by the complex interactions between individual characteristics, social and economic factors and physical environments;

2) strategies to improve population health must address the entire range of factors that determine health and health determinants do not exist in isolation from each other;

3) the health of a population is closely linked to the distribution of wealth across the population;

4) important health gains can be achieved by focusing interventions on the health of an entire population, or significant sub-populations, rather than individuals;

5) improving health is a shared responsibility that requires the development of healthy public policies in areas outside the traditional health system.

The adoption of this approach will require the analysis and comparison of health consequences of policies and programs across all government departments that will achieve health gains (Health Canada, 1996 & 2001). The approach is integral to Health Canada's broader role of improving the health of Canadians (Health Canada, 2004).

According to Donatelle et al. (2004), the health sector can help to reduce inequities in health status by improving access to all needed services, increasing

individual understanding of how the basic determinants of health influence individual well-being and evaluating and identifying policy and program strategies that work. However, since many of the determinants of health are outside the traditional system, building alliances with other sectors, including finance, housing, education, recreation, employment and social services, is necessary (Donatelle et al., 2004). Improving health is considered to be everyone's business and needs to occur at all levels (Donatelle et al., 2004). Partners working to improve health need to include voluntary, professional, business, consumer and labour organizations, private industry, government and representatives from communities of faith, various cultures, population groups and disadvantaged groups (Donatelle et al., 2004).

History

In a body of research published from 1950 to the 1980's, the physician and demographic historian Thomas McKeown put forth the view that the population growth in the industrialized world from the late 1700s to the present was not due to life-saving advancements in the field of medicine or public health, but to improvements in overall standards of living, especially diet and nutritional status, resulting from better economic conditions (Colgrove, 2002). McKeown's historical analysis called into question the effectiveness of some of the most basic and widely applied techniques in public health methods including sanitary reforms, vaccination and quarantine (Colgrove, 2002). The "McKeown thesis" is known to have sparked inquiries, shaped research hypotheses of many scholars and became the subject of extended controversy (Colgrove, 2002).

The McKeown thesis attempted to construct a unifying theoretical explanation for the so-called demographic transition, the dramatic growth in the population of the

industrialized world from around 1770 to the present (Colgrove, 2002). The thesis can be summarized as follows:

> Population growth was due primarily to a decline in mortality from infectious disease. This decline was driven by improved economic conditions that attended the Industrial Revolution, which provided the basis for rising standards of living and most important, enhanced nutritional status that bolstered resistance to disease. Other variables that may have been operating concurrently-the development of curative medical interventions, institution of sanitary reforms and other public health measures and a decline in the virulence of infectious organisms – played at most a marginal role in population change. Put another way, the rise in population was due less to human agency in the form of health – enhancing measures than to largely invisible economic forces that changed broad social conditions. (Colgrove, 2002).

Colgrove (2002) claims that sophisticated analyses in the field of historical demography effectively overturned the McKeown thesis in the early 1980s. Yet, the thesis has shown remarkable staying power, continuing to draw support and commentary throughout the 1990s (Colgrove, 2002). Even though its empirical foundation and conclusions are now considered flawed, the questions at the heart of the McKeown thesis remain as relevant today as when they were first proposed (Colgrove, 2002). These questions include: What are the most important determinants of a society's patterns of morbidity and mortality? And How should public health practitioners most effectively focus their efforts? (Colgrove, 2002).

Glouberman and Millar (2003) claim that to the best of their knowledge, McKeown was the first to use the term, "determinants of health". Health Canada (1998) claims that one of the ultimate goals of Canadian society is to improve the health of the population. Prior to the 1970s, the focus was primarily on individuals and the health of the population was known to be directly linked to medical science (Health Canada, 1998). The approach was considered to have limits but as the approach became clear, the concept of population health had grown from its strong roots established through work in the fields of public health, community health and health promotion (Health Canada, 1998).

The next section highlights a chronology of important dates, people and papers that lead to bringing the population health approach into Canada as an important concept.

1970s

During the 1970s, the most important Canadian document containing information on the population health approach was brought forward through the *Lalonde Report.* Glouberman and Millar (2003) claim that in Canada, the notion of the determinants of health was derived from the work of Thomas McKeown who influenced two somewhat different movements that together are now referred to as, "population health". Health promotion, the earlier of these movements, was first articulated by Hubert Laframboise in the widely circulated *Lalonde Report* of 1974 (Glouberman and Millar, 2003). The second movement focused on research in inequalities in health which grew out of the efforts of Fraser Mustard and the Canadian Institute for Advanced Research (CIAR) (Glouberman and Millar, 2003). Both of the movements have had a strong effect on how health information was gathered and disseminated in Canada, but have had limited

influence on health policy (Glouberman and Millar, 2003). For the purpose of this paper, the *Lalonde Report* will be the primary focus because it provides the direct link between the population health approach and how its use became implemented by the federal government.

In 1974, the then federal Minister of Health, Marc Lalonde, released a working document entitled: *White Paper, A New Perspective on the Health of Canadians* otherwise known as the "Lalonde Report" (The Standing Senate Committee on Social Affairs, Science and Technology, 2002). This report stressed that a high quality health care system was only one component of a healthy public policy, which should take into account human biology (research), lifestyle and the physical, social and economic environments; otherwise known as the "health field concept" (The Standing Senate Committee on Social Affairs, Science and Technology, 2002). The *Lalonde Report* was extremely influential in shaping broader approaches to health both in Canada and internationally (The Standing Senate Committee on Social Affairs, Science and Technology, 2002). The *Lalonde Report* gave rise to a number of highly successful, proactive health promotion programs which increased awareness of health risks associated with certain personal behaviours and lifestyles (e.g., smoking, alcohol, nutrition, fitness) (Health Canada, 2002). For example, at the federal level, it led, among other things, to a variety of social marketing campaigns such as ParticipAction, Dialogue on Drinking and the Canada Food Guide (The Standing Senate Committee on Social Affairs, Science and Technology, 2002).

Health Canada (1998) notes that since the early 1970's Canada has gained international recognition for work in the area of health promotion. This reputation was

related to the development of a number of important initiatives, including community action programs for health promotion, health advocacy and healthy public policy (Health Canada, 1998). Population health builds on a long tradition of public health and health promotion (Health Canada, 2002). The release of the highly acclaimed *Lalonde Report* (1974) was a turning point in broadening Canadians' understanding of the factors that contributed to health, as well as the role of the government in promoting the health of the population (Health Canada, 1998). The report, which identified human biology, environment, lifestyle and the organization of health care as the four principal elements affecting health and was a catalyst for change in government policies on the health of the population (e.g., seat belt legislation) and shifted the focus to issues related to individual lifestyles (e.g., exercise, diet, smoking) (Health Canada, 1998). The report also proposed that changes in lifestyle or social and physical environments would likely lead to more improvements in health than would be achieved by spending more money on existing health care delivery systems (Health Canada, 2002).

Glouberman and Millar (2003) claim that the Lalonde Report marked the first stage of health promotion in Canada because it used McKeown's ideas to develop a framework labeled "the health field concept" and applied this concept to an analysis of the health among Canadians. It concluded with a large number of health policy recommendations that were created based on this new approach (Glouberman and Millar, 2003) and implemented into government policy at the time.

1980s

During the 1980s, the concept of the population health approach continued to gain recognition and grew as a key concept in health promotion by building upon the work of

the *Lalonde Report*. Health Canada (1998) claims that by the mid-1980s, there was growing recognition of the limitations of many health promotion efforts. It was argued that the health and behaviour of people were also determined by conditions such as income, employment, social status, housing and environmental factors (Health Canada, 1998). The emerging focus on these non-medical determinants of health and the release of *Achieving Health For All: A Framework for Health Promotion* (1986) added social justice and equity as concepts to be considered for a population health approach (Health Canada, 1998). Further, the *Ottawa Charter for Health Promotion* (1986) began to shift attention to the societal (population) level – beyond the factors that were within the immediate control of individuals, professionals and communities (Health Canada, 1998).

For the first time in Canadian history, a conference was held as a response to the growing expectations for a new public health movement around the world (WHO, 1986). This conference, also referred to as the *Ottawa Charter for Health Promotion* was held in Ottawa, Ontario on November 21, 1986. The conference allowed for the determinants of health to be talked about in a new way. This meeting was the first international conference on health promotion and allowed for the creation of a charter which was intended to provide details on actions to promote health by the year 2000 and beyond (WHO, 1986). The *Ottawa Charter for Health Promotion* identified determinants of health to include: peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice and equity (WHO, 1986). The World Health Organization (1986) believed that significant improvements in health required a secure foundation in these prerequisites and these determinants differed slightly than those recognized by Health Canada.

In 1986, the report *Achieving Health for All*, released by the then federal Minister of Health, Jake Epp, led to the initiatives related to Canada's Drug Strategy, the Heart Health Initiative, Healthy Communities, the National AIDS Strategy, and others (The Standing Senate Committee on Social Affairs, Science and Technology, 2002). The report focused on a commitment to deal with the challenges of reducing inequalities, extending the scope of prevention and helping people to cope with their circumstances (Epp, 1986). The commitment would mean fostering public participation, strengthening community health services and coordinating healthy public policy (Epp, 1986). Finally, the report also focused on creating environments conducive to health, in which people were better able to take care of themselves and to offer each other support in solving and managing collective health problems (Epp, 1986).

The Public Health Agency of Canada (2004) claims that in 1986, the *Ottawa Charter for Health Promotion* (World Health Organization, 1986), and *Achieving Health for All: A Framework for Health Promotion* (Jake Epp, 1986) expanded on the *Lalonde Report* by focusing on the broader social, economic and environmental factors that affected health. These factors or "determinants of health" included factors such as income level, education and the physical environment (where one lives and works) as important influences on health (PHAC, 2004).

The Standing Senate Committee on Social Affairs, Science and Technology (2002) claim that in 1989, the Canadian Institute for Advanced Research (CIAR), then headed by Dr. Fraser Mustard, proposed that the determinants of health do not work in isolation but that it is the complex interaction among the determinants that could have the most significant effect on health. This work, along with other findings by Dr. Mustard, had,

among other things, led to the development of the joint federal and provincial/territorial initiatives on early childhood development (The Standing Senate Committee on Social Affairs, Science and Technology, 2002).

1990s

Health Canada (1998) claims that in the early 1990s, population health researchers began to publish findings and to articulate a model of the determinants of health that provided additional evidence for many of the fundamental principles and activities initiated by the health promotion agendas in many government and health policy circles. Thus, the population health agenda included important elements from the field of health promotion, including some of the key directions for health improvement from *Achieving Health for All: A Framework for Health Promotion* (i.e., reducing inequalities in health, strengthening community health services and fostering healthy public policy), as well as earlier milestones that encouraged Canadians to think differently about the processes underlying health (Health Canada, 1998).

The population health approach was officially endorsed in Canada by the Federal/Provincial/Territorial Ministers of Health in the report *Strategies for Population Health: Investing in the Health of Canadians* published in 1994 (Health Canada, 1998). The report summarized what was known about the broad determinants of health (see Appendix A) and articulated a framework to guide the development of policies and strategies to improve population health (Health Canada, 1998). This report also set the stage for a national discussion on population health (Health Canada, 2001). Since then, government efforts in advancing population health have been augmented by the work of several "think tanks" across Canada, most notably the Canadian Institute for Advanced

Research (CIAR) (Health Canada, 2001). CIAR's Population Health Program received international recognition for the development of a conceptual framework which synthesized knowledge from a wide range of disciplines and recognized the complex and interactive factors that influenced health, i.e., physical and social environment, disease, well-being, prosperity, etc. (Health Canada, 2001). The conceptual framework is attached as Appendix B.

During the 90s, the implementation of the population health approach became a key initiative with employees in various government departments. In 1996, the Federal/Provincial/Territorial Advisory Committee on Population Health prepared the *First Report on the Health of Canadians*, which provided a general reporting framework on the health of Canadians and represented the first step toward a comprehensive assessment of the health of the population (Health Canada, 2001). In 1999, the Committee released, *Toward a Healthy Future: Second Report on the Health of Canadians* and this document became a landmark public policy report which took a population health approach in its organization and analysis (Health Canada, 2001). It examined health status and the major factors or "determinants" that influenced the health of Canadians at all ages, as well as discussed the implications of the findings for policy, practice and research (Health Canada, 2001). The report identified priority areas for action and relevant strategies in each area that could be used by several players at the federal, provincial and territorial levels (Health Canada, 2001). Finally, a position paper entitled, *Taking Action on Population Health* was developed by Health Canada to provide employees with a better understanding of a population health approach (Health Canada, 2001). Health Canada (1998) noted that if their Department was to successfully continue

on the course it set out for itself almost 25 years ago – aimed at improving the health of the whole population and reducing health disparities – it must embrace the population health approach as a new way of doing business.

The support for a population health approach and the evidence required to develop and sustain the approach was further strengthened by the recommendations of the National Forum on Health (Health Canada, 2002). The Forum's final report, *Canada Health Action: Building on the Legacy (1997)* concluded that Canada needed to develop an evidence-based health system with decisions made on the basis of quality evidence, establish a nationwide population health information system and develop a comprehensive research agenda (Health Canada, 2002).

By 1996, the four determinants of health (human biology, environment, lifestyle and health care organizations) described in the *Lalonde Report* had grown to twelve (Appendix A) (Glouberman and Millar, 2003). The *Lalonde Report* called attention to the existing fragmentation in terms of responsibility for health (Glouberman and Millar, 2003). Under the health field concept, the fragments were brought together into a unified whole which allowed everyone to see the importance of all factors including those which were the responsibility of others (Glouberman and Millar, 2003). The report was ahead of its time in identifying the need for intersectoral collaboration and recognizing that multiple interventions – a combination of research, health education, social marketing, community development and legislative and healthy public policy approaches – were needed to properly address the determinants of health (Glouberman and Millar, 2003).

In 1998, the government decided it was time to implement the population health approach into its work. Health Canada created a document entitled, "Taking Action on

Health" which was intended for use among staff within the Population and Public Health Branch (PPHB) of Health Canada. The paper presented the Population and Public Health Branch staff with information to better understand what the population health approach would mean to their work (Health Canada, 1998). The paper also presented an overview on a working definition of the population health approach and reviewed the evolution and its links to health promotion, as well as presented implications of the approach for the way the PPHB staff was to carry out its work (Health Canada, 1998). The paper indicated that the PPHB branch of Health Canada would play a key role through leadership in promoting the population health approach and through its role in coordinating national population health strategies (Health Canada, 1998).

2000

In September 2000, all Ministers of Health agreed to give priority to action on the broader, underlying conditions that make Canadians healthy or unhealthy (The Standing Senate Committee on Social Affairs, Science and Technology, 2002). Despite the available evidence, no jurisdiction in Canada and no country in the world had designed and implemented programs and policies firmly based on a population health approach (The Standing Senate Committee on Social Affairs, Science and Technology, 2002). The Standing Senate Committee on Social Affairs, Science and Technology (2002) notes that there continued to be significant problems in the design of concrete programs that could be sustained over a long time period.

Furthermore, early in Canada's history, health was determined to be a provincial responsibility, which created a structural division in duties (Yan, 2004). As health care costs soared well beyond the ranges affordable solely by provincial governments, the

federal government initiated involvement through Medicare (Yan, 2004). Higher financial burdens and complex health care issues have led to a blurring of federal and provincial health care roles (Yan, 2004). The recognition in recent years that social determinants of health affect health had increased the need for federal leadership in public health practices (Yan, 2004). Commitments were made at the federal level for public health funding for the establishment of a new Public Health Agency of Canada and for the appointment of a Chief Public Health Officer for Canada (Yan, 2004). The challenge for the future would be in creating a new model for public health which encouraged cooperation and communication between different governments, i.e., a model that would be efficient enough to coordinate the efforts of ten provincial and three territorial health systems, yet allowed enough flexibility for local needs to also be met (Yan, 2004).

A critique of the determinants of health

Determinants of health

Over the past several decades, critics have argued for and against the population health approach. For example, scholars have opposed the concept because they believe it neglected the ways in which people acted to improve their health (Colburn et al., 2003). Furthermore, the population health approach lacked knowledge about how health determinants were created and maintained by powerful economic and social forces (Raphael and Bryant, 2003); and that it had not yet resulted in adequate corresponding policy development to effectively reduce inequalities in health (Glouberman and Millar, 2003). On the other hand, some believe that the population health approach reaped in benefits and some supporters of the concept argued that the population health approach

was the conceptual ground for health reform today (Shene, 1998). Others believe that it had gained prominence as an underlying concept for public health programs (Edwards, 1999) and that the population health had helped Canadians to recognize that the major determinants of health lied beyond health care, in the broader environment, social, economic, political and cultural factors that shaped our lives as individuals and communities (Hancock, 1999). Listed below is a summary of what both the supporters and opponents said about the population health approach.

One of the arguments focused on the study of the non-medical determinants of health as a relatively new field of interest in which Canada has been a world leader as seen in the *Lalonde Report*, the *Ottawa Charter for Health Promotion* and the work of the Canadian Institute for Advanced Research (National Forum on Health, 1997). However, the knowledge base was limited, in particular, the capability of non-medical interventions to promote population health (National Forum on Health, 1997). Further, all countries of the world lacked the type of social indicators (GNPs of health) needed to monitor social change and to channel political debates (National Forum on Health, 1997). Canadians have developed health promotion and population health concepts that directed attention to various social determinants of health; but it appeared that Canada was well behind other jurisdictions in applying this knowledge to developing economic and social policies that supported health (Raphael, 2004).

Hayes (1999) believes that the phrase "determinants of health" was a misleading expression with which to describe were "salient domains of influence". He claims that perhaps the greatest frustration with population health promotion was trying to piece together a coherent explanation of how health status was shaped in the face of the

inherently indeterminate nature of everyday life (Hayes, 1999). Hayes (1999) notes that this is not to say that the domains of influence identified in the list of twelve "determinants of health" contained in the document *Sustaining Our Health* or *Taking Action on Population Health* were unimportant, or that effective policies for promoting population health could not be developed. It was simply to recognize that the label was inconsistent with a philosophy of society as an open system of relations in which the necessary conditions for cause-effect determinism found in controlled experiments were lacking (Hayes, 1999). Hayes (1999) claims that sloppy use of language could have important consequences both for public perceptions/conceptions of what the state responsibility was (witness the provincial experiences with the label "Ministry of Health") and for future research and policy development.

Evans, Barer and Marmot (1994) state that at quite an early stage in analysis, it became apparent that many of the conventional explanations of the determinants of health – why some people are healthy and others not – are at best seriously incomplete, if not simply wrong. They believe that this was unfortunate, because modern societies devoted a very large share of their wealth, effort and attention to trying to maintain or improve the health of the individuals that make up their populations (Evans, Barer and Marmot, 1994). These massive efforts were primarily channeled through health care systems, presumably reflecting a belief that the receipt of appropriate health care was the most important determinant of health (Evans, Barer and Marmot, 1994). In contrast, McMurray (2003) states that just as some people are healthier than others, some communities and societies are healthier than others. She supports the idea that population-wide studies suggested that the health of a population was influenced by social and economic conditions, by the

psychosocial environment and by the experiences individuals brought to those environments which in turn were influenced by their early biological development (McMurray, 2003).

Some researchers argue that there was not enough evidence to support the idea that health equals health care. Hayes, Foster and Foster (1994) believe that the determinants of health presented a powerful argument demonstrating that "health does not equal health care". They believe that data not available ten years ago have subsequently been pulled together by the CIAR Population Health groups to show that health was conditioned by several complex factors relating to a person's social and physical environments, as well as to individual biological endowment, early childhood development, national wealth and prosperity, employment, income, etc. (Hayes, Foster, and Foster, 1994). The statement, "health does not equal health care" was also stressed by Dr. J.F Mustard (Hayes, Foster and Foster, 1994). Although fragmentary, the evidence presented demonstrated that health status was strongly related to income, employment and other social characteristics and that health care per se had little discernable influence upon health status of the general population (Hayes, Foster, and Foster, 1994).

Further, the Public Health Agency of Canada (PHAC) (2002) realized that the federal government recognized that spending more on health research was only part of the solution and that they could also address health issues by broadening their approach to health interventions. They have learned a great deal in the past several decades about what determines health and where they should be concentrating their efforts (PHAC, 2002). They say that much of the research is telling them that they need to look at the big

picture of health to examine factors both inside and outside the health care system that affect health (PHAC, 2002). PHAC (2002) is aware that at every stage of life, health is determined by complex interactions between social and economic factors, the physical environment and individual behaviour. These factors are referred to as "determinants of health" and they do no exist in isolation from each other but it is a combined influence of the determinants of health that determine health status (PHAC, 2002). PHAC also brings forward the idea that the determinants of health are only one aspect of the population health approach. Other aspects of the approach included: a focus on the health of the population, investing upstream, decisions based on evidence, the application of multiple strategies to act on the determinants of health, collaboration across levels and sectors, mechanisms to engage citizens and increases in accountability for health outcomes (Appendix C) (Health Canada, 1996).

Hancock, Labonte and Edwards (1999) note that the determinants of health were very broad and included, but go beyond the factors identified in the CIAR's population health models (Appendix B); although, the epidemiological evidence relating the broad range of determinants relevant to population health at the community level were not necessarily (yet) available. The determinants of the health of a population (as opposed to the determinants of the health of individuals) related to meeting everyone's basic needs, achieving adequate levels of economic and social development, nurturing social relationships that were mutually supportive and respectful and ensuring the quality and sustainability of the environment (Hancock, Labonte and Edwards, 1999).

Raphael (2004) notes that Canada's shortcomings in addressing the social determinants of health as surprising because tremendous increases have occurred in

theoretical and empirical knowledge of how economic and social conditions determine health. Numerous studies indicated that various social determinants of health had far greater influence upon health and the incidence of illness than traditional biomedical and behavioural risk factors (Raphael, 2004). Raphael (2004) notes that there was also new information available on the state and quality of various social determinants of health in Canada and how these conditions affected the health of Canadians. Raphael believes that for the most part, policy makers, the media and the general public remain badly informed on these issues (Raphael, 2004). Raphael (2004) argues that much of the public agenda seemed designed to threaten – rather than support – the health of Canadians by weakening the quality of many of the social determinants of health.

A critique of the population health approach

Disadvantages

Critics argue that the population health approach has several disadvantages. The following is a summary of some of those arguments.

According to Hayes, Foster and Foster (1994) the population health approach as advocated by Dr. Mustard was regarded by many students and faculty to be a significant new research direction for epidemiology and health service research, but it also posed some important intellectual challenges. The population health approach demanded that people consider why it is that some people are healthier than others are, why these differences are systematically distributed across identifiable social characteristics and how public expenditures ought to be deployed to maximize the health status of the general population (Hayes, Foster and Foster, 1994). In addition to the problems it posed for the training of health services researchers (which methods or techniques would be

best suited to the study of health and well-being?) the approach also posed a certain threat to biomedicine (Hayes, Foster and Foster, 1994). It challenged the social benefit of health care and possessed the capacity to open up discussion on the distribution of public resources within the welfare state (Hayes, Foster and Foster, 1994). Also, by demonstrating links between income and health and unemployment and health, the population health approach suggested that social structure and not merely individual behaviour should be an important focus for analysis (Hayes, Foster and Foster, 1994).

While population health research contributes to our understanding of the ways in which aspects of the social environment determined the health of populations, its models are unable to address the ways in which people, both individually and collectively, acted to improve their health (Coburn et al., 2003). Coburn et al. (2003) claim that population health research emphasized such structures as socioeconomic stratification, but its models leave no room for agency (i.e., how situations can change). Population health analysts tend to avoid discussion on those social and political struggles that help to bring about improved living conditions and better health care (Coburn et al., 2003). Population health strategies for change thus tend toward overly rationalist models in which greater knowledge is simply assumed to produce policies oriented to the enactment of this knowledge (although CIAR participants do argue health policies are somewhat distorted by interest groups, particularly the medical profession) (Coburn et al., 2003).

In addition, Coburn et al. (2003) argue that in Canada during the 1990s, an internationally influential model of population health was developed which shifted the research agenda beyond health care to the social and economic determinants of health; this model was formed by the Canadian Institute for Advanced Research (see Appendix

B). Colburn et al. (2003) agree that health had important social determinants, but that the model had serious shortcomings and critiqued the model for focusing on assumptions. For example, Coburn et al. (2003) noted that the model had assumptions about how knowledge was produced and that an implicit interest group perspective excluded the sociopolitical and class contexts that shape interest group power and citizen health. These critics reviewed policy and practice implications of the Canadian population health model and point to alternative ways of viewing the determinants of health (Coburn et al., 2003).

Furthermore, Coburn et al. (2003) argue that what is missing in population health models is any attempt to accommodate the broader structures and circumstances that produce particular relationships between factors. According to Coburn et al. (2003), the perspective claimed to produce knowledge that was both neutral (the data would speak for themselves) and universal (if the research is done properly, the data would tell the truth). However, knowledge was always specific to the perspective that produces it and it was consequently always partial (Coburn et al., 2003). The assumptions inherent in any orientation for research, not all of which were readily apparent in the models that have been offered, determined what types of events were viewed as data, which data were considered worthy of collection and how data were incorporated into explanatory frameworks (Coburn et al., 2003).

Moreover, population health models (such as Evans and Stoddart as found in Appendix B) lacked a vision of agency and action at the meso and micro levels (Coburn et al., 2003). Population health characterizations of the determinants of health were derived from abstract statistical models that often contained an "individual bias" hence

the label "population health" (Coburn et al., 2003). These characterizations devoted little time to consideration of how such models could be connected to real people and groups in actual social contexts (Coburn et al., 2003). The models consisted of a specific disciplinary combination of epidemiology and economics (Coburn et al., 2003). These models also shared a common perspective on the nature of knowledge production with regard to health as a social phenomenon (Coburn et al., 2003). This perspective, borrowed from the natural sciences assumed that the world and social phenomena could be divided up into variables and that these variables could then be correlated with one another to produce a picture that was a reliable proxy for reality (Coburn et al., 2003). Reality, however, was much more layered and textured than this perspective suggested (Coburn et al., 2003).

Raphael and Bryant (2000) note that population health neglected political and sociological issues and offered no theory of society. It neglected how health determinants were created and maintained by powerful economic and social forces (Raphael and Bryant, 2000). Analysis of the causes of economic inequality and poverty, for example, were not high on the population health agenda (Raphael and Bryant, 2000). An approach that ignored these forces was unlikely to be useful in identifying and acting upon the inequalities in health seen among Canadians (Raphael and Bryant, 2000).

In addition, Raphael and Bryant (2000) state that there were practical implications for adopting the population health approach. Population health led to context stripping, by which the health of individuals was considered removed from its community and societal context (Raphael and Bryant, 2000). Within the health field, context stripping occurred when studies attempted to identify general determinants of health across

populations (Raphael and Bryant, 2000). To illustrate, analysis of how societal and community structures influenced individuals' sense of control and well-being gives way to studying personal coping devices and the biological mechanisms by which stressors become translated into illness and disease (Raphael and Bryant, 2000). Critical analyses of society give way to studies focused on individual level variables (Raphael and Bryant, 2000).

Raphael and Bryant (2002) also argue that population health activities were focused on research, not social change and population health exhibited a top down emphasis on expert knowledge. Population health was firmly rooted in the epidemiological tradition and population health lacked an explicit value base (Raphael and Bryant, 2000). All health related research and practice involved values but what was problematic was not making explicit the values underlying the approach (Raphael and Bryant, 2000).

Hayes (1999) believes that implementing population health approaches to public policy presented innumerable challenges to both politicians and public servants. He argues that by definition, the "big picture" was complex and whatever was considered as "the framework" was contestable (Hayes, 1999). The time frame of a life course perspective greatly exceeded the temporal horizon of political mandates and it was extremely difficult to gather support for policy options that make sense from a longer-term perspective but were unpopular or threatening to specific interest groups or advocates on behalf of marginalized groups that are not politically/economically powerful (Hayes 1999). Hayes (1999) notes that the corporate approach to public policy in population health promotion required effective coordination between and cooperation

among various institutional structures (i.e., ministers and agencies of various levels of government, community agencies and service clubs, etc.). This was often difficult to establish and maintain (Hayes, 1999). The number of fronts across which health influence operated and the fragmented social spaces in which influences played out, created too many needs to be satisfied and created competition between groups for resources (Hayes, 1999). Thus, Hayes argues that there are reasons to be pessimistic about what could be achieved through a population health approach to public policy (Hayes, 1999).

Lastly, Glouberman and Millar (2003) comment that there was a great deal of interest, activity and resources being deployed in pursuit of population health concepts. To some extent, this was due to the "bandwagon" effect that had surrounded population health (Glouberman and Millar 2003). Despite several modest successes (e.g., in the areas of tobacco use and child development), the population health approach, while providing a deeper understanding of socioeconomic gradients in health status, had not yet resulted in adequate corresponding policy development to effectively reduce inequalities in health (Glouberman and Millar, 2003).

Glouberman and Millar (2003) note that over the past decade, as the public dialogue had been dominated by concerns about the costs and delivery of health care services, inadequate attention had been paid to important emerging health issues, especially those that related to inequalities. For example, family poverty, epidemic obesity, early childhood development and aboriginal health were major health issues for which there was no coordinated national plan (Glouberman and Millar, 2003). In the meantime, countries such as the UK and Sweden have developed plans to address many

of these issues and others (i.e., teenage pregnancy, education, unemployment, access to health care, housing and crime) (Glouberman and Millar, 2003). These plans have been achieved through the involvement of other government departments such as education, justice, economic development, finance, housing and social security (Glouberman and Millar, 2003). With effective political leadership, collaborative efforts between different sectors (government, the private sector, voluntary organizations) and with the development of policies based on the best available evidence, Canada may once again join the countries leading the way in health promotion and population health (Glouberman and Millar, 2003).

Advantages

In contrast to the disadvantages of the population health approach, there are several proponents of the concept. Shene (1998) notes that no one with an interest in health care in Canada can afford to be ignorant of the population health approach. It is the conceptual ground for health reform today (Shene, 1998). What was new about population health was that it concentrated on collective health, noting inequities between segments of a population and used the insights that proceeded from observations to enhance the health of a whole society (Shene, 1998).

Edwards (1999) claims that the population health concept had been identified as a major component of the report: *Achieving Health for All Strategy for the 21st Century.* This new policy followed two decades of efforts in trying to achieve the objectives outlined in the Alma Ata Declaration of 1978 (Edwards, 1999). During this period of Canadian public health history, there had been a shift in the focus of community health services from interventions targeting lifestyle change to programming which embraced

the tenets of health promotion (Edwards, 1999). In the 1990s, population health had gained prominence as an underlying concept for public health programs (Edwards, 1999). Building on the experience and knowledge gained from lifestyle and health promotion efforts, population health focused attention on inequalities in health status and their determinants (Edwards, 1999). As the new millennium began, it was noted that a major challenge facing those who design, manage and implement public health programs would be finding the means to effectively tackle the determinants and their interactions (Edwards, 1999).

Health Canada (1996) claims that unlike traditional health care which deals with individuals one at a time when they become ill, population health strategies improved the health of an entire population through broad based preventative approaches that took into account determinants of health. Such preventative approaches warded off potential health problems before they impacted the health care system (Health Canada, 1996). According to Health Canada (1996), the population approach recognized that there was more to health than a good health care system. It did not diminish the importance of the health care system, genetics or other individual factors that contributed to the health of Canadians, but included additional factors or "determinants of health" and the interactions between those determinants (Health Canada, 1996).

Furthermore, Health Canada (1996) argues that the population health approach placed the traditional health care system in perspective and addressed the full range of risk factors and conditions of risk that determined the health of the population or particular sub-groups of the population. Examples of personal or individual risk factors include: hypertension or risky behaviours such as unsafe sex and these are linked to

morbidity and premature mortality (Health Canada, 1996). Conditions of risk are general circumstances known to affect health status (e.g., poverty, isolation, unemployment, environmental conditions and substandard housing) over which individuals have limited direct control (Health Canada, 1996). Collective action and social reform needed to be based on the understanding that policy decisions are rarely neutral and can have both negative and positive impacts on health (Health Canada, 1996). According to the National Forum on Health (1997), Canada needed to make monitoring health a priority. In addition, to provide research and policy directions, the federal government should provide Canada, its provinces, territories and various interested parties with a vehicle to coordinate information and advocate for the development of policies conducive to population health (National Forum on Health, 1997).

In addition, Frankish and Veenstra (1999) claim that population health research was concerned with whole community or populations, not just individuals or groups, it was also concerned with greater intersectoral action beyond the health sector and with making populations more self-sufficient and less dependent on health services and professionals. The population health perspective was concerned with explaining differences in health and had the intent of doing so at the population rather than the individual level (Frankish and Veenstra, 1999). It described the analysis of major social, behavioural and biological influences upon overall levels of health status within and between identifiable population groups and subgroups, attempting to identify aspects of the social and cultural milieu that affect differences in health status (Frankish and Veenstra, 1999). At the same time, the population health concept was strongly based on research which showed that given universal access to medical care, there are noticeable

differences in health status between identifiable groups within any population (Shene, 1998). Differences in health were noticeable, for example, between people with varying education levels, socioeconomic status and numbers of social contacts (Shene, 1998).

Hancock (1999) claims that population health has helped to recognize that the major determinants of health lie beyond health care, in the broader environment, social, economic, political and cultural factors that shape the lives of individuals and in communities. This led to the key insight that the future of the health of the population would reflect the society that it comprised and of which we were all a part (Hancock, 1999). Hancock (1999) notes that people need to better understand the major forces that would affect society over the next few decades.

At the same time, Hancock, Labonte and Edwards (1999) take the position that population health was much more than simply the aggregate of the health of the individual members of the population, although this was important. Population health also must include the distribution of health across a community and inevitably, must address issues of inequalities in health and inequitable access to the determinants of health (Hancock, Labonte and Edwards, 1999). A further aspect of "population health" at the community level had to do with how well the community functions and whether the community as a whole was "healthy" (Hancock, Labonte and Edwards, 1999).

Frankish et al. (1996) claim that the population health approach recognized that "health was a capacity or resource rather than a state; a definition which corresponded more to the notion of being able to pursue one's goals, to acquire skills and education and to grow". This broader notion of health recognized the range of social, economic and physical environmental factors that contributed to health (Frankish et al., 1996). "The

best articulation of this concept of health was the capacity of people to adapt to, respond to or control life's challenges and changes" (Frankish et al., 1996). Frankish et al. (1996) claim that a population health approach reflected a shift in thinking about how health was defined. "The notion of health as a positive concept signifying more than the absence of disease, led initially to identifying it as a state of complete physical, mental and social well-being" (Frankish et al., 1996). "Conversely, making health synonymous with well-being, human development and quality of life confused health with its determinants, and made it measurable as the outcome of action addressing those determinants" (Frankish et al., 1996). "Moreover, it became possible to talk about the contribution of health to social well-being and quality of life – yet their relationship should be seen as reciprocal and (potentially) mutually reinforcing" (Frankish et al., 1996).

Lastly, the Public Health Agency of Canada (2002) notes, that there is a growing body of evidence about what makes people healthy. The *Lalonde Report* set the stage in 1974 by establishing a framework for the key factors that seemed to determine health status: lifestyle, environment, human biology and health services (PHAC, 2002). Since then, much has been learned that supports and at the same time, refines and expands this basic framework (PHAC, 2002). In particular, there is mounting evidence that the contribution of medicine and health care is quite limited and that spending more on health care will not result in significant further improvements in population health (PHAC, 2002). On the other hand, there was strong and growing indication that other factors such as living and working conditions were crucially important for a healthy population (PHAC, 2002).

Health Canada (2001) claims that the outcomes or benefits of a population health approach extended beyond improved health status outcomes. A healthier population made more productive contributions to overall societal development, required less support in the form of health care and social benefits and was better able to support and sustain itself over the long term (Health Canada, 2001). Actions that resulted in good health also brought greater social, economic and environmental benefits for the population at large (Health Canada, 2001). These benefits included a sustainable and equitable health care system, strengthened social cohesion and citizen engagement, increased national growth and productivity and improved quality of life (Health Canada, 2001).

Conclusion

As demonstrated by the McKeown thesis, the concept of the population health approach has been around since the late 1700's, but only in the past few decades has it grown in importance with the Canadian government. It was the *Lalonde Report* of 1974 which marked the beginning of actions on the part of the Canadian government to start thinking about health in a broader way to include the elements known as the health field concept (human biology, environment, lifestyle and the organization of health care). The health field concept then expanded to twelve and included other factors that were considered to be determinants of health. While the definition of population health was evolving and developing, there continued to be arguments for and against the concept of the population health approach and its relevance in the field of public health and on public policy. Despite the critiques to the approach, the federal government supported and began to move forward in implementing the population health approach and the

determinants of health into its work. With this in mind, the question remains, what are the attitudes and knowledge of Public Health Agency of Canada employees toward the population health approach?

CHAPTER THREE – DATA COLLECTION METHODS / RESEARCH METHODOLOGY

The required characteristics and number of subjects:

All subjects of the cross-sectional study were current employees of the Public Health Agency of Canada (PHAC) designated to the Ontario Region. According to the manager of administrative services, there were 52 employees deemed eligible for the study. As the researcher was also an employee of the Public Health Agency of Canada, the total number of eligible participants for the study was 51. Similar to any organization's structure, there are varying classifications of employees; nonetheless, they are employed by the same organization and hold specific duties and responsibilities that fall under the same overall vision and mandate of the organization. Every employee of the Public Health Agency had the same opportunity to participate in the study and these participants include: program managers, program consultants, evaluation specialists, administrative assistants/clerks, policy analysts, etc.

The method of data collection and analysis:

Data collection

This initial study was a pilot study to measure constructs related to a population health approach among a select group of Public Health Agency of Canada employees within the Ontario Region. The intention of the study was to generalize findings of employees across Canada who are employed at the Public Health Agency of Canada. However, to generalize the findings towards all PHAC employees, the study would need to be tested further in a random sample of all PHAC employees. In fact, this would be

considered a recommendation for future studies in order to obtain better results that would determine if all employees share similar responses.

The format of the survey included a pencil and paper self-administered questionnaire. Being a pilot study, the questionnaire was created by the researcher and was not pre-tested. The questionnaire was distributed through the Public Health Agency of Canada's internal e-mail system (Lotus Notes) to all employees within Ontario Region. Individuals wishing to participate were to print out a hard copy of the questionnaire, complete the items and return their completed survey to the researcher via inter-office mail or they were to e-mail their completed responses directly to the researcher. Participants would not be identified in the report. All participants needed to complete a consent form and return it via the inter-office mail. Appendix D attached is the Lakehead University Research Ethics Board approval.

The questionnaire included: ordinal scaled questions, binary (yes/no) questions, open-ended questions and multiple choice items. The questionnaires sought information on broad concepts; determinants of health, population health approach and wellness. The questionnaire is attached as Appendix E.

The researcher, upon receiving the completed surveys, made associations between responses based on gender, age, education and length of time the employees had worked with the organization. Ordinal scaled items would provide information about attitudes toward the population health approach. Similarly, the researcher would analyze the responses to measure the scale of knowledge among employees about the population health approach.

A summary of the open-ended questions is included in the results section. The summary includes all respondent's answers to the open-ended questions. Participants were asked to define "health", "wellness" and "determinants of health" as described and defined in the literature review related to this study, in order to generalize the employee's responses to determine if they answered in similar ways. Frequencies of responses were measured to determine the words that appeared most often. Charts, graphs and summary paragraphs are used to demonstrate the essential information in relation to the research questions.

The following outlines the process used for data collection:

a) A general e-mail was sent to the 51 potential participants asking for their participation in the research. The e-mail included the purpose of the study, the timelines for response and how the findings would be used. This letter of introduction to the study (Appendix F) indicated a "respond by" date so each participant knew when to have the questionnaire completed. A reminder notice was sent to employees who had not responded to participate in the study, approximately four weeks after the initial e-mail was sent. This e-mail reminded employees of the survey and provided them with another opportunity to be included. A copy of the reminder notice of the study is attached as Appendix G. An additional e-mail was sent to participants who had consented to completing the questionnaire, but whose responses were not received as the study was nearing its completion date.

A research assistant was also available in the Toronto office to assist participants by providing a hard copy of the questionnaire and consent form. The hard copies of the completed surveys and consent form were then collected by the research assistant and

sent to the researcher via inter-office mail. Both the electronic consent form and the paper consent form are attached as Appendix H and I respectively.

b) After the consent form was received, the questionnaire was forwarded by e-mail to the willing participants. Using this format, the written consent of each participant would be provided; the e-mail response would be printed and stored on file. The questionnaire format allowed the respondent to answer the questions at their leisure within a designated time after which the questionnaire was returned. The survey was designed to evaluate knowledge (multiple choice, ranking, closed questions), attitudes (likert scales) and socio-demographic information (options to check from).

c) Once all data had been collected and analyzed, each participant would receive an electronic copy of the final report. Hard copies of the final report would also be made available at the request of participants.

Recruitment procedures

A convenience sampling approach was proposed in this research because of the availability and accessibility of the participants. As an employee of the Public Health Agency of Canada (PHAC), the researcher had great access to the participants who were asked to complete the survey. The researcher easily had the survey distributed (through the internal e-mail system) to the participants located in all the PHAC regional offices (Toronto, Sudbury, Kitchener, as well as to all teleworkers – those who work from home).

Steps in the recruitment process:

Step 1: A letter of intent to survey PHAC employees was sent to Ms. Freda Burkholder, the Acting Regional Director of Ontario Region's Public Health Agency of Canada. The letter provided an introduction on the researcher, what the research was

about, how the research would be of benefit, the intent for the research findings and how the research would be disseminated. The purpose of the letter was to seek approval from the Acting Regional Director to conduct the study. The "Letter of Intent to Survey PHAC (Ontario Region) Employees" is attached as Appendix J.

Step 2: A general e-mail was distributed to all current employees of the PHAC asking for their participation in the research. In this sampling procedure, all employees were given the same opportunity to participate in the study. This convenience approach to sampling was used because the study was a cross-sectional study where all the measures were taken at a single point in time. As noted above, the researcher had accessibility to the participants. The questionnaire was available for distribution during the months of September and October 2006. All employees were given ample opportunity to reply to the e-mail soliciting respondents and answer the questionnaire. The questionnaire is attached as Appendix E and the letter of introduction to the survey is attached as Appendix F.

All other e-mail correspondence was also printed and kept on file, in the event that questions were asked by participants or in the event that participants decided to withdraw from the study.

Harm and/or potential risks to participants

The thought process or emotions of subjects participating in the study may be a source of potential harm/risk (psychological). It was expected that this type of psychological discomfort would be minimal. The subjects were required to answer questions based on attitudes and knowledge; it was noted that subjects may feel guilt or embarrassment if they felt they did not know how to respond to a question. Subjects may

have also felt pressure or a sense of stress if they talked or discussed the questionnaire among each other. In order to reduce the potential for harm or risk to participants, it was clearly outlined in the "recruitment procedures" and "questionnaire distribution" notices that the participants could withdraw from the study at any time.

Deception

Deception is not part of the research program. All subjects were required to provide their written informed consent as noted in the "Recruitment Procedures" attachment. The purpose of the study was clearly defined, the procedures to participate in the study were stated which included the instructions on completing the questionnaire, as well as the time frame for the study. Further, confidentiality was noted; there were comments noting how participants could withdraw from the study at anytime and information was provided on who the participants could contact should they have any questions or concerns.

Benefits to subjects and/or society

The research could provide information that could lead to new knowledge where the PHAC could explore the possibilities of focussing resources to meet the needs of their employees. The researcher was surveying the employees based on a questionnaire created to bring forward issues relevant to the knowledge and attitudes of the employees on the population health approach. The researcher compared the results of each question and provided an overall picture of employee's attitudes and knowledge, as well as the socio-demographic variables of employees that responded to the questionnaire. The final report will better inform the PHAC employees about the use of the population health approach in their work. Further objectives and goals could then be determined by the

outcome of the analysis of the results derived from the survey (Neutens and Rubinson, 2002).

The researcher examined responses from the questionnaire to create correlations and relationships among all the variables. All results would be summarized to provide an overall picture of how the employee's ranked their scores towards the population health approach.

Informed consent

The "recruitment procedures" (Appendix F) clearly identified the measures that were used to ensure the informed consent of all research participants.

Once participants respond back to the e-mail explaining the research, the response e-mails were held as a confirmation that they wished to participate. These confirmation e-mails were printed and stored with all other relevant research materials. The questionnaires were then e-mailed to the confirmed participant.

Anonymity and confidentiality

Anonymity and confidentiality were be maintained throughout the research. The following outlines the steps used to ensure this process:

a) A general e-mail (Appendix F) inviting people to answer the questionnaire was sent out to the group of employees collectively. Each individual wanting to participate was forwarded the questionnaire once the researcher received their consent for participation in the study through a response e-mail (Appendix H). The confirmation of participation e-mails were printed, grouped together and stored with all other relevant research materials.

b) Questionnaires were returned to the researcher through inter-office mail or by e-mail. Respondents were not required to identify themselves by name on the questionnaire. All field offices also had the choice to submit their questionnaire responses to the Toronto office, where they would be collected by a research assistant. The research assistant forwarded completed questionnaires to the researcher. The research assistant also had paper copies of the consent form and questionnaire available. This extra precautionary measure was taken as a further step to ensure the questionnaires were kept confidential and anonymous.

c) All questionnaires were noted as being kept confidential and this notice was provided in both the letter of introduction to the study and in the consent form (e-mail and paper copy). Respondents were not asked to identify themselves in any capacity. Participants who chose to send their responses back to the researcher via e-mail were identified to the researcher, but this information was not identified in the research report.

Limitations

Those who responded:

The response rate for the questionnaire was 25 out of a potential 51 employees. This raises the questions about intention to participate. Perhaps, those people who did respond may have thought they were confident in knowing about the approach and were willing to demonstrate their knowledge. In other words, they did not feel threatened in any way to demonstrate and share their knowledge. Further, the questionnaire was electronic, so people were able to choose when and how many questions they would answer at a time. However, as the researcher was not available to supervise the completion of the questionnaire, employees may have researched the correct answers as

they had the opportunity to look up responses before they actually responded to the questions. Naturally, this would pose a huge limitation to the study, but it is presumed that participants answered the questions in good faith without "researching" or looking them up.

This was likely the case and demonstrated by those who were not able to correctly identify the Public Health Agency of Canada's twelve noted determinants of health and hence, the variation among the responses to the open-ended questions.

Those who did not respond:

Some of the people who did not respond to the questionnaire indicated that they were too busy due to a solicitation that was taking place in one of the programs and due to other workload issues. Perhaps, those who did not respond did not want to think about the approach because they felt too overwhelmed by the questionnaire itself. Further, the questions may have appeared too long or were not worded in a way that participants could interpret. Others may not have responded because they knew their knowledge would be limited and did not want to be bothered struggling through the questionnaire. There were the three people who had indicated that they would respond initially to the questionnaire but once they were provided with the questionnaire, they did withdraw stating such reasons as "not knowing enough about the population health approach". On a further note, the working relationship between the researcher and one potential participant was strained; therefore, this potential participant did not complete the survey.

CHAPTER FOUR – RESULTS

Eligible Participants

There were 51 participants eligible to complete the questionnaire at the beginning of the data collection months of September and October. Thirty people initially agreed to participate in the study. Three of these people withdrew from the study after receiving the questionnaire at some point. Two of the remaining 27 people who agreed to participate in the study did not send in their completed questionnaires. There were an additional three people who declined and did not participate and three people who left the organization within the study timeframe, so they also did not participate in the study. Out of all those agreeing to participate and who had completed the questionnaire, the end result was a sample of 25 completed questionnaires.

Socio-demographic information

Age and Gender

The age groups of participants completing the survey varied amongst both the females and the males. Below is a summary of the age groups.

Age group and gender of participants completing survey			
Age Group	**Females**	**Males**	**Total**
21-25 years	1		1
26-30 years	2	1	3
31-35 years	4		4
36-40 years	3		3
41-45 years	2	1	3
46-50 years	1		1
51-55 years	3	1	4
56-60 years	3	1	2
61-65 years	1		0
Would not respond	1		1
Total	**21**	**4**	**25**

Education

Participants were asked to identify their highest level of education obtained. In total, 1 or 4% of the participants had a high school education, 2 or 8% of the participants had a college education, 13 or 52% had a Bachelor's degree, 9 or 36% of the participants held a Master's degree and no respondents held a doctorate level degree.

Length of employment at the Public Health Agency of Canada

Five participants had been employed at the Public Health Agency for less than two years. There were 6 people that had been employed for 2-5 years, 5 people for 5-10 years, 5 people for 10-15 years and 4 people for 15 years or longer. The tenure of an individual as an employee of the Public Health Agency of Canada is typically of a short duration (less than 5 years). Most individuals leave their current positions for higher level positions within the federal government or are employed at the PHAC for a short duration due to being on an "assignment".

Job classification of participants

The participants were also asked to identify the capacity in which they were employed. These are classified into seven categories: Administrative Assistant, Program Support Clerk, Program Consultant, Policy Analyst/Advisory, Evaluation Officer/Consultant, Program Manager and Other. The following chart highlights the employment categories for the participants.

Job classification of participants	
Job Classification	**Number of people in the category**
Administrative Assistant	1
Program Support Clerk	5
Program Consultant	12
Policy Analyst/Advisor	0
Evaluation Officer/Consultant	1
Program Manager	3*
Other: Project Assistant, Administrative Officer Project Officer	1 1 1
Total	**25**

*One participant identified as both a Program Consultant and a Program Manager. For the purpose of this study, this person was designated as Program Manager as this was the position they were occupying at the time of the study.

While the sample of respondents was small, this cohort represented 2 distinct groups: Program Consultants and others comprised of various administrative personnel, Managers and Project Officers. As clearly indicated, most respondents were Program Consultants, which is important to note because these people employed the most positions within the Agency and were involved in direct relationships with the public and key stakeholder groups. These employees support community development programs in a very front-line manner and have an awareness of key issues and factors affecting Canadians due to programming requirements. These employees are also hired based on education, indicating that they hold a Bachelor of Arts degree as a minimal educational requirement.

Knowledge towards the "population health approach"

The next set of four questions asked participants to define various words and phrases in order to determine knowledge towards the population health approach. All of the responses are available in Appendix K – "Qualitative Answers". It was important to

collect this qualitative data to identify common themes as found in the repetition of words in order to draw conclusions on whether the participants had similar knowledge by using the same words or groups of words to define the concepts.

Defining "health"

In defining the word "health", the following words were used most often:

Word repeated in responses	Number of respondents who used the word	Percentage
"well-being"	14/25	56%
"mental"	11/25	44%
"absence of injury and/or disease or infirmity" or "free from illness / injury / disease" or "lack of illness"	10/25	40%
health is a "state of"	9/25	36%
"social"	8/25	32%
"emotion" or "emotional"	6/25	24%

There were two people that provided direct quotes for the word "health" and these were quoted in exactly the same manner as: "the capacity of people to adapt to, respond to, or control life's challenges and changes". It could be noted that these two respondents knew there was a specific definition for the construct and they knew where to locate the definition, although a source was not indicated by the respondents. Perhaps, these respondents had the definition memorized by the quote and could truly relate the construct to their work, knowing that their answers were likely those that the researcher was seeking. However, no further follow-up was conducted to determine how these employees knew the quote.

Defining "wellness"

In defining the word "wellness", the following words were used most often:

Word repeated in responses	Number of respondents who used the word	Percentage
"health" or "healthy"	18/25	72%
"physical"	9/25	36%
"mental"	8/25	32%
"emotional"	6/25	24%
"state"	6/25	24%
"well-being"	6/26	24%
"social"	5/25	20%
"balance" or "balanced"	5/25	20%
"feeling"	5/25	20%

Defining the difference between "population health" and "health of the population"

The following words or phrases were most common in defining the difference between "population health" and the "health of the population":

Word/phrases repeated in responses	Number of respondents who used the words or phrases	Percentage
"improving the health of the entire population" or "improve the health of the entire population" or "health of the entire population" or "improve the overall health of a group of people" or improving and maintaining the health of the entire population"	12/25	48%
"determinants of health"	5/25	20%
"reduce in health inequities" or "reduce the inequities in health" or "reduce inequities among population groups"	4/25	16%
"factors" or "statistics" or "statistical" or "approach"	19/25	76%
"individual" or "community"	8/25	32%

The difference between defining "population health" and the "health of the population" together demonstrates the following five categories of terms used most often.

The distribution of responses was tested against the null hypothesis predicting that there would be an equal frequency of responses over the set of categories.

Ho: frequency 1 = frequency 2 = frequency 3= frequency 4 = frequency 5

The chi square observed value equals 15.54

The chi square critical value equals 9.49 @ $p<0.05$

Degrees of freedom equals k-1=5-1=4

The decision to reject the null hypothesis is based on the notion that that the chi square computed value for this response set is greater than the chi square critical value of 9.49. This data suggest that the use of descriptors to define the terms "population health" and "health of the population" was not equal across response categories. This finding suggests that respondents defined the concepts in varying ways.

Defining "population health"

When the respondents were asked to define "population health" as an autonomous construct, the respondents used the following word choices across five distinct categories:

Words/phrases repeated in responses	**Number of respondents who used the words or phrases**	**Percentage**
"factors" and/or "conditions"	26/25	104%
"influences"	12/25	48%
"determine"	7/25	28%
"health of individuals" or "health status of individuals"	6/25	24%
"health of a population" or "health of group of people" or "health of people" or "health of every Canadian" or "health status of the population"	5/25	20%

The distribution of responses was tested against the following null hypothesis predicting that there would be an equal frequency of responses over the categories:

Ho: frequency 1 = frequency 2 = frequency 3 = frequency 4 = frequency 5

The chi square observed value equals 27.04

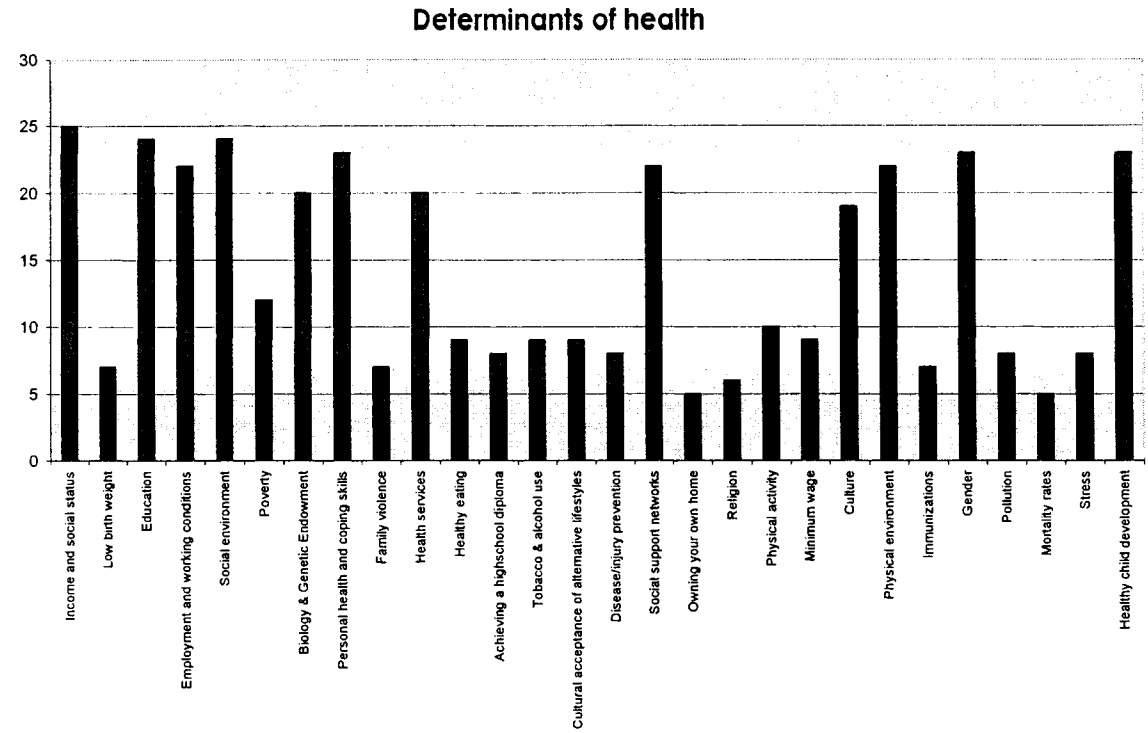
The chi square critical value equals 9.49 @ $p<0.05$

Degrees of freedom equals k-1=5-1=4

The decision to reject the null hypothesis is based on the chi square computed value exceeding the chi square critical value (9.49). Similarly, this data suggest that the use of descriptors to define the terms "population health" and "health of the population" was not equal across response categories. Respondents simply varied in the words they selected to define the constructs; suggesting there is no standard definition known by the respondents. Further, it could be noted that the respondents either guessed at composing a definition or they defined the constructs based on how they saw fit; not on how they were either trained or directed by the PHAC to define the constructs.

Determinants of health

The participants of the survey were asked to identify from a list of 28 words, the ones they considered to be determinants of health. The Public Health Agency of Canada's website: http://www.phac-aspc.gc.ca/ph-sp/phdd/determinants/index.html lists the following twelve: income and social status, education, employment and working conditions, social environment, biology and genetic endowment, personal health and coping skills, health services, social support networks, culture, physical environment, gender and healthy child development. The remaining optional words were randomly selected by the researcher. The chart below highlights the frequency the determinants of health were chosen by the participants of the study.



One participant did not circle any responses for this section, but wrote a note indicating that all the words listed as choices could be considered determinants of health. The person indicated that they could list the twelve determinants as indicated by the Public Health Agency of Canada. The chart above indicates that the person would have correctly identified the PHAC twelve determinants of health.

To identify the level of knowledge about the determinants of health among the respondents, a two by two chi square test was used to compare the number of Program Consultants that reported 10 or more (80%) correct determinants of health versus the number of other respondents who were able to report 10 or more (80%) correct determinants of health. Each cell of a two by two table should have an equal number or respondents extracted from any given set of observations.

Ho: frequency of cell a = frequency of cell b = frequency of cell c = frequency of cell d

The chi-square value equals 1.01

Degrees of freedom equals 1

The chi-square critical value for 1 @ $p < 0.05 = 3.84$

The chi-square observed value is less than the chi-square critical value of 3.84; there the null hypothesis is accepted because this indicates that the two distributions are considered equal. The number of Program Consultants that were able to correctly identify 10 more determinants of health is equal to the number of other PHAC staff that was able to correctly identify 10 or more determinants of health. This research finding is important to note because, generally, this research finding indicates that PHAC staff despite their level or position were able to identify the correct determinants from the list of options.

At the same time; however, not only did respondents correctly identify 10 or more determinants of health, some selected all or nearly all the options as determinants of health or missed selecting the final 2 correct determinants. This research finding would then contradict that noted above. Did the PHAC staff actually know which determinants were correct in the list of options, or did they simply guess as the responses?

Attitudes towards the "population health approach"

A set of five questions were asked in order to explore attitudes towards the "population health approach". Participants were asked to indicate the extent to which they agreed with various statements. As these questions were based on ordinal level data, with extreme skewness to a single response, statistical analysis beyond descriptive reporting was not required.

Most of the respondents agreed with all the statements concerning attitudes. For example, 19 out of 25 (76%) respondents agreed that people who understand the "population health approach" indicated that they are also likely to use it in their work.

People who understand the "population health approach" are likely to use it in their work.	
Response category	**# of respondents**
Strongly agree	1
Agree	19
Undecided	4
Disagree	0
Strongly disagree	0
Did not respond	1
Total	**25**

Similarly, 21 out of 25 (84%) respondents either agreed or strongly agreed that people who understand the "population health approach" are likely to share their knowledge with co-workers.

People who understand the "population health approach" are likely to share their knowledge with co-workers.	
Response category	**# of respondents**
Strongly agree	4
Agree	17
Undecided	3
Disagree	0
Strongly disagree	0
Did not respond	1
Total	**25**

The following question was considered central to measuring the attitudes of PHAC employees in relation to the mandate of PHAC. The Public Health Agency of Canada has its mandate and responsibility to provide a population health approach which includes the proviso that they will in their work (i.e., community development programs) offer a focus of activities aimed towards the determinants of health. It is encouraging that

more than 90% (23 out of 25) of the respondents strongly agreed or agreed with the statement, "people who understand the population health approach are likely to understand the determinants of health".

People who understand the "population health approach" are likely to understand the "determinants of health".	
Response category	**# of respondents**
Strongly agree	14
Agree	9
Undecided	1
Disagree	1
Strongly disagree	0
Total	**25**

The next question was considered important because the responses suggest that most respondents or 96% (24 out of 25) agreed with the statement, "people who use the determinants of health and the population health approach are likely to understand the conditions and factors that influence the health of populations over time". Yet, data on the level of knowledge on the population health approach and determinants of health indicated that approximately 30% of those individuals surveyed can correctly identify the correct twelve determinants of health. Generally speaking, it can be noted therefore that an inconsistency exists in the relationship between attitudes and knowledge. Further, this relationship between attitudes and knowledge speaks to the need for additional training of PHAC employees who are required to use the approach.

People who use the "determinants of health" and the "population health approach" are likely to understand the conditions and factors that influence the health of populations over time.	
Response category	**# of respondents**
Strongly agree	10
Agree	14
Undecided	1
Disagree	0
Strongly disagree	0
Total	**25**

There were 19 out of 25 (76%) respondents that agreed or strongly agreed with the statement, "people who understand the determinants of health and the population health approach are likely to draw on these concepts when developing policies and suggesting actions to improve the health and well-being of populations". Given that only a limited number of respondents (i.e., Program Managers and Program Consultants) will actually contribute to policy development and recommendations for improvement in current community programs, the following question may have a strong implicit bias against individuals (i.e., administrative personnel) who could not provide an appropriate response. At the same time, because all respondents were employees of the same institution with a specific mandate, all were included in the study and asked to complete the questionnaire.

People who understand the "determinants of health" and the "population health approach" are likely to draw on these concepts when developing policies and suggesting actions to improve the health and well-being of populations.	
Response category	**# of respondents**
Strongly agree	5
Agree	14
Undecided	5
Disagree	0
Strongly disagree	0
Did not respond	1
Total	**25**

Population Health Approach Training

A major objective of the study was to determine the extent to which respondents had training in the population health approach. The results indicated that within the past 12 months, 1 person had participated in training related to the population health approach. There were 6 people who had participated in training within the last 1-2 years. There were 9 people who had participated in training within the last 3-5 years and an additional 9 people had never participated in training. With no specific training plan in place by the Public Health Agency of Canada, it is left to the employee's discretion to search out training opportunities. At one time, several years ago, the current employees were trained internally but no additional training has taken place formally within the internal structure of the organization since that time. This information leads to asking the question, what is the Public Health Agency of Canada doing to contribute to the on-going learning needs specific to employees on the population health approach?

Centre for Surveillance Coordination Skills Enhancement Modules

Consistent with the objective to evaluate participation in training, respondents were asked if they had participated in the Skills Enhancement modules as coordinated through the Public Health Agency of Canada. The skills enhancement program is "one of the initiatives of the Public Health Agency of Canada's Office of Public Health Practice. The program is based on a series of internet-based modules to help public health practitioners increase their knowledge, skills and abilities to support the core competencies for public health" **http://www.phac-aspc.gc.ca/sehs-acss/about_e.html**. Employees can participant in the modules at no cost which is important to note because employees have this training opportunity readily available to them to learn more on

public health key concepts including the population health approach and determinants of health. At the same time, for reasons unknown, employees are not accessing this training opportunity.

There were 8 respondents (32%) who had participated in the skills enhancement modules. Of those 8, each respondent had completed the first module entitled, "Basic Epidemiological Concepts". One person had begun the second module "Measurement of Health Status" but indicated they were not able to finish the module due to workload issues. One additional person had completed the first three modules; the third module was called "Descriptive Epidemiological Methods".

CHAPTER FIVE – DISCUSSIONS AND CONCLUSIONS

Knowledge towards the "population health approach"

Definitions

Participants were asked to define the concepts: "health", "wellness" and "determinants of health" and to identify the difference between "population health" and "the health of a population". This section was used to explore knowledge. It was expected that survey respondents would provide answers similar to the ways in which the PHAC would define these concepts and/or the respondents would provide answers similar to one another. For the most part, although answers varied, often there were several similar key words and phrases that did repeat themselves among the definitions. This is a good indication that the employees, for the most part, were in sync with one another whether they had training on the concepts or not and despite their job classification. At the same time, the responses could have been based on personal statements which is important to note because respondents continued to define "health", "wellness" and "determinants of health" in a similar way as seen in the use of common words which were repeated in individual's responses. On the other hand, some of the answers that were extremely similar, could have been based on specific "trainings" that the employee could have participated in or the employees could have referred to reference documents in writing up their answers. In fact, two respondents provided quotes to the same open-ended question.

Determinants of health

When asked to identify the determinants of health from the list of 28 possible answers, every participant (100%) who completed the questionnaire chose the option of

"income and social status," which is indeed one of the correct 12 determinants of health identified by the PHAC. Further, 15 people (60%) chose between 11 and 13 of the possible 28 choices and among these the most popular answers selected were in fact some of the correct 12 determinants of health. This demonstrates that these individuals were likely to have some general knowledge on either the number of correct responses or the actual determinants of health (i.e., knowing there are 12 determinants). Others, (8 respondents or 32%) clearly could not correctly identify the 12 determinants of health and went on to identify 20 or more of the 28 possible choices listed. At the same time, this information is important because given the correct responses; 18 out of 25 respondents (72%) still could not distinguish the correct 12 responses from the additional options. The correct responses being those 12 identified by the PHAC as the determinants of health (income and social status, education, employment and working conditions, social environments, biology and genetic endowment, personal health and coping skills, health services, social support networks, culture, gender, physical environments and healthy child development) and the wrong answers being the 16 additional choices not identified by the PHAC as a determinant of health (low birth weight, poverty, family violence, disease/injury prevention, owing your own home, religion, physical activity, minimum wage, immunizations, healthy eating, achieving a high school diploma, tobacco and alcohol use, cultural acceptance of alternative lifestyles, pollution, mortality rates and stress).

Those who could correctly identify the 12 key determinants of health

In fact, 7 (28%) people correctly identified all 12 and solely these 12 determinants of health. Further, these 7 people were either Program Consultants (5), a Program

Manager in an acting position (1), or an Evaluation Officer/Consultant (1) and had all worked at the Public Health Agency for 2 years or longer. All 7 either had a Bachelor's degree or a Master's degree, but had all graduated from a University. All but one indicated that they had training on the population health approach in the last 3-5 years. In addition, three of these people had also completed at least the first module from the Centre for Surveillance Coordination Skills Enhancement modules. This is a good indication that the Program Consultants or those working most directly with communities and organizations in developing community based programs and those who have had training, could correctly identify the determinants of health as identified by the PHAC. However, it could be argued that other determinants (i.e., peace, shelter and violence) do exist, but perhaps the PHAC does not recognize them at this time. With this in mind, it could be presumed that these 7 individuals are the ones that use the determinants of health and the population health approach in their daily work because they have a better understanding of the key constructs and/or their work is more directly related and structured to focus on the constructs.

It was expected that of any classification of employee, the Program Consultants would be the ones that would be able to correctly identify the 12 key determinants of health. These people are the ones who work directly in developing projects and programs. These employees are responsible for reviewing proposals, work plans and program objectives/goals to ensure community organizations are meeting funding requirements and outcomes, which would address several or all of these key determinants. It is this group of employees that have direct relationships with community organizations and the

public of whom the PHAC work with to "promote and protect the health of Canadians..." (Public Health Agency of Canada mission statement).

Those who could not correctly identify the 12 key determinants of health

Of those who could not correctly identify the key determinants of health, 2 Program Consultants chose 12 determinants of health and both had correctly identified 11 of them but both had missed culture which was chosen by an alternate response listed in the options. Both of these people where similar in characteristics to the other 7 who had correctly identified the 12 determinants of health. These 2 respondents both held Bachelor degrees from a University and identified as having been trained in the approach.

Further, there were 4 additional Program Consultants (including one acting Program Manager) and one Project Assistant that identified 11 out of 12 determinants of health; although, these were not all the correct determinants identified and all missed identifying a 12^{th} determinant. Generally speaking, it could be noted that these individuals were well on their way to have being considered as knowing that there are 12 determinants of health. Similarly, all but one of these people held a Bachelor or Master's degree from a University and all but one (the same one with a University degree) identified as having had training on the population health approach 1-2 years ago.

Lastly, all of the other participants could not correctly exclusively identify the 12 determinants. Several (8 out of the 25 or 32% of the respondents) chose 20 or more of the options listed, which all could be noted as determinants of health, but are not the correct determinants recognized by the PHAC. Others or 18 out of the 25 (72%) respondents did not choose the correct responses. Some of these people had training on the population health approach and still did not select the correct responses. Perhaps, the

training they had was ineffective, they were distracted during the learning or they simply, did not grasp the concept. It could be argued that those in an administrative role do not need to know the population health approach and determinants of health because these individuals may not have a direct relationship with community members or represent the PHAC at stakeholder meetings.

At the same time, as the Public Health Agency has identified determinants of health as a key concept for its work and these individuals are indeed employees of this workplace with this specific mandate. It could be argued that no matter what your job classification, one should know and be able to correctly identify these concepts and others relevant to the mandate and the priorities of the organization in which they are employed. Therefore, as a key finding of this research, it is suggested that all employees should be able to define the key concepts of the population health approach and determinants of health. All employees are recommended to participate in training related to these concepts in order to best meet the mandate of the PHAC.

Attitudes towards the "population health approach"

When asked, "people who understand the population health approach are likely to use it in their daily work" the majority of the respondents strongly agreed or agreed to the statement. Similarly, the majority of the participants also agreed or strongly agreed to the statement, "people who understand the population health approach are likely to share their knowledge with coworkers". In fact, all of the questions asked that reflected attitudes had the majority of the participants either agreeing or strongly agreeing to the statements. Likely, if one understands an approach or a key concept, they tend to use it more often. They are also more likely to share their knowledge with others. Further,

these people likely agreed to this statement because the Public Health Agency of Canada is a government department that is supposed to use the population health approach in its work and the employees are aware of this "mandate". For the people who were undecided on agreeing with the statements, perhaps they are not aware that this concept is to be used by employees within the agency. Perhaps, they actually do not know enough about the population health approach to use or implement it. In fact, these people may truly believe that it would not make a difference whether they knew the about the population health approach or not, because they are not using it in their work anyway. Perhaps, it could be stated in certain job descriptions that only certain employees of the PHAC are required to know about the approach, such as the Program Consultants and Managers and others, such as Program Support Clerks and Administrative staff are not. Further, perhaps the organization's priorities do not affect all its employees.

Centre for Surveillance Coordination Skills Enhancement Modules

In addition, out of the 25 respondents, only 8 respondents (32%) had taken the Centre for Surveillance for Skills Enhancement Modules. In a general way this indicates that only some employees (32%) have a desire to further educate themselves on issues related to public health. At the same time, the modules are at no charge to the employee and some managers allow employees to work on them during the work day. Also, some employees have been allowed to add the modules to their yearly work plans, which is included in a yearly employee training plan or seen as a special initiative the employee wishes to engage in. Upon completion of the module, participants are provided with a certificate of completion from the Centre for Surveillance. Perhaps, there are too many organizational barriers to facilitate workers to complete the modules. There is no

incentive at the Public Health Agency of Canada for the employees to take these modules, i.e., you are not given recognition directly by the PHAC, they do not effect your pay level or your work related responsibilities, so perhaps these are some of the reasons why employees chose not to participate in them. Further, due to lack of participation in the modules, perhaps employees feel that the modules are time consuming or that their workloads do not permit the time required to successfully complete them. Other employees may simply not know enough about the modules to undertake in enrolling.

Recommendations

In conclusion, although a limited sample participated in the survey, 7 out of 25 participants (28%) could correctly identify the twelve key determinants of health. However, this number represents less than a third of the employees sampled and although 25 people participated in the study, there were 51 eligible. Even if 7 out of the remaining 26 employees could correctly identify the twelve key determinants, this would still only represent approximately 27% of all employees. With this is mind, one could ask the question, what is the Public Health Agency of Canada doing to increase the knowledge and skills on the population health approach and determinants of health for its employees?

If the Public Health Agency of Canada targets the use or is mandated to use the population health approach and the determinants of health in its work, should not all employees know exactly what these key constructs mean and should they not all define them in the same way? If not, this begs to ask the questions, how does the PHAC use the population health approach in its work? Even specific groups of employees (for example, all Program Consultants) are not able to consistently demonstrate correct responses

among one another for defining the terms. Who exactly at the PHAC is required to use these constructs in their work?

With this in mind, it is recommended that the PHAC clearly identify which employees are to use the population health approach and determinants of health in their work and to provide those employees with the training necessary to build the competencies required to clearly demonstrate their knowledge and use of the constructs in their work.

APPENDIX A

Determinants of Health

Taken from: "Towards a Common Understanding: Clarifying the Core Concepts of Population Health: Executive Summary".

Key Determinant	**Underlying Premise**
Biology and Genetic Endowment	The basic biology and organic make-up of the human body are a fundamental determinant of health. Genetic endowment provides an inherited predisposition to a wide range of individual responses that affect health status. Although socio-economic and environmental factors are important determinants of overall health, in some circumstances genetic endowment appears to predispose certain individuals to particular disease or health problems.
Culture	Some persons or groups may face additional health risks due to a socio-economic environment, which is largely determined by dominant cultural values that contribute to the perpetuation of conditions such as marginalization, stigmatization, loss or devaluation of language and culture and lack of access to culturally appropriate health care and services.
Education	Health status improves with level of education. Education increases opportunities for income and job security and equips people with a sense of control over life circumstances – key factors that influence health.
Employment and Working Conditions	Unemployment, underemployment and stressful work are associated with poorer health. People who have more control over their work circumstances and fewer stress related demands of the job are healthier and often live longer than those in more stressful or riskier work and activities.
Gender	Gender refers to the array of societal-determined roles, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to the two sexes on a differential basis. "Gendered" norms influence the health system's practices and priorities. Many health issues are a function of gender-based social status or roles. Women, for example, are more vulnerable to gender-based sexual or physical violence, low income, lone parenthood, gender-based causes of exposure to health risks and threats (e.g., accidents, STDs, suicide, smoking, substance abuse, prescription drugs, physical inactivity). Measures to address gender inequality and gender bias within and beyond the health system will improve population health.
Health Services	Health services, particularly those designed to maintain and improve health, to prevent disease and to restore health and function contribute to population health.

Healthy Child Development	The effect of prenatal and early childhood experiences on subsequent health, well-being, coping skills and competence is very powerful. Children born to low-income families to have low birth weights, to eat less nutritious food and to have more difficulty in school.
Income and Social Status	Health status improves at each step up in the income and social hierarchy. High income determines living conditions such as safe housing and ability to buy sufficient good food. The healthiest populations are those in societies which are prosperous and have an equitable distribution of wealth.
Personal Health Practices and Coping Skills	Social environments that enable and support healthy choices and lifestyles, as well as people's knowledge, intentions, behaviours and coping skills for dealing with life in healthy ways, are key influences on health. Through research in areas such as heart disease and disadvantaged childhood, there is more evidence that powerful biochemical and physiological pathways link the individual socio-economic experience to vascular conditions and other adverse health events.
Physical Environments	Physical factors in the natural environment (e.g., air, water quality) are key influences on health. Factors in the human-built environment such as housing, workplace safety, community and road design are also important influences.
Social Environments	The array of values and norms of a society influence in varying ways the health and well-being of individuals and populations. In addition, social stability, recognition of diversity, safety, good working relationships and cohesive communities provide a supportive society that reduces and avoids many potential risks to good health. Studies have shown that low availability of emotional support and low social participation have a negative impact on health and well-being.
Social Support Networks	Support from families, friends and communities is associated with better health. The importance of effective responses to stress and having the support of family and friends provides a caring and supportive relationship that seems to act as a buffer against health problems.

Public Health Agency of Canada. 2002 http://www.phac-aspc.gc.ca/canada/regions/atlantic.about/e_2.html

APPENDIX B

Population Health Models

Health Canada (1996) states that in 1989, the Canadian Institute for Advanced Research (CIAR) developed a conceptual framework for thinking about the determinants of health and their linkages. Figure 1 provides a framework to better understand the complexities of health and offers a starting point for determining policy, research and evaluation priorities that build on the population health paradigm (Health Canada, 1996). The model depicts the range of broadly based determinants that are known to influence health (Health Canada, 1996).

The key message from this work is the complex (and as far from completely understood) interplay between these myriad economic and other influences and the equally complex biological interplay among immune, endocrine and cardiovascular systems in explaining how these influences get translated at the cellular level into health and premature death (Stoddart, 1994).

This framework is not intended to present a comprehensive, or even a sketchy, survey of the current evidence on the determinants of health (Health Canada, 1996). Rather, it provides an analytical framework within which such evidence can be discussed and different conceptualizations of health studied (Health Canada, 1996).

Figure 1: Population Health – A Conceptual Framework

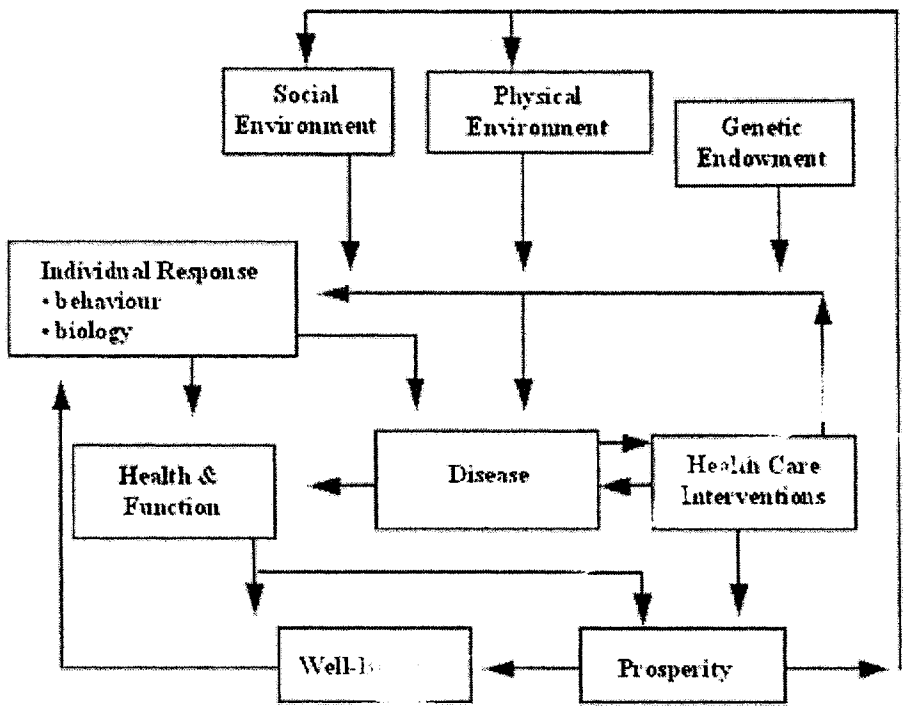
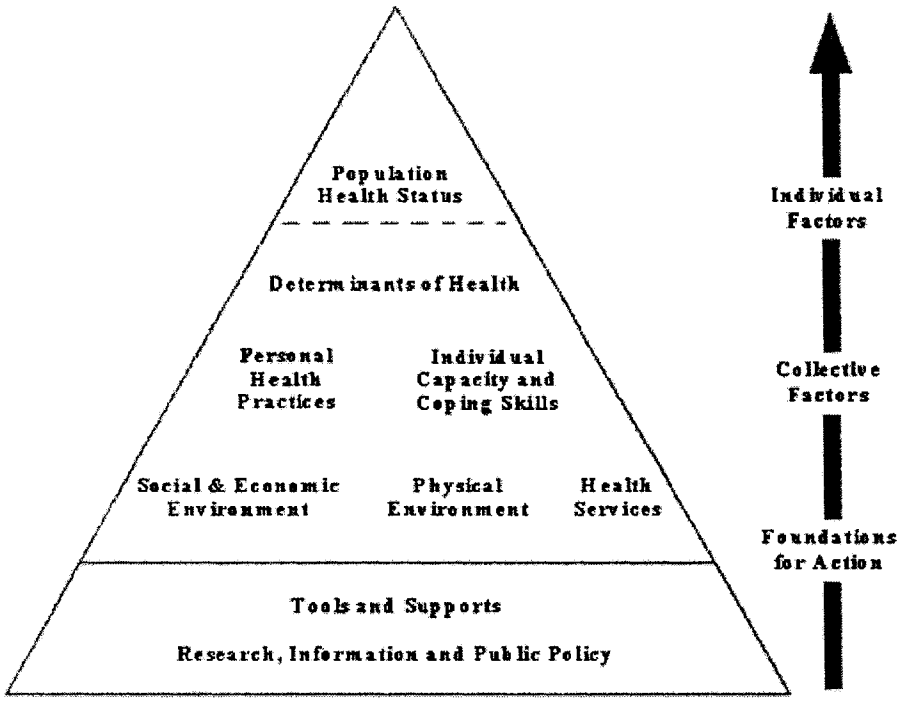


Figure 2 – An Alternate Framework for Population Health



Supported on a solid foundation of research, information and public policy, five categories of determinants underpin the health of a population (Health Canada, 1996). Inventions and activities that impinge on any of the determinants, or combinations of them, eventually affect population health (Health Canada, 1996).

http://www.phac-aspc.gc.ca/ph-sp/phdd/docs/common/appendix_b.html

APPENDIX C

Elements of a Population Health Approach
Taken from: The Population Health Template Working Tool

Key Element #1: Focus on the health of populations

Population health assesses health status and status inequities over the lifespan at the population level.

This element introduces the issue or concern, explaining its connection to health and the population(s) primarily affected by it.

1.1 Determine indicators for measuring health status of the population addressed
1.2 Measure and analyze health status of the population to identify health issues
1.3 Assess contextual conditions, characteristics and trends

Key Element #2: Address the Determinants of Health and Their Interactions

Population health measures and analyzes the full spectrum of factors – and their interactions – known to influence and contribute to health. Commonly referred to as the determinants of health, these factors include: social, economic and physical environments, early childhood development, personal health practices, individual capacity and coping skills, human biology and heath services.

This element is "frames" the health issue in terms of how it came about – what factors or determinants contributed to its emergence or worsening and how far upstream are these located. This forms the basis for developing population health interventions.

2.1 Determine indicators for measuring the determinants of health
2.2 Measure and analyze the determinants of health and their interactions to link the health issues identified in Element 1 to their determinants

Element #3: Base Decisions on Evidence

Population health uses "evidence-based decision making." Evidence on health status, the determinants of health and the effectiveness of interventions is used to assess health, identify priorities and develop strategies to improve health.

This element defines evidence-based decision making and outlines the need to support findings and recommendations with systematic, empirical evidence and/or cogent argument. It includes information about the types of evidence available and their strength, relevance and possible weaknesses.

3.1 Use best evidence available at all stages of policy and program development
3.2 Explain criteria for including or excluding specific evidence
3.3 Draw on a variety of data
3.4 Generate data through mixed research methods
3.5 Identify and assess interventions for effectiveness
3.6 Disseminate research findings and facilitate policy update

Key Element #4: Increase Upstream Investments

The potential for improved population health is maximized by directing increased efforts and investments "upstream" to maintain health and address the root causes of health and illness. This will help to create a more balanced and sustainable health system.

This element explains the options for intervention considered and how choices are made both in terms of addressing the more immediate causes, and at deeper level (broad determinants) over the long term – for example, in upstream investments (protection, prevention, health promotion and action on the determinants of health) and downstream investments (treatment, rehabilitation).

4.1 Apply criteria to select priorities for investment, such as:
- magnitude of the health issue(s)
- status of current response
- ability to effect change
- readiness of key players
- appropriateness for involvement
- cost effectiveness

4.2 Balance short and long term investments
4.3 Influence investments in other sectors

Key Element #5: Apply Multiple Strategies

Population health integrates activities across the wide range of interventions that make up the health continuum: from health care to prevention, protection, health promotion and action on the determinants of health.

This element answers the question, "How much should we take on?" It then frames the selection actions/strategies and describes in what combinations, at which levels, by whom, at what sites, and over what time frame they will be implemented.

5.1 Identify scope of action for intervention
5.2 Take action on the determinants of health and their interactions
5.3 Implement strategies to reduce inequities in health status between population groups
5.4 Apply a comprehensive mix of interventions and strategies
5.5 Apply interventions that address health issues in an integrated way
5.6 Apply methods to improve health over the life span
5.7 Act in multiple strategies
5.8 Establish a coordinating mechanism to guide interventions

Key Element #6: Collaborate Across Sector and Levels

Population health calls for shared responsibility and accountability for health outcomes with multiple sectors and levels whose activities directly or indirectly impact on health or the factors known to influence it.

This element describes the partnership-building process and what it takes to make it work. It includes who is represented at the table and how they are contributing. It also explains how the group is structured and organized, and people's roles, responsibilities and relationships. This includes leadership, management/coordination, processes, mechanisms and communication modes.

6.1 Engage partners early on to establish shared values and alignment of purpose
6.2 Establish concrete objectives and focus on visible results
6.3 Identify and support a champion
6.4 Invest in the alliance building process
6.5 Generate political support and build on positive factors in the policy environment
6.6 Share leadership, accountability and rewards among partners

Key Element #7: Employ Mechanisms for Public Involvement

Population health promotes citizen participation in health improvement. Citizens are provided opportunities to contribute meaningfully to the development of health priorities and strategies and the review of health-related outcomes.

This element outlines how the public is involved at different stages of the initiatives (e.g., needs identification, planning, delivery, evaluation), including their roles (e.g., advisory committee members, peer helpers) and the processes by which they are engaged (e.g., surveys, focus groups, community forums).

7.1 Capture the public's interest
7.2 Contribute to health literacy
7.3 Apply public involvement strategies that link to overarching purpose

Key Element #8: Demonstrate Accountability for Health Outcomes

Population health focuses on health outcomes and determining the degree of change that can actually be attributed to interventions.

This element identifies the accountability tools needed to capture and report on changes (both intended/actual and unintended) in the health status of populations and in the determinants of health.

8.1 Construct a results-based accountability framework
8.2 Ascertain baseline measures and set targets for health improvement
8.3 Institutionalize effective evaluation systems
8.4 Promote the use of health impact assessment tools
8.5 Publicly report results and facilitate knowledge uptake

APPENDIX D

Lakehead University Research Ethics Board Approval

Lakehead
UNIVERSITY

Office of Research

Tel (807) 343-8283
Fax (807) 346-7749

August 1, 2006

Bryanna Scott
Master of Public Health Program
Lakehead University
955 Oliver Road
Thunder Bay, Ontario P7B 5E1

Dear Ms. Scott:

Re: REB Project #: 090 05-06
Granting Agency name: N/A
Granting Agency Project #: N/A

Based on the recommendation of the Research Ethics Board, I am pleased to grant ethical approval to your research project entitled, "A survey of Public Health Agency of Canada (ON Region) employees on their knowledge and attitudes".

The Research Ethics Board requests an annual progress report and a final report for your study in order to be in compliance with Tri-Council Guidelines. This annual review will help ensure that the highest ethical and scientific standards are applied to studies being undertaken at Lakehead University.

Completed reports may be forwarded to:

Office of Research
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1
FAX: 807-346-7749

Best wishes for a successful research project.

Sincerely,

Dr. Richard Maundrell
Chair, Research Ethics Board

/len

cc: Dr. W. Montelpare
Research Office

APPENDIX E

Questionnaire

Attitudes and Knowledge towards the "Population Health Approach"

Questionnaire

Socio-demographic information.

Question 1.

Please indicate your gender: ☐ Male ☐ Female

Question 2.

Age: ☐ 21-25 ☐ 31-35 ☐ 41-45 ☐ 51-55
☐ 26-30 ☐ 36-40 ☐ 46-50 ☐ 56-60

Question 3.

Please indicate your highest level of education obtained:

☐ Elementary School
☐ High School
☐ College
☐ University – Bachelor's Degree
☐ University – Master's Degree
☐ Doctorate

Question 4.

Please indicate the length of time you have been employed at the Public Health Agency of Canada, formerly Health Canada.

☐ under 2 years ☐ 5 – 10 years ☐ 15 + years
☐ 2 – 5 years ☐ 10 – 15 years

Question 5.

Please indicate your current position at the Public Health Agency:

☐ Administrative Assistant
☐ Program Support Clerk
☐ Program Consultant
☐ Other:
please indicate: _____
☐ Policy Analyst/Advisor
☐ Evaluation Officer/Consult
☐ Program Manager

The first set of questions will examine your knowledge towards the "population health approach". Please provide a brief answer to each of the following questions.

Question 6.

Please provide a response a single response for the definition of "health".

Question 7.

Please provide a definition for the word "wellness".

Question 8.

What is the difference between "population health" and "health of the population"?

Question 9.

Please provide a general definition for the term "determinants of health".

Question 10.

Please select the determinants of health from the following list, check all that apply:

☐	Income and social status	☐	Disease/injury prevention
☐	Low birth weight	☐	Social Support Networks
☐	Education	☐	Owning your own home
☐	Employment and working conditions	☐	Religion
☐	Social environments	☐	Physical activity
☐	Poverty	☐	Minimum wage
☐	Biology and genetic endowment	☐	Culture
☐	Personal health and coping skills	☐	Physical environments
☐	Family violence	☐	Immunizations
☐	Health services	☐	Gender
☐	Healthy eating	☐	Pollution
☐	Achieving a high school diploma	☐	Mortality rates
☐	Tobacco and alcohol use	☐	Stress
☐	Cultural acceptance of alternative Lifestyles	☐	Healthy child development

The second set of questions will explore your attitudes towards the "population health approach". Please indicate below the extent to which you agree with the following statements. Please circle your response.

Question 11.

People who understand the "population health approach" are likely to use it in their work.

Strongly agree agree undecided disagree strongly disagree

Question 12.

People who understand the "population health approach" are likely to share their knowledge with co-workers.

Strongly agree agree undecided disagree strongly disagree

Question 13.

People who understand the "population health approach" are likely to understand the "determinants of health".

Strongly agree agree undecided disagree strongly disagree

Question 14.

People who use the "determinants of health" and the "population health approach" are likely to understand the conditions and factors that influence the health of populations over time.

Strongly agree agree undecided disagree strongly disagree

Question 15.

People who understand the "determinants of health" and the "population health approach" are likely to draw on these concepts when developing policies and suggesting actions to improve the health and well-being of populations.

Strongly agree agree undecided disagree strongly disagree

Question 16.

As a Public Health Agency of Canada employee, when was the last time you participated in training related to the "population health approach".

- ☐ Within the past 12 months
- ☐ 1- 2 years ago
- ☐ 3- 5 years ago
- ☐ Never

Question 17.

Have you participated in the Centre for Surveillance Coordination Skills Enhancement Modules?

☐ Yes ☐ No

If so, please indicate the ones you have completed.

- ☐ Basic Epidemiological Concepts
- ☐ Measurement of Health Status
- ☐ Descriptive Epidemiological Methods
- ☐ Epidemiology of Chronic Disease
- ☐ Outbreak Investigation and Management

Thank you for completing this questionnaire.

APPENDIX F

Letter of introduction to the study

September 1, 2006.

Dear Colleagues,

Thank you for your time in opening this e-mail and for reading my message below. I am looking for **volunteers** to participate in a study on knowledge and attitudes towards "*the population health approach*".

For the past five years, I have worked on the Healthy Child Development initiatives of the Community Action Program for Children (CAPC) and the Canada Prenatal Nutrition Program (CPNP). I am also a Master's student at Lakehead University in the Public Health Program. I am currently in the last portion of the program, which includes this research. The study I am conducting is entitled: "A survey of Public Health Agency of Canada (Ontario Region) employees on their knowledge and attitudes towards the population health approach".

I am looking at examining the number and characteristics of those using the approach in their daily work, to determine the number of people who have been trained on the approach and to examine your overall knowledge and attitudes towards the population health approach. Through your participation in this research, you will help to answers these questions.

During this phase of the study, you will be asked to complete a questionnaire which will take approximately 30 minutes of your time. Questions include, but are not limited to the following: age, gender, classification, education, length of time employed at the Public Health Agency of Canada (PHAC), as well as a series of multiple choice, short answer and ranking questions.

To participate in this research, please respond back to me through this e-mail. Once I have received your consent, I will forward you the questionnaire, along with the details on how to complete it. **All answers will be accepted and are completely anonymous. You may withdraw from the study at any time.**

The information from all the questionnaires will be analyzed and stored at Lakehead University for seven years. No individual will be identified in any of the results. A summary of the results will be shared with the PHAC (Ontario Region), Lakehead University, as well as with fellow academics and the research community.

Please note that you have until October 31, 2006 to complete, respond and return the survey.

I would greatly appreciate your assistance in this research! If you have any questions or concerns about the study, please feel free to contact me at (807) 625-6577.

THANK YOU!

Bryanna Scott, Program Consultant

APPENDIX G

Reminder notice of the study

Hi Everyone,

Thank you, thank you, thank you to everyone who has completed my questionnaire on the population health approach. If you have not yet completed it and would still like to participate, please respond back to this e-mail, providing your consent.

Once again, here is a brief summary of the questionnaire.

The study is entitled, "A survey of Public Health Agency of Canada (Ontario Region) employees on their knowledge and attitudes towards the population health approach". I am looking for volunteers to participate in a study on knowledge and development towards the population health approach. I am looking at examining the number and characteristics of those using the approach in their daily work, to determine the number of people who have been trained on the approach and to examine your overall knowledge and attitudes towards the population health approach.

Once I have received your consent, I will forward the questionnaire. All answers will be accepted and are completely anonymous. You may withdraw from the study at any time.

The information from the questionnaires will be analyzed and stored at Lakehead University for seven years. No individual will be identified in any of the results. A summary of the results will be shared with the PHAC (Ontario Region) employees, Lakehead University, as well as with fellow academics and the research community.

You still have time participate – complete and respond to the survey by October, 31, 2006.

Thanks again everyone,

Bryanna Scott

APPENDIX H

Electronic consent form

Thank you for your assistance in the research study entitled, "A survey of Public Health Agency of Canada (Ontario Region) employees on their knowledge and attitudes towards the population health approach."

An e-mail response back to this e-mail indicated that you agree to participate in this study. It also indicates that you understand the following:

1. I have received an explanation about the study, its purpose and its procedures.
2. I am a volunteer and can withdraw from the study at any time.
3. There is no apparent risk of physical or psychological harm.
4. The data I provide will be securely stored at Lakehead University for seven years.
5. I will receive a summary of the project, following the completion of the project.
6. I will not be named, or identified in any way in any materials published as a result of this study.

As a reminder, **all answers will be accepted and are completed anonymous**. Should you wish to further protect your confidentiality, please send your completed questionnaire to Diane Giang, Joan Bouffard or Chito Diorico and they will ensure that it is returned to me; otherwise please feel free to send your responses back to me via e-mail. **You may withdraw from the study at any time.**

The information from all questionnaires will be analysed and stored at Lakehead University for seven years. No individual will be identified in any of the results. A summary of the results will be shared with the Public Health Agency of Canada (Ontario Region), Lakehead University, as well as with fellow academics and the research community.

Please note that you have until **October 31, 2006** to complete, respond and return the survey.

Thank you!

APPENDIX I

Paper consent form

Consent Form

Thank you for your assistance in the research study entitled, **"A survey of Public Health Agency of Canada (Ontario Region) employees on their knowledge and attitudes towards the population health approach."**

By signing and dating this letter, it indicates that you agree to participate in this study.

_____ _____

Signature Date

Your consent also indicates that you understand the following:

1. I have received an explanation about the study, its purpose and its procedures.
2. I am a volunteer and can withdraw from the study at any time.
3. There is no apparent risk of physical or psychological harm.
4. The data I provide will be securely stored at Lakehead University for seven years.
5. I will receive a summary of the project, following the completion of the project.
6. I will not be named, or identified in any way in any materials published as a result of this study.

As a reminder, **all answers will be accepted and are completed anonymous. You may withdraw from the study at any time.**

The information from all questionnaires will be analysed and stored at Lakehead University for seven years. No individual will be identified in any of the results. A summary of the results will be shared with the Public Health Agency of Canada (Ontario Region), Lakehead University, as well as with fellow academics and the research community.

Angela Mashford-Pringle will place the completed consent form and completed questionnaire into an envelop, along with the others and she will return them to me through the inter-office mail.

Please note that you have until **October 31, 2006** to complete, respond and return the survey.

Thank you!
Bryanna Scott

APPENDIX J

Letter of intent to survey PHAC (Ontario Region) employees

Bryanna Scott
2027 Donald Street East
Thunder Bay, ON P7E 5W9

August 14, 2006.

Elfreda Burkholder, A/Regional Director
55 St. Clair Avenue East, 3rd Floor
Toronto, ON M4T 1M2

Dear Ms Burkholder,

I have been employed for five years in the Healthy Development Section of the Public Health Agency of Canada. I greatly enjoy this work and being part of an agency that prides itself on providing funding to community-based programs.

Over the past two years, I have been working towards a Masters Degree in Public Health from Lakehead University. I have nearly completed the program as I am in the final stage which involves a thesis submission. I am writing to you to ask for your permission to survey colleagues within Ontario Region on this excellent research opportunity. Please find the details of the research noted below.

The study that I am proposing is entitled: "A survey of Public Health Agency of Canada (Ontario Region) employees on their knowledge and attitudes towards the *population health approach.*" The survey will explore training that employees have had on the approach, how often they use the approach in their daily work, as well as their overall attitudes and knowledge on the population health approach.

My thesis advisor is Dr. Bill Montelpare, who is the graduate coordinator of the Masters of Public Health Program (Health Studies specialization). His contact information is (807) 343-8481, should you have any additional questions or concerns. Currently, my thesis proposal is with the Ethics Review Board at Lakehead University and once approved (likely early August); I will be prepared for the data collection process (staff to complete my questionnaire).

There will be no additional costs incurred by the agency for this study. I am asking for permission to use the internal e-mail system to notify employees of the study, to distribute the survey, as well as to disseminate the research results once available. I am also asking that employees return the survey to me through inter-office mail. Should employees wish to further protect their confidentiality, I am asking that (xxx), support clerk collect the surveys and send them to me at their convenience within my data collection months of September and October 2006.

I believe this research would be most beneficial to the academic community as well as to my fellow work colleagues. To date, the Public Health Agency has never surveyed or followed up with employees on the use of the population health approach in their daily work. A completed final report which will include all research findings will be made available to you.

I have included a sample of the e-mail that would be distributed to the employees asking for their participation in the survey. This e-mail clearly identifies the intent of the research, the method of data collection, along with relevant due dates. Please, also find included the questionnaire for your review.

Your assistance in this research would be most greatly appreciated. If you have any further questions or concerns, please feel free to contact me at anytime at (807) 625-6577.

Bryanna Scott

APPENDIX K

Qualitative Answers

Question 6 – Please provide a single response for the definition of "health."

1. The absence of injury or disease, a general sense of well-being, including social inclusion.
2. Health is a state of mental, physical, social well-being.
3. Health is a personal and collective resource which allows one to be pro-active individually and/or collectively to shape ones current and future situation in life.
4. Unlike the traditional, medical definition of being defined in terms of lack of illness, health is a state of being and is likened to a capacity.
5. If you are healthy you are wealthy. Health = knowledge. Knowledge eating what is referred to as healthy. Knowledge of keeping yourselves clean and tidy and the surrounding, etc.
6. Best described as optimal mental and physical soundness and well being; not simply free from disease but having the capacity to adapt to, respond to or control life's challenges and changes. Complete physical, mental, social well-being and not merely the absence of disease or infirmity.
7. Health is a lot more than the absence of disease. It's a sense of physical, mental, emotional and even spiritual well-being.
8. Free from illness or injury, feeling well.
9. Health = being well in body, mind and emotion.
10. The emotional, mental and physical well-being of a person, within the context of a well functioning, safe, healthy community and society.
11. Health refers to the overall well-being of an individual, including the full spectrum of factors including their emotional and physical states and living conditions, not just the absence of disease.
12. Health is a state of wellbeing free from disease or illness.
13. Health is a complete state of physical, mental and social well-being.
14. Health is a "process" of building and using a capacity of resilience and productivity over a lifetime.
15. Resource
16. Health is the absence of disease.

17. A state where one has the physical, emotional, social capacity to grow and pursue his/her goal.

18. Physical/mental state of wellbeing.

19. A state of well-being physical, mentally and socially.

20. Health is the general well-being of an individual, community or society.

21. Absence of disease – mental, physical and social well-being.

22. State of physical well-being.

23. I would define health as just not the absence of disease. Health is a state of physical, mental and emotional well-being.

24. Health signifies the mental, social/spiritual health of the population.

25. "the capacity of people to adapt to, respond to, or control life's challenges and changes" – Frankish et al., 1996

Question 7 – Please provide a definition for the word "wellness."

1. A society inclusive of all sectors of the population, health for all, economic and social equality.

2. Wellness is a state of balance between physical and mental health so that there is a feeling of well-being.

3. Wellness is a personal/subjective assessment of one's health status.

4. Wellness is a broader concept that encompasses health – mental, physical, psychosocial, spiritual.

5. Well-being of an individual.

6. Wellness is the absence of illness and a state of the positive physical and emotional health.

7. My personal definition would be along the lines of "being/feeling the best you can be." By this definition, someone confined to a wheelchair for life can be "well."

8. Condition of prosperity and comfort.

9. Wellness = state of being healthy/well.

10. To me, wellness is a synonym for health, especially given my definition above of health. Wellness in general is used in a broader and more holistic way than health is often used, but for me, health should be more broadly defined that it often is.

11. Wellness refers to the capacity of health attained by an individual or community, incorporating measures of status of factors including health, and other influences i.e., living conditions, social/emotional well-being, financial level, education, etc.

12. A dimension of health beyond absence of disease or illness. This includes the social and spiritual aspects of life. When there is a balance of mind, spirit and body.

13. Wellness is an awareness and a practicing of healthy choices that results in a balanced lifestyle.

14. Wellness is a healthy balance of your mental, physical and emotional health and health related aspects in terms of determinants of health; lifestyle, income, education, social support, health, ... etc.

15. State of physical, mental, emotional and social well-being.

16. Wellness is health beyond the absence of disease; includes not only physical but emotional, mental health.

17. An individual's description of his/her health status.

18. Healthy balance in life (mind-body) that results in an overall feeling of health and/or well-being.

19. An individual's overall feeling about his physical and mental health.

20. Wellness is general good health and feeling.

21. State of being healthy and promoting one's health.

22. At optimal level of comfort, mental and physically.

23. I would define wellness in line with health as physical, emotional and mental well-being. One's state of wellness is achieved through diet and exercise and is influenced by many factors including stress, attitude, living situation or home life, work situation and one's social-economic status.

24. In order to be well you must include fitness, exercise, nutrition, your daily diet; health, behavioral and spiritual.

25. no answer provided

Question 8 – What is the difference between "population health" and "health of the population?"

1. I define "population health" much the same way as I would define "wellness" above. "Health of the population" means physical health, based on external influences such as health services, genetic endowment, physical environment, etc.

2. Population health is an approach with the objective of improving the health of the entire population by addressing the determinants of health. Health of the population is a term more used in epidemiology. As in the health of the population can be measured by the number of deaths, the average age of death, etc.

3. Population health is a perspective, an ideological framework, a change process/approach based on the determinants of health. The health of a population is a reflection of the health status of a general population or sub-population based on set indicators.

4. Population health is an approach to maintain and improve the health of the entire population and to reduce the inequities in health between population groups. Whereas the actual measure of the health of a population would include various indicators such as incidence of illness as well as healthy weights.

5. Population health – how healthy is the population. Health of the population – in general is the total health of the population. In general it all means the same.

6. Population health aims to improve the health of the entire population and to reduce health inequalities among population groups by addressing the range of social, economic and physical environmental factors that contribute to health and improve health status/outcomes. Population health seeks to step beyond the individual level focus on mainstream medicine and produce health by addressing a broad range of factors that impact health on a population level. Health of a population embraces 4 pillars: biomedical, clinical health systems and services and social, cultural and environmental factors which affect the health of populations. Health of the population may be used to pull out particular populations to study, such as studying the health of the teen population in regards to tobacco consumption/use.

7. To me, population health encompasses all the determinants of health which together influence an individual's or a community's degree of health. Whereas I would see "health of a population" as more limiting, more a statistical measure of overall disease or wellness in a community or a country.

8. Population health – statistical phrase. Health of the population uses conditions of health of all the inhabitants of a place (country).

9. Population health – health of the whole population. Health of the population – same as above.

10. The "health of the population" could be explained in terms of data on the various morbidity and mortality rates, life spans and I should include issues like the health and safety of a community/neighborhood, demographic info, economic states (e.g., employment rates, etc.). I used population health as an approach to promoting health, which includes looking at the determinants of health, looking upstream at the root causes of ill health (both individually and societally), looking at health as more than just a set of biological endowments, looking at health cross-sectorally and seeing that many players, not just the "health" care or "heath field" has a role to play in ensuring the health of all people. (I could go on, but I'm trying to keep this brief.)

11. Population health uses an upstream approach to identify factors that can influence a person's, or community's health, acknowledges that all Canadians have a responsibility

to promote health, that health involves many sectors (not just health care); whereas, the health of the population tends to look at a specific moment in time to assess the health status of the community in question.

12. Population health is an approach to health that aims to improve the health of the entire population and to reduce health inequities among population groups. Health of the population is the end state of the group. It does not aim at improving or maintaining the health, it is simply the end result.

13. Population health is who is included i.e., health groups, families and communities. Health of the population is the measurement result of population health.

14. Population health is a generic terminology. Health of a population is a general indication to how well is the population functioning in all aspects of health and health related.

15. Population health is concerned with the improving and maintaining the health of an entire population in an equitable process. Health of a population refers to the ability of the population to access all factors, social, economic and physical that contributes to health and general well-being.

16. Population health focuses on specific subgroups of populations and it addresses the determinants of health whereas the "health of the population" is broader.

17. Population health is an approach used towards the health of the population at large. Health of a population is a static description of what the health state is at a given particular time.

18. Population health: is an approach to health which aims to improve the overall health of a group of people. Health of the population: the actual readings/results of a particular group as it comes to a certain condition, illness, etc.

19. Population health is an approach for improving health of an entire population. Health of a population is a general state of health of a population.

20. Population health is a concept to describe how to work on improving the "health of the population." The health of the population is the general view and statistical analysis of the health of a population.

21. Population health is an approach towards creating a healthy population. The health of a population is dependent upon the utilization of a population health approach.

22. Population health – an approach that addresses a wide range of social, biological, psychological, and economic factors that contribute to health. It focuses on disease prevention, health promotion and overall health improvement.

23. Health of the population is simply the level, severity and incidence of chronic and acute disease in the general population. Population health, on the other hand, is the concentrated effort by the government to put forth a sustainable development strategy ensuring that as many of the general population can achieve both health and wellness by breaking down the barriers of access to basic health care, social assistance and development and education.

24. Population health looks at what can be done to improve the health of the population. Health of the population looks at statistics why some people are healthier than others.

25. Population health approach is an approach to health that aims to improve the health of the entire population and to reduce inequities among population groups. While health of the population is not approach and just looks at individual measurements.

Question 9 – Please provide a general definition for the term "determinants of health."

1. Factors that influence health such as economic and social status, genetic endowment, education, lifestyle choices, gender, family and social support, physical environment.

2. Determinants of health are all the factors that influence health. It includes income, social support, working conditions, personal health coping mechanisms, genetics, availability of health services, gender and culture.

3. A set of broad societal patterns which individually and collectively impacts on the health of individuals and the health status of the population.

4. These factors/conditions that influence health status. They do not work independently are inter-related in their influence.

5. It means what the major factors for health are e.g. Religion, Income Status, etc.

6. Determinants of health is the name given to the factors and conditions that affect or have an influence on health. These determinants do not act alone or in isolation from each other. Their complex interactions with each other have an even more important impact on health.

7. Determinants of health are about twelve different factors including income, social support, culture, etc. that have not traditionally been associated with physical or mental health but have shown to have a definite impact on the health of individuals.

8. Factors which determines the nature of health. Basis for health.

9. Determinants of health = circumstances or conditions that influence the health.

10. In general there are a number of factors that play a role in determining one's health, helping towards a more or less healthy life. Some are more "hard and fast' while others may have more or less of a determining factor on one's life. The most commonly recognized, by most people, would be the determinant that is related to biology and genetic endowments i.e., what you are born with that helps you or hinders you on the way to good health. However, there are many other determinants that helps us on the way to better or worse health. The strongest may be income and social status which determines many other aspects of one's life; where one lives, often the level of education, working conditions, nutrition, etc. There is another way to look at how one achieves, or a society or community helps one achieve better or less optimal health.

11. The "determinants of health" are factors that are interconnected which influence a person's overall health and level of well-being.

12. Determinants of health are the range of personal, social, economic and environmental factors that determine the health status of individuals or populations.

13. Determinants of health are the causes and factors that influence the risk of disease and effect the broad definition of health.

14. Determinants of health is: the factors that impact the health of an individual or a population.

15. Factors that influence and contribute to health status and quality of life.

16. The determinants of health are factors which influences health of a population or some subgroups of a population more than others (e.g. gender, genetics, income, etc.).

17. The factors that influence the health of an individual. The unavailability of the combination of them factors negatively influences the health of an individual.

18. The social conditions that affect one's health or the health of a group.

19. Factors that affect health of an individual. They are the root cause of a problem.

20. The determinants of health affect how healthy a person can be. They are variables outside the body that can affect social, emotional, physical and spiritual wellbeing.

21. These are factors that determine whether a population is healthy or not. They are root causes of problems or ill health.

22. A wide range of factors such as social, biological, psychological and economic that contribute to and affect health.

23. Those forces or influences that can determine or forecast one's place on a spectrum of health and wellness including both chronic and acute diseases and illnesses.

24. Determinants of health is why and what determines the health of people, where people live, employment, education.

25. Complex set of factors or conditions that determine the level of health of every Canadian.

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