

Chronic Disease Prevention Guideline, 2018

Population and Public Health Division,
Ministry of Health and Long-Term Care

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1. Preamble

The Ontario Public Health Standards: Requirements for Programs, Services, and Accountability (Standards) are published by the Minister of Health and Long-Term Care under the authority of section 7 of the *Health Protection and Promotion Act* (HPPA) to specify the mandatory health programs and services provided by boards of health.^{1,2} The Standards identify the minimum expectations for public health programs and services. Boards of health are accountable for implementing the Standards including the protocols and guidelines that are referenced in the Standards. Guidelines are program and topic-specific documents which provide direction on how boards of health shall approach specific requirement(s) identified within the Standards.

2. Purpose

The purpose of this guideline is to provide direction to boards of health on required approaches in developing and implementing a program of public health interventions to support chronic disease prevention in the health unit population.

In doing so, the guideline includes the following components:

- Key public health and content specific frameworks and concepts (see section 4);
- An overview of boards of health roles and responsibilities (see section 5);
- Required approaches (see section 6):
 - Using a public health program planning cycle that supports boards of health to develop and implement a program of public health interventions by integrating all guideline components.
 - Topics that boards of health shall consider when making decisions to develop and implement chronic disease prevention programs of public health intervention.
- Core definitions to support this guideline (see Glossary).

3. Reference to the Standards

This section identifies the standards and requirements to which this guideline relates.

Chronic Disease Prevention and Well-Being

Requirement 2. The board of health shall develop and implement a program of public health interventions using a comprehensive health promotion approach that addresses chronic disease risk and protective factors to reduce the burden of illness from chronic diseases in the health unit population.

- a) The program of public health interventions shall be informed by:
 - i. An assessment of the risk and protective factors for, and distribution of, chronic diseases;
 - ii. Consultation and collaboration with local stakeholders in the health, education, municipal, non-governmental, and other relevant sectors;

- iii. An assessment of existing programs and services within the area of jurisdiction of the board of health to build on community assets and minimize duplication;
 - iv. Consideration of the following topics based on an assessment of local needs:
 - Built environment;
 - Healthy eating behaviours;
 - Healthy sexuality;
 - Mental health promotion;
 - Oral health;
 - Physical activity and sedentary behaviour;
 - Sleep;
 - Substance* use; and
 - UV exposure.
 - v. Evidence of effectiveness of the interventions employed.
- b) The program of public health interventions shall be implemented in accordance with relevant guidelines, including the *Chronic Disease Prevention Guideline, 2018* (or as current); the *Health Equity Guideline, 2018* (or as current); the *Mental Health Promotion Guideline, 2018* (or as current); and the *Substance Use Prevention and Harm Reduction Guideline, 2018* (or as current).[†]

School Health

Requirement 3. The board of health shall develop and implement a program of public health interventions using a comprehensive health promotion approach to improve the health of school-aged children and youth.

- a) The program of public health interventions shall be informed by:
 - An assessment of the local population, including the identification of priority populations in schools, as well as school communities at risk for increased health inequities and negative health outcomes;
 - Consultation and collaboration with school boards, principals, educators, parent groups, student leaders, and students;
 - A review of other relevant programs and services delivered by the board of health; and
 - Evidence of the effectiveness of the interventions employed.
- b) The program of public health interventions shall be implemented in accordance with relevant guidelines, including the *Chronic Disease Prevention Guideline, 2018* (or as current); the *Health Equity Guideline, 2018* (or as current); the *Injury Prevention Guideline, 2018* (or as current); the *Healthy Growth and Development*

*Substance includes tobacco, e-cigarettes, alcohol, cannabis, opioids, illicit, other substances and emerging products.

[†]The *Substance Use Prevention and Harm Reduction Guideline, 2018* (or as current) provides guidance on alcohol, cannabis, opioids, and illicit substances.

Guideline, 2018 (or as current); the Mental Health Promotion Guideline, 2018 (or as current); the School Health Guideline, 2018 (or as current); and the Substance Use Prevention and Harm Reduction Guideline, 2018 (or as current).

4. Context

Chronic diseases, also known as noncommunicable diseases, are diseases that are not passed from person to person, are of long duration, and are generally slow in progression.³ Chronic diseases of public health importance include, but are not limited to, obesity, cardiovascular diseases, respiratory disease, cancer, diabetes, intermediate health states (such as metabolic syndrome and prediabetes), hypertension, dementia, mental illness, and addictions.

Chronic diseases account for a substantial burden on the health of Ontarians and on the province's health care system. They are the leading cause of death in Ontario and are responsible for a high rate of morbidity, associated reductions in quality of life, and negative impacts on communities and the economy.⁴ Chronic diseases account for substantial direct and indirect health costs, including years of healthy life lost from premature death and lost productivity from illness and disability.⁵

Chronic diseases are complex with many influencers, including a variety of factors that can either increase risk of or protect against the development or progression of chronic diseases. While some risk and protective factors for chronic diseases cannot be controlled (e.g., genetics, age), the risk of developing chronic diseases can be reduced through modification of healthy lifestyle behaviours. By eliminating four common and modifiable risk factors for chronic disease (unhealthy eating, physical inactivity, tobacco use, and harmful use of alcohol), 80% of heart disease and type II diabetes, and 40% of cancers could be prevented.⁶ Reducing population-level exposure to these four common and modifiable risk factor behaviours has been identified as one of the most effective interventions to prevent chronic diseases.^{4,7}

Chronic diseases intensify inequities, disproportionately impacting populations who are socioeconomically disadvantaged and other priority populations. Chronic disease prevention is a particularly pressing issue given that Ontario's population is aging, and older adults have higher rates of chronic diseases.⁴

4.1 Key Public Health Frameworks and Concepts

This section outlines key public health frameworks and concepts to inform the development and implementation of a program of public health interventions to support chronic disease prevention with an emphasis on social determinants of health, health inequities, and comprehensive health promotion approaches.

4.1.1 The Population Health Promotion Model

This model shows how a population health approach can be implemented through action on the full range of health determinants by means of health promotion strategies. This model centres around three questions:

- “On **WHAT** should we take action?” – Acknowledges action is required across the determinants of health
- “**HOW** should we take action?” - Focuses on the actions in the Ottawa Charter for Health Promotion (below)
- “**WITH WHOM** should we act?” - Affirms that comprehensive action must be taken at multiple levels (e.g. individual, family, community, sector/system; and society) to bring about change.⁸

Figure 1. The Health Cube



Source: Public Health Agency of Canada. *Population health promotion: an integrated model of population health and health promotion*. Ottawa, ON: Government of Canada; 2001. Reproduced with permission.⁸

4.1.2 Ottawa Charter for Health Promotion

This framework provides the core strategies for health promotion action when developing and implementing a program of public health interventions to support chronic disease prevention including:

- Building healthy public policy;
- Creating supportive environments;
- Strengthening community action;
- Developing personal skills; and
- Re-orienting health services.⁹

The subsequent Jakarta Declaration reiterated the importance of the core strategies identified in the Ottawa Charter for Health Promotion, and added further emphasis that comprehensive approaches are the most effective; settings offer practical opportunities for implementation of comprehensive strategies; and participation is essential to the empowerment of individuals and communities in order to sustain efforts.¹⁰

4.1.3 Social-Ecological Model of Health

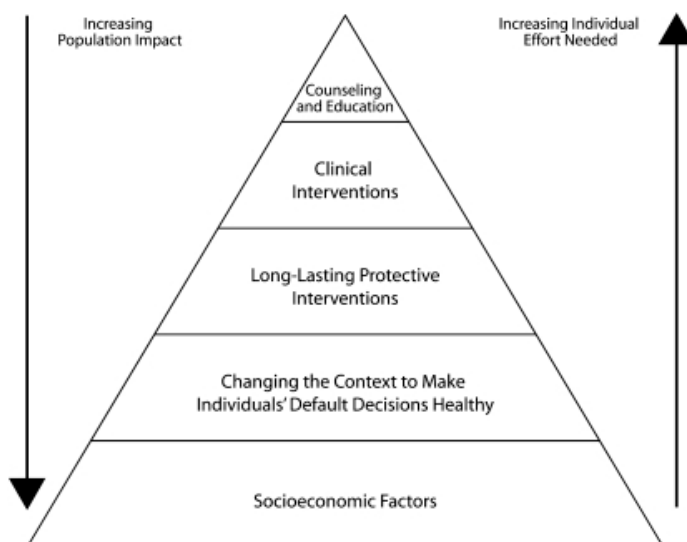
This framework considers the complex interplay between individual, relationship, community, and societal factors. It highlights the range of factors that put people at risk or protect them, as well as how factors at one level influence factors at another level.¹¹

4.1.4 Key Public Health Concepts

This section outlines key concepts to inform the development and implementation of a program of public health interventions to support chronic disease prevention.

- Upstream approach: seeking to address the causes of the causes.¹²
- Proportionate universalism: achieving a blend of universal and targeted interventions in order to reduce inequities among groups.¹³
- Strength-based approach: emphasizing strength and asset based assessment and programming.¹⁴
- Life course approach: recognizing differences in risks and opportunities across the life course including critical periods, as well as the cumulative effect of exposures within and across stages.¹⁵
- Intersectional approach: acknowledging that change must take place across a spectrum, from individual supports and services to organizational change; recognizing the unique historical, social and political contexts that an individual will experience based on their individual combination of diversity factors such as race, gender, gender identity, ability or status.¹⁶
- Population health impact pyramid (Figure 2): focusing on interventions that address supportive environments and social determinants is likely to have greater population impact versus relying solely on individual-level interventions.¹⁷

Figure 2. Population Health Impact Pyramid



Source: Frieden TR. A framework for public health action: the health impact pyramid. *Am J Public Health*. 2010;100(4):590-5. Reproduced with permission.¹⁷

4.2 Key Content-Specific Frameworks and Concepts

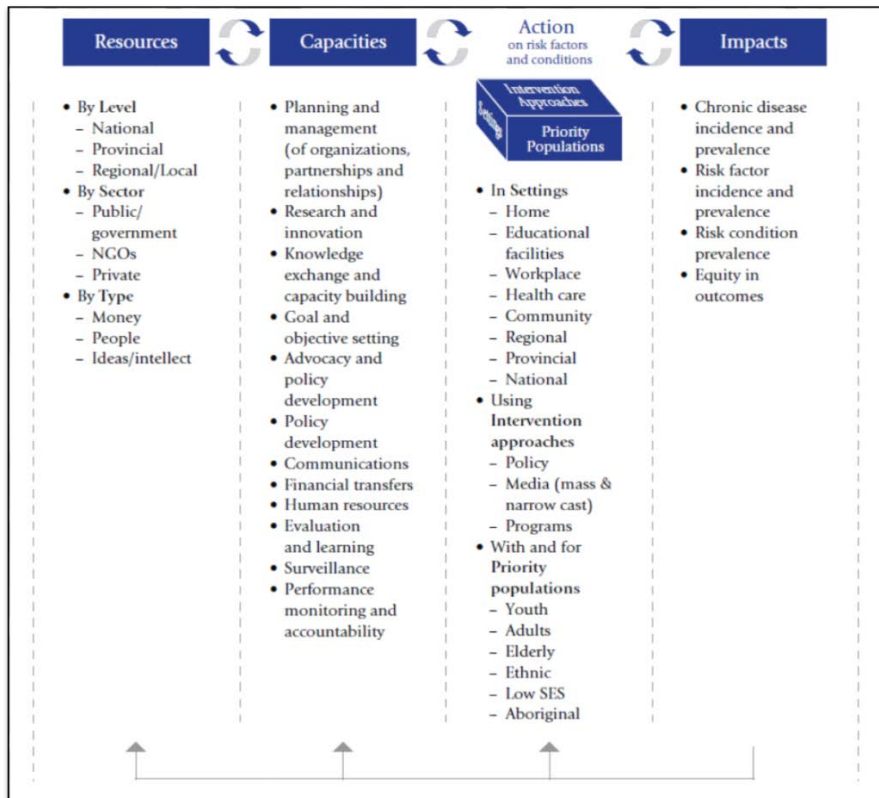
This section provides a summary of key content-specific frameworks and key concepts related to chronic disease prevention to inform the development and implementation of a program of public health interventions to support chronic disease prevention.

4.2.1 Primary Prevention of Chronic Diseases Framework

This framework provides a comprehensive approach to the primary prevention of chronic diseases including:

- The need for resources/investments in the form of people, money and ideas;
- The range of capacities required to effectively plan, implement and evaluate programming;
- The actions that consider intervention approaches, settings and priority populations; and
- The intended impacts addressing diseases, risk factors and inequities.¹⁸

Figure 3: Primary Prevention of Chronic Diseases Framework



Source: Chronic Disease Prevention Alliance of Canada. Primary prevention of chronic diseases in Canada: a framework for action. Ottawa, ON: Chronic Disease Prevention Alliance of Canada; 2008. Reproduced with permission.¹⁸

4.2.2 Key Content-Specific Concepts

Scope of Chronic Disease Prevention

The core focus of public health interventions to prevent chronic diseases emphasizes primordial and primary prevention. Prevention of disease occurs across four levels: primordial, primary, secondary, and tertiary. Primordial and primary prevention are more strongly tied to the health of the entire population, while secondary and tertiary prevention focus on those who already show signs of disease.

5. Roles and Responsibilities

The Standards accommodate variability across the province and require boards of health to apply the Foundational Standards in assessing the needs of their local population and to implement programs of public health interventions that reduce the burden of chronic diseases in the health unit population. A flexible approach accommodates greater variability where there is an opportunity to plan programs to decrease health inequities and address the needs of priority populations. Boards of health shall consider all topics listed in the Standards, but can focus public health programs and services on those topics that address identified gaps and will have the greatest impact on improving the health of the local population. Boards of health shall be guided by the principles of Need; Impact; Capacity; and Partnership, Collaboration and Engagement.

5.1 Program Standards, Protocols and Guidelines

The Chronic Disease Prevention and Well-Being Standard requires boards of health to develop and implement a program of public health interventions using a comprehensive health promotion approach that addresses chronic disease risk and protective factors to reduce the burden of illness from chronic diseases in the health unit population. The program of public health interventions shall be informed by:

- An assessment of the risk and protective factors for, and distribution of, chronic diseases.
- Consultation and collaboration with local stakeholders in the health, education, municipal, non-governmental, and other relevant sectors.
- An assessment of existing programs and services within the area of jurisdiction of the board of health to build on community assets and minimize duplication.
- Consideration of the following topics based on an assessment of local needs:
 - Built environment;
 - Healthy eating behaviours;
 - Healthy sexuality;
 - Mental health promotion;
 - Oral health;
 - Physical activity and sedentary behaviour;
 - Sleep;
 - Substance use; and

- UV exposure.
- Evidence of the effectiveness of the interventions employed.

Chronic disease prevention is also impacted by other Program Standards including, but not limited to:

- Healthy Environments Standard;
- Healthy Growth and Development Standard;
- Immunization Standard;
- School Health Standard; and
- Substance Use and Injury Prevention Standard.

There are linkages to chronic disease prevention in other guidelines and protocols, including:

- *Electronic Cigarettes Protocol, 2018* (or as current);
- *Healthy Environments and Climate Change Guideline, 2018* (or as current);
- *Healthy Growth and Development Guideline, 2018* (or as current);
- *Immunization for Children in Schools and Licensed Child Care Settings Protocol, 2018* (or as current);
- *Mental Health Promotion Guideline, 2018* (or as current);
- *Menu Labelling Protocol, 2018* (or as current);
- *Oral Health Protocol, 2018* (or as current);
- *Population Health Assessment and Surveillance Protocol, 2018* (or as current);
- *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current);
- *Substance Use Prevention and Harm Reduction Guideline, 2018* (or as current);
- *Tanning Beds Protocol, 2018* (or as current); and
- *Tobacco Protocol, 2018* (or as current).

5.2 Foundational Standards

The Foundational Standards inform all areas of board of health planning and programming as they underlie a comprehensive public health approach. There are three Foundational Standards that have implications for the Chronic Disease Prevention and Well-Being Standard.

- Population Health Assessment Standard
 - Public health practice responds effectively to current and evolving conditions, and contributes to the public's health and well-being with programs and services that are informed by the population's health status, including social determinants of health and health inequities.
- Health Equity Standard
 - Public health practice results in decreased health inequities such that everyone has equal opportunities for optimal health and can attain their full health potential without disadvantage due to social position or other socially determined circumstances.

- Effective Public Health Practice Standard
 - Public health practice is transparent, responsive to current and emerging evidence, and emphasizes continuous quality improvement.

6. Required Approaches

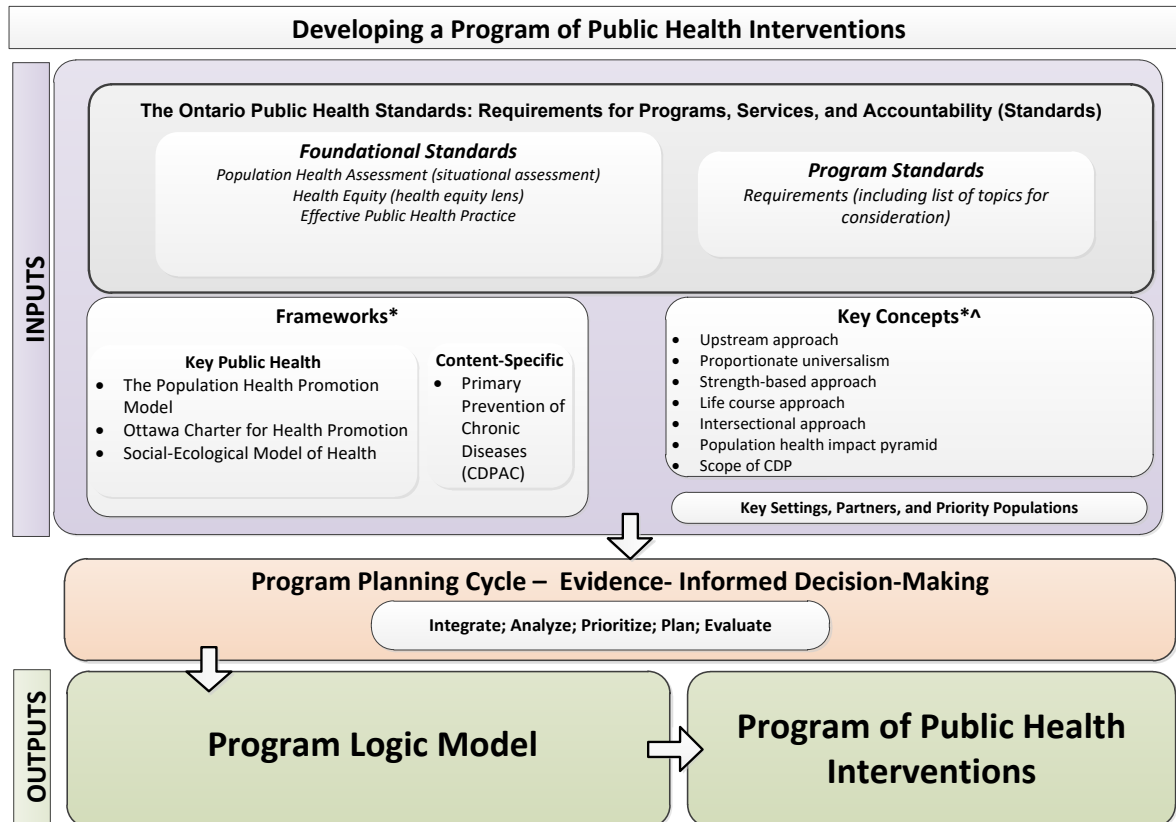
This section outlines required approaches that boards of health shall use when developing and implementing a program of public health interventions to support chronic disease prevention in the health unit population.

6.1 Public Health Program Planning Cycle

Boards of health shall use a public health program planning cycle to support evidence-informed decision-making related to the development and implementation of a program of public health interventions to support chronic disease prevention in the health unit population (Figure 4). This shall include consideration of:

- The preceding key public health and content-specific frameworks and related concepts (see section 4);
- Requirements outlined in the *Chronic Disease Prevention and Well-Being Standard, 2018* (or as current) and related Program Standards (see section 5.1);
- Requirements outlined in the Foundational Standards (see section 5.2);
- Key settings, partners, and priority populations, which may vary by chronic disease prevention topic and local context; and
- Key chronic disease prevention topics, based on an assessment of local need (see section 6.2).

Figure 4: Developing a program of public health interventions using a program planning cycle.



* Key examples, but not exhaustive
 ^ Ways in which frameworks and theories are applied

6.2 Topics for Consideration

Boards of health shall consider the following topics when developing and implementing a program of public health interventions to support chronic disease prevention based on an assessment of local need.

- **Built environment**

The built environment is comprised of the buildings, transportation systems, energy systems, open space and agricultural lands that make up and support our communities. There is increasing evidence that the built environment has a direct impact on factors such as: employment; social support networks; and the physical and social environments that influence health and health equity and has been shown to impact physical inactivity, obesity, cardiovascular disease, respiratory disease, and mental illness, risk of injuries, and access to food.^{19,20} It influences our exposure to environmental health hazards such as air pollution and extreme heat. The diverse and changing communities in Ontario are important to consider when thinking about the built environment and its impacts on health.^{19,21}

- **Healthy eating behaviours**

Healthy eating involves the consumption of foods from a variety of food groups and intake of water, while limiting processed or refined foods that are high in sodium, sugar, and saturated fat with the overall goal of maintaining or promoting health and preventing disease. Diet is a modifiable risk factor for prevention of many chronic diseases such as obesity, cardiovascular diseases, cancer, type II diabetes, hypertension, and others.²² A substantial proportion of Canadians do not meet healthy eating recommendations and many factors challenge people's ability to make healthy choices including social, economic, built, and other environments and settings.²²⁻²⁴

- **Healthy sexuality**

Sexual health is a vital component of an individual's physical and emotional health and well-being. Healthy sexuality involves acquiring the knowledge, skills and behaviour to enable good sexual health throughout life. It also includes the provision of information and services to prevent and manage sexually transmitted infections, unintended pregnancy, sexual dysfunction and violence. Some sexually transmitted infections, such as those due to the hepatitis B virus and the human papilloma virus, can result in the development of certain chronic diseases and cancers.²⁵ Sexually transmitted infections such as chlamydia, gonorrhea and syphilis have been rising since 2000.²⁶

- **Mental health promotion**

Physical and mental health are determinants and consequences of each other: positive mental health is critical to the maintenance of good physical health and in recovery from physical illness; conversely, mental health and its determinants can be improved in association with changes in social and physical environments.²⁷ Promoting mental and physical health holistically and simultaneously is essential to efforts to reduce health inequities and improve and protect the health and well-being of the population.

- **Oral health**

A healthy mouth is a gateway to a healthy body. Dental diseases can lead to physical and psychosocial disability, influencing the way people eat, speak and socialize. Good oral health is essential as it is not only important in its own right but is associated with other chronic diseases such as diabetes, cardiovascular diseases, and aspiration pneumonia.²⁸ In addition, there are risk factors (e.g., diet, smoking, stress and trauma) which are a common cause for both poor oral health and other chronic conditions.²⁹

- **Physical activity and sedentary behaviours**

Physical activity is a key component of an individual's physical, mental and overall well-being. Insufficient physical activity is associated with increased rates of a number of chronic and preventable diseases such as type II diabetes, heart disease, stroke, high blood pressure, high cholesterol, certain cancers, osteoporosis, as well as with an increased risk of falls, fractures, and depression,

with resulting high economic impacts.^{30,31} A substantial proportion of Canadians across all age groups are not meeting the recommended physical activity guidelines.^{32,33}

Sedentary behaviour is postures or activities requiring little or no energy expenditure such as prolonged sitting, watching television, and extended time spent on computer and motorized transport. Sedentary behaviour is associated with an increased risk of: type II diabetes, cardiovascular disease and mortality; all-cause mortality (independent of physical activity); and certain cancers (e.g., colon, endometrial and lung cancer). Canadian adults are sedentary for most of their waking hours, and evidence demonstrates that children and youth spend a large proportion of their time in sedentary pursuits.^{34,35}

- **Sleep**

Sleep is a key component of an individual's physical, mental and overall well-being, with insufficient or disrupted sleep having immediate and long-term consequences. Both short and long sleep duration have been associated with adverse health outcomes including total mortality, cardiovascular disease, type II diabetes, obesity, respiratory disorders, and poor general health.^{36,37} A substantial proportion of Canadians are not getting the right amount of sleep.^{35,38}

- **Substance use**

The use of tobacco, alcohol, cannabis, opioids, illicit and other substances are key public health concerns. Substance use occurs on a spectrum ranging from abstinence to having a substance use disorder. Substance-related health risks include cancer, cognitive impairment, mental illness, heart disease, cirrhosis of the liver, and fetal alcohol syndrome.³⁹ Alcohol in particular is associated with a variety of chronic diseases. Tobacco use impacts nearly every organ of the body, contributing to the development of chronic diseases such as cancer, respiratory, cardiac, vascular, neurological, and metabolic diseases, and death.⁴⁰ Tobacco use includes smoking and vaping of cigarettes and heated tobacco; smoking pipes and cigars; and sniffing, sucking, or chewing smokeless tobacco products. A comprehensive approach that includes preventing the initiation and escalation of smoking, protecting the community from exposure to second-hand smoke and vapour, motivating and supporting individuals to quit smoking, and identifying and reducing disparities in tobacco use and related harms can influence the impact of tobacco addiction on chronic disease.

- **UV exposure**

Exposure to UV radiation from the sun or from artificial sources like tanning beds has significant adverse health outcomes without adequate protection. While there can be benefits of UV exposure, including facilitating vitamin D3 formation, UV radiation from the sun and tanning devices has been classified as a human carcinogen and is a key risk factor for skin cancers in addition to premature skin aging, eye problems and weakening of the immune system.^{41,42} A substantial proportion of Canadians spend time in the sun without use of protection against

UV radiation, and the incidence of preventable skin cancers continues to increase.⁴³⁻⁴⁵

Glossary

Comprehensive health promotion approach combines multiple strategies and addresses the full range of health determinants to enable people to increase control over, and to improve, their physical, mental and social well-being.

Health promotion is defined by the World Health Organization as “the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions”.⁴⁶ Health promotion strategies include: 1 - build healthy public policy; 2- create supportive environments; 3- strengthen community action; 4- develop personal skills; and 5- re-orient health services. It involves the population as a whole in the context of their everyday lives rather than focusing on people at risk for specific diseases and is directed toward action on the determinants or causes of health.⁴⁷

Population health is the health of the population, measured by health status indicators. Population health is influenced by physical, biological, behavioural, social, cultural, economic, and other factors. The term is also used to refer to the prevailing health level of the population, or a specified subset of the population, or the level to which the population aspires. Population health describes the state of health, and public health is the range of practices, procedures, methods, institutions, and disciplines required to achieve it.⁴⁸ The term also is used to describe the academic disciplines involved in studies of determinants and dynamics of health status of the population.

Prevention (Levels of):

Primordial prevention addresses underlying economic, social, and environmental factors that lead to disease causation and aims to establish and maintain conditions that minimize health risks.

Primary prevention addresses specific causal factors for disease and aims to reduce the incidence of disease.

Secondary prevention addresses earlier stages of disease and aims to decrease the prevalence of disease through shortening its duration.

Tertiary prevention addresses later stages of disease (rehabilitation, treatment) and aims to decrease the impact and/or number of complications.⁴⁹

Program of public health interventions includes the suite of programs, services, and other interventions undertaken by a board of health to fulfill the requirements and contribute to achieving the goals and program outcomes outlined in the Standards.

Protective factors are individual or environmental characteristics, conditions, or behaviours that reduce the effects of stressful life events. These factors also increase an individual’s ability to avoid risks, and promote social and emotional competence to thrive in all aspects of life.⁵⁰

Risk factors are any attributes, characteristics or exposures of an individual that increase the likelihood of developing an unfavourable outcome.⁵¹

Social determinants of health are the interrelated social, political and economic factors that create the conditions in which people live, learn, work and play. The intersection of the social determinants of health causes these conditions to shift and change over time across the life span, impacting the health of individuals, groups and communities in different ways.⁵²

Well-being refers to “the presence of the highest possible quality of life in its full breadth of expression focused on but not necessarily exclusive to: good living standards, robust health, a sustainable environment, vital communities, an educated populace, balanced time use, high levels of democratic participation, and access to and participation in leisure and culture.”⁵³

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