

The Chief Public Health Officer's

REPORT ON THE STATE OF PUBLIC HEALTH IN CANADA

2009

*Growing Up Well —
Priorities for a Healthy Future*



Canada 

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A Message from Canada's Chief Public Health Officer



*Dr. David Butler-Jones
Canada's Chief Public Health Officer*

Our childhood years represent a critical stage that most strongly impact the rest of our lives, and where the greatest opportunity for positive influence lies. In this report, I have chosen to focus on the current health and well-being of Canada's children, and to identify where action is needed to make the greatest difference in their lives, now and in the future. I have looked at efforts made throughout our country's history to improve children's health and well-being and considered where we stand today as a result. Proven and promising approaches from both Canada and abroad that help children grow up well are highlighted. They include successful programs and approaches we can learn from and adopt. But I have also put a spotlight on areas of children's health that are persistent or worsening – ones that can affect children for the rest of their lives, and where prevention is possible.

The majority of Canadian children today are healthy; they live, learn and grow in healthy and supportive environments with life expectancies and potential years in good health that are among the highest in the world. Most also experience the conditions necessary for healthy outcomes, such as adequate income, food security, acceptable housing, access to early and late

childhood education, and strong connections to family and community.

We have much to celebrate in Canada, but there is more we can and must do.

Within the report, I have highlighted six issues of concern that not only affect the current health of Canadian children but may also have an impact on their health as they age: socio-economic status and developmental opportunities; abuse and neglect; prenatal risks; mental health and disorders; obesity; and unintentional injuries. These issues represent worrying trends in recent years that are characterized by a lack of progress and yet, to a degree, can be prevented or mitigated. In addition, evidence shows that other countries are doing better than Canada in terms of reducing negative outcomes related to some of these issues.

Also troubling is their prevalence among certain groups of children. My first report focused on health inequalities in Canada and the fact that not all Canadians benefit equally from efforts to improve the health of the population. This report, my second as Chief Public Health Officer, shows that inequalities are evident even at the earliest stages of

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life, particularly among children who are Aboriginal, who have disabilities or who are part of families with low income.

I am concerned that we may fail these children and about the growing numbers who will fall behind without concerted action. More of our children will lose the opportunity to grow up in good health, and the milestones Canada has reached in terms of life expectancy and quality of life for all our citizens will be at risk. However, I am also confident that with longer-term vision, planning and collaborative action, we can do more to strengthen the health and well-being of all children, and better reach those most vulnerable.

It is a role of public health to highlight the links between exposure and outcome, and to help find collective solutions to ensure good health across the population. We know that long-term planning and investments make a difference. Our efforts following the Severe Acute Respiratory Syndrome (SARS) outbreak have paid off through pandemic planning that has better prepared us to respond to the H1N1 influenza virus outbreak in Canada. Earlier planning and expenditure in other areas – such as Medicare – have meant that in times of economic hardship, Canadians have not had to compromise their health care due to a lack of ability to pay for services.

Of course, taking action involves investments of time, money and other resources. Given the economic difficulties currently faced by many nations, including Canada, it is sometimes hard to appreciate the return on an investment if the outcome is not immediate.

Sometimes we have to ask ourselves where – with limited resources – we can make the greatest difference. It is true that the different stages of a person's life are all connected, and it is certainly possible to mitigate negative events and impacts later in life. However, it is most effective and cost-efficient for both the individual and the community at large to create positive environments, and build resiliency to negative experiences, through early intervention.

What happens to us early on – the environments and events to which we are exposed – can have immediate, delayed or long-term impacts on our health. These impacts may be compounded over time or by other events, and can sometimes be intergenerational. The importance of a holistic public health approach to early childhood in particular, must not be underestimated.

Given our wealth, knowledge and experience, I believe there are opportunities for positive change on priority issues that can set a healthy path for all our children. Throughout this report, there are many examples of what is working well, and data on the tangible, long-lasting differences that we can make in children's lives. I want to take this opportunity to recognize the people behind these and many other initiatives and the work they do every day to improve the lives of Canadians.

Whether you read this report as a parent, a teacher, a caregiver, a health professional, a decision-maker or a citizen, we all have a stake – and a responsibility – in making the early years of childhood the best they can be. There is no better investment worth making.



Dr. David Butler-Jones

Dr. David Butler-Jones is Canada's first and current Chief Public Health Officer. A medical doctor, David Butler-Jones has worked throughout Canada and consulted internationally in public health and clinical medicine. He is a professor in the Faculty of Medicine at the University of Manitoba and a clinical professor with the Department of Community Health and Epidemiology at the University of Saskatchewan. He is also a former Chief Medical Health Officer for Saskatchewan, and has served in a number of public health organizations, including as President of the Canadian Public Health Association and Vice President of the American Public Health Association. In 2007, in recognition of his years of service in public health, Dr. Butler-Jones received an honorary Doctor of Laws degree from York University's Faculty of Health.

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Executive Summary

This report is the Chief Public Health Officer of Canada's second annual report to Parliament on the state of public health in Canada. It considers the lifecourse approach to health – focusing on the lifelong impact of exposures and influences that occur early in life – and explores the current state of children's health in Canada up to and including age 11 years.

From this information, a number of worrying trends emerge that are either persistent or are increasing in prevalence, especially among certain sub-populations of children. Efforts to address these negative trends and reduce their impacts on children's health and development vary in approach and magnitude, from targeted community-level interventions to nationwide universal programs. Evidence suggests that, in some cases, broad multi-pronged approaches need to be developed, while in others current efforts should be supplemented in order to reach all those in need. Examples of successful and promising initiatives and research, both within Canada and abroad, provide guidance on optimal conditions and priorities to help children start and continue on the path to good health.

The role of public health in influencing the lifecourse trajectory

To fully understand the lifecourse approach to health, a discussion of trajectories is important. Lifecourse trajectories are pathways that are followed from the beginning of life to the end. Experiences and exposures over the course of a lifetime can influence health trajectories, both positively and negatively. Events in childhood, however, are particularly critical to lifelong health given the degree to which physical, neurological and emotional growth occurs at this early stage.

From a public health perspective, consideration of the lifecourse trajectory model can help with the identification of health trends and the links that can be made between exposures and outcomes. Interventions, including public policies, can then be targeted to address these trends and links by working to establish optimal conditions for health and wellness at critical points across the lifecourse. Evidence shows that efforts to reduce or mitigate negative influences on health made at the earliest stages in life – prenatally and in early childhood –

provide the greatest returns. A brief overview of the history of children's health in Canada shows that past efforts to improve conditions and outcomes for children and families have had lasting positive effects in areas such as infant mortality, infectious disease mortality and life expectancy.

The health of Canadian children

Overall, most children in Canada are healthy. Life expectancy for Canada's children has reached one of the highest in the world at just over 80 years. During the last century, incidences of infant mortality dropped substantially to a rate of 5 per 1,000 live births; however, further progress on this front has slowed over the last decade relative to other similarly developed countries.

In the first year of life the main causes of death are related to congenital malformations, deformations and abnormalities such as spina bifida and Down Syndrome, followed by those who suffer disorders due to premature birth or low birth weight. From age 1 to 11 years, the leading cause of death shifts to unintentional injuries with the main cause being transport accidents.

Chronic conditions seen in this age group include asthma, diabetes and cancer. Health issues of particular concern include obesity and mental and behavioural disorders. Obesity rates among children and adults are on the rise in Canada as they are in many other similarly developed countries. Between 1978 and 2004, rates of measured obesity almost tripled among Canadian children and youth aged 2 to 17 years. While there is limited information on how many children are affected by behavioural disorders, it is estimated that 15% of children and youth in this country experience a mental health disorder at any given time.

Although rates of illness and disease among young children are relatively low in Canada, some – including Aboriginal children and those from low-income households – appear to be more vulnerable than others to certain adverse health outcomes.

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Social and physical influences on health

Many factors influence children's health and development, including those that are social and physical in nature. This includes socio-economic status (SES), with inequalities in status linked to inequalities in health outcomes. Children living in families with low SES are less likely to have their basic needs met (sufficient family income, adequate food and shelter) and are more likely to experience ill health. In Canada, 12% of children under the age of 12 live in poverty – a level that has declined over time but remains higher than in some other countries. In addition, 10% of families with children report experiencing higher rates of income-related food insecurity and 13% of all Canadian households report being unable to access acceptable housing. These rates are higher among some populations; in particular Aboriginal households.

Developmental opportunities can influence health and social outcomes. School readiness is one measure of child development showing a child's level of knowledge, skills, language, maturity and cognitive development by kindergarten. Approximately 28% of kindergarten children (at age five) are considered vulnerable in terms of school readiness as a result of low scores on one or more of five measures of child development. Children who are not developmentally school ready may experience poorer educational and social outcomes.

Situations of family dysfunction, abuse and neglect, poor quality care arrangements, unsafe neighbourhoods and adverse environmental exposures (e.g. tobacco smoke, mould and prenatal risks) can amplify the likelihood of poor health outcomes. Abuse and neglect is an ongoing issue. In 2003 there were more than 75,000 substantiated maltreatment cases in Canada involving children (aged 0 to 11 years) and evidence suggests it is on the rise. Whether experienced at home, at school or among peers, abuse has a detrimental effect on health that can persist into adulthood and even carry over to the next generation.

Alternatively, environments that include nurturing caregivers, positive learning, access to health care, good nutrition, social interaction with other children, safe neighbourhoods and positive environmental exposures

(e.g. good air quality) can all contribute positively to early physical and social development and can even help to mitigate the effects of low SES.

Through their actions and choices, parents influence children's health and behaviours. For example, while Canada reports recent reductions in smoking during pregnancy, 11% of women still smoked in the last three months of their pregnancy and nearly 17% smoked in the first year after birth. Breastfeeding is increasing in Canada, with 90% of mothers initiating breastfeeding and about 50% reporting breastfeeding for six months or more. Still, breastfeeding rates are lower among certain populations including Aboriginal, low-income and young mothers.

As children get older, their own behaviour also comes into play. Those who engage in regular physical exercise, adopt healthy eating habits, and develop strong resilience and risk-assessment skills are more likely to experience positive health outcomes and well-being and to carry these behaviours into adulthood with similar results. For example, among Canadian children (aged 6 to 11 years), 84% are physically active more than 7 hours per week. In addition, the majority of children consume the daily recommended servings of grains (73%) and milk and milk products (63%). Fewer children meet the recommendations for fruits and vegetables (30%).

Setting trajectories for a healthy life

As a result of ongoing efforts over the course of Canada's history, today's generation of children are generally healthy and socially well-developed. However, six issues warrant further examination because they are either having a substantial negative impact on the health of Canadian children or they are persistent or worsening, and there is evidence that they are preventable. They are:

- Socio-economic status and developmental opportunities;
- Abuse and neglect;
- Prenatal risks;
- Mental health and disorders;
- Obesity; and
- Unintentional injuries.

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In each of the six areas, efforts are being made to reduce their occurrence or mitigate their negative effects by establishing or improving the conditions required for optimal health and well-being.

SES and developmental opportunities play an important role in children's health. Those children whose basic needs are not being met are at risk of immediate and long-term negative health outcomes. They are also more apt to miss opportunities to develop, grow and participate at school and in their communities if environments conducive to those opportunities are lacking. The best returns on investments are the ones contributing to the well-being of children, as dollars spent in the early years create savings in future spending on health, social and justice services. However, while broad social investments have contributed to a decline in child poverty in Canada, poverty reduction appears to have stalled. Some jurisdictions have either developed or are developing broad strategies to address this important issue. In terms of developmental opportunities, programs to enhance early child development and after-school programs exist but are not consistently available or affordable.

The potential for long-term and even intergenerational affects associated with abuse and neglect make efforts to understand and alleviate this issue critical. To date, there has been some progress in data collection efforts and public awareness initiatives across sectors and on different levels. The value of early intervention in this area is most evident, with those targeting women in the prenatal period showing high potential. Protective care is also important to ensure that children are removed from unsafe and unhealthy environments and placed in ones that are healthy and supportive. Placing children with extended family members in order to keep them in their home communities is showing signs of promise. However, further investigation into care options is needed and warranted.

As highlighted throughout the report, the prenatal period offers an unprecedented opportunity to set a child's health trajectory on the path to lifelong good health. Canada has done well in ensuring comprehensive prenatal care for mothers and in creating awareness of the connection between positive prenatal behaviours and good health outcomes for children. However, not all

women are able to benefit from these efforts. For those more apt to engage in risky behaviours or who live within environments that can result in prenatal risk, studies show that bringing non-threatening, non-judgmental support directly to these women may be most effective. Additionally, efforts that encourage support from partners and close family members, and those involving early education and awareness (preferably prior to pregnancy), can also lessen prenatal risks.

About 15% of children and youth are affected by a mental health disorder at any given time. Educational programs which dispel myths and raise awareness about mental health can reduce stigmatization and support children and their families. Increasing specialized services for children as well as community factors such as culturally relevant resources, activities for social inclusion and parental skills/training can also build resiliency, coping mechanisms and strengthen relationships. In addition, evidence shows that co-ordinated strategies and investments in mental health are needed, and Canada is making progress on creating a national mental health strategy through the work of the Mental Health Commission. A broad co-ordinated strategy is expected to address childhood mental health issues, promote healthy development, and monitor mental health outcomes among Canadian children.

Rising rates of child obesity are related to lower rates of physical activity and poor eating habits due to a shift to more sedentary lifestyles and consumption of processed "convenience" foods. Neighbourhoods with less access to grocery stores, fewer options for pedestrians and less recreational space may also contribute to this problem. Efforts to create more awareness of the issue and educate parents and children include national guidelines for healthy food choices and physical activity levels. A multi-governmental initiative to increase physical activity, which incorporates data collection of current and future levels, is also underway. Other initiatives that are being explored as a means of reducing obesity rates include more restrictive advertising rules to minors (e.g. food advertising), increased taxation of "junk" foods and subsidies of "healthy" foods, better neighbourhood planning, and supportive environments at home, school and in the greater community.

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While unintentional injury is still the leading cause of death and a common cause of ill health and disability for young children, Canada has been successful in lowering rates of injury during childhood. Interventions that have shown success in reducing negative health outcomes in this area include education and awareness initiatives, safety legislation, and product standards and guidelines. Teaching children to assess risk is also important. Countries such as Sweden have put in place a national injury prevention strategy and have lowered their rates of childhood injury deaths.

Growing up well – conditions and priorities for a healthy future

The fact that the majority of Canadian children today enjoy good health and can expect to live longer than those in most other countries is a result of efforts to improve children's health and well-being over the last century. Unfortunately, not all children share in this progress, and certain health risks are emerging that

may prevent children from benefiting from the positive outcomes associated with these gains. The evidence profiled in this report highlights the optimal conditions for childhood health and development which, if in place, can help all children to benefit from this progress: strong, healthy and sustainable communities; access to high-quality early learning, education and primary care; caring and safe environments; the ability to develop a sense of control, connectedness and responsibility; and opportunities to make healthy choices.

Four priority areas for action where Canada can foster these conditions include better collection and sharing of data and information; improved and ongoing education and awareness; healthy and supportive environments; and co-ordinated, multi-pronged and sustained strategies. Moving forward, however, requires participation from all sectors and levels. This will allow children the opportunity to achieve the highest attainable standard of health, and to lead healthier and more productive lives across the lifecourse – from birth through to old age.

Introduction

This is the Chief Public Health Officer of Canada's second annual report on the state of public health in Canada. This report covers the health of Canada's children and the influence that childhood experiences, health and well-being can have over a lifecourse. In doing so, the report highlights health issues of concern while looking at challenges and successes pertaining to these issues. From this examination, priority areas for action are identified where Canada can further foster the optimal conditions for children's health and development.

Why a report on the state of public health in Canada

The Public Health Agency of Canada and the position of Canada's Chief Public Health Officer (CPHO) were established in September 2004 to strengthen Canada's capacity to protect and improve the health of Canadians.¹ In 2006, the *Public Health Agency of Canada Act* confirmed

the Agency as a legal entity and further clarified the role of the CPHO, including the legal requirement to report to the Minister of Health and Parliament on the state of public health in Canada through an annual report.¹

Goals of the report

The Chief Public Health Officer's reports are intended to highlight specific public health issues that the CPHO has determined warrant further discussion and action in Canada, and to generally inform Canadians about the various factors that contribute to establishing and maintaining our health. These reports do not represent Government of Canada policy and are not limited to reporting on federal activities or provincial/territorial activities; they are meant to reflect the evidence-based perspective of the CPHO on the state of public health across the country. As such, this report is not intended to be a framework for policy; it is designed to stimulate

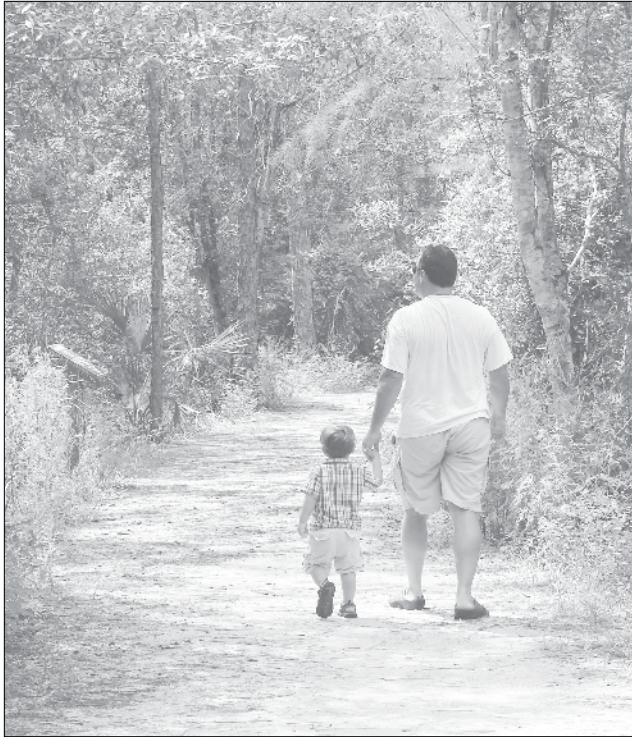
The Role of Canada's Chief Public Health Officer

The Chief Public Health Officer:

- is the Deputy Minister responsible for the Public Health Agency of Canada, reporting to the Minister of Health;
- is the federal government's lead public health professional, providing advice to the Minister of Health and Government of Canada on public health issues;
- manages the Public Health Agency's day-to-day activities;
- works with other governments, jurisdictions, agencies, organizations and countries on public health matters;
- speaks to Canadians, including health professionals, stakeholders and the public, about issues affecting the population's health;
- is required by law to report annually to the Government of Canada on the state of public health in Canada; and
- can report on any public health issue, as needed.

In a public health emergency, such as an outbreak or natural disaster, the Chief Public Health Officer:

- briefs and advises Canada's Minister of Health and others as appropriate;
- works with other departments, jurisdictions, countries, experts and elected officials to deliver information to Canadians;
- directs Public Health Agency staff as they plan and respond to the emergency; and
- co-ordinates with federal government scientists and experts and with Canada's provincial and territorial chief medical officers of health to share information and plan outbreak responses.¹



dialogue, to inform Canadians of important health issues and their potential impact on health trajectories and to highlight best practices for moving forward as a society in achieving better health outcomes. Proven and promising evidence of success among various communities and countries is outlined, including programs and activities that can serve as potential models for future consideration and inspire action and collaboration among levels of government, jurisdictions, various sectors, communities, organizations and individuals.

The Chief Public Health Officer's Report on the State of Public Health in Canada, 2008 focused on social and economic inequalities as contributors to health inequalities and how, individually and collectively, we might address the former to influence the latter. The current report considers how childhood experiences impact health over the lifecourse, and what efforts can reduce negative impacts and promote positive experiences in a number of key areas of concern.

Who this report is about

While this report focuses on issues affecting children under the age of 12, it is truly about all Canadians. This age group was chosen because it represents the early stages in the lifecourse – a point at which effective interventions can have the greatest impact and influence across the whole of one's life. It is a time of rapid development and growth in many areas (e.g. physical, mental, emotional) and a period when establishing the conditions for good health is a sound investment with the potential for lasting positive outcomes. It is important to note that in some instances the information presented in the report includes children older than 11 years because data in the needed age range does not exist or is not readily available.

Public health is defined as the organized efforts of society to keep people healthy and prevent injury, illness and premature death. It is a combination of programs, services and policies that protect and promote the health of all Canadians.²

The **lifecourse model** is a way to study the impact of physical and social exposures at various stages in life – from the prenatal period through to adulthood – on the health of individuals and the overall population.^{3, 4}

What the report covers

The following is a list of the chapters contained within this report and a brief summary of the topics covered within each.

The Role of Public Health in Influencing the Lifecourse Trajectory. Chapter 2 introduces the lifecourse trajectory model, its value to public health and its relation to childhood. It also offers a brief history of the health challenges faced by Canadian children and the progress that Canada has made to improve children's health over the last 150 years.

The Health of Canadian Children. Chapter 3 discusses the current health status of Canadian children, including leading causes of death, ill health and disability. The prevalence of each issue is discussed, as well as its impact on health over the lifecourse.

Social and Physical Influences on Health. Chapter 4 provides an examination of the factors that can influence health either positively or negatively throughout childhood, including: social and economic determinants; environments at home, school and within the larger community; and behaviours on the part of both parents and the children themselves.

Setting Trajectories for a Healthy Life. Chapter 5 identifies six areas of concern that are either emerging or persistent: socio-economic status and developmental

opportunities; abuse and neglect; prenatal risk; mental health and disorders; obesity; and unintentional injuries. Within this discussion are profiles of various successful or promising approaches that have been taken in Canada and abroad to tackle the six issues in question.

Growing Up Well – Conditions and Priorities for a Healthy Future. Chapter 6 outlines the optimal conditions for ensuring children have the healthiest start to life and a continuation of good health over the lifecourse. It also outlines four priority areas where action needs to be taken to ensure children have safe and healthy futures. The chapter concludes with the Chief Public Health Officer's own list of commitments to move forward on these issues.



The Role of Public Health in Influencing the Lifecourse Trajectory

What is a lifecourse trajectory?

A lifecourse trajectory is, in the simplest terms, the path a person takes from birth until the end of life. A trajectory is a route travelled from start to finish. For instance, when a ball is thrown, the force used to propel it, the direction in which it is thrown, and any obstacles it encounters along the way will dictate when and where it lands. The path the ball follows through the air on its way to landing is its trajectory.

Health trajectories are the pathways that individuals follow from a health perspective. These pathways evolve over time, and the directions taken are dependent on and shaped by individual actions, as well as by the circumstances and conditions that individuals experience throughout life.⁵

In reference to health, the path or trajectory followed can change during any life stage (childhood, adolescence, adulthood) and can vary from person to person depending on the factors interacting to influence health (biological, behavioural, physical, social). Both positive and negative factors evolve and interact within and across life stages, ultimately resulting in the positive and negative health outcomes that each individual experiences in his or her lifetime. Canadian researchers cite three models that explain the relationships between these influencing factors and health outcomes.⁵ The **latency** model shows the relationship between an exposure at one point in the lifecourse and the probability of a health outcome later (regardless of intervening or mitigating experience).⁵ For example, childhood exposure to high levels of ultraviolet rays from sunlight can eventually emerge as skin cancer in adulthood and adequate nutrition both in the prenatal period and the first year of life can reduce the risk of developing heart disease later in life.⁶⁻¹¹

The **cumulative** model shows the health impact of multiple or recurring exposures over the lifecourse.⁵ For example, growing up in a low-income environment and being repeatedly exposed to conditions of poverty can adversely impact adult health outcomes such as high blood pressure, circulatory diseases and weakened

immunity. Alternatively, children who grow up in a household where the father works in a higher-income occupation and who themselves work in higher-income occupations as adults have been shown to have decreased rates of ischemic heart disease in adulthood.^{12, 13}

The **pathway** model shows a dependent sequence of exposures, where an exposure that occurs at one stage of a life influences the probability of other exposures later in the lifecourse and – potentially – across generations.⁵ For example, children living in a family experiencing financial worries or marital discord may be at greater risk of cognitive and behavioural difficulties.^{14, 15} A lack of readiness to learn and poor behaviour at school can reduce educational performance.¹⁶ In turn, in adolescence, this can lead to the adoption of health-damaging behaviours such as smoking and illicit drug use, having an unplanned pregnancy or dropping out of school.¹⁵ Consequently, this may limit employment options and financial success and impact health in adulthood.^{5, 15} Conversely, activities such as reading, spelling of words or singing to a child can promote language development leading to a lasting impact on the child's literacy and lifelong learning.^{17, 18} Being developmentally ready for school can influence school success and social competency among peers, which can lead to better decisions around risk behaviours and eventually better adult health outcomes.^{19, 20}

Public health and the lifecourse trajectory

The value of the lifecourse trajectory model to public health is that it helps us to understand the links and timing between exposure to a factor or combination of factors (at one point in time or over time) and the later health effects tied to those factors.^{5, 21-24} This knowledge can then be applied to identifying and understanding trends in the health of populations and links between life stages, and to proactively developing appropriate policies and interventions that address those trends and links.^{5, 22} In this way, public policy that incorporates the lifecourse approach can be considered “prevention policy”, identifying opportunities for creating ideal conditions for health and wellness at critical points across the lifecourse.^{5, 22}

Lifecourse trajectories and childhood investments

Events that affect health are important throughout life, but childhood is a critical period in which to establish a foothold on the road to good health.²² Children experience a phase of accelerated growth in the early years of their lives – including physical growth, brain development, and mental and emotional growth and development. The education, care and attention they receive during this period can have a crucial impact on their future health and well-being. In particular, the prenatal period to age six (and especially the first three years) is the time during which the foundation for developing competence and coping skills is formed, affecting learning, behaviour and health throughout life.²⁵ It is also the stage during which nutrition, care and nurturing directly affect pathways of the brain that, among other things, affect risk for disease later in life.²⁵

Although opportunities to maintain or return to good health exist along the lifecourse, establishing initial good health and developing resilience can make it easier to maintain a positive health trajectory in the face of later challenges.²⁶ Evidence suggests that the greatest return on investment, in terms of lifelong health and quality of life, can be realized through interventions made during the earliest stages of the lifecourse (prenatal and childhood).^{25, 27-29}

A brief history of Canada's experience with creating the conditions for a healthy start to life

Canada has made substantial progress creating healthy starts, as noted in the following chronicle of actions taken over the last 150 years. These highlights illustrate how public health and other influencing factors have evolved in their approach to children's health and well-being. Looking to the past provides a sense of where we stand today on children's health and the foundation from which future actions in this important area can also be taken (for a more detailed history of public health in Canada, see *The Chief Public Health Officer's Report on the State of Public Health in Canada, 2008*).³⁰



Pre-20th Century

Before the 20th century, the health and safety of children in Canada was not a specific area of focus for government policy and community interventions. Most pregnancies were unmonitored and birth complications presented potential risks to mothers and children primarily due to the limited effectiveness of health care at that time, as well as limitations in access to health care.³¹ In the early 1890s, Canada's infant mortality rate (IMR) was approximately 145 deaths for every 1,000 live births.^{32, 33}

During this period, many children were expected to help support the family – at home, on the farm, with family businesses or activities that generated income, or through participation in the paid labour force. For those abandoned or orphaned, early provisions made for them through legislation included the *Orphan's Act* of 1799 and *Apprentices and Minors Act* of 1851. Both provided legal recognition of these children but only in exchange for their labour by binding them into apprenticeship.³⁴⁻³⁶ For all children, working conditions were often difficult and dangerous, resulting in high rates of injury and death.^{37, 38}

The Role of Public Health in Influencing the Lifecourse Trajectory

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In the second half of the 19th century, the recognition of poor living and working conditions (particularly in industrial areas and among the poor and working classes), and the relationship of these conditions to health and safety, brought about initiatives for improvement. For example, policies such as Ontario's *Factory Act* of 1884 set minimum wages, imposed limits on hours worked and banned employment where injury was likely for women and children.^{39, 40} Similar legislation followed across Canada during the early 1900s.³⁹

The care of abandoned or orphaned children also evolved during this period. Charitable organizations were given the legal authority to intervene in the maltreatment of apprenticed children. These organizations were also involved with the emergence of adoption, fostering and institutional care as alternatives to apprenticeships. Ontario's 1888 *Act for Protection and Reformation of Neglected Children* (also known as the *Children's Protection Act*) took child protection measures one step further: it allowed courts to make any neglected child – not just those orphaned or abandoned – a ward of institutions and charitable organizations.^{41, 42}

During this period, school attendance was on the rise and by the end of the century compulsory attendance legislation had been passed in British Columbia, Ontario, Prince Edward Island and Nova Scotia. Most other provinces followed suit within the next decade.⁴³

For Aboriginal children, health and safety issues are not well documented for this period. It can be assumed that their health paralleled that of adult Aboriginals. The arrival of European explorers and settlers had a detrimental impact on Aboriginal health – from the introduction of various diseases and non-traditional foods to a reduction of resources due to their confinement to specific areas of land.⁴⁴⁻⁴⁶ The health and well-being of First Nations and Inuit children experienced another setback with the introduction of the residential schools system in 1849. The system was based on the premise that if First Nations and Inuit learned English, adopted European customs and Christianity, they would be culturally assimilated into European-Canadian culture.⁴⁷ As a result, children were removed from their homes and isolated from their family. In addition, many children suffered from verbal, emotional, physical or sexual abuse,

harsh discipline, neglect and the loss of cultural identity. This had an impact not only on residential school attendees, but also on their children and grandchildren.⁴⁷⁻⁵¹

Early 20th Century: Pre-World War II

By the early 20th century, community programs targeting parents and young children (e.g. well-baby clinics, immunization, dental health promotion, in-school medical inspections and greater health care access) were being put in place to fight high rates of infant mortality and contagious diseases.³⁷ A vaccine against diphtheria was introduced in 1926, while widespread smallpox inoculations led to the disease's eradication from Canada by 1946.^{52, 53}

Municipal water fluoridation programs were also introduced and recognized as beneficial in tooth decay prevention.⁵⁴ Other improvements to water supplies reduced illness and deaths associated with water-borne diseases.^{30, 55} Infants' diets were supplemented with vitamin D during the 1920s, which contributed to the decrease in the incidence of rickets in children over time.⁵⁶ Additionally, foodborne illnesses were addressed to some extent with the requirement that saleable milk be pasteurized.^{57, 58}

Some women, particularly middle- and high-income women living in urban areas, began receiving prenatal care and often delivered their babies in a hospital setting.³¹ Health services specifically aimed at the care of infants and children emerged during this time with, for example, paediatrics being recognized by the Royal College of Physicians and Surgeons of Canada as a separate freestanding medical specialty in 1937.⁵⁹

This period was also marked by the introduction of broad social initiatives. In Manitoba and Ontario, for example, a Mother's Allowance was established in response to the poverty faced by families that were left fatherless after World War I.⁶⁰ At the federal level, the Government of Canada initiated income support to families with children through the *Child Tax Exemption* of 1918.⁶¹

School attendance continued to grow, with more children attending school for longer periods of time. Compulsory school attendance was in force in all provinces of

Canada except Quebec and Newfoundland.⁴³ This had an important influence on child health because school was often a child's only link to health care.^{43, 62} In-school health inspections and examinations were common, as was inclusion of health promotion in curricula.⁶² Through these inspections, the need for childhood dental care and tooth decay prevention became apparent. Some provinces initiated travelling dental clinics to service remote areas (e.g. Newfoundland, Northern Ontario, Alberta and British Columbia).⁶³⁻⁶⁵

A very different school system was being experienced by First Nations and Inuit children at residential schools, where conditions were often neglectful and detrimental to the children's health. In 1907, the Chief Medical Inspector reported numerous deficiencies in the schools to the Department of Indian Affairs, including elevated tuberculosis rates and inadequate nutrition, health standards and staff training.^{44, 46, 66, 67} By 1920, it had become mandatory for every First Nations and Inuit child between the ages of 6 and 15 years to attend school, and by 1931, the residential schools system was at its peak with about 80 schools operating in Canada.^{66, 68}

A decrease in infant and maternal mortality rates occurred during this time, although gaps in these rates were notable between upper- and lower-income families.^{69, 70} By the end of this period (1936-1940), Canada's IMR had fallen to an average of 71 deaths per 1,000 live births.⁷¹

Post-World War II to 2000

Advances in children's health continued as Canada built upon the broad prevention initiatives and social and infrastructural change that had been initiated in the pre-World War II period. The success of immunization programs resulted in the eradication or near-eradication of many vaccine-preventable diseases that typically strike during childhood. The inactivated polio vaccine, introduced in 1955, combined with the initiation of in-school vaccination programs, resulted in Canada's certification as polio-free by 1994.^{52, 72} Similarly, widespread vaccination for diphtheria, pertussis and

measles contributed to making these diseases rare by the end of the century.⁵²

The *Medical Care Act* was passed in 1966, affording access to insured medical services for all Canadians. By the 1970s, all provinces had joined the universal health program.^{62, 73} The *Canada Health Act*, passed in 1984, served to clarify health care funding conditions and identified the five principles – public administration, comprehensiveness, universality, portability and accessibility – of health care in Canada.^{74, 75}

Children's safety also improved during this period with the introduction of legislation, standards and regulations to prevent childhood injury related to toys, equipment, furniture, sleepwear and transportation. These measures led to a decline in non-fatal childhood injuries by the end of the century.⁷⁶⁻⁸⁰ Additionally, provincial/territorial motor-vehicle restraint legislation and reduced speed limits contributed to a decrease in deaths from motor vehicle crashes during this same period.^{76, 78, 81-83}

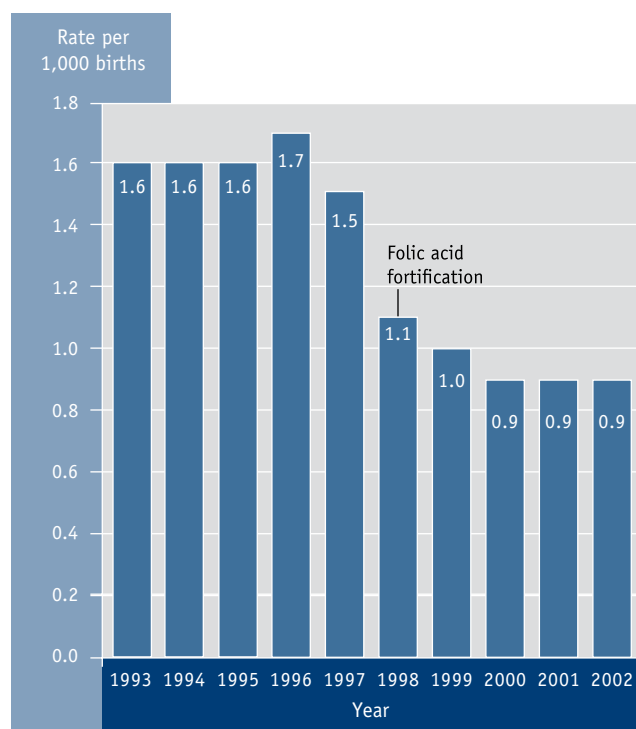
While there is little information on the nutritional practices of pregnant women, Canada's decision to fortify select grain products with folic acid (which became mandatory in November 1998), and to recommend the use of folic acid supplements by all women who could become pregnant, helped to greatly decrease the number of open neural tube defects such as anencephaly and spina bifida. A seven-province study showed a 46% reduction in the overall rate of neural tube defects (see Figure 2.1).⁸⁴⁻⁸⁶

In terms of broad social investments, a number of programs and policies to support families were introduced during this period, including:

- the *Family Allowance Act* of 1944, which provided a "Baby Bonus" to mothers of children under 16 years of age (later expanded to include children under 18 years of age) to support post-war families;⁷³
- the 1971 *Unemployment Insurance Act*, which offered income assistance to all eligible Canadians during times of unemployment, and maternity benefits for families with newborns or newly adopted children;⁸⁷
- the *Refundable Child Tax Credit*, which was introduced in 1978 to target and support families with net incomes below a certain threshold;⁶¹ and

- the *Child Tax Benefit* (1993), which consolidated refundable and non-refundable child tax credits and the *Family Allowance* into a monthly payment based on the number of children and level of family income. It also included the *Working Income Supplement* (WIS), which provided an additional benefit to low-income working families with children. In 1998, the *Child Tax Benefit* was replaced by the *Canada Child Tax Benefit*, which is provided to low- and middle-income families, and the WIS was replaced by the *National Child Benefit Supplement*, which is provided to all low-income families.^{88, 89}

Figure 2.1 Prevalence of neural tube defects in seven Canadian provinces, 1993 to 2002⁸⁵



The seven Canadian provinces include Newfoundland and Labrador, Nova Scotia, Prince Edward Island, Quebec, Manitoba, Alberta and British Columbia.

Diagnostic categories include ICD-9 655.0 and 740.0 to 742.0 and ICD-10 Q00, Q01, Q05 and Q35.0.

This decrease takes into consideration not only live births with these conditions, but also stillbirths and induced abortions.

Source: De Wals, P., Tairou, F., Van Allen, M. I., Uh, S.-H., Lowry, R. B., Sibbald, B. et al. (2007).

In 1991, Canada ratified the *United Nations Convention on the Rights of the Child* and in doing so agreed that children have the right to the “highest attainable standard of health.”^{94, 95} The following year, Canada launched *Brighter Futures: Canada’s Action Plan for Children* to prevent and reduce conditions of risk among children through targeted programs such as the Community Action Program for Children (CAPC) and the Canada Prenatal Nutrition Program (CPNP).^{93, 96} Similarly, Canada’s Aboriginal Head Start in Urban and Northern Communities (1995) and Aboriginal Head Start On Reserve (1998) programs were established to address the unique challenges facing First Nations, Inuit and Métis children and their families.^{97, 98} In 1997, the federal, provincial and territorial governments agreed to develop a National Children’s Agenda, to co-ordinate and advance actions to ensure that all Canada’s children have the best possible opportunity to develop to their full potential.⁹⁹

By the mid- to late-1950s, First Nations children began entry into mainstream public schools.^{100, 101} In 1972, the National Indian Brotherhood, (which later became the Assembly of First Nations) called for “Indian control of Indian education” which was endorsed by the federal government in 1973.¹⁰²⁻¹⁰⁴ However, the last of the residential schools did not close until 1996, the same year that the Royal Commission on Aboriginal Peoples released its final report recommending a public inquiry to investigate and document the abuses faced by children who attended these schools.^{105, 106} According to results from the First Nations Regional Longitudinal Health Survey (RHS) 2002/03, the four most common negative experiences affecting the overall health and well-being of survivors of residential schools were isolation from family, verbal or emotional abuse, harsh discipline and loss of cultural identity.⁵⁰

By the end of the 20th century, Canada’s IMR had declined from an average rate of 45 deaths per 1,000 live births during the five-year period after World War II to 5.6 deaths per 1,000 live births for the period 1995-99.^{70, 107}

The 21st Century

Canada continues to focus on building positive childhood experiences and strong families through initiatives and strategies centred on improving children’s physical and

mental health and safety. The federal-provincial-territorial *Early Childhood Development Agreement* (2003) was introduced to promote health, strengthen early childhood development, and support families and communities through employment, training and better access to early childhood care.^{93, 108} Social interventions to support families with children, including extended maternity and parental benefits (from six months to one year) were provided under amendments to the *Employment Insurance Act* in 2001.^{87, 93} And many of the programs established

United Nations Convention on the Rights of the Child

The *United Nations Convention on the Rights of the Child* outlines the responsibilities governments have to ensure a child's right to survival, healthy development, protection and participation in all matters that affect them. The four general principles of the Convention are: non-discrimination; the best interests of the child; the right to life, survival and development; and respect for the views of the child.⁹⁰

There are two optional protocols to the Convention that provide additional protection in two specific areas. Canada ratified the *Optional Protocol to the Convention on the Rights of the Child on the Involvement of Children in Armed Conflict* in 2000 and the *Optional Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution and Child Pornography* in 2005.^{91, 92} Canada has taken a range of actions that promote the guiding principles of the Convention and its optional protocols, implementing policies, legislation and programs that yield positive outcomes for children. Central to this is the National Plan of Action for children, *A Canada Fit for Children*, which was launched in 2004.⁹³

As a state party to the Convention, Canada is required to report periodically on measures it is taking to ensure continued compliance with the Convention and its optional protocols and has regularly done so since its first report in 1994. Canada will report on progress on specific commitments this year.

under the Brighter Futures initiative (e.g. Aboriginal Head Start, CAPC and CPNP) continue to contribute to reducing conditions of risk for children.^{96, 109, 110} In the area of child safety, the legislation, standards and regulations to prevent childhood injury that were established in the second half of the last century, along with new measures like Canada's 2004 ban on baby walkers, have resulted in a continuing decline in rates of injuries.^{78, 111}

More recent measures have also been introduced that are tackling issues relevant to children's health and well-being. Canada's *Universal Child Care Benefit* (2006) provides financial assistance to all parents of children under six years of age with child care costs.¹¹² As well, Canada's *Fitness Tax Credit* (2007) is one approach to support children's participation in fitness while promoting active living and tackling risk factors for childhood obesity. It is too early, however, to evaluate the effectiveness of these newer programs.^{113, 114}

In terms of Aboriginal children, Prime Minister Stephen Harper apologized in June 2008 on behalf of all Canadians for the Indian Residential Schools System.¹¹⁵ The Truth and Reconciliation Commission will prepare a historical account of residential schools and their impacts on the lives of First Nations and Inuit people and will provide recommendations on how public policy can assist in moving forward.¹¹⁶

Over the past several decades (see Figure 2.2) Canada's IMR has fallen to 5 deaths per 1,000 live births, a vast improvement over the 145 deaths for every 1,000 live births experienced just over a century ago.^{32, 33, 117} Although international comparisons should be interpreted with caution due to differences in methods, it appears that Canada may not be keeping pace with some countries that have continued to make progress in this area.^{70, 117-127} As seen in the enlarged portion of Figure 2.2, Sweden, Finland and Japan's IMRs have continued to decline while Canada's has flattened over the last 10 years.

Summary

As seen in this brief historical overview, Canada's approach to creating the conditions for health and development in infancy and childhood has broadened over time, from reacting to disease outbreaks to proactively protecting and promoting the health and well-being

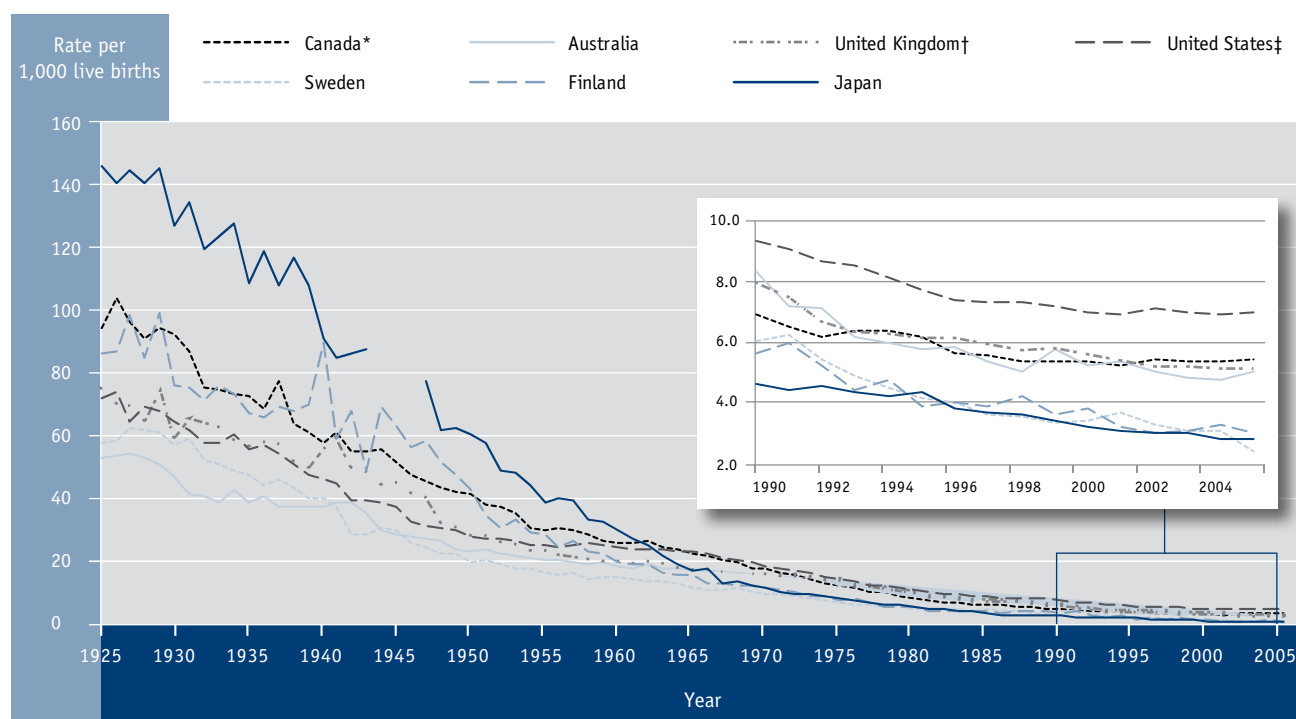
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of Canadians. There has also been a fundamental shift from viewing children's health as simply part of overall population health, to recognizing childhood as a unique stage in life that influences future health outcomes. Going beyond ensuring survival through the early years, Canada now strives to provide all children with the conditions and opportunities needed to grow up healthy and to live longer, healthier and more productive lives. These efforts include better prenatal and post-natal care, immunization, safety and social supports/programs, and legislation that have proven to be effective in

preventing disease and injury both in childhood and across the lifecourse. Overall, the measures taken in Canada to improve children's health over the last 150 years have brought about a substantially lower infant mortality rate and a life expectancy that is now among the highest in the world. There are signs, however, that in some areas we are not keeping pace with the progress of others. Chapter 3 will explore the current health status of Canadian children under the age of 12, including the leading causes of death and patterns of ill health and disability within this age group.

Figure 2.2 Infant mortality rates, select countries, 1925 to 2005 ^{70, 117-127}



* Excluding Quebec for 1925; Newfoundland for 1925 to 1926; and the Yukon Territory and the Northwest Territories for 1925 to 1949.

† Infant deaths are based on the live births occurring in the year, except in the years 1931-1956 when they were based on related live births.

‡ Infant mortality rate exclusive of stillbirths for 1925 to 1940.

Source: Australian Bureau of Statistics; Office for National Statistics; Grove, R. D. & Hetzel, A. M. (1968); Linder, F. E., Grove, R. D., & Dunn, H. L. (1947); Statistics Canada; Statistics Sweden; Ministry of Health, Labour and Welfare; Human Mortality Database; and Public Health Agency of Canada.

The Health of Canadian Children

This chapter provides an overview of the Canadian population up to age 11, including their current state of health and patterns of ill health and disability. It is important to note that data are not always available specifically for this age group. Therefore, when necessary, data may sometimes refer only to a subset of this age group or include those outside the age range of interest. When this is the case, it has been assumed that data specific to the age group of interest, were it available, would show similar results.

Canada's children from birth to 11 years

Based on the 2006 Census, Statistics Canada estimates that of a total population of 31.6 million people in Canada, 4.3 million are children under the age of 12 (see Table 3.1). A little less than half of those children (2.0 million) are under the age of 6. Approximately 5% are immigrants and 6% are Aboriginal.¹²⁸⁻¹³⁰

The majority of Canadian children under the age of 12 (79%) live in urban areas. They also tend to live at home with two parents (82%).¹²⁹ In 2006, 17% of children under the age of 12 lived in single-parent households, representing a 0.3% increase since 1991.^{129, 131} The

majority lived with single mothers (84%), and the rest with single fathers.¹²⁹ Comparatively, 37% of First Nations children, 31% of Métis children and 26% of Inuit children, under the age of 15, lived in single-parent households, while 8%, 2% and 4% respectively lived with a grandparent or other relatives.¹³²⁻¹³⁴ Roughly 2% of all Canadian children in this age group live in locations other than private dwellings such as shelters, foster care, group homes and institutional facilities.¹²⁹

The number of births in Canada has remained fairly stable over the past 30 years at more than 360,000 births each year. The current total fertility rate of 1.6 children per woman aged 15 to 49 years has also changed relatively little since the mid-1970s but is less than half of what it was in 1960.¹³⁵⁻¹³⁹ Although Aboriginal women in Canada are also experiencing a decrease in fertility rates, their current rate of 2.6 children per woman aged 15 to 49 years is still well above the Canadian average.^{134, 140}

Increasing lifespans combined with falling fertility rates have resulted in the proportion of the total population between birth and age 11 decreasing from 23% in 1971 to 14% in 2006.^{128, 141} Although the percentage of Aboriginals under the age of 25 has also declined over time – from 53% of the population in 1996 to 48% in

Table 3.1 Children in Canada

		Description	Year
Population from birth to 11 years			
Population ¹	4,310.2	thousand people aged 0 to 11 years	2006
Aboriginal ²	273.1	thousand people aged 0 to 11 years	2006
First Nations (single ancestry) ¹	124.6	thousand people aged 0 to 11 years	2006
Métis (single ancestry) ¹	16.6	thousand people aged 0 to 11 years	2006
Inuit (single ancestry) ¹	11.3	thousand people aged 0 to 11 years	2006
Immigrant ¹	234.1	thousand people aged 0 to 11 years	2006
Urban population ¹	3,426.5	thousand people aged 0 to 11 years	2006
Children in private households ¹	4,241.4	thousand people aged 0 to 11 years	2006
Children in two-parent households ¹	3,498.0	thousand people aged 0 to 11 years	2006
Children in single-parent households ¹	743.5	thousand people aged 0 to 11 years	2006
Children living with single mothers ¹	627.8	thousand people aged 0 to 11 years	2006
Children living with single fathers ¹	115.6	thousand people aged 0 to 11 years	2006
Birth rates			
Total fertility rate ¹	1.6	births per female reproductive lifetime aged 15 to 49 years	2006
Crude birth rate ¹	10.9	live births per 1,000 population	2006

Note: First Nations, Métis and Inuit population may not add to Aboriginal total due to identification of single ancestry. More detailed information can be found in Appendix E: Definitions and Data Sources for Indicators.

Sources: (1) Statistics Canada and (2) Indian and Northern Affairs Canada.

2006 – this decrease is far less than what has been experienced in the overall population in Canada.^{142, 143} As a result, the Aboriginal population living off reserve is relatively younger than the non-Aboriginal population in Canada, with persons under the age of 25 representing 48% of the Aboriginal population compared to 31% of the non-Aboriginal population (see Figure 3.1).¹⁴³

The health of Canada's children

While patterns of health issues and outcomes for young children are, for the most part, unique to that age group, there are some outcomes that are shared with adults and others which can have serious repercussions when these children reach adulthood.

Table 3.2 presents indicators of the current health of Canadian children. These include measures of life expectancy, birth outcomes, and the main measures and causes of death, ill health and disease experienced by this age group.



Figure 3.1 Aboriginal and non-Aboriginal population distribution by age group, Canada, 2006 ¹⁴⁷



Source: Statistics Canada.

Table 3.2 Health of children in Canada

	Description	Year
Health status		
Life expectancy, births and birth outcomes		
Life expectancy ¹	80.8 years of expected life at birth	2006
Males ¹	78.4 years of expected life at birth	2006
Females ¹	83.0 years of expected life at birth	2006
Health-adjusted life expectancy ¹	69.6 years of expected healthy life at birth	2001
Males ¹	68.3 years of expected healthy life at birth	2001
Females ¹	70.8 years of expected healthy life at birth	2001
Births and birth outcomes		
Pre-term birth rate ¹	7.9 percent of live births with gestation less than 37 weeks	2006
Low birth weight ¹	6.1 percent of live births with birth weight less than 2,499 grams	2006
Multiple births	3.1 percent of live births	2006
Mortality		
Population under 1 year of age		
Infant mortality rate (under 1 year) ¹	5.0 deaths per 1,000 live births in the same year	2006
Neonatal mortality rate (0 to 27 days) ¹	3.7 deaths per 1,000 live births in the same year	2006
Congenital malformations, deformations and chromosomal abnormalities ¹	1.3 deaths per 1,000 population under 1 year	2005
Disorders related to length of gestation and fetal growth ¹	0.7 deaths per 1,000 population under 1 year	2005
Sudden infant death rate ¹	0.3 deaths per 1,000 population under 1 year	2005
Population aged 1 to 11 years		
Intentional and unintentional Injuries ¹	4.9 deaths per 100,000 population per year	2004
Malignant cancers ¹	2.7 deaths per 100,000 population per year	2004
Congenital malformations, deformations and chromosomal abnormalities ¹	1.4 deaths per 100,000 population per year	2004
Ill health and disease		
Chronic diseases		
Asthma* ³	15.6 percent of population aged 4 to 11 years	2000
Diabetes ³	0.3 percent of population aged 1 to 19 years	2005-2006
Cancer incidence ²	15.0 new cases per 100,000 children aged 0 to 14 years	2000-2004
Overweight ¹	16.9 percent of population aged 2 to 11 years	2004
Obese ¹	7.4 percent of population aged 2 to 11 years	2004
Vaccine-preventable diseases		
Measles ³	0.4 cases per 100,000 population aged 0 to 5 years	2004-2005
Meningococcal Group C ³	0.6 cases per 100,000 population aged 0 to 5 years	2004-2005
Mental and behavioural disorders		
Emotional problem-anxiety score* ⁵	14.7 percent of children aged 2 to 5 years exhibiting high levels of emotional and/or anxiety problems	2004-2005
Hyperactivity-inattention score* ⁵	6.6 percent of children aged 2 to 5 years exhibiting high levels of hyperactivity and/or inattention	2004-2005
Physical aggression score* ⁵	14.2 percent of children aged 2 to 5 years exhibiting high levels of physical aggression, opposition and/or conduct disorder	2004-2005

* Denotes reported data (self, parental or other).

Note: More detailed information can be found in Appendix E: Definitions and Data Sources for Indicators.

Sources: (1) Statistics Canada, (2) Canadian Cancer Society, (3) Public Health Agency of Canada (4) Government of Canada and (5) Indicators of Early Childhood Health & Well-Being in British Columbia.

Life expectancy, births and birth outcomes

Assuming mortality patterns continue as they were in their birth year, children born in Canada in 2005 can expect to live an average of approximately 80 years, with females expected to live longer than males on average (83 years and 78.4 years respectively).¹⁴⁴ When their health is taken into consideration, they can also expect, on average, that the equivalent of almost 70 of those years, spread throughout their life, will be spent in full health.¹⁴⁵ However, not all Canadians experience these high levels of life expectancy. In 2001, life expectancy for Aboriginal males was only 71 years and for Aboriginal females was only 77 years.¹³⁴

Most babies born in Canada are born healthy and at full term. In 2006, almost 8% of births were considered pre-term and roughly 6% of newborns weighed less than the low birth weight threshold of 2,500 grams.^{146, 147} Low birth weights have been linked to lower intelligence quotient (IQ) scores, poorer memory and information recall, as well as learning, behavioural and emotional difficulties.¹⁴⁸

Children of multiple births (two or more children born at one time) tend to be smaller in size than their single birth counterparts, with 52% being considered low birth weight and 9% having a very low birth weight (less than 1,500 grams).¹⁴⁹ Additionally, just over half (53%) of multiple births are born pre-term (before 37 weeks gestation), while only 6% of single births are pre-term.¹⁵⁰ In Canada, the number of multiple births has increased from 2.7% of live births in 2000 to 3.1% of live births in 2006.¹⁵¹ Some of this increase is likely attributable to a rise in medically assisted conception and delayed childbearing – two factors known to increase the chances of multiple births.¹⁵²

Mortality

As noted in Chapter 2, Canada's IMR declined alongside those of other similarly developed countries up until the end of the 20th century. However, while the decline has continued in other countries, the current Canadian rate of 5 deaths per 1,000 live births has changed little over the past decade.¹⁵³ The most common causes of infant death are congenital malformations, deformations and chromosomal abnormalities (which include a range of conditions such as spina bifida and Down Syndrome)



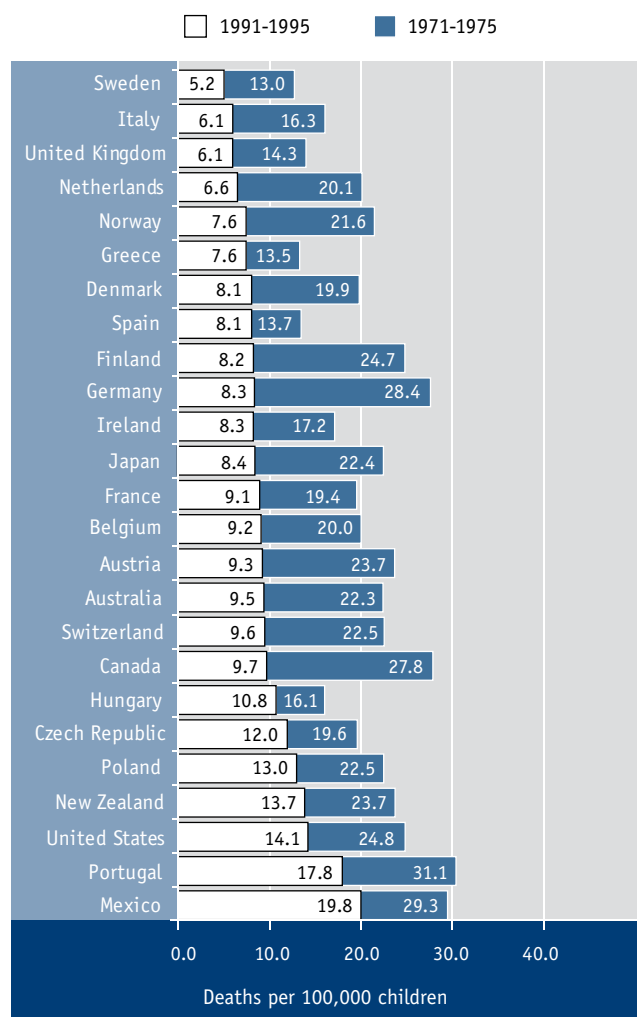
followed by disorders due to premature birth or low birth weight.^{154, 155} Sudden Infant Death Syndrome (SIDS) is the fifth leading cause of death for Canadian infants, however, the rate of SIDS deaths in 2005 (approximately 33 deaths per 100,000 infants less than one year of age) is significantly lower than the rate of 66 deaths per 100,000 infants only a decade earlier.^{141, 156, 157}

After the first year of life, the leading causes of death for children change. For those between the ages of 1 and 11 years, unintentional injuries – especially injuries related to motor vehicle crashes – are the leading cause of death.^{141, 158, 159} In 2005, unintentional injuries resulted in 3.9 deaths per 100,000 population in this age group, accounting for 33% of all deaths among these children. Still, almost half (47%) were due to transport accidents despite the advances made in child passenger safety over the last few decades.^{141, 158, 159} After transport accidents, drowning, threats to breathing and fire are the most common causes of unintentional injury deaths.^{141, 158, 159} Aboriginal children are at higher risk of unintentional injuries and early deaths as a result of drowning and other causes.^{160, 161}

The Health of Canadian Children

Canada has had success in reducing child injury deaths (including both intentional and unintentional), although there is still room for improvement.¹⁶³ In the 20-year period from 1971-75 to 1991-95, Canada moved from 22 to 18 out of 25 Organisation for Economic Co-operation and Development (OECD) countries based on the World Health Organization's (WHO's) ranking of deaths due to injuries (both intentional and unintentional), for children aged 1 to 14 years (see Figure 3.2).¹⁶² While Canada's

Figure 3.2 Rate of child injury deaths, ages 1 to 14 years, in select OECD countries, 1970s and 1990s ¹⁶⁶



Source: UNICEF.

shift in ranking may not seem significant, it represents the fourth largest decrease in rates during the measured period with nearly two-thirds (65%) fewer deaths per 100,000 children in 1991-95 than in 1971-75. Germany, the Netherlands and Finland had the top three greatest decreases in their rates (decreasing by 71%, 67% and 67% respectively).¹⁶² During the 1991-95 period, Sweden, Italy, the United Kingdom and the Netherlands had the lowest rates of deaths due to childhood injuries with fewer than 7 deaths from injuries per 100,000 children (aged 1 to 14 years). Canada and the United States had rates of 9.7 and 14.1 injury deaths per 100,000 children respectively during the same period.¹⁶²

Following unintentional injuries, cancers and congenital malformations, deformations and chromosomal abnormalities represent the second and third leading causes of mortality for children in this age group.^{141, 158}

While not a leading cause of death, it is of concern that 27 children (0.6 per 100,000) between the ages of 1 and 11 years died as the result of an assault in 2005 (this value has remained relatively unchanged since 2000).^{141, 159}

Ill health and disease

Many of the issues of ill health and disease that children live with, although not fatal, are of serious concern. Some are of concern specifically in the childhood years, while others can have serious repercussions for these children upon reaching adulthood.

Asthma, diabetes and cancer

Three important chronic conditions affecting children are asthma, diabetes and cancer. Approximately 16% of Canadian children between the ages of 4 and 11 years were reported to have asthma in 2000.¹⁶⁴ This may be an underestimate of the true prevalence, as children under four years of age are not included due to their inability to properly complete the diagnostic test.¹⁶⁴ Looking only at the older half of the age group, asthma is found among 17% of children aged 8 to 11 years.¹⁶⁴ While the prevalence of asthma has increased from the 11% diagnosed in 1994/95, the number of severe cases has decreased from 41% to 36% over the same period.¹⁶⁵ In 2005-06, 0.3% of young people aged 1 to 19 years were

considered diabetic.¹⁶⁶ Although the vast majority have been diagnosed with Type 1 diabetes, which is linked primarily to genetic factors, Type 2 diabetes – formerly seen only in adults – is increasingly being seen in Canada's children due to poor dietary habits and rising rates of obesity.¹⁶⁷

It is difficult to estimate how many Canadian children are living with cancer at any particular time, but it is estimated that on average over 800 children aged 0 to 14 years (15.0 per 100,000) are diagnosed with cancer each year.¹⁶⁸ The most commonly occurring cancer in this age group is leukemia, which accounts for roughly one-third of all new cases in this age group.¹⁶⁸

Vaccine-preventable diseases

Rates of vaccine-preventable infectious diseases are low in Canada since the majority of Canadian children have been immunized against a range of potentially serious illnesses (see Appendix B: Routine Immunization Schedule for Infants and Children). It is estimated that in 2004, 94% of two-year-olds had been immunized against measles, mumps and rubella, 78% against diphtheria, 74% against pertussis, 73% against tetanus and 89% against polio.¹⁶⁹

Coverage rates are not consistent, however, which has resulted in some populations being more susceptible to vaccine-preventable diseases.⁵² Reduced coverage rates may be the result of barriers to awareness and access, or because of differing cultural norms.⁵² As there is currently no mechanism to consistently collect immunization records in Canada, the Public Health Agency of Canada has established interim collection guidelines for jurisdictions so that immunization coverage can be estimated.¹⁷⁰

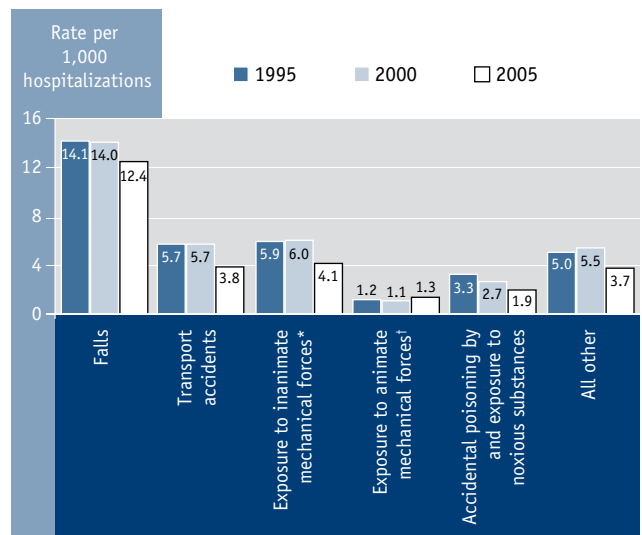
Unintentional injuries

Unintentional injuries are not only a significant cause of death for Canadian children, but also the leading causes of morbidity and disability for children and youth in Canada. They accounted for 15% of the hospitalizations of children under the age of 12 in 2005.¹⁷¹ Falls, transport accidents and injuries due to inanimate objects were the main reasons for these hospitalizations (see Figure 3.3).¹⁷¹ RHS 2002/03 reports that 18% of First Nations children experienced an injury in the previous year that was

serious enough to require medical attention (e.g. major cuts, fractures or major sprains/strains).⁵⁰

The most severe injuries involve the head and brain, with seemingly minor head injuries capable of causing permanent brain damage. Twenty percent of injuries involving serious trauma result in serious head injuries and lifelong disability.¹⁶³ The main causes of head injuries include motor vehicle collisions, falls and sports injuries.¹⁷⁴ Those injuries can lead to mental health issues such as depression, anxiety or post-traumatic stress disorder (PTSD).¹⁷⁵ In children, PTSD can sometimes develop a year or more after an event. If left untreated, PTSD can become chronic and lead to additional emotional and behavioural problems (e.g. eating disorders, increased risk-taking activities, depression, violent behaviour and difficulty concentrating).¹⁷⁶⁻¹⁷⁸

Figure 3.3 Rate of hospitalizations for select unintentional injuries for children aged 0 to 11 years, Canada, 1995, 2000 and 2005 ¹⁷¹⁻¹⁷³



* Exposure to inanimate mechanical forces includes being struck by a projectile and firearms discharges.

† Exposure to animate mechanical forces includes being struck by a person or animal.

Source: Public Health Agency of Canada.

Obesity

Between 1978 and 2004, rates of measured obesity almost tripled among Canadian children and youth aged 2 to 17 years.¹⁷⁹ The most recent rates show that of those between the ages of 2 and 11 years, almost 17% are overweight and just over 7% are obese.¹⁷⁹ Differences in rates can be found within sub-populations, with children from lower-income neighbourhoods and from families with lower levels of parental education having higher rates of excess weight.^{180, 181}

Aboriginal children and children who reside in rural areas are also more likely to be overweight and obese.^{182, 183} In 2004, 58% of First Nations children on reserve aged 3 to 11 years were considered to be overweight or obese, based on parental or guardian reported measures of height and weight, compared to 35% of their off-reserve counterparts aged 2 to 11 years. Among Métis children this number was slightly lower (29%), and although no data were available for the number of overweight Inuit children, 13% of them were identified as obese.^{50, 184} Factors likely influencing the higher prevalence of being overweight and obese in those populations include the fact that a greater proportion of these children live in low-income families.¹⁸⁵ Living in low income can exacerbate existing food security issues caused by the already high cost of nutritious food in many Northern and remote areas in which these children live.¹⁸⁶

Research suggests that childhood obesity is a strong predictor of adult obesity.¹⁸⁷ Approximately 33% of obese preschool-aged children and 50% of obese school-aged children remain obese as adults, while a child who reaches his or her second birthday at a healthy weight is less likely to become overweight at a later age.^{188, 189} Being overweight or obese in adulthood can lead to serious ill health due to obesity's link to heart disease, certain types of cancers (endometrial, breast, colon), Type 2 diabetes, osteoarthritis and other adverse health outcomes.¹⁹⁰⁻¹⁹² The psychosocial effects of childhood/adolescent obesity are also important to consider.¹⁹³⁻¹⁹⁵ Overweight children as young as five years old can develop a negative self-image and low self-esteem, which can be accompanied by sadness, loneliness, nervousness and high-risk behaviours at a later age.¹⁹⁴⁻¹⁹⁶

Mental and behavioural disorders

Since the 1950s, the importance of understanding and collecting data on children's mental health and behavioural disorders has been increasingly recognized and advocated.¹⁹⁷ Data collected on children's mental health and well-being comes from multiple sources, including provincial/territorial mental health care providers, children, parents, teachers and peers, but the information ascertained is not always comparable.¹⁹⁷ As the onset of most mental illnesses are known to manifest in the early years and persist later into life, having the ability to construct a longitudinal picture of children's mental health would be an asset.^{27, 197, 198}

Mental health is the capacity of each of us to feel, think and act in ways that enhance our ability to enjoy life and deal with the challenges we face. It is a positive sense of emotional and spiritual well-being that respects the importance of culture, equity, social justice, interconnections and personal dignity.²⁰²

Mental illnesses are characterized by alteration in thinking, mood or behaviour – or any combinations thereof – associated with some significant distress and impaired functioning. Mental illnesses take many forms, including mood disorders, schizophrenia, anxiety disorders, personality disorders, eating disorders and addictions such as substance dependence and gambling.²⁰²

Existing international estimates of the proportion of children affected by mental disorders range from 10% to 20%.²⁰⁰ In Canada, the final report of the Standing Senate Committee on Social Affairs, Science and Technology (2004) estimated that as many as 15% of Canadian children and youth are affected by a mental disorder at any given time.^{201, 202} According to RHS 2002/03, an estimated 29% of First Nations children on reserve aged 0 to 11 years were reported by a parent or guardian as having behavioural or emotional problems in the previous six months.⁵⁰

Estimates show the most common mental disorders affecting Canadian children are anxiety, attention-deficit hyperactivity disorder (ADHD), conduct disorders and depressive disorders (see Figure 3.4).^{203, 204} Although specialized treatment services exist, less than one-quarter of children receive those services.^{203, 204}

Evidence indicates that mental disorders and emotional health problems that occur during childhood and youth may affect children throughout their lives, especially in terms of overall health, happiness and productivity.²⁷ For example, the development of physically aggressive behaviours in children generally occurs between the ages of two and three years.²⁰⁵ These behaviours may continue as children age and can increase their risk for delinquency, substance use and mental disorders in adulthood.²⁰⁵

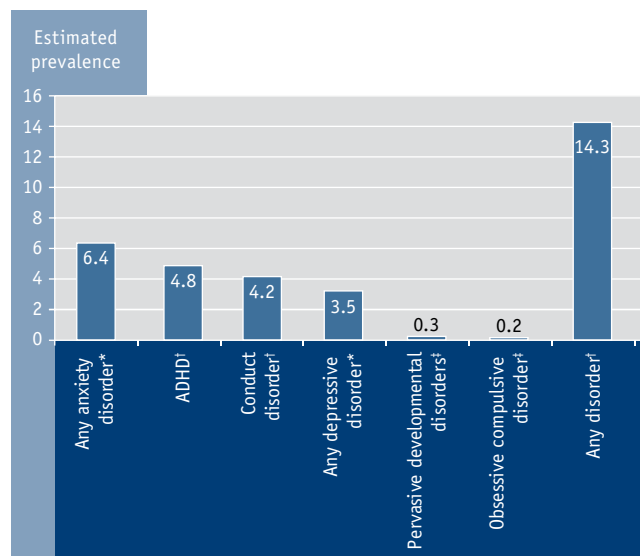
Learning disabilities refers to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or non-verbal information. They range in severity and may interfere with the acquisition and use of one or more of the following: oral language; reading; written language; and mathematics. They may also involve difficulties with organizational skills, social perception, social interaction and perspective taking.²⁰⁶

Data on the prevalence of learning disabilities among Canadian children are not readily available at the national level. It is difficult to establish the prevalence among Canadian children for many reasons, including lack of diagnosis and reluctance of parents to identify their children as learning disabled due to stigmatization. But the long-standing rate of 1 in 10 Canadians – although thought to be a low estimate – can most likely be applied to children as well as the population as a whole given that learning disabilities are lifelong.²⁰⁷

The prevalence of pervasive developmental disorders, including autism, Rett syndrome and Asperger syndrome, is estimated to be between 27.5 and 70 per 10,000 children aged 1 to 14 years.²⁰⁸⁻²¹¹ Early diagnosis of these

conditions may be difficult since children can experience a wide range of symptoms, from problems with verbal and non-verbal communication and poor motor skills to repetitive routines and high functioning knowledge and skills about a single object or subject.²¹¹⁻²¹⁵

Figure 3.4 Estimated prevalence of mental disorders in Canadian children under 15 years of age, 2001^{203, 204}



* Data represents children aged 5 to 17 years.
 † Data represents children aged 4 to 17 years.
 ‡ Data represents children aged 5 to 15 years.

Source: Waddell, C., McEwan, K., Shepherd, C. A., Offord, D. R., & Hua, J. M. (2005).

Summary

Most Canadian children are born healthy. Their life expectancy and potential years in good health are among the highest in the world and rates of disease, death and disability among these children are low. However, not all children in this age group experience these health outcomes, and there are patterns of ill-health and disability within this population that are worrisome. Issues such as unintentional injuries, obesity, and mental and behavioural disorders are of particular concern given

their sustained or increasing prevalence, as well as their ability to influence long-term health outcomes.

There are several key factors that can contribute – either positively or negatively – to the overall health of children. Some of these factors can have an immediate health impact and are therefore more evident, while others are less obvious with impacts on health that develop and/or accumulate over time and generations, making the connection between exposure and outcome less apparent. Chapter 4 will discuss these factors and examine their current impact on the health of Canadian children.

Social and Physical Influences on Health

Many factors contribute to the health outcomes experienced by Canadian children. Outcomes can be influenced by environments, experiences, cultures and other factors (the determinants of health). In addition, the ability to learn and to be resilient, and developmental growth in areas such as social skills and emotional maturity, are all influenced by a combination of factors in early life.¹⁶¹ Economic and social determinants such as income, education, social connectedness and behaviour have both direct and indirect bearings on health.²¹⁶

Socio-economic status

While many Canadian children are experiencing the conditions necessary for positive outcomes, such as adequate income, food security and acceptable housing, it is more difficult for some families and communities to provide these conditions. The socio-economic environment in which a child lives can create circumstances of advantage or disadvantage for the child.¹⁶¹

Table 4.1 Factors influencing children’s health

	Description	Year
Socio-economic status		
Children living in low-income (after tax)* ¹	12.4 percent of population aged 0 to 11 years	2006
People reporting food insecurity* ²	10.4 percent of households with children in the previous year	2004
Unable to access acceptable housing ³	12.7 percent of households	2006
Parental education* ⁶	96.1 percent of households with the highest level of education being high school or greater	2007
Home, school and community		
Family functioning* ⁵	8.7 percent of children aged 0 to 5 years in families with high levels of dysfunction	2004-2005
Parental depression* ⁵	10.0 percent of children aged 0 to 5 years whose primary care giver exhibits high levels of depression	2004-2005
Maltreatment* ⁶	22.1 substantiated cases per 1,000 population, birth to 11 years, excluding Quebec	2003
Regular family physician* ⁶	92.1 percent of households with children aged 0 to 11 years	2007
Low on at least one school readiness domain* ⁴	27.5 percentage of national cohort of senior kindergarten-level children	2006
Neighbourhood cohesion* ⁵	13.6 percent of children aged 0 to 5 years living in neighbourhoods with low neighbourhood cohesion	2004-2005
Neighbourhood safety* ⁵	22.3 percent of children aged 0 to 5 years living in neighbourhoods with low neighbourhood safety	2004-2005
Healthy behaviours		
<u>Adult behaviours</u>		
Breastfeeding (initiation)* ⁶	90.3 percent of women who gave birth in the past 5 to 14 months	2006-2007
Breastfeeding (6+ months)* ⁶	53.9 percent of women who gave birth in the past 5 to 14 months	2006-2007
Smoking during last 3 months of pregnancy* ⁶	10.5 percent of women who gave birth in the past 5 to 14 months	2006-2007
Alcohol consumption during pregnancy* ⁶	10.5 percent of women who gave birth in the past 5 to 14 months	2006-2007
<u>Child behaviours</u>		
Physical activity (7+ hours per week) ¹	84.3 percent of children aged 6 to 11 years	2004
Screen time (less than 1 hour per day) ¹	20.9 percent of children aged 6 to 11 years	2004
Fruit and vegetable consumption (5+ times per day) ¹	41.3 percent of children aged 2 to 17 years	2004

* Denotes reported data (self, parental or other).

Note: More detailed information can be found in Appendix E: Definitions and Data Sources for Indicators.

Sources: (1) Statistics Canada, (2) Health Canada, (3) Canadian Mortgage and Housing Corporation, (4) Offord Centre for Child Studies, (5) Indicators of Early Childhood Health & Well-Being in British Columbia and (6) Public Health Agency of Canada.

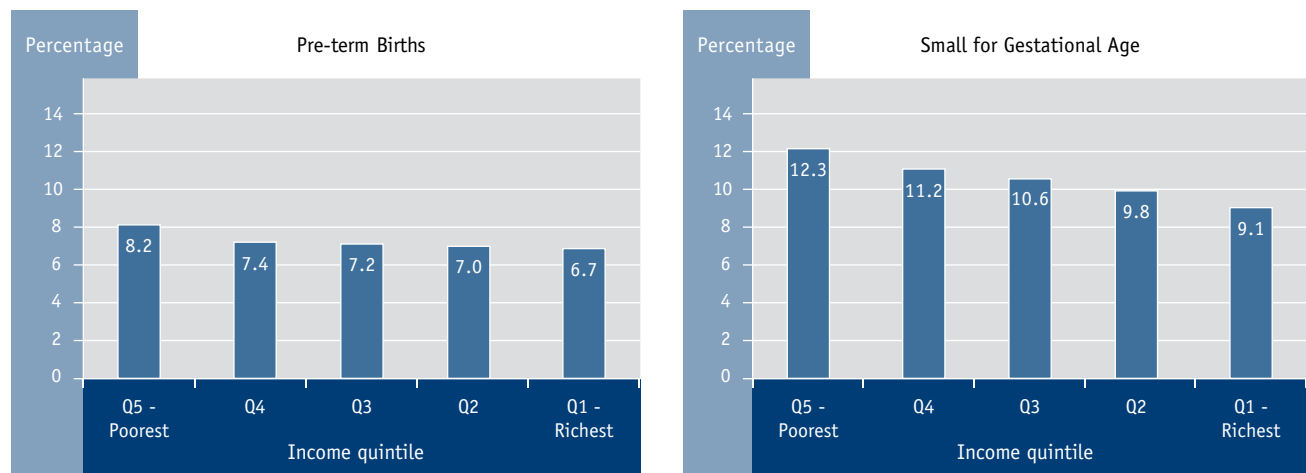
A family's income level and level(s) of individual education in the household, combined with other social factors, establish their SES. Inequalities in SES have been shown to be linked to subsequent inequalities in health outcomes.²²⁰

Children born into a low SES environment tend to have a higher than average likelihood of being born at low birth weight and experiencing disability and disease, as well as behavioural problems and mental health disorders that can lead to a lifetime of poor health.²²¹ In fact, inequalities in health outcomes exist at every level of the socio-economic scale, with those in each income quintile lower than the highest often experiencing worse health outcomes than those in the quintile(s) above. In this sense, it can be said that disparities in health affect those at every level of the economic gradient to some extent, and not just those considered to be worst off.³⁰ For example, birth data from Quebec neighbourhoods over a 10-year period show a relationship between household income and birth outcomes. Figure 4.1 shows that the greater the percentage of households with income below the low-income cut-off in a neighbourhood, the higher the percentage of babies born prematurely or small for their gestational age.²²²

From infancy through to adulthood, low SES is an important influence for some of the most common chronic diseases, including coronary heart disease, Type 2 diabetes and chronic obstructive pulmonary disease.²³

Socio-economic status (SES) - refers to an individual's or group's position within society. It is dependent on a combination of variables, including occupation, education, income, wealth and place of residence.²¹⁷ SES and health status share a close relationship, where generally health improves as SES rises and deteriorates as SES falls. Poverty, which can be measured by income and consumption, is a term which many use interchangeably with low SES, however, references to poverty often fail to encompass the greater scope of challenges and obstacles that accompany a lower status within society.^{30, 218} This includes social exclusion or the ability to be a part of society.^{30, 218} Social exclusion is a "short-hand term for what can happen when people or areas face a combination of linked problems such as unemployment, discrimination, poor skills, low incomes, poor housing, high crime, bad health and family breakdown" creating a cyclical pattern of disadvantage.²¹⁹

Figure 4.1 Percentage of adverse birth outcomes by neighbourhood quintile, Quebec, 1991 to 2000 ²²²



Q - population divided into fifths based on the percentage of the population in their neighbourhood below the low-income cut-offs.

Source: Luo, Z.-C., Wilkins, R., & Kramer, M. S. (2006).

Other risk factors associated with disease – such as diet during pregnancy, infant feeding and indoor/outdoor air quality – are conditions to which those with lower SES are also known to be more vulnerable.²³

For those who experience low SES, the timing and duration of those experiences also matter, with the earliest years of a child's life being critical.^{223, 224} One reason is that childhood is the period when physical, emotional and cognitive patterns are established – including the value we place on ourselves and others, and the way we behave. Negative patterns are more likely to persist into adulthood if there is no change in SES variables or no intervention to mitigate the effects of low income.²³

Adequate income

Although poverty is a concept that extends beyond income, in the absence of a standardized indicator to measure the complex mix of factors that define it, income indicators are often used as proxy measures of poverty. The most commonly used indicator within Canada is the low-income cut-off (LICO), which considers a family's portion of income spent on food, clothing and footwear, and shelter relative to other families of the same size and geographic location.^{229, 230}

Based on the LICO, an estimated 12% of Canadian children under the age of 12 were living in poverty in 2006.²³⁰ Although this is an improvement over rates estimated to be as high as 20% in the 15-year period between 1991 and 2006 (see Figure 4.2), it still represents a significant proportion of children in this age group and demonstrates that the problem of inadequate income persists in Canada.

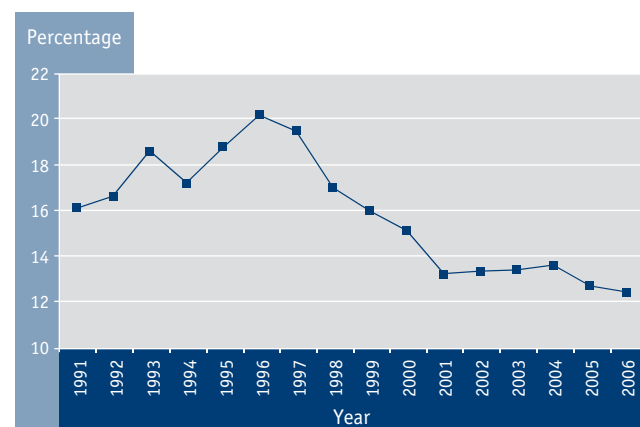
LICO-based poverty rates have been estimated to be even higher among certain Canadian populations, including children living with disabilities (one in four), children in families who have recently immigrated to Canada (one in two) and Aboriginal children living inside and outside First Nations communities (1 in 4 and 1 in 2.5 respectively).²²⁹ A 2006 survey showed significant differences between Aboriginal and non-Aboriginal children under the age of six living in urban areas as defined by census metropolitan areas (CMAs). While more than 20% of non-Aboriginal children in CMAs were living

Poverty as defined by the United Nations is “a human condition characterized by the sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political and social rights.”²²⁵

in low-income families, rates for Aboriginal children were higher (57% of First Nations, 45% of Inuit and 42% of Métis children).¹⁸⁵

Internationally, a measure which considers a family's income after tax and transfers relative to the median income of similar-sized families within a country is often used to compare poverty rates between countries. Using this indicator, a 2007 study ranked Canada 15 out of 24 OECD countries in terms of children living in relative poverty. The countries with the lowest relative child poverty rates were Denmark, Finland and Norway.²³⁰⁻²³² The study also showed that between 1994 and 2000 Canada saw only a minimal decrease (0.4%) in its poverty rate.^{230, 231}

Figure 4.2 Estimated proportion of children, aged 0 to 11 years, living in low-income households, Canada, 1991 to 2006²²⁷

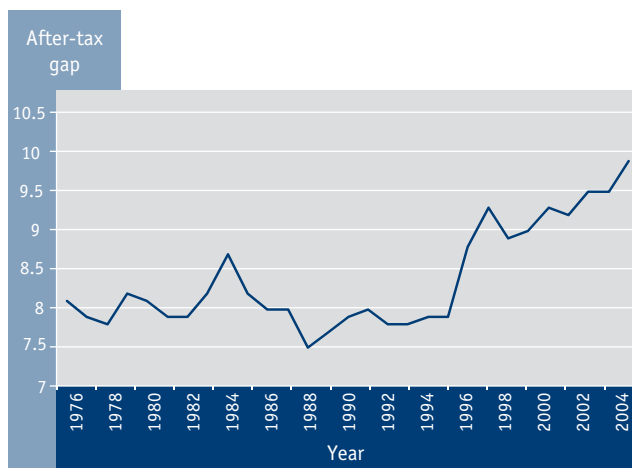


Source: Statistics Canada.

In addition to the persistence of poverty among Canadian children, the gap between families with the highest and lowest incomes has been increasing over time. (see Figure 4.3).

Figure 4.3 represents the gap between the 10% of families with the highest after-tax income and the 10% of families with the lowest after-tax income. Fluctuations in the gap can be seen during the 20-year period between 1976 and 1996, while remaining fairly constant on average. However, since a sudden increase in 1996, a steady rise in the gap can be noted that is partially attributed to the wealthiest families benefiting disproportionately from a strong economy.²³³ In 2004, families with incomes in the highest 10% after tax were earning 10 times the after-tax income of families with incomes in the lowest 10% after tax. This difference is significant because larger gaps are associated with greater differences in the health of a population.²³⁴ Given what is known about the relationship between income and health, we could expect that this widening gap will perpetuate and further increase existing inequalities in health and developmental opportunities between children in low- and high-income households.

Figure 4.3 Ratio of richest and poorest deciles*, families raising children in Canada, 1976 to 2004 ²³³



*Deciles refer to the division of families raising children in Canada into tenths based on their after-tax income.

Source: Yalnizyan, A. (2007).

Influence of Income on Childhood Development

Canadian researchers have reported that family income plays a significant role in influencing child development.²²⁸ Of 27 factors identified as having an impact on child development, up to 80% were seen to improve as family income increases.²²⁸ Compared to children living in higher-income families, research has shown children in low-income families to be:

- twice as likely to be living in poorly functioning families (i.e. in terms of family stability, supportive relationships and protection);
- more likely to live in substandard housing and problem neighbourhoods (i.e. those where negative activities such as drug use/dealing, burglaries and unrest due to cultural differences are common);
- more likely to demonstrate high levels of indirect aggression;
- over two and a half times more likely to have a problem with one or more basic abilities such as vision, hearing, speech or mobility;
- more likely to exhibit delayed vocabulary development; and
- less likely to participate in organized sport (a measure of cultural and recreational activities within their communities).²²⁸

Food security

One of the possible repercussions of living in relative poverty is being food insecure. Someone is food insecure if he or she does not have physical and economic access to sufficient, safe and nutritious foods to meet the needs of a healthy and active life.²³⁵ In 2004, 10% of Canadian households with children reported being food insecure at some point in the previous year as a result of financial challenges. Although in many cases it was the adults in those households who experienced food insecurity, in 5% of all households with children, one or more of the

children themselves were food insecure. Among children in Aboriginal households, 23% reported experiencing food insecurity.²³⁶

When children go to school hungry or poorly nourished, their energy levels, memory, problem-solving skills, creativity, concentration and behaviour are all negatively impacted. As a result of being hungry at school, these children may not reach their full developmental potential – an outcome that can have health impacts throughout their lives.

Housing and water

Shelter is a basic need for optimal health. Inadequate housing can result in numerous negative health outcomes, ranging from respiratory disease and asthma due to moulds and poor ventilation, to mental health impacts associated with overcrowding.²³⁷⁻²³⁹ The issue of overcrowding is especially true for First Nations and Inuit populations in Canada.^{132, 240} In 2006, an estimated 15% of the First Nations population were living in overcrowded homes, a rate five times higher than the non-Aboriginal population.¹³²

The Canada Mortgage and Housing Corporation defines acceptable housing as that which is “adequate in condition, suitable in size, and affordable” (see Appendix E).²⁴¹ Although the number of children, or families with children, living in unacceptable housing is unknown, data shows that 13% of all Canadian households were unable to access acceptable housing in 2006.²⁴¹

Access to safe drinking water is also important. In March 2008, 1,766 cities, small towns and neighbourhoods in Canada were under boil water advisories, as were 93 First Nations communities.²⁴² Parasites found in some water supplies, such as *Giardia* and *Cryptosporidium*, can cause stomach cramps, nausea, fever, as well as vomiting and diarrhea that can lead to dehydration.²⁴³ *E. coli.*, another bacteria associated with boil water advisories, is known to cause a specific type of kidney failure, hemolytic-uremic syndrome (HUS), in 10% to 15% of infected children.²⁴⁴

Home, school and community environments

While children’s health and social outcomes are associated with family income and other basic needs, living in poverty is also about “poverty of opportunity”.²²⁸ Nurturing caregivers, positive learning environments, access to health care, good nutrition and social interaction with other children all contribute to early physical and social development in ways that can positively affect health and well-being over a lifetime.^{30, 161} The origin of these influences is the home or family environment, with the broader social and school environments playing an increasing role as children grow. If the experiences in these environments are positive and a child’s needs are being met to a degree necessary for optimal development, it can be expected that this will set the child on a path toward positive health outcomes, especially since supportive environments have been shown to mitigate the negative effects associated with low income.

Family influences

Preschool-age children spend the majority of their time with family. The functioning of both the parents and the family as a whole can influence the health of the children in the family. For example, the mental health of a child’s parent or primary caregiver can directly impact the care of that child and therefore the child’s health. The majority of Canadian children are reported to live in well-functioning families and do not have a parent who suffers from a mental illness.¹⁴ However, the 2004/05 National Longitudinal Survey of Children and Youth (NLSCY) found that 10% of children aged 0 to 5 years had a parent who exhibited high levels of depression.¹⁴ The same survey found that 9% of children in that age group were living in families with high levels of dysfunction as measured in terms of problem solving, communication, roles, effective responsiveness and behaviour.¹⁴ These children are more likely to experience relationship, behavioural and emotional problems than their peers in functional families.¹⁴ In an earlier analysis of NLSCY data, anxiety in children aged 2 to 5 years was more likely in dysfunctional families and those with a depressed

parent.²⁴⁵ Children in this age group who had a parent suffering from depression were also more likely to show higher levels of aggressive behaviour.²⁴⁵

Abuse and neglect

Child maltreatment includes direct and indirect acts that can harm a child, including physical abuse and neglect, emotional abuse and neglect, sexual abuse and exposure to family violence.²⁴⁶ Childhood abuse and neglect is a worrisome problem in Canada. According to the *Canadian Incidence Study of Reported Child Abuse and Neglect (CIS)*, case numbers doubled between the 1998 and 2003 data-collection cycles. Some of this growth may be attributable to changes in awareness, legislation, data collection and/or increases in maltreatment rates.²⁴⁶ In 2003, there were more than 75,000 substantiated cases of maltreatment among Canadian children aged 0 to 11 years – equivalent to 22 cases per 1,000 population for that age group (see Figure 4.4). The majority involved exposure to domestic violence and neglect as the primary form of abuse, and in almost all cases the perpetrator (or at least one, if there was more than one perpetrator) was a relative of the child.²⁴⁶ Most at risk of maltreatment are those living in households with a single or disabled parent, low income, low levels of education or high unemployment, or overcrowding. In many cases, more than one of these factors is present.²⁴⁶⁻²⁴⁹ Evidence shows that maltreatment can have adverse repercussions in childhood, later in life and across generations. Not only can maltreatment result in physical injuries, sexually transmitted infections and emotional disorders, but research now shows that experiencing maltreatment in childhood is linked to illnesses in adulthood such as fibromyalgia, irritable bowel syndrome, chronic lung disease and cancer.²⁵⁰

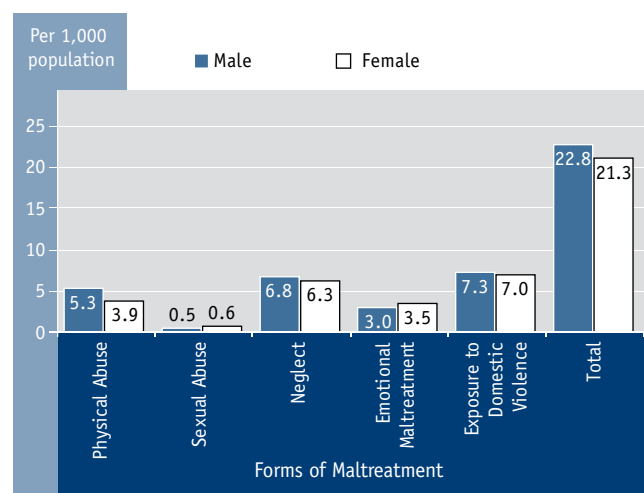
In 2003, just over 9% of all substantiated cases of maltreatment among children aged 0 to 11 years involved those in their first year of life.²⁴⁶ Even before birth, a child can be at risk. It is estimated that 6% of women in Canada are physically abused during pregnancy.^{251, 252} Outcomes for the fetus following severe blunt force trauma to the abdomen of a pregnant woman can include: skull fractures, intracranial hemorrhage and bone fractures; placental abruption; pre-term labour and delivery; spontaneous abortion; and fetal death.^{253, 254}

Abuse and neglect can have immediate and long-term repercussions. In childhood, factors that contribute to a child's development (having a sense of control, being loved and feeling socially connected) can become compromised.^{22, 30} When relatives are perpetrators of the abuse and neglect, a child's sense of trust, dependency and protection can be threatened.²⁵⁵

Research shows that adverse childhood experiences may disrupt neurodevelopment with lasting effects on overall brain structure and function.^{22, 256} As the number of adverse experiences increases, these impacts may be compounded and the risk of later health and social issues rises.^{22, 256} Child maltreatment has been associated with low school grades, school failure and dropping out.²⁵⁷ According to the *Street Youth in Canada* survey, 30% of street youth, aged 15 to 24 years, have experienced some form of neglect in their past.²⁵⁸ There is also an association between severe and habitual physical punishment by parents or guardians and the development of violent behaviour patterns in children and youth subjected to this punishment.²⁵⁹

Exposure to family/domestic violence is one of the most common forms of maltreatment experienced by

Figure 4.4 Substantiated maltreatment cases by primary category and sex, Canada excluding Quebec, 2003 ^{141, 246}



Source: Public Health Agency of Canada.

Canadian children. Exposure to family violence can have long-lasting negative effects on children, including an increased likelihood to exhibit hyperactive behaviour, have emotional disorders and be physically aggressive.²⁶⁰ Girls who have been exposed to or experienced abuse in childhood sometimes continue the cycle as victims of partner/spousal abuse, whereas boys who have been exposed to or experienced a form of abuse are more likely to become abusers in adolescence and adulthood.²⁵⁹ It is important to note, however, that among individuals who have experienced child abuse many do not go on to abuse others. Factors such as receiving emotional support from a non-abusive parent during childhood, receiving therapy at any point during their lives, and having a stable, emotionally supportive and satisfying relationship with a partner in adulthood, may serve to prevent them from being abusive toward their own children and partners.²⁶¹

Bullying among peers is also a problem in Canada. In 2000, 12% of children aged 10 and 11 years reported being bullied “at least some of the time” at school. Children in families with lower incomes (below \$40,000 per year), experience higher rates of bullying than children in higher-income households – 20% compared to 9% respectively.²⁶² With increased Internet use, some bullying (known as cyber-bullying) is now being done online as well as in the school yard. In 2001, 25% of young Canadian Internet users, aged 9 to 17 years, reported receiving e-mails containing hateful messages about others.²⁶³

In terms of health outcomes, both aggressors and victims of childhood bullying are at greater risk for experiencing emotional, social and psychiatric problems that can persist into adulthood.^{262, 264} Research indicates that playground bullying can be an indicator of future negative behaviours such as sexual harassment, workplace harassment, dating and marital aggression, and child and elder abuse.²⁶² And although cyber-bullying is a relatively new phenomenon, a recent international report indicated that cyber-bullying contributes negatively to the psychosocial functioning of children.²⁶⁵

Early care and development

Parents who spend time away from their children, for work, education or other reasons, rely on others to

provide positive environments for their children in their absence. Options that provide opportunities for early learning and social interaction with other children can contribute to early physical and social development in ways that can positively affect a child’s health and well-being over a lifetime.^{22, 161}

Canadian parents make use of various forms of both regulated and non-regulated child care. Concrete measures of need and unmet need for such care in Canada are not available, but some information on availability of regulated child care spaces and the use of different child care options exists. Data from 2002-03 shows that 54% of Canadian children between the ages of six months and five years were in some form of non-parental care (both regulated and non-regulated). The most common forms of care were with a non-relative outside the home, excluding daycare centres (30%), with a relative either inside or outside the home (30%) and in a daycare centre (28%).²⁶⁶ Although there has been some recent growth in Canada’s regulated child care, there were enough regulated spaces for only 17% of all Canadian children aged 0 to 12 years in 2006.²⁶⁷

While these care options supplement and complement each other, it is difficult to determine whether all needs are being met and, in particular, whether quality care is universally available. The general quality of both formal and informal child care centres is unclear, although some indicators of quality have been established to help evaluate regulated, formal child care centres in Canada. These include measurements such as staff training, wages, funding and care. Data on these factors, along with past studies on Canadian child care, show that the quality is generally rated as mediocre.²⁶⁸⁻²⁷⁰

Additionally, barriers to care may exist due to financial limitations or developmental relevance. Although all provinces and territories provide subsidies to offset the costs of regulated child care, the level of those subsidies, the programs for which they apply and eligibility criteria differ across jurisdictions.²⁷¹ As a result, some parents in need of financial support may still face considerable out-of-pocket expense, while others will incur no personal costs, creating financial barriers and inequalities in access.²⁷¹ Barriers also exist for access to culturally and developmentally relevant care. It is estimated that 90%

of Aboriginal families with children do not have access to regulated infant development or early childhood programs with an Aboriginal component.^{18, 272} Data from British Columbia also shows that after-school programming for older children (aged 9 to 12 years) is not meeting the needs of that age group.²⁷³ Parents of those children reported barriers to care and developmentally appropriate activities for their children in the hours outside of school, with one in five reporting that such programs were not available in their community.²⁷³ More than 10% of the children in the British Columbia study reported being in unsupervised or self-care between the hours of 3:00 p.m. and 6:00 p.m.²⁷³

Recognizing the importance of early childhood services to child development, the United Nations Children's Fund (UNICEF) has developed a set of 10 benchmark indicators to determine the level of these services in affluent OECD countries. The benchmarks fall into four broad categories of policy framework, access, quality, and supporting context. In UNICEF's first related report, which considered childhood services in 25 countries, Sweden met all ten benchmarks and Iceland met nine, while Canada and Ireland were the only two countries reported to meet the minimum standard for only one out of the ten benchmarks.²⁷⁴ These first results must be interpreted with caution due to limitations in the data and indicators, such as the measurement of minimum standards rather than level of quality, the lack of inclusion of informal home-based or neighbourhood daycare, no account of other services for children at risk, and no measure of parental involvement.²⁷⁴ However, the implication that Canada is behind other countries in providing key services for positive early childhood development remains.

Access to primary care

When families have access to primary health care, they may access preventative, diagnostic and treatment options which may otherwise be unavailable. The vast majority of children in this country have access to such care. In Canada, 92% of surveyed families with children under the age of 12 reported that they had access to a general practitioner in 2007.²⁷⁵ However, this number does not account for those families who may be the most vulnerable to access barriers (i.e. those living in situations or locations that prevent them from being

included in the survey due to a lack of phone access or permanent address). Additionally, barriers such as language, physical inaccessibility, remoteness or cost of non-insured health services (such as eye or dental care) may prevent families and children from accessing necessary services.^{276, 277} Aboriginal peoples and recent immigrants have been known to face such barriers in Canada.^{276, 278}

Access to dental care is equally important to the health of children. Dental health established in childhood affects not only the immediate health of a child, but also continues to impact oral and overall health in adulthood.²⁷⁹ The pain associated with tooth decay can affect a child's sleep, behaviour and eating, which in turn can affect their overall health.²⁸⁰ Healthy baby teeth are necessary for the healthy development of adult teeth.²⁷⁹ If poor dental health persists into adulthood, there is the possibility of serious health consequences such as respiratory disease, diabetes, heart disease, and experiencing pre-term births and lower birth weights.²⁸¹ While there is no data to show the number of Canadian children who are not receiving dental care, information exists that suggests that access varies across the country. Dental care is not universally covered under the *Canada Health Act* and is therefore privately funded for the most part. In addition to limited public funding for dental screening and treatment programs, other barriers to dental health include the availability of services, stigma associated with accessing dental services through social assistance, cultural barriers, and additional costs associated with travel and time off work.²⁸²

School readiness

One way to consider the degree to which early childhood education and developmental opportunities benefit a child, a community or even a country is to look at the number of children who are "school ready" upon reaching kindergarten age. This measurement is based on levels of knowledge, skills, maturity, language and cognitive development, and can be interpreted as representative of the cumulative effects of many early influences on a child's life. It also offers a discrete way to describe the complex interactions of events, influences and outcomes contributing to a child's overall health.

The early development instrument (EDI) is one means of assessing school readiness in children. This instrument, used within several Canadian provinces as well as internationally, measures a child's development in each of five domains: physical health and well-being; social competence; language and cognitive development; emotional maturity; and communication skills and general knowledge.²⁸³ In 2006, a national cohort of more than 100,000 children at the senior kindergarten-level in seven provinces (average age of 5.7 years) was assessed using the EDI. Over one-quarter (28%) were classified as "vulnerable" on at least one domain, meaning they scored in the lowest 10% of children at their site for that domain, and almost 14% were vulnerable in two or more domains.²⁸⁴

Results for the national cohort also showed statistically significant differences in mean domain scores among different groups of children. For all five domains:

- Aboriginal children, on average, had lower mean scores than non-Aboriginal children;
- children who had attended an organized part-time preschool or nursery school had higher mean scores than those who had not; and
- those who had attended junior kindergarten had higher mean scores than those who had not.^{283, 284}

The data also suggest that children who are not school ready by kindergarten level will continue to perform below their peers as they move through the school system. It was found that the greater the number of numeracy or reading EDI vulnerabilities identified in kindergarten children, the more likely they were to fail the standardized Foundation Skills Assessment in Grade 4.²⁸⁵ Given that education is a foundation for improved lifelong health prospects, children who are ill-prepared for school are more likely to experience poorer health along their lifecourse than their more well-prepared peers.¹⁶

Neighbourhood characteristics

Defining a safe neighbourhood as one where a child is protected from violence, abuse, exploitation, injuries and neglect at home, school and in the community, it is difficult to determine whether or not a child's neighbourhood is safe.²⁸⁶ However, even the perception that it is unsafe can lead to health consequences. For

example, the perceived safety of a child's neighbourhood can influence levels of physical activity (e.g. less use or availability of bicycle paths, parks and other recreational spaces) with resulting health outcomes for children.^{287, 288} One study found that children living in a neighbourhood that their parents perceived to be unsafe were more likely to be overweight at age seven (the impact of the built environment on overweight/obesity is discussed in Chapter 5).²⁸⁹ Although most primary caregivers surveyed for the 2004/05 NLSCY indicated that they felt their neighbourhoods were safe, more than one-fifth (22%) of those with children between the ages of 0 and 5 years felt they lived in neighbourhoods with a low degree of safety.¹⁴ Neighbourhood cohesion is an indicator of a person's perception of their neighbours and the sense of support they feel from those neighbours. The 2004/05 NLSCY data also showed 14% of primary caregivers of children aged 0 to 5 years report low neighbourhood cohesion. This indicator has been linked to higher levels of conduct disorder, hyperactivity, emotional disorder and non-sports related injuries among children aged 4 to 11 years.²⁹⁰

Environmental exposures

Children are at risk from harmful exposures during the early years of life (e.g. air pollution, prolonged exposure to ultraviolet radiation from the sun). While many environmental exposures are not well documented, there is enough information available to highlight a number of areas. One adverse exposure for which there are prevalence data and evidence of health impact is environmental tobacco smoke. In 2007, 7% of Canadian children aged 0 to 11 years were reported to be exposed to second-hand smoke at home.²⁹¹ These children are more likely to die from SIDS or to develop health conditions such as asthma, ear infections or lower respiratory tract problems than unexposed children. It has also been shown that a child's cognitive abilities may be affected by exposure to second-hand smoke.²⁹²

For other exposures, some knowledge of the negative health outcomes associated with them exists but the extent to which children in Canada are exposed is unknown. Exposure to mould is a concern because it can contribute to allergic reactions and respiratory diseases. In fact, symptoms of asthma can be worsened

by exposure to a range of contaminants, including mould, found in indoor and outdoor air.²⁹³⁻²⁹⁵ Young children are also affected by exposure to even very low levels of lead, which can cause learning disabilities and other harmful effects on their development.^{293, 296, 297} There is also evidence that parental occupational exposure to pesticides may be associated with certain childhood cancers.²⁹⁸⁻³⁰¹ For both developing fetuses and young children, there are negative health risks associated with exposure to methyl mercury through either direct consumption or maternal consumption of fish.³⁰² Currently, the Government of Canada is moving forward with proposed regulations to prohibit the advertisement and importation of polycarbonate plastic baby bottles that contain bisphenol A, as well as preventing the use of six types of phthalate chemicals in manufacturing soft vinyl toys and child-care products given their potential for negative health effects.³⁰³⁻³⁰⁶

Healthy behaviours

Behaviours on the part of both parents and children can have an impact on child health. Parental behaviour, whether negative or positive, can have a corresponding influence on a child's health from conception, through critical fetal development periods and infancy, to later childhood.

Adult behaviours

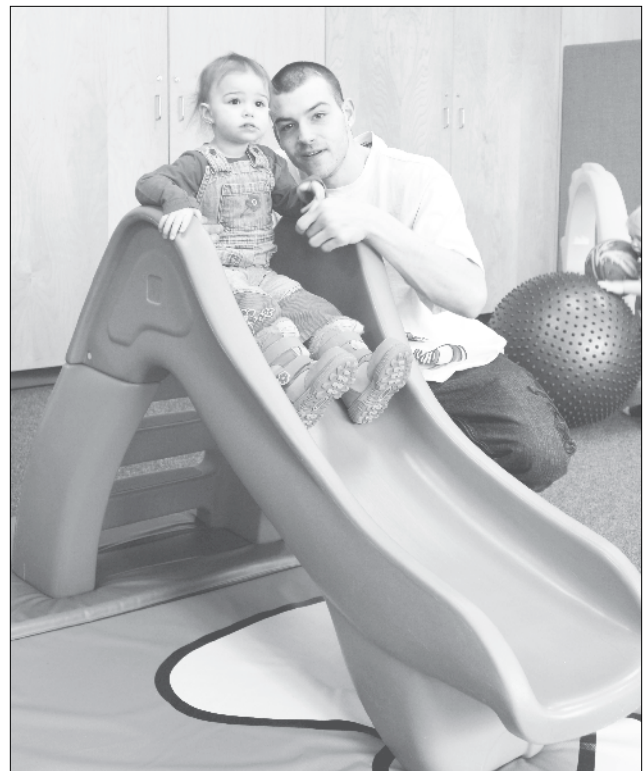
Breastfeeding

Maternal practices such as breastfeeding can positively influence an infant's start in life. The benefits to children of breastfeeding include a reduced risk of asthma, obesity and fewer cases of ear infections.³⁰⁷⁻³⁰⁹ Canada's breastfeeding initiation rates have increased dramatically over the last four decades (25% of mothers initiated breastfeeding in 1965 compared to 90% of mothers in 2006-07).^{310, 311} Breastfeeding initiation rates vary among populations, however, and are generally lower for younger mothers (76% of those aged 15 to 19 years), single mothers (78%), Aboriginal off-reserve mothers (82%) and First Nations on-reserve mothers (63%), and higher among immigrant mothers (92%).^{275, 312} Breastfeeding exclusively for a minimum of six months is recommended

for healthy full-term infants by the Public Health Agency of Canada, Health Canada and the Canadian Paediatric Society.^{312, 313} In 2005, just over half of Canadian mothers reported breastfeeding for six months or more, but only 14% did so exclusively.^{311, 314}

Smoking

While efforts to reduce the smoking rates of parents during pregnancy have had an impact in recent years, there are still some parents in Canada who smoke while pregnant.^{311, 315} In 2006-07, 11% of Canadian women reported smoking during the last three months of their pregnancy and nearly 17% reported smoking during the first year after birth.³¹¹ In 2002-03, more than one-third (37%) of First Nations mothers on reserve reported smoking during pregnancy.^{50, 316} Health risks are present with maternal exposure to second-hand smoke during pregnancy as well. About 25% of women who gave birth in 2006-07 reported living with someone who smoked during their pregnancy.³¹¹ Evidence shows that the short-



term health impacts and complications associated with this behaviour include higher rates of miscarriage, pre-term birth and SIDS.³¹⁷ Longer-term impacts for children include increased risk of ear and respiratory infections, asthma and learning difficulties.^{50, 317, 318}

Alcohol and drugs

As with smoking, alcohol consumption during pregnancy has declined in recent years.³¹² In 2006-07, the Maternal Experiences Survey (MES) asked women about their drinking habits during pregnancy. Nearly 11% percent of women who had been pregnant reported drinking some amount of alcohol during their last pregnancy.³¹¹ Of these women, 1% consumed alcohol more than once a week.³¹¹ A serious consequence of consuming alcohol during pregnancy is giving birth to a child with Fetal Alcohol Spectrum Disorder (FASD). Approximately 1% of all babies in Canada (more than 3,000 per year) are born with FASD.³¹⁹ This estimate is thought to be low since the signs and symptoms associated with FASD are often hard to detect and may very well go unnoticed until later on in life.³²⁰ FASD in children has been linked to learning difficulties and behavioural issues, such as not understanding the consequences of actions and difficulties in social settings.^{319, 321-323}

As measured by the 2006-07 MES, the use of street drugs (marijuana, cocaine, heroin, ecstasy, sniffing glue, gasoline or other solvents) three months prior to pregnancy is estimated to be 7%, but drops substantially to 1% once the pregnancy is recognized.^{311, 324} Prenatal use of drugs, such as heroin and cocaine, can lead to neonatal abstinence syndrome, where the newborn begins life with an addiction to the drug to which he or she was prenatally exposed.³²⁵ This causes immediate withdrawal symptoms after birth, which may include sleep problems, fever, sweating and poor feeding habits.³²⁵ Prenatal cocaine exposure has also been linked to conditions such as oppositional defiant disorder and ADHD.³²⁶

Sexually transmitted infections

Some sexually transmitted infections (STIs) are on the rise among young women in Canada, including human immunodeficiency virus (HIV), syphilis and chlamydia infections, increasing the potential risk of vertical

(mother-to-child) transmissions of these infections.^{327, 328} For example, cases of congenital syphilis have increased over the past decade from two cases or less to eight cases per year nationally.^{329, 330} Although the number of cases of vertical transmission of STIs and viral diseases is small, this type of adverse exposure can threaten the immediate and long-term health of the fetus and newborn.³³¹ A congenital syphilis infection can lead to miscarriage, still or premature birth, and low birth weight.^{148, 332} Over the lifecourse, babies with congenital syphilis may experience hearing loss, developmental delays, and skin and bone abnormalities.^{332, 333} Chlamydial infections have been increasing in recent years and are known to cause intrauterine fetal death, low birth weight, eye infections and pneumonia.³³⁴⁻³³⁶

Child behaviours

After children are born, their own behaviours begin to have an impact on their health, although their actions are determined (to a great extent) by their social and physical environment. Physical activity levels, for example, reflect parental behaviours, access to safe play areas and the opportunity to participate in organized sports. Likewise, nutritional behaviours are the result of what foods are available to children in their home. Children who experience poor nutrition and a lack of daily physical activity are more likely to have excess body weight.

Physical activity

While the majority of Canadian children regularly participate in physical activities, 16% of children aged 6 to 11 years are physically active less than seven hours per week, which is less than recommended under *Canada's Physical Activity Guidelines for Children and Youth*.^{179, 337} Research shows that each hour a child spends being sedentary significantly increases their risk of being overweight. In 2004, children aged 6 to 11 years who reported spending more than two hours a day in front of the television or computer were almost twice as likely to be overweight or obese (35%) as their peers who spent an hour or less (18%).¹⁷⁹

Nutrition

Findings on nutritional practices from the 2004 Canadian Community Health Survey indicate that 70% of children aged 4 to 8 years do not meet the minimum recommended daily servings of fruits and vegetables, more than one-quarter do not meet the daily minimum grain servings, and more than one-third of those aged 4 to 9 years do not consume the recommended daily minimum servings of milk products or substitutes.^{338, 339} Survey results also suggest that 7% of children, aged 4 to 8 years, exceed the suggested percentage of total calories from fat.³³⁸ An increased intake of carbohydrates and simple sugars, larger portion sizes and an increased consumption of high calorie fast foods have all contributed to higher risks for childhood obesity.^{188, 340-342} Food affordability also comes into play in making food choices. A greater proportion of Aboriginal families are faced with food affordability issues than non-Aboriginal families, especially in the North where transportation costs factor into higher prices for healthy perishable foods such as milk and fresh fruits.^{160, 343, 344}

Summary

Most Canadian children experience the conditions necessary for healthy outcomes, such as adequate income, food security, acceptable housing, access to early and late childhood education, and strong connections to family and community. However, certain social and physical influences can have negative impacts on their health. These outcomes may be apparent in childhood and some may persist over the lifecourse, while others may not appear until later in life. For the purposes of this report, three of these factors – SES and developmental opportunities, abuse and neglect, and prenatal risks – will be further examined in Chapter 5 along with three key health issues highlighted in Chapter 3 (mental health and disorders, obesity and unintentional injuries). These six issues represent areas in which there is potential to make a significant difference in the health of Canadian children through interventions to address persistent or worsening trends and to prevent serious long-term negative health outcomes.

Setting Trajectories for a Healthy Life



Examining health in the context of the lifecourse model, as explained in Chapter 2, presents a view of health that acknowledges the complex interrelationships among biological, behavioural, psychological and social factors that contribute to health outcomes over a lifetime.²⁴ Along the pathway from infancy to childhood to adulthood, events and exposures occur that can influence health in directions of advantage or disadvantage.³ The strength of this approach is that it identifies critical life stages for promoting positive health outcomes and mitigating negative outcomes.²³ Childhood includes several critical periods of opportunity, such as prenatal, preschool and school-age, for creating optimal conditions for health and development.

From this examination of children's health and well-being, six areas of concern emerge, including: socio-economic status and developmental opportunities; abuse and neglect; prenatal risks; mental health and disorders; obesity; and unintentional injuries. Attention to these areas is critical because they can have immediate and long-term negative impacts on the health of Canada's children, they are persistent or worsening (including growing gaps between and within populations), and there

is evidence that they are, in part, preventable through individual and social action.

In this chapter, examples of best practices from interventions as well as longitudinal research demonstrate what can be accomplished in setting healthy lifecourse trajectories and helping children to return to a path of good health. While there are likely many examples of proven and promising actions, only some are profiled here. These examples highlight the progress that has been made, as well as how to move forward in making further progress in these areas.

Socio-economic status and developmental opportunities

The socio-economic environment sets the context for the determinants of health in which children are born, grow and develop. Those environments that provide opportunities for positive development increase the likelihood of a healthy lifecourse, just as the absence of these same opportunities can have negative consequences for short- and long-term health outcomes.²² The following discussion highlights three types of interventions that are making a difference in terms of addressing inequalities in children's SES and developmental opportunities:

- broad poverty strategies;
- broad family and children's strategies; and
- programs for families and children.

Each has either shown success and could be applied more broadly, or is an area of promise where more work and investigation is required.

Broad poverty strategies

Efforts to meet basic needs are vitally important to families, as some still do not have the income, housing and/or food security required to achieve the conditions necessary for healthy child development.³⁴⁵

Existing investments have contributed to the prevention and reduction of poverty in Canada. National efforts such as the *Goods and Services Tax Credit* and *Employment Insurance* (which provide assistance to low-income Canadians and those facing periods of unemployment) play an important role in preventing child and family

poverty.²²⁹ Investments have also been made to improve family housing access (e.g. the *National Housing Act*) and to meet minimum requirements for residential health and safety (e.g. the *Residential Rehabilitation Assistance Program* and the *Emergency Repair Program*).^{241, 346-348} Further, Canadian and provincial/territorial government investments have contributed to increasing the supply of affordable housing for Aboriginals off reserve through efforts such as the *Affordable Housing Initiative*.³⁴⁹ Other broad investments that help to reduce poverty include enhancements to financial supports for vulnerable families (e.g. the *Canada Child Tax Benefit*, *National Child Benefit Supplement*, *Child Tax Credit* and *Working Income Tax Benefit*).^{350, 351}

While the reduction of poverty is almost universally acknowledged as an important social and economic policy, evidence suggests that more could be done

to reduce poverty in Canada.^{30, 352} For example, the Standing Senate Committee on Human Rights, the Senate Subcommittee on Poverty, Housing, and Homelessness, and the Standing Senate Committee on Agriculture and Forestry have strongly recommended the creation of a national strategy to combat poverty in addition to the development of preventive measures aimed specifically at high-risk families.³⁵³⁻³⁵⁵ The House of Commons Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities is reporting on the federal contribution to reducing poverty in Canada.³⁵⁶ Other similarly affluent countries (e.g. Finland and the U.K.), as well as some Canadian provinces and organizations (e.g. Quebec, Newfoundland and Labrador, Ontario and the Assembly of First Nations) are exploring this approach to poverty reduction (see textbox *Child Poverty in Finland and the U.K.*).^{219, 357-361} As with other Nordic countries, Finland's low rate of child

Child Poverty in Finland and the U.K.

Looking at child poverty rates, some countries have had more success than others. Finland and the U.K. are two such countries, with rates that are lower than others as a result of investments in broad family and social policies.

Although Finland is currently acknowledged for its successful social policies, this has not always been the case. During much of the last century, Finland reported much higher child poverty rates than those of the other Nordic countries. However, once Finland adopted social policies similar to these countries it experienced a decline in poverty rates.³⁶² Currently, Finland reports less than 5% child poverty – the third lowest of 40 OECD countries, after Sweden and Denmark.^{362, 364}

Finland's success can be attributed to:

- a large redistribution of income through taxes and transfers compared to other countries;³⁶²
- family policies and dual-earner family support (e.g. subsidized child care);³⁶² and
- public support for broad family and social policy.³⁶²

In 1999, the U.K. announced a mission to halve child poverty by 2010 and to end it by 2020.^{219, 365} This was to be undertaken through a series of integrated policies that included the strengthening of family policies as well as enhancement of labour market participation for those who can work, support and promotion of financial security for families, and improved access to high-quality public services.^{219, 365} To date, the U.K. has introduced or established: changes to taxation; increases to minimum wage; tax credits for low income; supports for parents; and spending on education, employment, health and housing assistance.²¹⁹ Although the U.K. is unlikely to meet its 2010 goal, there has been a 21% reduction in the number of children living in poverty since these policy changes were put in place.³⁶⁵ Recognizing there is still more work to be done, the British government began increasing the resources available to this initiative in 2006.^{365, 366}

poverty can be attributed in part to taxes and transfers as well as broad family policies that support dual-income families.³⁶² Within Canada, Quebec's Family Policy (1997) is an example, given its part in helping the province to achieve a consistent decline in child poverty rates over the last 10 years (see textbox *Broad Family/Children's Strategies*).^{360, 363}

Broad family and children's strategies

The WHO Commission for Social Determinants of Health has called on governments to put in place an integrated policy framework or strategy for early childhood development.^{345, 367} This framework would require co-ordination and policy cohesion and would articulate the roles and responsibilities of all sectors.³⁴⁵ As such,

Broad Family/Children's Strategies

Quebec's Family Policy

When the Quebec government introduced its new family policy in 1997, poverty reduction, equal opportunity, a social market economy, transition from welfare to the workforce and increased supports to working parents were among the targeted goals.³⁷⁴ The policy broadly promoted social investments in families to address income disparities and to support parents, child education and care issues. Through its family policy, the province of Quebec offers subsidized early childhood education and child care to parents of children less than five years of age. For low-income parents, these services are free.³⁷⁵ Special financial allowances are also provided for daycare services to help integrate children with disabilities.³⁷⁶ For those who pay a fee for educational daycare, the cost is minimal (\$7 per day) and includes a daily maximum of 10 consecutive hours, with snacks, meals and learning materials provided.³⁷⁷ Advocates of Quebec's child-care reforms have underlined their significant impact on reducing the barriers to employment for mothers of children less than five years of age. The employment rate for this group is estimated to have grown from approximately 61% to 69% over the last few years – from below to above the Canadian average. It is estimated that single-year revenues generated from this additional employment cover about 40% of the cost of these programs and services, with the remainder covered by the province.³⁷⁸ Evaluations of the initiative suggest that although use is distributed across income levels, there is a disproportionate need among lower-income families that may not be met.^{374, 378} As well, programs do not always meet the

child care needs of some families (e.g. parents who work shift hours), and quality and accessibility may vary.³⁷⁹ Additional commentary also suggests program use is lower among children with disabilities and from ethnic families, and could be further expanded in Aboriginal communities.³⁷⁴

Sure Start Local Programmes

In 1998, the Sure Start Programme was launched in England to provide programs and services to improve the health and well-being of all children (up to the age of five), particularly those children and their families residing in disadvantaged communities. The end goal is to promote the physical, intellectual and social development of these babies and young children, while supporting the additional needs of their families, so that they have a greater opportunity to do well at home, in school and later in life. Programs and services are offered through Sure Start Children's Centres, and are both universal and targeted in approach. Each Centre is different and operates based on the specific needs of the community it serves. Centre offerings can range from early education and child care to health services and family support through parenting skills classes and job search assistance. Every Centre is required to offer home visitation and outreach services to all new parents. There are currently over 2,900 Centres across the country with plans to have one in every community in England by 2010. Programs have also been started in Scotland, Ireland and Wales. Criticism of the program suggests that those most in need are still not benefiting from the initiative, with uptake greatest among those in higher-income households.^{371, 380-382}

early childhood development would be integrated into the agendas of all sectors so that childhood health and development concerns are addressed in all policy decisions. The framework would also require government engagement of civil society organizations, caregivers and communities, allowing for local-level initiatives that provide families with financial and other supports. It would also facilitate effective early years program delivery, safer residential environments and increased community capacity for enhancing the lives of children regardless of SES. Such a strategy would involve a birth-to-school approach ensuring that critical development stages are considered in decision-making. Countries with broad family and children's strategies that include opportunities for families and early childhood education report higher school readiness scores and lower child poverty rates.^{268, 368, 369}

Canada has no such strategy and, as noted in Chapter 4, continues to score poorly on the UNICEF Report Card on child poverty, elements of child well-being and delivery of early childhood development programs when compared to other similarly developed nations.^{274, 345, 365} In many instances, frameworks are proposed that recognize the general importance of issues (such as addressing childhood poverty and early child development) but often these remain conceptual rather than action-oriented.²⁷⁴ It is important to note that in Canada, a framework or strategy following the WHO approach may be more difficult to achieve given the federal/provincial and territorial context in which it would be required to operate.

Although Canada does not have a broad family/children's strategy in place, other countries and some provinces in Canada are exploring this approach (see textbox *Broad Family/Children's Strategies*). Healthy Child Manitoba and Quebec's family policy, for example, are intended to ensure the development of child-friendly policies and a levelling of opportunities for all children regardless of region or economic status.^{30, 370, 371} A program such as Healthy Child Manitoba is a long-term cross-departmental prevention strategy for children and families that seeks to help children be physically and emotionally healthy, safe and secure, as well as successful at learning.^{30, 372} It is based on evidence that strengthening families can strengthen communities, and has established community-



relevant parent/child coalitions across the province, including in rural and northern regions.^{30, 372} Ontario has recently announced its intention to implement optional full-day learning for four- and five-year-olds as part of a long-term initiative to integrate children (aged 0 to 12 years) into a consolidated network of family care and learning centres supporting children and families and partnering with local schools.³⁷³ Expected long-term benefits include improvements to children's literacy, numeracy and school completion, as well as the building of greater resiliency and better health outcomes. In collaboration with Ontario's Poverty Reduction Strategy, the first phase of the program will be implemented among lower-income neighbourhoods.³⁷³

Programs for families and children

The *Early Childhood Development Knowledge Network* of the *WHO Commission on the Social Determinants of Health* refers to early childhood development (ECD) as a "powerful equalizer" because it lays the critical foundation necessary to flourish – regardless of SES – and

because the greatest impact of ECD can be seen among the most disadvantaged.^{345, 367} Investments in ECD can allow children to grow into healthy adults who contribute economically and socially to society.³⁴⁵ Actions to improve ECD can also have a profound impact on children's health based on its symbiotic relationship with low SES. While low SES can negatively impact ECD, efforts to positively influence ECD can help to mitigate the impacts of low SES and even work to improve it over time as the child becomes an adult.^{345, 367}

The greatest returns on taxpayers' investments are those targeted to children.^{29, 383} Ensuring a healthy start reduces the long-term costs associated with health care, addictions, crime and unemployment in the future.^{29, 383} In fact, it is estimated that \$1 spent in the early years saves between \$3 and \$9 in future spending on health, social and justice services.³⁸⁴ Investments targeted to children allow them to become better educated and to be well-adjusted and more productive adults.³⁸³ One of the areas of greatest return is in early childhood education (ECE) and care. A U.S. longitudinal study, the High/Scope Perry Preschool Project, illustrates the importance of early investment by showing that children who participate in programs can have better socio-economic outcomes as adults (see textbox *High/Scope Perry Preschool Program*).^{385, 386}

Canada has made broad investments that support families with children, such as the federal/provincial/territorial Early Childhood Development Agreement (2000) and the Multilateral Framework on Early Learning and Child Care (2003), which focus on initiatives targeted at children under six years of age and their families.⁹³ More recently, the Universal Child Care Plan (\$100 per month for each child under six years of age) was established to assist with child care. As well, Canada has invested in expanded parental leave.³⁸⁸ Broad investments to provide assistance to First Nations communities have also been made through the First Nations Child and Family Services Program, which provides culturally relevant prevention and protection services for children and families that are on par with services offered elsewhere in the province or territory of residence.³⁸⁹ Similarly, broad investments for recent immigrants through the Immigrant Settlement and Adaptation Program help families adapt to Canadian society. As part of this program, Canada invests and

High/Scope Perry Preschool Program

The High/Scope Perry Preschool Program remains a quintessential example of the benefit of investing in ECD, highlighting not only the long-term benefits of these investments but also the importance of longitudinal data. The High/Scope Perry Preschool Program is a U.S. initiative that started in the 1960s to incorporate active learning within a home-visit component for children living in low-income households who were believed to be at risk of failing in school. The program's goal was to stimulate "dispositions in children which enabled them to achieve greater success" as they began their schooling.³⁸⁷ The study found that adults at age 40 who had participated in the preschool program had higher earnings, were more likely to hold a job, were less likely to have committed crimes, and were more likely to have graduated from high school than their non-participating peers.^{385, 386} Recent research on the limitations of this study reported that cost benefits and rates of return are substantially less than originally estimated; however, the economic and social returns are still statistically significant and important.²⁸

partners with provinces and territories, service delivery organizations and stakeholders to create support networks for health care, promotion and prevention. For example, investments through hospitals such as Toronto's Hospital for Sick Children offer improved access and culturally relevant services to new immigrants.^{390, 391}

As a result of these investments – and many others made at the provincial/territorial and municipal levels (e.g. public education and offering of full-day kindergarten) – Canada is doing well overall in several areas of child health, development and well-being. As noted earlier, however, the country does not fare as well as others on some issues and existing efforts are not meeting the needs of all Canadians. For example, a 2006 Canadian study on early childhood education and care shows that despite the availability of extended parental leave many mothers do not take it.³⁹² Some are not eligible (e.g. self-employed), some choose not to take leave, and others

cannot afford to live on employment insurance benefits (55% of their salary) that are not supplemented by their employer.³⁹²

International comparisons indicate that countries that have further expanded parental leave for parents with young children are experiencing better childhood outcomes. Sweden (which reports lower rates of child poverty and higher scores on indicators of early childhood education and care) has established parental leave with coverage and flexibility that extend well into childhood.^{161, 231, 571} It provides up to a year and a half of parental leave with 80% of salary covered by the state (to a monthly wage ceiling). An additional month for the other parent, as well as a further 90 days of leave for either parent is available as needed.^{161, 571} Additional leave can also be taken any time for child illness, and parents can reduce work time by 25% until their youngest child reaches eight years of age.¹⁶¹

In terms of meeting the needs of specific populations, children of recent immigrants, Aboriginal children, those living with disability and/or mental illness or in a household with a parent facing these challenges, and children in single-parent homes appear to be most at risk.^{30, 267, 393} Some initiatives that specifically target vulnerable populations, however, have shown that those at risk can be successfully reached.³⁹⁴

The Community Action Program for Children is one such example. Building on the capacity of communities and on inter-sectoral partnerships to identify and respond to the needs of local children, it provides funding to community groups and coalitions to address the health and development of children living in conditions of risk (e.g. low income, single parents, newcomers to Canada).³⁹⁴⁻³⁹⁶ National and regional evaluations of the program have found benefits for families participating in these programs, including lower rates of maternal depression and sense of isolation, and less emotional and behavioural issues reported among children.³⁹⁷

The Aboriginal Head Start On Reserve program, which has been credited with positively influencing the developmental path of many Aboriginal children (see "Giving Children a Head Start" in the textbox *Aboriginal Children in Canada*) is yet another example of the success of targeted initiatives. However, the program serves only

9,000 or 13% to 15% of First Nations children from birth to six years of age, demonstrating that the expansion of successful initiatives targeted at vulnerable populations and/or the creation of further targeted programs may be warranted.³⁹⁸

While individuals and populations have unique experiences and a single population is not universally more vulnerable, there is clearly a need to reach more Canadians and targeted programs provide one such vehicle. The textbox, *Aboriginal Children in Canada*, highlights select Aboriginal programs as examples of how individuals and communities are addressing the unique needs of this population.

Important opportunities to influence children's development include school environments, which can be critical in promoting lifelong healthy practices. For example, the Joint Consortium for School Health (2005) brings together key representatives from the federal, provincial and territorial governments responsible for health and education across Canada to build capacity to promote the health of children in the school setting.^{411, 412} Recognizing health issues facing children today, the Consortium is a venue to share information, learn from other's experiences and identify best practices to improve aspects of health, such as physical activity, nutrition, mental health, sexual health and injury prevention.⁴¹¹ The Consortium also promotes comprehensive school health, a framework that encompasses the whole school environment with actions addressing the social and physical environment, teaching and learning, healthy school policy, and partnerships and services.⁴¹¹ Research has shown that comprehensive school health is an effective way to tap into the linkage between health and education outcomes and encourage healthy behaviours that can last a lifetime.^{357, 388}

Positive childhood development and the promotion of healthy behaviours can also occur in the "after-school" timeslot between when a child finishes the school day and, typically, the time spent at home with family (a critical period for school-aged children with working parents). That's when – with little to no supervision – poor choices on the part of children and youth can lead to accidents and injury, consumption of unhealthy foods, and excessive/unmonitored television viewing and

computer use. Peer influence is also a strong factor in determining the types of activities in which children take part at this time of day.^{413, 414} For these reasons, the after-school period has been identified as crucial to influencing the health trajectories of school-aged children.⁴¹⁵

Children, families and communities can take advantage of this time by using it as an opportunity. Quality after-school programs can allow parents to worry less by knowing where their children are and what they are doing, and children may experience increased opportunities to develop social, physical, leadership and creative skills. When communities take part, cities and local agencies can experience stronger partnerships.⁴¹⁴ Furthermore, when physical activity and healthy eating are components of organized after-school activities, there are residual benefits (see textbox *Australia Gets Active After School*). Canada's 2009 *Report Card on Physical Activity for Children and Youth* recommends a number of ways in which the after-school hours can be harnessed by communities and community programming to tackle a portion of the physical activity targets for children and youth. In this way, these programs can share in the responsibility of attaining physical activity targets with schools and families.⁴¹⁴

Abuse and neglect

There are an estimated 22 reported cases of maltreatment per 1,000 children from birth to age 11 in Canada and that number is believed to be increasing.²⁴⁶ Evidence shows that maltreatment can negatively influence risk factors for health and well-being such as educational attainment, trust, aggression, social connectedness and sexual behaviours, and result in adverse health outcomes in childhood, later in life and across generations.^{30, 246, 250, 259, 261} Children can be affected by abuse at home, at school and among peers.^{246, 262} Even before birth, there is a prenatal risk of abuse as 6% of women are estimated to experience abuse while pregnant and this trauma can negatively impact the fetus.²⁵¹⁻²⁵⁴ The following discussion highlights three key areas that contribute to reducing abuse and neglect and mitigating its impact on the health and well-being of children:

- education and awareness;
- community and health care services; and
- protective care.

Each has either shown success and could be applied more broadly, or is an area of promise where more work and investigation is required.

Australia Gets Active After School

Introduced in 2005, Australia's Active After-school Communities program is a national initiative that provides primary school-aged children with access to free, structured physical activity programs during the after-school period. The program ensures that children across the country can participate in structured physical activities after school free of charge by providing facilities, gyms, pools, games, sports programs and healthy snack options.⁴¹⁵ It aims to engage traditionally non-active children in structured physical activities within local community organizations, including sporting clubs.⁴¹⁵

According to a 2008 evaluation of the program, participating children have nearly doubled the

time they spend in sports activities, and two-thirds expressed the desire to join a new sports club.^{415, 416} Community sports clubs are also seeing increased enrolment and are creating a greater number of children's programs, since more children are inclined to join them as they are introduced to different sports in the supportive, encouraging environment of the Active After-school Communities program.⁴¹⁶ Evidence shows that there are indirect benefits associated with the programs such as sleeping and eating better as well as greater concentration at school in children who had previously struggled academically.⁴¹⁶ The evaluation supports this testimony, revealing that participating children benefited from, among other things, improved motor skills, improved leadership and thinking skills, and greater self-confidence.⁴¹⁵

Aboriginal Children in Canada*

"We will raise a generation of First Nations, Inuit and Métis children and youth who do not have to recover from their childhoods. It starts now, with all our strength, courage, wisdom and commitment."

— Declaration from the Many Hands, One Dream Summit, Victoria, British Columbia, 2005.

As of 2006, there were approximately 1.17 million First Nations, Métis and Inuit people in Canada.¹³⁰ Of those, 273,000 – or almost one-quarter (23%) – were children under the age of 12 and the majority (70%) lived off reserve.¹³⁰ Compared to the Canadian population, the Aboriginal population is on average significantly younger and, with higher fertility rates among women, that trend will not change in the foreseeable future.⁴⁵ Interventions in childhood health and well-being present a unique opportunity to make a significant impact on the health of Aboriginal peoples through investments made on behalf of their youngest members. Providing pregnant women and parents of infants and young children with the supports they need during pregnancy, birth and parenting is important to ensuring the best possible health and development of infants and young children. And in fact, if these supports are consistently put in place, as a country, Canada is likely to reduce the gap in health and developmental outcomes between different segments of Canadian society and between Canada and other countries.

It is an opportunity that is two-fold. On the one hand, it can be seen as a move to improve the health of Aboriginal peoples. On the other hand it is a chance to get back to the roots of Aboriginal health, wellness and healing that involve the child, the family, the community and the greater environment. Through centuries of colonization, some of these experiences and values have been lost along with other cultural and spiritual knowledge and practices.⁴⁴ Colonization has led to dislocation from traditional lands, cultural suppression, political marginalization, forced assimilation and the inequalities in health experienced by some First Nations, Métis and Inuit.³⁹⁹ In particular, residential schools created a significant disruption to the passage of child-caring knowledge and parenting skills within First Nations and Inuit populations.^{400, 401} As seen in Chapters 3 and 4, Aboriginal children fall behind on many measures of health status in comparison to their non-Aboriginal peers. What follows are examples that demonstrate how First Nations, Métis

and Inuit communities are successfully creating the conditions for lifelong health and development.

Aboriginal Healthy Babies, Healthy Children Program

The Aboriginal Healthy Babies Healthy Children (AHBHC) Program is part of the Aboriginal Healing and Wellness Strategy (AHWS) – a partnership consisting of 14 independent First Nations, Aboriginal, political and territorial organizations and the Government of Ontario to promote health and healing among the province's Aboriginal population. The goal of the AHBHC program is to improve the long-term health prospects of Aboriginal children from birth to six years of age. It is delivered through home visiting, early identification, screening and service co-ordination/referrals. The focus of AHBHC programming is on preparation for parenting, and prenatal and postpartum care through the utilization of Aboriginal cultural knowledge and practices. As part of the AHWS, violence and abuse in the home and community are addressed through education and awareness and the promotion of violence-free lifestyles. Service co-ordination and referral to other AHWS programs and services provided by community wellness workers, shelters and family violence healing programs, healing lodges, and a clearinghouse for anti-violence information are also utilized. Native traditional teachings are a part of all services in order to ensure that the unique needs of Aboriginal children, families and communities are addressed. Among the early successes of the AHBHC program are an increase in breastfeeding rates, better dental health among infants and children, improved eating habits among expectant mothers and their families, and a decrease in smoking rates and exposure to second-hand smoke through education services for parents and families.⁴⁰² An evaluation of the program found that participating children had higher scores in infant development measures that included self-help, gross motor skills, fine motor skills and language development. Parents also reported that they felt more confident about their parenting and that they made better use of community services.⁴⁰³

Giving Children a Head Start

Created in 1965, Head Start is the longest-running national school readiness program in the U.S. and has demonstrated success in reaching low-income children and their families by providing comprehensive education, health, nutrition and parent involvement services. Support is provided to the entire Head Start community through a Head Start Association by advocating for policies that strengthen services to Head Start children and their families, providing extensive training and professional development to Head Start staff, and by developing and disseminating research, information and resources that enrich Head Start program delivery. To date, nearly 25 million preschool-aged children have benefited from Head Start.⁴⁰⁴ An evaluation of three-year-olds who had participated in the program showed that Head Start programs have a demonstrated positive impact on cognitive development, language development, social-emotional development and parenting impacts such as employment and father-child interaction.⁴⁰⁵

Following the U.S. framework, Canada's Aboriginal Head Start in Urban and Northern Communities (1995) and Aboriginal Head Start On Reserve (1998) programs were established to address the unique challenges facing First Nations, Inuit and Métis children and their families. The programs are designed to prepare Aboriginal children (up to the age of six) for school by helping to meet their emotional, social, health, nutritional and psychological needs. They provide an opportunity for preschoolers to learn traditional languages, culture and values – along with school readiness skills – while acquiring healthy behaviours. Programs are locally controlled and designed, and are based on six components: education; nutrition; culture and language; social support; parental involvement; and health promotion. Opportunities for Aboriginal children to learn their indigenous language is an important way to support their cultural identity, knowledge and connectedness to their community. Cultural identity – a strong component of self-esteem – is a determinant of social competence linked to healthy development and school success.⁴⁰⁶ The 2002-03 process evaluation of the Aboriginal Head Start On Reserve program demonstrated that it is effective in producing positive changes in children's readiness to learn and in First Nations language development. Kindergarten teachers of

Aboriginal Head Start graduates found that participant children had better self-esteem, basic skills, were stronger learners, and displayed more independence and confidence compared with those who did not have the opportunity to participate in the program.⁴⁰⁷

Eel Ground First Nation School

More than 800 Mi'kmaq people call the Eel Ground First Nation in northeastern New Brunswick home. Within their community is a school for their children (from kindergarten through Grade 8) that has garnered attention across Canada and abroad for its unique programs and opportunities that are allowing these children to thrive in today's fast-paced technological environment while maintaining tradition.⁴⁰⁸ Among the Eel Ground School resources are fully equipped computer laboratories and classrooms that invite hands-on use of hardware and software across the curriculum starting from the earliest grades. Relying on technology, the school supports project-based learning where students construct knowledge using a framework that follows through planning, process, evaluation and reflection.⁴⁰⁹ Videoconferencing also allows for interactive visits made in "real-time" by a variety of people, from Mi'kmaq Elders, to students in First Nations and Inuit communities across Canada, to world renowned children's authors, and expands information sharing between communities.^{408, 410} All students learn about their Mi'kmaq culture and traditions, including the Mi'kmaq language, often with the guidance of software programs. Other activities include student-driven projects – many of which have dealt with social and health issues such as FASD, drug abuse and West Nile Virus, and won numerous awards. Additionally, students learn about other lifestyle and health issues that are important to their growth and development through initiatives such as the school's diabetes screening program.⁴⁰⁸ The unique focus of the school on traditions and culture, combined with the incorporation of new technologies, has contributed to an increase in enrolment which has tripled in the last 30 years.⁴⁰⁸

*The term 'Aboriginal' is used to refer collectively to all three constitutionally recognized groups – Indian, Inuit and Métis. Although not constitutionally recognized, the newer term 'First Nation' is used to describe Status Indians recognized under the federal *Indian Act*. When data exists to support discussion about these distinct population groups, specific details are provided for clarity.

Education and awareness

Canada has taken steps to enhance awareness and knowledge of family violence, including more effective ways to address it. For example, Canada's Family Violence Initiative was established in 1988 as a cross-government effort that aims to: promote public awareness of the risk factors of family violence and the need for public involvement in responding to the problem; strengthen the ability of the criminal justice, health and housing systems to respond to the problem; and support data collection, research and evaluation efforts to identify effective interventions.⁴¹⁷ In addition, Canada collects information regarding the incidence of child maltreatment (see textbox *Keeping Track of Child Abuse and Neglect*), to increase awareness about family violence, and to strengthen capacity for addressing child abuse and neglect.²⁴⁶

While measuring the problem contributes to awareness and understanding, educational interventions can provide children with knowledge about their rights, as well as the skills to identify, report and seek help in situations of abuse.²⁵⁵ They can also teach children about social/emotional competence and empathy. Efforts in this regard have demonstrated success in reducing levels of aggression among participants (see textbox *Roots of Empathy*).⁴¹⁹ Studies have shown that children who are aggressive are more likely to bully their peers and to be

the perpetrators of family violence as adults.^{205, 420, 421}

The WHO states that child maltreatment by parents and caregivers can be reduced by providing training programs on child development, non-violent discipline and problem-solving skills.^{422, 423} Education programs aimed at enhancing the awareness and skills of practitioners who are in contact with children who have experienced abuse (judges, prosecutors, teachers, police, health and social workers, psychologists) have also been shown to enable effective intervention.²⁵⁵

School-based programs, aimed at teaching children about abuse and how to protect themselves, are widely used by communities as part of broader abuse prevention strategies.⁴²⁵ Preventive education programs can help children understand concepts, promote disclosure, reduce self blame and help to disseminate information about abuse.⁴²⁶ A recent study found a lower incidence of reported childhood abuse among study participants who had experienced school-based programs compared to those who did not experience these programs.⁴²⁷ Although research shows that school-based programs have shown improvements in children's overall knowledge and reliance on protective behaviours, evidence also showed that this awareness can heighten perception of risk, increase fear of strangers, as well as increase aggressive behaviour towards peers and/or siblings.⁴²⁵ The overall effectiveness of school-based approaches for reducing prevalence and

Keeping Track of Child Abuse and Neglect

The CIS is a collaborative effort by federal, provincial and territorial governments, researchers, First Nations organizations, child advocacy groups, and child welfare service providers to increase understanding of abuse and neglect towards children.²⁴⁶ It examines the severity of investigated maltreatment, examines selected determinants of health (e.g. household income, quality of housing), and monitors short-term investigation outcomes (e.g. use of out-of-home placements and child welfare court). CIS collects data on alleged and substantiated cases of abuse and neglect, as well as the characteristics of the children, youth and families who are the subjects of

child welfare investigations for alleged child abuse and neglect. To date, two national CIS studies have been undertaken (1998 and 2003) and the results from a third are expected to be released in 2010. The CIS has set a foundation for a national surveillance system on child maltreatment that can be built upon to allow for comparisons over time and, in turn, a better understanding of risk factors.²⁴⁶ Evaluation of the CIS shows that the majority of variables, such as form and duration of maltreatment, indices of physical and emotional harm, referral sources and family and caregiver characteristics, were reliable over time.⁴¹⁸

Roots of Empathy

Roots of Empathy (ROE) is an evidence-based classroom program that has been shown to significantly reduce levels of aggression among schoolchildren from kindergarten to Grade 8 by raising social/emotional competence and increasing empathy. In Canada, the program is delivered in English and French and reaches urban, rural and remote populations, including Aboriginal communities. Roots of Empathy is also delivered internationally in New Zealand, the United States and the Isle of Man.⁴²⁴

The program involves a neighbourhood infant and parent visiting the classroom nine times over the school year. A trained instructor coaches students to observe the baby's development and to label the baby's feelings. Through experiential learning, the baby is the 'teacher' and a lever that the Instructor uses to help children identify and reflect on their own feelings and the feelings of others. This "emotional literacy" lays the foundation for more safe and caring classrooms. Children are more competent in understanding their own feelings and the feelings of others and are therefore less likely to physically, psychologically and

emotionally hurt each other through bullying and other behaviours.⁴¹⁹

Since 2000, there have been eight independent evaluations of the effectiveness of the ROE program as well as two reviews of the program as a whole. They have shown that, compared to control groups, ROE children demonstrate an increase in social/emotional knowledge and pro-social behaviour (e.g. sharing, helping and including), as well as decreased aggression with peers. Measuring these behaviours before and after the program (six months; one, two and three years) revealed continuous improvement over a three-year period and even after the end of the program. Participants also reported an increased sense of classroom belonging and peer acceptance, and the majority (88%) reported a decrease in classroom bullying. In contrast, 50% of comparison children who did not participate in the program showed an increase in proactive aggression.⁴²⁴ Addressing aggression early can lessen a child's tendency toward violence as an adult.⁴²¹

raising awareness requires further investigation, as results are varied due to study length, approach, and cultural and emotional factors.^{426, 427}

Community and health care services

The WHO's *Report on Preventing Child Maltreatment* (2006) suggests that a whole-of-population approach that balances healthy public policy with preventative and curative interventions can make a difference in combating child maltreatment.^{250, 422} It also states that, although the prevention of child abuse is almost universally acknowledged as an important social goal, not enough has been done to address and investigate the effectiveness of existing interventions.²⁵⁰

Improving community capacity and local leadership contributes to the prevention of violence, which can be achieved through initiatives such as child and parent life-skills training, incentives for high-risk adolescents to

complete school.⁴²⁸ Crime-prevention programs that target at risk individuals, such as those with aggressive and anti-social behaviours, and early use of drugs and alcohol, can also have positive long-term impacts.⁴²⁸ In the case of initiatives aimed at parents and caregivers, barriers (such as access to and timing of programs, expense and perception of program value) exist that may prevent them from acquiring the necessary skills, resources and supports to prevent abuse.²⁵⁵

Recent research indicates successful results for early prevention programs focused on families at risk. An analysis of 40 U.S.-based prevention programs demonstrated positive effects when they are provided to families with children aged 0 to 3 years at risk of child physical abuse and neglect.⁴²⁹ This finding is further supported by the success of a U.S. nurse home visitation model (see textbox *Bringing Prenatal Care to High-risk Mothers*).⁴³⁰ Results from this program demonstrate the

importance of reaching low-income women during their first pregnancy to establish healthy behaviours before unhealthy behaviours can develop.⁴³⁰ It also highlights the value of helping these mothers manage the broader social and economic factors that are influencing their choices and behaviours (e.g. education, employment, extended family dysfunction).⁴³⁰

Canada is also taking action to prevent violence among vulnerable communities. For example, Indian and Northern Affairs Canada (INAC), through its Family Violence Prevention Program, provides funding for shelter services and community-based prevention activities on reserve. INAC's Child and Family Services Program also assists First Nations in providing access to culturally sensitive programming in their communities, and ensures that such on-reserve services are comparable to those available to other provincial/territorial residents in similar circumstances.^{389, 431}

Protective care

The home environment is a critical component of healthy child development. For most children, it is a place of caring, and trust; for others it is a place of trauma. While the best place for a child is usually with his or her family, certain situations may warrant protecting a child from threat and imminent danger (e.g. where the physical and/or mental well-being of a child is in jeopardy or when parents feel they are not in the best position to care for their child at a given time).²⁵⁵ In these situations children are placed into foster care until dysfunction or difficulties have been resolved in the family home. In situations where children are unable to return to their families, they remain in foster/state-based care or become eligible for adoption.

The act of being uprooted from community and culture, in addition to family, is disruptive. Departments and organizations responsible for children and families recognize that, where possible, foster care options that keep siblings together and in the same community are optimal.^{432, 433} This is the premise behind kinship care, an option that works with extended families to minimize the disruption for children when they are being removed from the family home environment (see textbox *Kinship Care*).^{432, 433}

Prenatal risks

Canada has had success in reducing prenatal risks and promoting healthy prenatal behaviours; however, not all pregnant women are being reached. Certain prenatal risks can result in serious health problems for the fetus and/or the child once it is born, including lifelong health and development issues.^{323, 435}

The following discussion highlights three key areas of action that contribute to minimizing risk and promoting benefits during this critical period:

- education and awareness;
- prenatal care; and
- targeting high-risk behaviours.

Each has either shown success and could be applied more broadly, or is an area of promise where more work and investigation is required.

Education and awareness

Social marketing campaigns, in concert with other tactics, have been used to inform and influence behaviours of the population as they relate to pregnancies.³²³ For example, national campaigns against alcohol and tobacco use during pregnancy have achieved good message recall and increased awareness of these issues in the short term and over time and, having done so, are believed to have contributed to positive changes in behaviours.⁴³⁵ Provincial efforts, such as the Born Free campaign (Alberta, 2000) and the With Child – Without Alcohol campaign (Manitoba, 2001) have shown similar results in regard to awareness of the risks of alcohol consumption during pregnancy (particularly the risk of FASD).⁴³⁵ Widespread messaging through the use of warning labels (e.g. health warnings on product packages), has shown modest benefits through increased knowledge and behaviour change, however, these benefits are predominantly reported among those at lowest risk of unhealthy behaviour.³²³ This is in keeping with the research findings on the effectiveness of other population-based prevention programs undertaken in Canada (although many remain unevaluated), which show that message uptake is greatest in lower-risk populations. So, while these efforts are important for reaching the general public, they are often less effective in getting

through to higher-risk populations – especially when delivered in isolation.³²³

Research has also shown that partners can have a strong influence in creating either detrimental or supportive environments for pregnant women.³²³ Negative influences may include substance use/abuse and physical and/or mental abuse (e.g. alcohol consumption by partners is associated with alcohol use by pregnant women). Positive influences can involve practicing healthy behaviours and participating in prenatal care activities.^{323, 436} Peers, other family members and the broader community can also influence environments for these women. Education and awareness initiatives targeted at these groups can play

an important role in creating healthy environments for pregnant women, making it easier to undertake healthy options.⁴³⁷⁻⁴⁴⁰

Providing information to women on the benefits of adequate prenatal care is an important part of managing prenatal risk.^{323, 441} However, research shows that educating women on this issue should begin as early as possible given that healthy choices and responsible sexual behaviours are partially determined by earlier events and exposures.^{323, 441} Formalized programs, such as in-school initiatives for children and youth, can raise awareness on a variety of topics including drugs and health, sexual development, personal development

Kinship Care

Children who have to be removed from their homes involuntarily are increasingly being placed with relatives, close family friends or in their communities under kinship care agreements negotiated as an alternative to placement in foster care. Kinship care is particularly relevant in Aboriginal communities, where – as a long-standing practice – it has enabled children to speak their indigenous language and maintain connections to their families and culture that might otherwise have been severed.

A recent study done on kinship care in a Manitoba Cree community reported that many kinship caregivers were committed to providing cultural continuity and care through traditional connections between the child, the caregiver and the community. In addition, several of the caregivers were found to be former kinship care children who were able to build on their past experiences.⁴³²

A number of benefits have been associated with kinship care. Although there are few evidence-based studies comparing kinship care to other forms of foster care, research suggests that if adequately resourced, kinship placements can offer more stability than typical foster placements.⁴³⁴ Kinship placements may help buffer the trauma of separation from parents by keeping the child in a familiar environment with known caregivers.⁴³⁴ It can also create a stronger sense of belonging and help avoid the re-admission of

children into care once they return home. A U.S. study based on the National Survey of Child and Adolescent Well-Being found that, three years after placement, children living in kinship care had fewer behavioural problems than children who were placed into foster care.⁴³⁴

Evidence also shows, however, that in some kinship arrangements child safety is a concern due to a higher risk of continued access to abusive parents and a greater possibility that the child's kinship caregivers may have problems similar to the parents. Kinship caregivers are more apt to be single, older, of poorer health and of lower socio-economic status. Compounding these challenges, they tend to have fewer supportive resources from child welfare agencies and receive less services than foster parents.^{432, 434}

In several provinces/territories across Canada, kinship care is an increasingly popular option for children requiring placement in out-of-home care.⁴³² Factors contributing to this trend include: greater emphasis on family preservation policies; a reduction in the number of foster homes combined with an increasing number of children needing foster care; legal requirements to place children with family members or other adults with significant prior relationships; and a focus on keeping children connected to their communities and cultural heritage.⁴³²

and life management (e.g. including healthy relations built around rights, respect and responsibility). This can translate into healthier choices being made earlier in life with positive impacts in many areas before, during and after pregnancy.³²³

Prenatal care

Ongoing prenatal care is important to achieving a healthy pregnancy and birth, and positively influencing the health of the child in the early years.³³⁵ It provides a pregnant woman with the opportunity to access health information and identify risks and underlying factors that can influence her health and the health of her fetus/child.³³⁵ Prenatal care can also include activities targeted at partners and can provide a means of identifying issues related to living in poverty or with mental health challenges followed by the provision of counselling, skills training, parenting programs, breastfeeding support and child care.

Approximately 95% of pregnant women report receiving prenatal care during the first trimester of their pregnancy.³¹¹ Over time, Canada has been successful in increasing prenatal care and improving maternal and infant health. However, maintaining this level of success requires that delivery of these practices be continued and built upon where possible. Of those women who report having inadequate prenatal care, reasons cited include having no fixed address, poor access to health care, lack of transportation, child care issues, fear of repercussions for substance use and fear of disease screening.⁴⁴⁰ It is among this group that risky prenatal behaviours and circumstances may go unrecognized and unaddressed. Barriers to care can also be compounded in distressed communities where broad social problems do not offer ideal environments for supporting and managing healthy pregnancies.

Programs that work to break down barriers to prenatal care through community outreach have shown some success by targeting distressed communities and individuals. For example, the Canada Prenatal Nutrition Program currently provides funding and support for at-risk pregnant women and their children in over 2,000 communities in Canada.^{442, 443} The advantage of CPNP is that it allows for community-level decision-making

to ensure the needs specific to each jurisdiction can be targeted. Evaluations after 10 years indicate that this approach has resulted in better health behaviours and outcomes for participants and their children.⁴⁴² The Canada Prenatal Nutrition Program-First Nations and Inuit Component (CPNP-FNIC) primarily targets pregnant women and women with infants up to 12 months of age in First Nations and Inuit communities. The flexible framework of CPNP-FNIC allows community workers to tailor their program activities to the priorities and cultures of their communities.⁴⁴⁴

Low-income and/or homeless women are more likely to positively respond to a health or social work practitioner who they trust. A British Columbia study found that pregnant women more accurately report their substance use in a setting they consider to be safe and non-judgmental that offers help to them and their children.^{445, 446} On the other hand, interventions they believe can create problems for them (e.g. arrest or loss of custody) are avoided.^{446, 447} Therapeutic, non-punitive interventions are therefore considered to be most effective in terms of ensuring healthy outcomes for these women and their children. While outreach programs can have some impact on awareness and behaviours among high-risk populations, there is a need to address the broader social issues affecting these individuals and communities that is now being recognized and acted on by some programs (see textbox *Bringing Prenatal Care to High-risk Mothers*).

Understanding prenatal and maternal experiences is necessary to build and provide relevant services and optimize prenatal care. The Canadian Perinatal Surveillance System (CPSS) is an ongoing national health surveillance program aimed at improving the health of pregnant women, mothers and infants through systematically collecting and analyzing timely and relevant information about their health status and the factors that influence their health. As part of this commitment, the CPSS works with provincial/territorial partners and stakeholders to establish standardized indicators and variables to report, and is expanding surveillance into areas such as congenital anomalies and women's knowledge, perspectives, practices and experiences related to pregnancy, birth and parenthood. More work remains ahead, with the long-term goal of CPSS

Bringing Prenatal Care to High-risk Mothers

Nurse Home Visitation

The Olds model – a nurse home-visitation program in the United States – focuses on low-income, first-time mothers in an attempt to help them take better care of themselves and their babies. The model is driven by three major goals:

- improve pregnancy outcomes by improving women’s prenatal health;
- improve child health and development by reducing dysfunctional caregiving for infants; and
- improve the mother’s lifecourse by helping her develop a vision for her future, including future pregnancies, education and finding employment.

Essential elements of this approach include working with first-time parents to have the best chance of promoting positive behaviours before negative ones can develop; delivering the program in the mother’s home so there is no obligation for participants to travel; and finally, having the visits be conducted by a nurse because these mothers trust nurses to be knowledgeable about pregnancy and infant care and prefer them to doctors. Visits begin during pregnancy and, after giving birth, the mother is visited weekly in the first six weeks, bi-weekly after that up until the baby is 21 months of age, and then monthly until the baby’s second birthday when the program ends.⁴³⁰

Three separate clinical trials demonstrated that programs following this model reduced the risks for early anti-social behaviour among participant’s children and prevented problems associated with youth crime and delinquency such as child abuse, maternal substance abuse and maternal criminal involvement. They also showed that the program improved pregnancy outcomes and the health and development of the children, and helped parents create a positive lifecourse for themselves.

A RAND Corporation study conducted in 1998 estimated that one of the trial programs run in

New York State had the potential to save as much as \$4 in government spending for every \$1 in program costs.⁴³⁰

A recent 15-year follow-up of participants in the New York State program showed positive long-term impacts compared with similar populations who did not receive nurse visits, including:

- 48% less incidence of child abuse and neglect through to the age of 15;
- 69% fewer legal convictions at age 15; and
- an 83% increase in workforce participation by participant mothers by the time their child was four years old.⁴³⁰

Currently, programs incorporating this model are serving more than 20,000 mothers in 20 states across the U.S.⁴³⁰

Sheway Program

In 1993, Sheway was established as a pregnancy outreach program in Vancouver’s Downtown Eastside. It provides services to pregnant and parenting substance-using women. The area is one of Canada’s poorest neighbourhoods with high rates of crime, violence, HIV, drug use, sex trade workers and substandard housing. Sheway aims to promote the well-being of pregnant women by taking into consideration the context of their lives that are characterized by poverty, hunger, unstable living situations, low levels of social support, and often violence and sexual exploitation. Sheway provides safe, respectful and culturally focused services aimed at reducing the impact of substance use on women and their children. The Sheway program advocates for meeting basic needs by assisting women to find adequate housing and nutrition, developing trusting relationships, as well as providing referrals to treatment that may benefit the mothers’ ability to care for their children. Evaluation results show improvement in access to prenatal and post-natal care, housing conditions, nutrition and the likelihood of participants retaining custody of their children after completion of the program.^{445, 448}

being to establish a comprehensive national data system that is also linked with vital, hospital and community statistics and services in order to greater understand needs, experiences and service uptake among pregnant women, mothers and their infants.⁴⁴⁹ Regardless of these efforts, information gaps remain. For example, little is known about pregnant women who are at greatest risk for unhealthy prenatal behaviours, do not seek some form of prenatal care or face barriers in accessing this care.

Targeting high-risk behaviours

As highlighted, preventive measures such as prenatal care and education and public awareness campaigns have improved maternal and infant health over time. However, some mothers and infants are still at risk based on current and previous experiences with STIs and substance use. Targeting high-risk behaviours involves reaching this unique sub-population.

Prenatal screening for some STIs is universally available in Canada and has resulted in successfully decreasing vertical transmission of infections such as HIV and syphilis.⁴⁵⁰⁻⁴⁵² However, access and screening varies between provinces/territories, and no one method is used consistently. As well, the resources to identify, care for and treat pregnant women in high-risk situations are still insufficient.^{437, 453}



Evidence indicates that interventions that have been successful in helping women to reduce or stop smoking during pregnancy include specific risk-prevention strategies such as support to minimize tobacco use, counselling, professional persistence (supporting smoking cessation tactics), addressing isolation/depression issues and creating safe opportunities for women to openly express themselves.^{315, 437} Extending these interventions to include broader groups within communities, such as partners and other family members who may be smoking in the home, has also proven successful.^{315, 454}

Physician-led alcohol interventions during pregnancy have had some success in reducing alcohol consumption among women from a range of socio-economic backgrounds and various risk profiles. Evidence suggests these programs could be beneficial when targeted at high-risk populations, especially if they are combined with home visitation over a significant period of time (two to five years following the pregnancy).⁴⁵⁵ Currently, 62% of health care providers report using a standardized tool to screen prenatal patients for alcohol use, however, only 40% of family physicians report discussing the risks of alcohol during pregnancy with women of childbearing age. Even fewer (17%) provide women with written information on prenatal alcohol exposure.⁴⁵⁶

Similarly, mothers who receive substance abuse treatment during the early stages of pregnancy can reduce the impacts of drug use on the fetus.⁴⁵⁵ In some cases, it can result in the newborn's health being comparable to that of an infant not exposed to drug use.⁴⁵⁷ For example, programs that get heroin-addicted women to switch to methadone during pregnancy have resulted in newborns with higher birth weights than those whose mothers did not make the switch.⁴⁵⁷ In addition, some jurisdictions are creating innovative settings for supporting and treating both at-risk pregnant women and their newborns (see textbox *The Fir Square Combined Maternity Care Unit*).⁴⁵⁸

The Fir Square Combined Care Unit, British Columbia Women's Hospital

The Fir Square Combined Care Unit program is the first combined care unit in Canada for both substance-using women and substance-exposed newborns. Babies stay with their mothers on the ward long enough to ensure that the mother can properly care for her child and receive the appropriate treatment to be an effective parent. Babies receive specialized care to safely withdraw from prenatal substance exposure to ensure the healthiest possible start. Medical professionals are on site for in- and out-patient care. The goal of the program is to help women and their newborns withdraw from substances, while helping mothers keep custody of their children whenever possible. The program also aims to increase access to appropriate medical care, reduce substance use and related risky behaviours, improve infant health outcomes and improve mothers' parenting skills. Evaluations are ongoing, and although preliminary results are promising, questions remain about follow-through and outcomes for mother and child post care.⁴⁵⁸

Mental health and disorders

In Canada there are very limited data on the mental health of children. However, as noted in Chapter 3, it has been estimated that 15% of Canadian children and youth are affected by a mental disorder at any given time.^{201, 459} Mental and emotional health problems experienced during childhood and youth may affect children now and into adulthood.²⁷

Canadians with mental health problems face a number of challenges that differ from those experienced with physical health problems. The Standing Senate Committee on Social Affairs, Science and Technology's final report, *Out of the Shadows at Last: Transforming Mental Health, Mental Illness and Addictions Services in Canada*, describes how these challenges can be exacerbated as individuals and families look for social, professional and public support that allows management, mitigation and interventions over the lifecourse. This can be

particularly true for parents who are looking for help for their children.²⁰¹ The Committee also highlighted the importance of upstream efforts to promote social and emotional well-being and, where possible, to prevent mental health disorders and illnesses early in life.⁴⁶⁰

The following discussion highlights three key areas that contribute to the promotion of children's mental health, the prevention of mental illnesses and/or support to families with mental health disorders or illnesses.

They include:

- education and awareness;
- community support; and
- broad mental health strategies.

Each has either shown success and could be applied more broadly, or is an area of promise where further work and investigation is required.

Education and awareness

While there are no survey data on whether or how children experience stigma associated with mental illness, about 63% of Canadian youth with some form of a mental disorder reported that embarrassment, fear, peer pressure and stigma were barriers to seeking help.⁴⁶¹ As well, 38% of Canadian adults reported that admitting their child had a mental illness (such as anxiety or depression) would cause embarrassment.^{461, 462}

Increasing awareness and understanding of mental health, disorders and illnesses can positively influence the mental health of all Canadians, as misunderstanding and stigma can act as barriers to promoting mental health and seeking treatment for mental health illnesses and disorders.⁴⁶³ Although strategies to combat stigma have met with limited success, the following are believed to be helpful:

- increasing education and awareness to dispel commonly held myths about mental illness;
- challenging commonly held discriminatory attitudes; and
- providing a context for mental illness that makes it familiar.

Evidence shows that efforts to provide context have been the most effective for countering stigma and

discrimination.⁴⁶³ In keeping with this finding, the Mental Health Commission of Canada has recently launched a national 10-year anti-stigma and discrimination reduction campaign.^{461, 464} This campaign will be the largest effort ever made in Canada to reduce the stigma associated with mental illness. It will use social marketing techniques similar to those used for anti-smoking campaigns and efforts to reduce drinking and driving.⁴⁶⁴ The Commission will work with communities, stakeholders and specific at-risk groups.⁴⁶⁴ Other countries, such as Australia, New Zealand, the U.K. and the U.S. have developed anti-stigma initiatives that share the vision of shifting attitudes and behaviours about mental health disorders and illnesses with the goal of eliminating stigma.⁴⁶⁵

Community support

Community-based prevention programs that work directly with families and children to develop protective factors and build resilience have had some notable success.^{466, 467} For example, psychological depression prevention programs targeted at children and families at risk have shown some success in preventing and decreasing depressive illness in the short term.⁴⁶⁶ Other mental health promotion tactics (see textbox *Better Beginnings, Better Futures*) have been effective in reducing the prevalence of mental health problems by addressing risk factors such as dysfunctional family situations.⁴⁶⁷

Research also shows that resilience develops and is enhanced by individual, family and community factors. All three areas have shown the potential to positively influence a child's level of resilience and related abilities

Better Beginnings, Better Futures

Better Beginnings, Better Futures is a longitudinal prevention research demonstration project that is meant to provide information on the effectiveness of prevention as a policy for children. Begun by the Ontario government in 1991, the project follows a comprehensive, community-based model of primary prevention for families with young children that is delivered in eight high-risk communities in the province.⁴⁶⁸ The goals of the project are to:

- promote optimal social, emotional, physical, behavioural and cognitive development;
- strengthen the ability of communities to respond to the social and economic needs of children and their families; and
- reduce the incidence of serious long-term emotional and behavioural problems.⁴⁶⁷

Evaluation of Better Beginnings, Better Futures has included a quasi-experimental longitudinal research design involving a group of children and their families who experienced four years of Better Beginnings prevention programming and a comparison group. At the older child sites (programs focused on children aged 4 to 8 years), data was collected on

over 100 outcome measures when the children were in kindergarten and in Grades 1, 2, 3, 6, 9 and 12. The diversity of the participating communities (e.g. Aboriginal, Francophone, inner city, multi-cultural) increases the ability to generalize research findings to disadvantaged communities across Canada.⁴⁶⁹

Data collected from the older child program six years after completion (when youth were in Grade 9) yielded a picture of generally positive impacts. Effects were most pronounced for school-related measures, showing that participant youth were better prepared for school, less likely to repeat a grade and less likely to need special education services. Better Beginnings youth were able to resolve conflict with their parents more effectively and displayed fewer behaviours linked to emotional disorders and hyperactivity. Parents from the Better Beginnings sites report more social support, better family functioning, more marital satisfaction and more satisfaction with their neighbourhood. In addition, an economic analysis found cost savings associated with the prevention programs as early as Grade 9.⁴⁷⁰



to cope and adapt to stressful situations (see textbox *Kauai Longitudinal Study*):

- Individual factors – these unique aspects about ‘who we are’ are comprised of both genetics and personality and can often drive behaviours that influence resiliencies through learning capacity, self-esteem, adaptive skills, social skills and overall physical health.^{471, 472}
- Family factors – being part of a family, having a sense of belonging, attachment, good communications, strong family structure, positive parental and sibling relations, positive parenting styles, parental employment potential, good parental health and having strong external family support within communities (including assistance for mental health issues) can all influence resiliency.^{471, 472}
- Community factors – it has been shown that having a sense of belonging and inclusion, cultural identity, community programs, access to services (e.g. health services, home visitations) and opportunities for community involvement promote better health over the long term.^{471, 472}

Kauai Longitudinal Study

The Kauai Longitudinal Study, Hawaii, followed the development of a selected group of children born in 1955, from birth to their mid-life. The study explored a variety of biological and psychosocial risk factors, stressful life events and protective factors involved in childhood development to their eventual mid-life outcomes. Health officials followed up with the individuals at key age milestones – 1, 2, 10, 18, 32 and 40 years of age.

About 30% of the children in the study were considered at risk for unhealthy development due to prenatal or perinatal complications, living in poverty or with families with chronic discord, divorce, parental psychopathology, and/or being raised by mothers with low education (less than Grade 8). Of the at-risk children, two-thirds developed learning and behavioural problems by two years of age, while the other third of the at-risk children did not develop any behaviour or learning problems. Resilience in these children is reported to have developed as a result of experiencing protective factors that enabled them to overcome negative risks. The research study observed three main protective factors involved in building this resiliency: individual factors (such as sociability, self awareness and empathy), family factors (such as nurturing environments) and community factors (a range of supports).

In particular, family factors provided these children with opportunities to establish early bonds with at least one competent, emotionally stable person who was sensitive to their needs. Even in a dysfunctional family environment, children found nurturing among substitute caregivers such as grandparents, older siblings, aunts and uncles. Community factors including support from elders, peers, teachers, neighbours, parents of boy/girlfriends, youth leaders, ministers and church members were also found to contribute to different levels of resilience.⁴⁷²

Broad mental health strategies

In Canada, treatment for mental health disorders and illnesses is primarily a specialized health care service. In some communities, however, the need for care exceeds the services available.²⁰³ Although 92% of Canadian families with children report having access to a regular family physician, surveys available in Canada, the U.S. and the U.K. report that fewer than one in four children requiring specialized mental health services actually receive them.^{203, 204, 473} Investing in this area will significantly reduce the burden associated with children's mental health disorders and illnesses. However, a broader approach that acknowledges the role and breadth of specialized care, as well as mental health promotion, education and awareness, and support for families is necessary.²⁰³

Although Canada is currently the only G-8 country without a mental health strategy, progress is being made on this front through the work of the Mental Health Commission of Canada – an arms-length national body supported by all levels of government.^{474, 475} The Commission is embarking on major initiatives that include building a national strategy, mental health promotion, mental illness prevention and treatment, as well as launching anti-stigma campaigns, supporting homelessness research and creating a knowledge exchange hub.⁴⁷⁵ Such a strategy would specifically address children's mental health

problems through promoting healthy development for all children, preventing disorders among children at risk, providing access to treatment for children with disorders and monitoring mental health outcomes (see textbox *KidsMatter, Australia*).⁴⁷⁶

Obesity

In Canada and internationally, addressing the obesity epidemic is a major public health challenge.^{30, 481, 482} The rates of measured obesity among children have increased over time. Generally, those who have lower levels of daily physical activity and poor nutrition are most likely to have excess body weight and an increased risk of developing related disease and adverse health outcomes over the lifecourse.^{179, 180, 188, 483-485} However, the issue is more complex than the balance of caloric intake/ outtake; for example, genetic predispositions, as well as an individual's broader physical and social environments, can provide opportunities or present barriers to achieving a healthy weight.^{183, 486-488} Over the past several decades, profound changes have occurred in the physical and social environments in which Canadians live, learn, work and play – from the 'walkability' of neighbourhoods and the marketing of foods to children, to the proximity and accessibility of grocery stores, and the increasingly sedentary nature of play.^{161, 489, 490}

KidsMatter, Australia

Australia's National Action Plan on Mental Health 2006-2011 involves an investment of approximately \$4 billion over a five-year period in numerous mental health initiatives.⁴⁷⁷ *KidsMatter* is one of several initiatives from the Plan that specifically targets children, youth and their parents. It is a national initiative that aims to enable schools to implement evidence-based mental health promotion, prevention and early intervention strategies to improve mental health and well-being, reduce mental health problems and achieve greater support for those experiencing mental health difficulties. Evaluation and analysis

of *KidsMatter* has been carried out over four data-collection periods through survey, interviews and focus groups with parents, teachers and children.^{478, 479} The evaluation report will be available late 2009. Expansion of *KidsMatter* to include early childhood settings, such as daycare centres and preschools, is currently underway. The new initiative, *KidsMatter Early Childhood*, will be piloted with over 100 early childhood services throughout Australia in 2010 and 2011.⁴⁸⁰

The following discussion highlights four key areas of action that could contribute to decreasing the number of overweight and obese children:

- education and awareness;
- advertising, taxes and subsidies;
- built environments; and
- home, school and community-based approaches.

Each has either shown success and could be applied more broadly, or is an area of promise where further work and investigation is required.

Education and awareness

Broad population-based initiatives have a role to play in supporting children and families in achieving healthy growth and weight. For example, *Eating Well with Canada's Food Guide* recommends how many servings children need from each of the four food groups every day in order to meet the basic requirements for vitamins, minerals and other nutrients, to reduce the risk of certain chronic diseases, and to contribute to their overall health and vitality.⁴⁹¹ As well, *Canada's Physical Activity Guide to Healthy Active Living* includes a version specifically tailored to families that provides advice on how to ensure children meet recommended daily physical activity requirements (see Appendix C).⁴⁹²

While it is important to build awareness of recommended food and physical activity guidelines, the ultimate goal is for children's choices and behaviours to reflect that awareness. Tracking progress towards this goal requires measuring how many Canadian children are meeting minimum recommendations. A recent federal/provincial/territorial agreement established national goals to increase levels of physical activity.⁴⁹³ The *Canadian Physical Activity Levels of Children and Youth Study* (CANPLAY) set first-ever national physical activity targets for children and youth to be measured against the current baseline. The goals that are to be met by 2015 are:

- an increase in the proportion of children and youth who participate in 90 minutes of moderate-to-vigorous physical activity above their daily living activities from 9% to 16%; and
- an increase in the average number of daily walked steps taken by children and youth from 11,500 steps

to 14,500 steps, which is equivalent to an additional 30 minutes of physical activity per day.⁴⁹⁴

Although it is too early to determine success, goals have been established and data measuring physical activity levels continue to be collected, indicating that progress is being made in terms of increased knowledge about children's weight and physical activities and their health. Similar efforts are required to monitor children's eating habits in Canada.

Advertising, taxes and subsidies

Evidence shows that the commercial marketing of foods and beverages contributes to poor diets in children – specifically because this marketing is often for energy-dense, micronutrient-poor foods that are not considered necessary for a healthy diet.⁴⁹⁵ At the WHO *Technical Meeting on Marketing of Food and Non-alcoholic Beverages to Children* (2006), it was recommended that an international code be established to protect present and future generations from the damaging consequences of the consumption of unhealthy foods and to promote responsible food marketing to children.⁴⁹⁵

In Canada, advertising on television directed toward children is regulated by the *Broadcast Code for Advertising to Children* in terms of the amount of time and nature of the presentation.⁴⁹⁶ Advertisements directed at children cannot present information that may cause them harm or exploit them as a result of their lack of experience.^{496,497} All advertising for foods and beverages in Canada follows the voluntary guidelines in the Code, except in Quebec where advertising to children is not permitted (see textbox *Food Marketing to Children in Quebec*). Additionally, advertisements that show food products during mealtimes must clearly show a product within the framework of a balanced diet.⁴⁹⁶ Public-based television networks, such as the Canadian Broadcasting Corporation (CBC), restrict advertising during children-specific programming and limit advertising during general/family-type programming.⁴⁹⁶ Provincial public broadcasting organizations also restrict advertising and on-air recognition during preschool children's programming.⁴⁹⁸ Regardless of these actions to limit advertising to children during certain times and programs, access to

cable and satellite television, which offers unrestricted broadcasting, may undermine these efforts.

Economic incentive policies such as “fat taxes” and “thin subsidies” have been considered in some countries and jurisdictions in order to discourage the purchase of foods considered to have limited nutritional value, and encourage the purchase of more nutritious foods. In Canada, seven provinces exclude candy, chocolate bars and high-calorie beverages from tax exemptions, but it is not clear whether this results in a decrease in the consumption of these items.⁵⁰⁰ In the U.S., the State of California applied a general sales tax rate of 8.25% on selected snack foods in 1991.^{501, 502} During the year the tax was in effect, snack sales reportedly dropped, but the food industry actively lobbied against the taxing of these food products and the tax was repealed.^{501, 503, 504} France experienced similar issues in its attempts to apply higher taxes to certain foods. Adopting these measures not only entails difficulties in deciding which foods to tax but also brings industry pressures and uncertainty as to how these taxes might affect food accessibility and affordability amongst those living in low-income conditions.^{505, 506} Although taxes cannot tackle overweight and obesity issues in isolation, they can also be used to generate public funds which can be used to finance health promotion activities.^{501, 505, 507} In contrast, subsidies for foods of high nutritional value would provide the greatest benefit to low-income consumers by making nutritional foods relatively more affordable (e.g. provision of fresh foods to remote communities).^{505, 506}

Built environments

The built environment also influences physical activity, nutrition and dietary habits. People who live in more mixed-use neighbourhoods (containing a balance of residential, commercial and community services) drive less, walk more, have greater access to healthy foods and report lower rates of obesity.⁵⁰⁸ Streetscape design to improve safety for pedestrians and cyclists, and neighbourhood design that promotes access to healthy foods, can positively impact health outcomes.⁵⁰⁹⁻⁵¹¹ Also, evidence shows significantly higher physical activity levels and lower obesity rates in more walkable environments.^{508, 512-514}

As seen in Chapter 3, obese and overweight children are more prevalent in disadvantaged neighbourhoods where there is less access to healthy foods, limited access to recreational facilities and increased safety concerns.^{181, 289, 515-517} Specific considerations for future urban planning and/or community improvements include: increased mixed-land use, routing of traffic around residential areas, improved design of sidewalks and bicycle paths, and better lighting after dark. The design of new housing developments is also a critical component for influencing more positive behaviours and outcomes. A priority is to ensure safe and green play areas, as well as walking and sports areas.⁵¹⁸

Food Marketing to Children in Quebec

In 1980, the Government of Quebec banned commercial print, radio and television advertising of all products and services (including food) to children less than 13 years of age through the *Consumer Protection Act*.⁴⁹⁹ Restrictions in Quebec were developed based on the principle that it is unfair to advertise to children, as they are less capable than adults of distinguishing program content from advertising. However, these restrictions on advertising are not enforced in relation to broadcasters and advertisers based outside of the province.

Generally, Quebec's childhood and adult obesity rates are lower than the Canadian average. This is likely due to a variety of factors including cultural and social practices. While Quebec's *Consumer Protection Act* was not designed to specifically address childhood obesity and the province's lower rates of overweight and obesity cannot necessarily be attributed to it, making the effort to reduce children's exposure to targeted food and beverage advertising has been recommended as a means to reduce negative influences in this area of concern. As such, measures like this – in combination with others – may hold promise in the effort to encourage healthy eating.

Home, school and community-based approaches

The home environment is an important setting for physical activity behaviours. Parents can promote physical activity within the household, as well as ensure safe outdoor play areas (e.g. a fenced yard). Children who have limited opportunities for physical activity at home demonstrate low levels of overall activity, with more than 80% of time at home spent lying down, sitting or standing.⁵¹⁹ The amount of time children spend outdoors is positively correlated with their physical activity levels.

Children's food choices and eating behaviours are also influenced by those closest to them: parents (32%), peers (31%), friends (6%) and family in general (7%).⁵²⁰ These relationships can create opportunities to steer children's dietary habits in a positive direction (which can lead to good health) or a negative direction (which can contribute to poor health). Conversely, children can also have an impact on family food choices given that they have been shown to influence up to 80% of their family's food budget.⁵²¹ This places an even stronger emphasis on the importance of considering food marketing to children (see previous discussion in the *Advertising, taxes and subsidies* section).

Children from families that eat together regularly are less likely to be overweight or obese due to their consumption of a healthier diet, avoidance of eating while watching



television, and better communication, family support and relationships.¹⁸⁰ Also, people who eat meals outside the home tend to consume more calories than those who eat meals prepared at home. For example, evidence shows that children who buy lunch at school are more likely (47%) to be overweight than those who bring lunch from home.^{180, 522-524}

Among children who are overweight or obese, treatment interventions that include both diet and exercise components appear to be more effective than dietary or physical activity modifications alone.⁵²⁵ In particular, family-based interventions targeting both parents and children have shown that parents' weights are a strong predictor of children's weights and that treating childhood and parental obesity simultaneously yields positive results.^{526, 527} A systematic review of controlled trials found that family-based lifestyle interventions that modify physical activity and nutrition, and that include behavioural therapy, helped obese children lose weight and maintain weight loss for at least six months.⁵²⁸

Schools also provide opportunities for obesity prevention strategies for children (see textbox *Annapolis Valley Health Promoting School Project*). They can be a resource for education and information on healthy choices, as well as providing athletic facilities for physical activity.⁵²⁹⁻⁵³¹ While school-based physical activity programs vary across provinces and territories, most have mandated physical education requirements for students from kindergarten to Grade 9. Some provinces require a minimum time commitment for physical activity.⁵³²⁻⁵³⁴ For example, Ontario has one of the higher minimum requirements of 165 minutes per week for children from kindergarten to Grade 10.⁵³²

School-based approaches such as those outlined, have been shown to be effective at increasing daily physical activity (intra- and extra-curricular), helping students to meet basic daily physical activity goals, and establishing healthy behaviours now and over the lifecourse.^{519, 525, 535} However, further research and investigation is required to better understand and measure outcomes of increased involvement at the school level, as well as the applicability of specific programs to other populations and outside the school environment.^{530, 536}

Annapolis Valley Health Promoting School Project

In 1997, a group of parents from eight schools in the Annapolis Valley Regional School Board (AVRSB) in Nova Scotia decided to create healthier environments for the children in their schools through the Annapolis Valley Health Promoting School Project (AVHPSP).⁵³⁸ Program goals included: enabling students to make healthy choices about nutrition and physical activity on a daily basis; providing students with skills to develop healthy food and activity behaviours for life; and reducing student risk of developing chronic disease such as Type 2 diabetes.^{538, 539}

Results of a 2003 provincial evaluation compared students from participating schools to students who

attended schools without a nutrition and physical activity program and to students who attended schools with a nutrition program other than the AVHPSP. Students from the AVHPSP schools exhibited lower rates of overweight and obesity and had better dietary habits in terms of higher consumption of fruits and vegetables and lower calorie intake from fat. They also reported more participation in physical activities and less time spent in sedentary activities.⁵⁴⁰ Over time, the success of the project has led to almost all schools in the AVRSB working to become Health Promoting Schools.

At-school interventions that improve dietary habits through behaviour-based approaches have had success, but circumstantial influences must be considered.⁵²⁵ For example, gender needs to be considered, given that girls and boys do not always respond the same way to a given intervention.⁵³⁰ Qualitative analysis of several interventions suggests that girls respond better to educational components based on social learning, while boys respond better to structural and environmental changes that facilitate increased physical activity and improved dietary intake.^{530, 537}

Community-based initiatives can also make a difference to dietary behaviours and physical activity levels among children. Neighbourhoods with affordable recreational programs and access to safe play areas – including local community centres, schools, parks and playgrounds – encourage and allow children to explore healthy physical activities such as outdoor play and team sports. Recent research has found that community-based physical activity interventions are cost-effective and, compared with treatment strategies, offer good value for investment (see textbox *Communities in Motion*).⁵⁴¹

Unintentional injuries

Canada has had success in reducing unintentional injury among children over time, however, current death rates related to all injuries among children in Canada are higher than those of similarly affluent countries, and rates are also higher among certain sub-populations within Canada.^{79, 163} Most childhood injuries are minor and result in a full recovery or good quality of life. But for some, the severity of the injury results in premature death, a severe impairment (where returning to good health may be difficult) or, in some cases, years of surgical, medical, psychological and rehabilitative interventions. As well, serious injury may be the catalyst for additional health issues that develop later in life.

Mechanisms exist in Canada and other jurisdictions that have had success in modifying risky behaviours and reducing rates of unintentional injury. These efforts can be categorized according to the following three key areas of action:

- education and awareness;
- legislation, products and standards; and
- inter-sectoral prevention strategies and initiatives.

Each area of action has either shown success and could be applied more broadly, or is an area of promise where further work and investigation is required.

Communities in Motion

In motion, a community-based strategy that focuses on increasing physical activity for health benefits, began in Saskatoon, Saskatchewan in the spring of 2000.⁵⁴¹ The goal of *in motion* is to incorporate physical activity into individuals daily lives through collaborative community efforts. Its premise is that physical activity is the cornerstone to individual health and a reduction in inactivity results in health system savings. *In motion* has six targets: children and youth; workplace wellness; health care professionals; older adults; primary prevention of diabetes; and inactive adults.⁵⁴²

For children and youth, increasing physical activity involves setting goals, including at least 30 minutes of daily physical activity per child.⁵⁴³ In addition, schools can provide assistance to children and their families by recommending various community activities, walking

routes, game ideas and resources for healthy eating.⁵⁴⁴

Since *in motion's* inception, the number of Saskatoon residents who were active enough to experience health benefits has risen by 39%.⁵⁴² Community capacity is also reported to have increased through inter-sectoral partnerships (e.g. with schools), increased community awareness through targeted strategies, and measuring and reporting on success.⁵⁴² As well, the number of *in motion* schools has increased and 100% of urban Saskatoon schools and the majority of rural schools have now committed to meeting *in motion* goals. Elementary schools also report that students are active on one additional day per week compared to pre-program activity levels. *In motion* is viewed as a 'best practice' strategy and is now being implemented in communities and provinces across Canada.⁵⁴¹

Education and awareness

Learning about health and safety, and understanding action and associated responsibility, begins in the early years. Although all children deserve to be safe, predicting and managing risk is not always easy (see textbox *The Nature of Risk*).

All sectors have a role to play in ensuring children, parents/caretakers and communities are informed about safety issues.¹⁶³ There have been a number of educational initiatives that are effective at building safety awareness, including consumer product safety warnings/announcements, interactive safety programs (safety villages) and broad social marketing campaigns (see textbox *Back to Sleep*).¹⁶³

Education and awareness is the approach most often taken to reduce unintentional injuries (any other preventable negative outcome), however, on its own, it does not consistently lead to injury reduction and behaviour change; efforts that combine approaches seem to increase that probability (see the Inter-sectoral prevention strategies and initiatives section).⁵⁵⁰⁻⁵⁵³ For example, a systematic review of booster-seat use

The Nature of Risk

Risk is a part of life. There are risks to being in a motor vehicle, crossing the street, swimming, walking to the store and the countless other activities we undertake in our daily lives. For children, risk taking is a necessary part of learning and growing. It involves developing the ability to weigh options and make good decisions, so that as a child moves toward the increasing independence of adolescence and early adulthood, critical thinking and decision-making skills are well entrenched. The key to avoiding injury lies in thinking before acting; learning to step back and assess the nature of a risk – safe risk versus unsafe risk – and taking action based on that assessment. In the very early years these assessments are made by the adults in a child's life; as the child ages, opportunities for self-assessment of risk and decision-making increase. Addressing risk requires finding a balance where exposure to manageable amounts of risk creates opportunities for building confidence and taking responsibility.⁵⁴⁵⁻⁵⁴⁷

Back to Sleep

Canada's Back to Sleep campaign used a multiple message approach (pamphlets, product messaging, posters, video) to raise awareness and reduce the risks associated with SIDS by encouraging parents and caregivers to put babies on their backs to sleep.⁵⁴⁸ Between 2000 and 2004, there was an average of 105 SIDS-related deaths per year in Canada.¹⁵⁷ Although the causes of SIDS remain uncertain, there are known risk factors such as sleeping position, exposure to tobacco smoke (maternal smoking during pregnancy and exposure to second-hand smoke after birth), absence of breastfeeding, and bed sharing with an adult or sleeping on a couch. The Back to Sleep campaign was a partnership between government and the private sector (Pampers Canada) to include a pamphlet in Pampers' hospital care packages (received

by over 500,000 parents), as well as a Back to Sleep message printed on the waistbands of newborn and size 1 diapers.⁵⁴⁸ Results of a tracking survey indicated that eight in ten parents and caregivers recalled a SIDS message and 79% reported taking action to reduce the risk.⁵⁴⁸ About one-quarter of respondents recalled seeing a pamphlet, poster or the diaper waistband.⁵⁴⁸ Although the Back to Sleep campaign cannot be solely accredited with a decline in SIDS, cases have been declining since the introduction of the program.⁵⁴⁹ The Back to Sleep information is currently being revised to reflect recent evidence on risks and protective factors, such as the benefits of room sharing (crib near caregiver).

showed that interventions combining education with other incentives (such as free booster seats) had a beneficial effect on the acquisition and use of this safety equipment.^{551, 552} Not-for-profit organizations, such as Safe Kids Canada, ThinkFirst and SMARTRISK, have also incorporated a range of additional activities (including mentorships and role playing) into their educational efforts targeted to children and youth.^{545, 554, 555}

Legislation, products and standards

Through legislation and regulation, Canada has made progress in reducing injuries, particularly related to traffic and automobiles. Overall, traffic-related deaths and injuries have decreased over time, and part of this reduction can be credited to an increase in seatbelt use and car-seat use for children. Seatbelt use for most motorized vehicles is mandatory in all Canadian provinces and territories, as is car-seat use for infants and younger children. Based on evidence of increased child safety, legislation for mandatory booster-seat use for children too large for car seats, but too small for regular seatbelts, has also been passed in some provinces and territories.^{163, 556}

Similarly, Canada is making progress in protecting children from head injuries and premature death while bicycling through mandatory helmet use. A cross-Canada study demonstrated that head injury rates among child and youth cyclists are about 25% lower in provinces and territories with helmet legislation, compared to provinces and territories without such legislation.^{79, 557, 558}

Consumer products, including household items, toys and playground equipment, can also be a source of injury for children. Product standards and regulations minimize the risk by adding safety measures, improving quality and controlling access – particularly in terms of age-appropriate products. National standards for playground equipment provide one example. Playground injuries are common in Canada and, although most are not serious, those due to falls from play equipment onto hard surfaces can include head trauma, spinal injuries and fractures.^{163, 559}

Nationwide standards developed by the Canadian Standards Association (CSA) provide accepted measures for the assessment of playground equipment safety; however, compliance is voluntary. Some provinces/territories have enacted legislative requirements for all licensed child-care facilities (excluding residential child

care) to be inspected for compliance with CSA standards, and to have a plan to minimize risk of injury.^{79, 163, 560} For schools, use of CSA-compliant equipment varies. Toronto's Hospital for Sick Children found that school playgrounds in Toronto that had been upgraded to the CSA standard experienced 49% fewer injuries compared to schools with playground equipment that had not yet been upgraded.⁷⁹

Inter-sectoral prevention strategies and initiatives

While Canada has many injury prevention initiatives, a co-ordinated strategy does not exist. There are elements of

a strategy in place – surveillance (through the Canadian Hospitals Injury Reporting and Prevention Program – CHIRPP), legislation and regulations – but there has been no co-ordination of these efforts to date. Many experts across the country are advocating for such a strategy and OECD countries with an injury prevention strategy in place have experienced progress in further reducing injury rates (see textbox *Sweden's Success in Reducing Child Injury*).⁵⁶¹

Experience from other countries, such as Sweden, outlines the benefits of a co-ordinated strategy to address an issue such as childhood injuries. Multi-sectoral efforts, strong leadership, ongoing surveillance, research and evaluation,

Sweden's Success in Reducing Child Injury

Sweden began tackling its high rate of childhood mortality associated with unintentional injury in the 1950s, and by 2008 had achieved the lowest rate in the world. The country's approach to injury prevention is based on a 'healthy public policy' approach and the idea that injury is a public health problem that involves all of society.⁵⁶¹⁻⁵⁶³ As a result, many stakeholders – such as governments, health and social services, schools, general practitioners, community and voluntary organizations, environmental agencies, traffic departments, sports centres and media – have been involved in developing approaches to reducing childhood injuries. In addition, legislation requires that priority be given to child safety in new policy and infrastructure design. There is also a focus on separating danger from children, and increasing awareness about safety and supervision.^{562, 563}

Sweden's success can be attributed to the following factors:

- The creation of a comprehensive national surveillance system of fatal and non-fatal injuries, including evaluations of what works/ does not work. Evidence gives credibility that has helped gain support for prevention activities from politicians, the media and the public.^{561, 562}
- A commitment to research allowing for investment in and use of epidemiological evidence that has encouraged further study and allowed successful pilots to be expanded.⁵⁶²

- Legislation and regulations have prioritized safer environments for children in policy and infrastructure development.^{561, 562, 564}
- Leadership has come from a variety of sources (e.g. private sector, non-governmental organizations and governments).^{561, 562}
- Broad-based safety education campaigns have involved partnerships between different agencies and increased the depth of involvement and expertise.^{561, 562, 564, 565}
- Awareness campaigns have emphasized the "preventability" of most injuries which has changed parental/caretaker behaviour.⁵⁶²
- Overall population affluence (or less disparity in terms of income, education, housing and early childhood development) has supported greater uptake of prevention practices.⁵⁶³
- Social value has been placed on prevention.^{561, 564}
- A shared sense of community responsibility has created recognition that all individuals and sectors play a role.^{561, 562}

Sweden is one of a few countries that has followed the WHO's recommendations for governments to develop injury prevention programs – namely, to establish policies for safety, organize a national multi-sectoral safety promotion program and allow academic institutions to participate in healthy public policy.^{562, 565}

as well as broad-based awareness and education, and public support have been shown to contribute to success.⁵⁶²

Summary

The six areas of concern highlighted in this chapter (socio-economic status and developmental opportunities, abuse and neglect, prenatal risks, mental health and disorders, obesity, and unintentional injuries) are critical areas where Canada, as a society, can make a difference in the current and future health and development of children. However, in exploring each of these areas, fundamental issues have emerged illustrating that there is more to know and more to do.

Socio-economic and health inequalities highlight the interconnectedness between key factors that influence the health and development of children, such as meeting basic needs and having opportunities to develop, grow and participate at home, school and in society. There are vulnerable populations such as Canada's Aboriginal population who experience higher rates of adverse health outcomes and also report greater levels of child poverty, poorer living conditions and barriers to developmental opportunities. Canada's child poverty rates remain higher than other similarly affluent countries and early childhood development programs exist but are unco-ordinated and limited in availability and affordability. Building on all levels of Canada's social and child-oriented public policies is needed in order to break down the barriers associated with socio-economic and health inequalities.

In Canada, there are indications that childhood abuse and neglect may be on the rise. Prevention and mitigation of abuse/neglect are complex issues and require an understanding of a child's environment, SES, intergenerational factors and resiliency. It also requires better evaluation of the effectiveness of current preventive interventions and protective care options. Building on current surveillance efforts and continuing to do so over the long term will help to identify those in environments of greatest risk and in need of intervention.

Prenatal care and support continues to positively influence the health of pregnant women and infants in Canada by enabling healthy choices and encouraging risk avoidance during pregnancy. Much of this success



can be attributed to prenatal care and screening, healthy pregnancy campaigns and other early education initiatives. However, the need for education and awareness programs is ongoing and the breadth of coverage and uptake of the messages needs to be expanded. Those who are most vulnerable to unhealthy behaviours remain difficult to reach. Targeted outreach programs that offer safe non-judgmental environments have had some success but are too few in number and in reach. Addressing the conditions and environments in which at-risk pregnant women live is critical. In addition, more data are needed to be able to understand and report on pregnant women's nutritional practices, use of care, and connections to family and community in order to better target programs to needs.

A significant barrier to promoting the mental health of children is the lack of knowledge in this area, beginning with the number of children affected by mental illnesses and disorders and extending to the best approaches for promoting mental health and preventing and managing mental illnesses and disorders. Reducing stigma, raising awareness, and increasing opportunities for prevention, treatment and support within communities and families is important. The latter can be best achieved by acquiring a better understanding of the effectiveness of current

interventions. These efforts will require a co-ordinated and collaborative approach that may be facilitated through the creation of a national mental health strategy which is currently under development by Canada's Mental Health Commission.

Obesity is an area of concern for Canadian children and while the negative health impacts of living with obesity are well known, information about risk factors, including nutrition and physical activity practices of children and their families is limited, as are data related to the effectiveness of interventions. Comprehensive strategies should address the many individual and societal factors that lead to obesity. For example, home and community environments are critical to establishing lifelong healthy behaviours, as are infrastructure and strategies that support and promote safe play, access to affordable recreation, more nutritious foods and other supportive resources. Prevention and rehabilitation efforts undertaken in isolation are not as effective as collaborative, co-ordinated and multi-pronged approaches that involve all relevant sectors of society.

Injuries are one of the leading causes of death among children from birth to age 11 and most are preventable

or can be reduced through understanding and mitigating risk. Educational programs have been instrumental in increasing parents' and children's awareness and understanding of risk and ability to make safer choices. Legislation and regulation have also helped by making some products and services for families with children safer. However, as with many of the health risks explored in this report, these efforts are more effective when they are co-ordinated. Countries, such as Sweden, that have achieved greater reductions in childhood injuries have engaged in broad strategies or initiatives that offer leadership and that co-ordinate surveillance, regulation, education, prevention tactics, community support and infrastructure.

The successful interventions and initiatives profiled in this chapter are a beginning. They illustrate and confirm that all sectors of society can make a difference in identifying and implementing effective programs with measurable outcomes. These efforts provide a starting point from which to draw inspiration, think, plan and act. Chapter 6 highlights the way forward in terms of establishing the conditions for a healthy future.

Growing Up Well – Conditions and Priorities for a Healthy Future

Over time, our achievements in children’s health have laid a strong foundation for the health of all Canadians.^{30,566} Significant gains have been made in reducing infant and childhood mortality, reducing and managing the prevalence of infectious diseases, and in understanding the factors that influence early childhood health and development. These successes have culminated in a population with one of the highest reported life expectancies in the world.⁵⁶⁶

Still, there are some worrying issues that are emerging or persistent that can negatively influence the current and future health and well-being of Canada’s children. The six areas of concern covered in this report show adverse impacts on the current and future health of Canadians, and in particular among certain sub-populations (such as children from low-income families and Aboriginal children). In addition, evidence shows that other countries or jurisdictions are doing better than Canada in terms of reducing or mitigating negative outcomes related to these issues.^{162, 231, 232, 274}

Canada ranks the health and development of children among its highest priorities.⁹³ We should consider whether the level of action being undertaken in this area is commensurate with that level of concern by asking ourselves whether doing well is doing enough.

If the answer is no, then Canada needs to determine how best to increase its efforts in an effective and meaningful way. The individual, family, community and societal initiatives highlighted in this report demonstrate that adverse outcomes related to the six areas of concern are not always inevitable or irreversible. In fact, they demonstrate effective efforts that can be replicated and expanded upon to improve children’s health now and over the lifecourse.

This chapter outlines priority areas for action, along with the optimal conditions for health and development over the lifecourse. The evidence profiled in this report indicates that better data and information, improved and ongoing education and awareness, healthy and supportive environments, and co-ordinated, multi-pronged and sustained initiative and strategies are necessary for Canada to move forward in creating, improving and maintaining the conditions for growing up well.



Conditions for childhood health and development

An examination of children’s health status, the factors influencing health and the evidence of successful interventions highlights the optimal conditions for childhood health and development. These include:

- strong, healthy and sustainable communities;
- access to high-quality early learning and education and primary health care;
- caring and safe environments;
- the ability to develop a sense of control, connectedness and responsibility; and
- opportunities to make healthy choices.

Having adequate income for basic needs is critical. A family’s SES – particularly household income – should not be a barrier to optimal health and development conditions.^{161, 220, 567} Broad social investments (e.g. taxes/transfers, employment insurance) can help to reduce poverty and its effects on health.³⁴⁵ As well, accessible and available services and programs tailored to a population’s needs can support healthy development

generally, as well as mitigate the effects of low income by providing opportunities for things like safety promotion, leisure and recreation, school readiness, and skills training and development. Children can thrive when communities have adequate supports for families through available and accessible programs and services.³⁶⁷

Among these resources, it is critical to include adequate health and developmental services such as primary health care, and early and late childhood programming.^{345, 367} Canadian children have universal health care coverage – which has been critical to improving and maintaining children's health over time – however, barriers to access remain. Similarly, although Canadian children have universal access to primary and secondary public education, opportunities for early childhood programming and care, and after-school activities needs to be available to children. Those who are unable to access these services for a variety of reasons are at a disadvantage – especially considering that the opportunities provided by these programs can often work to mitigate the negative effects and reinforce the positive effects of other determinants of health.

In addition to these programs and services, families and communities should provide a shared sense of security, respect and support that will create conditions from which further gains can be achieved. All children deserve to grow up in a nurturing environment where respect is shown for self and others, caring and loving are experienced, and is as safe as possible. The home, school and community are where children live, grow, learn and forge their connections to others. These connections can have a lasting impact on their lives and can influence future choices and relationships. Children also need to interact socially through play and other situations where they can learn about sharing, co-operation and empathy. If these skills are acquired in childhood, there is a better chance they will continue into adulthood.

Children need to participate positively in their home, school and community environments so that they can learn about choices, responsibilities and risks. Through relationships with caring and supportive parents, teachers and friends, children can develop a sense of self and others. When children have a feeling of belonging, when they are given choices and feel understood, they also

experience a sense of control and the feeling that they matter.⁴⁷² Within that connectedness, responsibilities are clearer and achievable, and risks can be judged more confidently. Risk taking is a part of healthy growth and development, and children must learn to distinguish and choose safer risks through weighing options, projecting outcomes and adopting good decision-making skills – all of which are possible within a supportive environment.⁵⁴⁵

Support is also needed to make healthy choices. Choices are not always easy, and sometimes – especially for children – they are made within the context of decisions made by others (parents, caregivers, communities and governments) based on external factors such as cost and availability of programs and services, and exposure to marketing tactics. Understanding what constitutes a “healthy” versus a “less healthy” choice and creating the conditions needed at home, school and in the wider community is critical.

Priority areas for action

This report highlights six health issues where new and continuous efforts are needed. An examination of what is and is not working across these issues highlights four priority areas for action where Canada can foster the optimal conditions for the best possible outcomes in children's health and development. These priority areas are:

- better data and information;
- improved and ongoing education and awareness;
- healthy and supportive environments; and
- co-ordinated, multi-pronged and sustained strategies.

Better data and information

In Canada, data on children's health and the effectiveness of related programs are lacking. Data are necessary in order to identify long-term trends and areas where success would dictate building and expanding upon existing programs. It can also highlight a lack of progress that may signify the need for the development and delivery of new programs, so that efforts are consistently meeting the needs of all children.

There are several areas where better data would be particularly helpful. Information regarding children's

behaviours, such as dietary habits and levels of physical activity, as well as measures of how they feel about themselves at home, school and in the community are limited. Data on children’s mental health are also greatly needed. Building awareness about mental disorders, and risk factors, reducing stigma and managing mental health and illness can only be achieved with appropriate data and research that identify the issues in these areas and successful efforts being made to address them.

Data on maternal, fetal and infant health, including relevant behaviours and health services, are being collected and analyzed through the Canadian Perinatal Surveillance System. This system uses existing national health administrative databases, such as vital statistics, and its own Maternity Experiences Survey, to report on perinatal health indicators for Canada. Areas for further work include strengthening congenital anomalies surveillance and improving understanding of First Nations, Inuit and Métis perinatal health.^{312, 449}

Canada has made some progress in collecting data for abuse and neglect, and on injury surveillance. The Canadian Incidence Study of Reported Child Abuse and Neglect collects data on cases of abuse and neglect that are reported to and investigated by Canadian child welfare services.²⁴⁶ However, limited information exists on what is working or not working to address child abuse and neglect in Canada. The Canadian Hospitals Injury Reporting and Prevention Program is a unique database that collects “pre-event” data on emergency room visits in 15 hospitals across Canada such as what the person was doing and where they were when the injury occurred.⁵⁶⁸ While CHIRPP is a good starting point for tracking injuries in children and youth, reporting tends to be issue-specific and is not easily linked to detailed socio-economic information on children and youth. Both examples demonstrate that progress is being made and that, as information is collected, additional needs and requirements can emerge that aid in setting standards for collection over time.

Northern European countries have well-established health data and surveillance systems in place, and in particular, the Scandinavian countries have sophisticated data surveillance systems that track the health of the population from birth to death as primary care

interactions occur.³⁶² During childhood, available information includes: prenatal care, births, child health events, immunization, physician and dental contacts, and prescriptions. In Canada, provinces and territories have developed their own data collection processes, some with strong links to socio-economic information (e.g. Manitoba’s Population Health Information System), however, these processes remain nationally unco-ordinated and unlinked.^{569, 570}

While data on the health status of the overall population could be improved, information on sub-populations as well as the effectiveness of targeted programs is even less available and co-ordinated. In addition, longitudinal data that follows children from childhood into adulthood are not available and will take a long-term commitment to data collection to initiate and maintain. Studies such as the High/Scope Perry Preschool Program show the benefit of investing in the collection of data on the same group of children from early childhood well into adulthood.^{386, 387} With these types of nationally collected data and intervention evaluations, reporting on children’s current and long-term health will become easier and more effective in terms of determining appropriate actions. A nationally co-ordinated surveillance, research and evaluation system is required.

Improved and ongoing education and awareness

Education and awareness play a role in establishing healthy behaviours, prevention practices, and managing disease and disability. To be effective, there is a need to educate early and often, with the optimal approach being a combination of both formal education and social marketing practices. Canada’s efforts on tobacco cessation during pregnancy and the ‘Back to Sleep’ message illustrate this point.⁵⁴⁸ Evidence shows that, over time, risks have been reduced as a result of these campaigns.⁵⁴⁹

Early education allows for the development of healthy practices through knowledge that is acquired before the need for information arises.³²³ For example, learning about mental health and resilience, or balancing nutrition and physical activity should start when children are young and just beginning to learn about choices and healthy practices.^{463, 472, 520} In the same vein, the ideal time to learn about healthy pregnancy and parenting is before

pregnancy or, failing that, during the prenatal period.³²³ In addition, education and awareness activities are not one-time efforts; they need to be ongoing and sustained, allowing for the education of new generations and keeping others up to date on the latest information.

Canada has also taken action by setting and promoting guidelines, recommendations and advisories on ideal nutritional behaviours, and physical activity levels. Injury prevention organizations such as Safe Kids Canada, ThinkFirst and SMARTRISK include a wide range of educational tactics (such as mentoring and role playing) to raise awareness and encourage risk management.^{79, 545, 554, 555} Broad national strategies, such as Canada's Family Violence Initiative, also play a role in identifying issues, defining rights and removing barriers by raising awareness and understanding across sectors.⁴¹⁷ Education and awareness will also be key to a Canadian mental health strategy because they are likely to help to break down barriers and stigmas associated with promoting mental health and addressing mental disorders.^{463, 464}

While education and awareness activities are critical to Canada's success in improving children's health, evidence shows that knowledge dissemination is more effective as part of a larger strategy that involves surveillance, legislation/regulation, and community services and support. For example, Sweden's injury prevention strategy includes knowledge dissemination as part of its healthy public policy.^{561, 562}

Healthy and supportive environments

Across all six health issues covered in this report, children's environments – from the prenatal environment to home, school and/or community – play a significant role in children's health and well-being. Children who are loved and cared for and feel safe and unthreatened can thrive. Parents and siblings are important role models as children watch, listen and learn from them and model their behaviours and attitudes.⁵²⁰ For example, evidence shows that children's food consumption and physical activity practices reflect those of their parents and other family members.



Communities and governments also play a role in establishing supportive and healthy environments. Communities can offer opportunities for recreation, physical activity, and safe and healthy transport through urban planning. Communities *in motion*, for example, represents a gathering of all community sectors to provide safe routes and games that encourage physical activity.^{542, 544} Family friendly approaches in work environments encourage and support parents who strive to find a work-life balance (e.g. affordable daycare through Quebec's Family Policy, as well as parental leave in Sweden and in Canada).^{161, 375, 571} Legislation and guidelines provide information on exposures (e.g. advisories on minimizing methyl mercury in prenatal fish consumption), safety practices (e.g. vehicle restraints) and healthy behaviours (e.g. Canada's Food Guide).^{302, 491, 556}

Communities and government programs can also mitigate and contribute to reducing conditions of risk for children through supportive, healthy environments. Aboriginal Head Start, for example, has an all-family approach that reaches low-income Aboriginal families and provides children with opportunities to become school-ready, learn about traditions and culture, and adopt healthy practices.^{406, 407} Other initiatives, such as Canadian Prenatal Nutrition Program, Community Action Program for Children, and Aboriginal Healthy Babies, Healthy Children, also target families in need by supporting parents, providing programs for children, and helping to create homes and communities where children have opportunities to grow up well.^{394-396, 402, 403, 442}

When caring environments are jeopardized, opportunities need to be available to support parents in interacting positively with their children. The Olds Home Visitation Model shows that success can be achieved by targeting parents early and making a difference in the home environment of new parents and children.⁴³⁰ The Kauai Longitudinal Study demonstrates that when children are faced with adversity at home, some can overcome these experiences through an early bond with a caring adult and/or support from community members.⁴⁷² Similarly, the Roots of Empathy initiative shows that teaching children about the impact of their actions on others can lessen aggressive behaviours, an outcome that may be carried into adulthood.⁴²⁴ And, while providing

access to affordable, family friendly programming is a challenge, action to address this need is being initiated in jurisdictions with broad childhood strategies such as the U.K.'s Sure Start Programme.^{371, 382, 572}

Creating healthy and supportive environments is a huge undertaking that involves the cohesive efforts of many. Communities are at the forefront of these efforts as people living closest to the situation are often in the best position to develop solutions.⁵⁷³ The range of community-based programs presented in this report is evidence of this impact. There are many examples of specific individuals, schools and communities striving to create healthy and supportive environments and making a positive difference. In Canada, a lack of knowledge impacts such efforts. Better means of measuring activities, perceptions and supports in homes, schools and communities is required. Once we have a better sense of our strengths and weaknesses, we can move forward in our efforts to build and strengthen these childhood environments.

Co-ordinated, multi-pronged and sustained strategies

Although the work of individual programs across Canada is invaluable, evidence across the six areas of concern illustrates that there is value in co-ordinated, multi-pronged and sustained strategies that involve different sectors (e.g. health, education and the private sector) and that tackle issues on different fronts (e.g. community action, education campaigns and legislation). Such strategies have demonstrated success in reducing health-threatening behaviours and related health outcomes, especially when sustained over a significant period of time. Evidence suggests that they may be more effective at reaching a wider range of people (different tactics within the same strategy resonate with different groups of people), and may represent the difference between doing well and doing better than the rest. For example, Sweden's co-ordinated population-based injury prevention strategy relies on a healthy public policy approach and has resulted in Sweden's ranking as a leader in this area.⁵⁶¹⁻⁵⁶³ This success is attributed to inter-sectoral collaboration that incorporates community leadership, a comprehensive surveillance system, multi-pronged

education/awareness programs and co-ordinated legislation that makes safety a priority.

Broad child- and family-oriented initiatives have shown some success in directly addressing the interconnectivity of income to other socio-economic factors within families. Finland and the U.K. have both experienced reduced childhood-related poverty with the application of broad family policies that provide taxes/transfers to families with children but also address issues such as parental support and child care.^{219, 362, 365} Similarly, Quebec's Family Policy works to equalize opportunity so that household income does not determine access to early education and care.^{375, 377, 378}

Work to develop successful strategies to address the six issues highlighted in this report is taking place in Canada, though it is still very much in its infancy. Moving forward will take strong federal/provincial/territorial collaboration and commitment. I strongly encourage these efforts and highlight the following areas of need and potential:

- As a leading cause of death for children, injury prevention is a high priority issue that would benefit from a broad prevention initiative.
- Co-ordinated approaches to poverty reduction and childhood development programming have seen some success in other jurisdictions and a more co-ordinated children's strategy may be effective in Canada.
- Canada's Mental Health Commission is working toward the development of a national strategy for mental health with the goal of improving conditions for those experiencing mental disorders and illnesses, creating multi-pronged awareness and anti-stigma programs as well as the development of knowledge hubs for information exchange.^{464, 475}
- An emerging population health issue, such as childhood obesity, could benefit from a broad population approach to effectively tackle the multiple components of the issue for all Canadians.

Moving forward – Making a difference

Looking back over Canada's history of child-focused efforts, it is apparent that advances have been made in disease and injury prevention, health promotion and related social development. Canada is seeing the benefits today of its investments in a proactive approach to

the health, safety and well-being of its children. As we celebrate the 20th anniversary of the United Nations Convention on the Rights of the Child, it is appropriate that we look toward the future and reaffirm our commitment to children having the right to the highest attainable standard of health.^{90, 93}

There are still worrying trends and Canada is not doing as well as other countries in some areas, which underlines the need for additional efforts to ensure a better future for all its citizens. Some Canadian children experience conditions for optimal childhood health and development and, as a result, they are doing very well. The four priority areas for action detailed in this report, when met with success, will do much for improving these conditions for an even greater number of children.

Taking action requires time, effort and resources. These investments, if made today, will have a positive impact not only on the current health of our children but also their future health. We also know that resources targeted to supporting families with children – prenatally and in the early years of childhood – can have the greatest impact over the lifecourse and, as such, make good sense from both a financial and social perspective.

Moving forward, efforts must focus on addressing the persistent and emerging issues that are affecting the immediate and long-term health of Canada's children, and that show signs of being preventable. Increasing rates of obesity and sedentary lifestyles must be addressed. We should continue to monitor injuries and prenatal health to ensure risks are being minimized. The mental health of our children needs to be better understood, and situations of abuse and neglect must be prevented and avoided. In particular, our efforts must focus on addressing the health trajectories of Canada's vulnerable populations of children such as those living in low-income households, Aboriginal children and children with disabilities. Inequalities in SES and opportunities for development – with their long-term impact on health and intergenerational pervasiveness – are an ongoing concern.

Although current social supports for families and children have set the stage for healthy lives and continue to do so, the evidence presented in this report shows that there is a real need to supplement these efforts. Actions require a balance between targeted and universal programs and

must be co-ordinated and multi-pronged to effectively address Canada's extensive geography, diversity and vulnerable populations. They must also be sustained over time to see the benefits of these early investments. This kind of balance ensures that, regardless of the conditions into which children are born, they have opportunities to follow a path towards a healthy life.

Better data and information through increased surveillance and evaluation can strengthen our capacity to measure children's health and evaluate actions intended to improve outcomes. We can also increase our ability to make a difference for those in greatest need. Canada does not have a strong record of measuring the effectiveness of initiatives. That means that as efforts wane, we remain unaware and unable to effect change until those beside us and behind us move ahead of us.

We need to build on initiatives to educate and raise awareness, so that they are not undertaken in isolation or limited to one-time efforts with short-term impacts. To sustain positive results, these efforts must reach populations at the earliest possible opportunity and be continuous in nature.

What works for individual children or communities may not be transferable to others. However, understanding the reasons for this, and identifying a framework for what does and does not work, is the challenge for moving beyond our current status in terms of children's health.

As a caring and compassionate society that considers the potential of each and every child to lead a healthy and productive life, we must acknowledge that doing well, when we can do better, is not enough.

– From words to action –

I wrote this report in order to build awareness about the current state of children's health and well-being in Canada and the influences that early conditions and environments can have over the lifecourse. I also wanted to highlight areas where we are making a difference in the present and future lives of children. While engaging in this process, the worrying issues and current challenges were very clear, as was the need to work together to address these concerns and generally care for our children.

In Canada, we have had success in improving the conditions for children's health and well-being. We must continue to build on these successes as we tackle current worrying health issues, as well as future public health concerns as they emerge. Everyone has a role to play – individuals, parents, teachers, health practitioners, community members, and decision makers – in creating the physical, economic, social and cultural conditions for optimal child health and development. What we do, even in small ways as individuals, can make a difference especially to a child. As a society, Canada can build momentum and be a leader in children's health and development. With commitment to action comes the expectation that each person will do his or her part.

In my capacity as Chief Public Health Officer, I will:

- work with my federal colleagues and other sectors to promote and develop policies that support healthy child development;
- monitor the health and development of Canadian children and their growth into adolescence and adulthood;
- revisit the issue of child health at regular intervals to measure and report on progress; and
- continue to invest in and support public health initiatives in child health and development that will endure over the lifecourse.

— Dr. David Butler-Jones

List of Acronyms

ADHD	Attention Deficit Hyperactivity Disorder
AHBHC	Aboriginal Healthy Babies Healthy Children
AHWS	Aboriginal and Healing Wellness Strategy
AVHPSP	Annapolis Valley Health Promoting School Project
AVRSB	Annapolis Valley Regional School Board
CANPLAY	Canadian Physical Activity Levels of Children and Youth Study
CAPC	Community Action Program for Children
CBC	Canadian Broadcasting Corporation
CHIRPP	Canadian Hospitals Injury Reporting and Prevention Program
CIS	Canadian Incidence Study of Reported Child Abuse and Neglect
CMA	Census Metropolitan Areas
CPHO	Chief Public Health Officer
CPNP	Canadian Prenatal Nutrition Program
CPNP- FNIC	Canadian Prenatal Nutrition Program-First Nations and Inuit Component
CPSS	Canadian Perinatal Surveillance System
CSA	Canadian Standards Association
ECD	Early Childhood Development
ECE	Early Childhood Education
EDI	Early Development Instrument
FASD	Fetal Alcohol Spectrum Disorder
HIV	Human Immunodeficiency Virus
HUS	Hemolytic-Uremic Syndrome
IMR	Infant Mortality Rate
INAC	Indian and Northern Affairs Canada
IQ	Intelligence Quotient
LICO	Low-Income Cut-Off
MES	Maternal Experiences Survey
NLSCY	National Longitudinal Survey of Children and Youth
OECD	Organisation for Economic Co-operation and Development
PTSD	Post-Traumatic Stress Disorder
ROE	Roots of Empathy
RHS	First Nations Regional Longitudinal Health Survey
SARS	Severe Acute Respiratory Syndrome
SES	Socio-economic Status
SIDS	Sudden Infant Death Syndrome
STI	Sexually Transmitted Infection
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WIS	Working Income Supplement

Routine Immunization Schedule for Infants and Children



Figure B.1 Routine immunization schedule for infants and children ⁵³

Age at vaccination	DTaP-IPV	Hib	MMR	Var	HB	Pneu-C-7	Men-C	Tdap	Inf
Birth									
2 months	⊖	★			Infancy 3 doses	☒	⊙		
4 months	⊖	★				☒	(⊙)		
6 months	⊖	★				★	☒	⊙ or ⊙	
12 months			■	●	or	☒ 12-15 months	⊙ if not yet given		ⓘ 1-2 doses
18 months	⊖	★	■ or ■		Pre-teen/ teen 2-3 doses				
4-6 years	⊖								

- () Symbols with brackets around them imply that these doses may not be required, depending upon the age of the child or adult. Refer to the relevant chapter for that vaccine for further details.
- ⊖ **Diphtheria, tetanus, acellular pertussis and inactivated polio virus vaccine (DTaP-IPV):** DTaP-IPV(± Hib) vaccine is the preferred vaccine for all doses in the vaccination series, including completion of the series in children who have received one or more doses of DPT (whole cell) vaccine (e.g. recent immigrants). The four- to six-year dose can be omitted if the fourth dose was given after the fourth birthday.
- ★ **Haemophilus influenzae type b conjugate vaccine (Hib):** the Hib schedule shown is for the Haemophilus b capsular polysaccharide - polyribosylribitol phosphate (PRP) conjugated to tetanus toxoid (PRP-T). For catch up, the number of doses depends on the age at which the schedule is begun. Not usually required past the age of five.
- **Measles, mumps and rubella vaccine (MMR):** a second dose of MMR is recommended for children at least one month after the first dose for the purpose of better measles protection. For convenience, options include giving it with the next scheduled vaccination at 18 months of age or at school entry (four to six years of age) (depending on the provincial/territorial policy) or at any intervening age that is practical. In the catch-up schedule, the first dose should not be given until the child is ≥ 12 months old.
- **Varicella vaccine (Var):** children aged 12 months to 12 years should receive one dose of varicella vaccine.
- ★ **Hepatitis B vaccine (HB):** hepatitis B vaccine can be routinely given to infants or pre-adolescents, depending on the provincial/territorial policy. For infants born to chronic carrier mothers, the first dose should be given at birth (with hepatitis B immunoglobulin), otherwise the first dose can be given at two months of age to fit more conveniently with other routine infant immunization visits. The second dose should be administered at least one month after the first dose, and the third at least two months after the second dose, but these may fit more conveniently into the four- and six-month immunization visits.
- ☒ **Pneumococcal conjugate vaccine - 7-valent (Pneu-C-7):** recommended for all children under two years of age. The recommended schedule depends on the age of the child when vaccination is begun.
- ⊙ **Meningococcal C conjugate vaccine (Men-C):** recommended for children under the age of five, adolescents and young adults. The recommended schedule depends on the age of the individual and the conjugate vaccine used. At least one dose in the primary infant series should be given after five months of age. If the provincial/territorial policy is to give Men-C to persons ≥ 12 months of age, one dose is sufficient.
- ⓘ **Influenza vaccine (Inf):** recommended for all children 6 to 23 months of age and all persons ≥ 65 years of age. Previously unvaccinated children < nine years of age require two doses of the current season's vaccine with an interval of at least four weeks. The second dose within the same season is not required if the child received one or more doses of Influenza vaccine during the previous Influenza season.

Family Guide to Physical Activity for Children†



Call to action for families, educators, physicians and community leaders ⁴⁸⁹

Canada’s Guidelines for Increasing Physical Activity in Children

- 1. Increase** the time **currently** spent on physical activity starting with 30 minutes **more** per day.
- 2. Reduce** “non-active” time spent on TV, video, computer games and surfing the Internet, starting with 30 minutes **less** per day.

You need to encourage children to build up their physical activity throughout the day. The 30 minutes more of physical activity can be accumulated in bouts as short as 5 or 10 minutes.

This increase in physical activity should include:

- * Moderate activities like brisk walking, skating, biking, swimming and playing outdoors
- ** Vigorous activities like running and soccer

Here’s how it works!

Build up physical activity throughout the day in periods of at least 5 to 10 minutes

	Daily increase in moderate* physical activity (Minutes)	Daily increase in vigorous** physical activity (Minutes)	Total daily increase in physical activity (Minutes)	Daily decrease in non-active time (Minutes)
Month 1	at least 20 +	10 =	30	30
Month 2	at least 30 +	15 =	45	45
Month 3	at least 40 +	20 =	60	60
Month 4	at least 50 +	25 =	75	75
Month 5	at least 60 +	30 =	90	90

Congratulations! Daily active time is part of a healthy lifestyle.

Note: Children who are already quite active should record all their moderate and vigorous activities for a few days. They can total up the minutes, then progress gradually from there until they reach at least 90 minutes of daily physical activity.

The Goal

Increase children’s physical activity every month until they are doing at least 90 minutes more per day. Congratulate them every step of the way. Put a progress chart such as the *Physical Activity Chart* on the refrigerator or your bulletin board! Talk about the goals and accomplishments during family time or when doing other activities with the children.

You can do it! Make physical activity a lifestyle choice for the whole family and build it into the daily routine.

† This Guide is an excerpt only. For a copy of the full guide, please visit the Public Health Agency of Canada website at http://www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/

Indicators of Our Health and Factors Influencing Our Health

APPENDIX D

		Description	Year
Who we are			
Population ¹	33.2	million people (as of April 1, 2008)	2008
Aboriginal ¹	1.17	million people	2006
First Nations (single ancestry) ¹	0.70	million people	2006
Métis (single ancestry) ¹	0.39	million people	2006
Inuit (single ancestry) ¹	0.05	million people	2006
Immigrant ¹	6.2	million people	2006
<u>By birth place</u>			
Africa ¹	0.37	million people	2006
Asia and the Middle East ¹	2.53	million people	2006
Caribbean and Bermuda ¹	0.32	million people	2006
Central America ¹	0.13	million people	2006
Europe ¹	2.28	million people	2006
Oceania and other ¹	0.06	million people	2006
South America ¹	0.25	million people	2006
United States of America ¹	0.25	million people	2006
<u>By years since immigration</u>			
Recent (<= 10 years) ¹	2.0	million people	2006
Long-term (> 10 years) ¹	4.2	million people	2006
Urban population ¹	80.2	percent of the population	2006
Our health status			
Life expectancy and reported health			
Life expectancy at birth ¹	80.8	years of expected life	2006
Health-adjusted life expectancy at birth ¹	69.6	years of expected healthy life	2001
Infant mortality rate (under 1 year) ¹	5.0	deaths per 1,000 live births	2006
Excellent or very good self-rated health* ²	59.6	percent of the population aged 12+ years	2007
Excellent or very good self-rated mental health* ²	72.7	percent of the population aged 12+ years	2007
Leading causes of mortality			
Circulatory diseases ²	222.1	deaths per 100,000 population per year	2005
Malignant cancers ²	213.0	deaths per 100,000 population per year	2005
Respiratory diseases ²	63.4	deaths per 100,000 population per year	2005
Causes of premature mortality (ages 0-74 years)			
Malignant cancers ¹	1,574	potential years of life lost per 100,000 population per year	2001
Circulatory diseases ¹	854	potential years of life lost per 100,000 population per year	2001
Unintentional injuries ¹	587	potential years of life lost per 100,000 population per year	2004
Suicide and self-inflicted injuries ¹	372	potential years of life lost per 100,000 population per year	2004
Respiratory diseases ¹	162	potential years of life lost per 100,000 population per year	2001
HIV ¹	46	potential years of life lost per 100,000 population per year	2001
Causes of ill health and disability			
<u>Living with chronic diseases</u>			
Cancer incidence ¹	501.2	per 100,000 population	2008
Diabetes ²	5.9	percent of the population aged 1+ years	2005-2006
Obesity ¹	24.3	percent of the population aged 18+ years	2005
Arthritis/rheumatism* ²	15.1	percent of the population aged 12+ years	2007
Asthma* ²	8.1	percent of the population aged 12+ years	2007
Heart disease* ²	4.8	percent of the population aged 12+ years	2007
High blood pressure* ²	19.2	percent of the population aged 20+ years	2007
Chronic obstructive pulmonary disease* ²	4.4	percent of the population aged 35+ years	2005
<u>Living with mental illness</u>			
Schizophrenia ²	0.3	percent of the population aged 12+ years	2005
Major depression ²	4.8	percent of the population aged 15+ years during a 12-month period	2002
Alcohol dependence ²	2.6	percent of the population aged 15+ years during a 12-month period	2002
Anxiety disorders ²	4.8	percent of the population aged 15+ years during a 12-month period	2002
Alzheimer's and other dementias**	6.0-10.0	percent of the population aged 65+ years in North America	2000

Indicators of Our Health and Factors Influencing Our Health

		Description	Year
Our health status (continued)			
<i>Acquiring infectious diseases</i>			
<i>HIV²</i>	<i>2,300-4,500</i>	<i>estimated number of new cases annually</i>	<i>2005</i>
<i>Chlamydia²</i>	<i>217.3</i>	<i>new cases per 100,000 population annually</i>	<i>2007</i>
<i>Gonorrhoea²</i>	<i>34.9</i>	<i>new cases per 100,000 population annually</i>	<i>2007</i>
<i>Infectious syphilis²</i>	<i>3.6</i>	<i>new cases per 100,000 population annually</i>	<i>2007</i>
Factors influencing our health			
Income			
Persons living in low income (after-tax) ¹	9.2	percent of the population based on 1992 low-income cut-off	2007
Employment and working conditions			
Unemployment rate ¹	6.1	percent of the population aged 15+ years	2008
Food security			
People reporting food insecurity* ⁵	9.2	percent of the population aged 12+ years	2004
Environment and housing			
Ground-level ozone exposure ⁶	36.9	parts per billion (population weighted warm season average)	2006
Fine particulate matter (PM _{2.5}) exposure ⁶	7.8	micrograms per cubic metre (population weighted warm season average)	2006
Unable to access acceptable housing ⁷	12.7	percent of the population	2006
Education and literacy			
High school graduates ¹	81.5	percent of the population aged 25+ years	2008
Some post-secondary education ¹	62.2	percent of the population aged 25+ years	2008
Post-secondary education ¹	56.0	percent of the population aged 25+ years	2008
Social support and connectedness			
Very or somewhat strong sense of community belonging* ¹	62.0	percent of the population aged 12+ years	2007
Violent crime incidents ¹	930	per 100,000 population	2007
Health behaviours			
Current smoker* ⁴	19.2	percent of the population aged 15+ years	2007
Engaged in leisure time physical activity* ¹	49.0	percent of the population aged 12+ years	2007
Fruit and vegetable consumption (5+ times a day)* ¹	41.3	percent of the population aged 12+ years	2007
Heavy drinking (5+ drinks on one occasion at least once a month in the past year)* ¹	17.2	percent of the population aged 12+ years	2007
Illicit drug use (in the past year)* ⁴	11.5	percent of the population aged 25+ years	2004
Teen pregnancy ¹	29.2	pregnancies per 1,000 female population aged 15 to 19 years per year	2005
Access to health care			
Regular family physician* ¹	84.8	percent of the population aged 12+ years per year	2007
Contact with dental professional* ¹	64.6	percent of the population aged 12+ years per year	2007

* Denotes self-reported data

Note: Italicized information denotes indicators that have not changed from the previous *Chief Public Health Officer's Report on the State of Public Health in Canada, 2008*. Some data may not be comparable. More detailed information can be found in Appendix E: Definitions and Data Sources for Indicators.

Sources: (1) Statistics Canada, (2) Public Health Agency of Canada, (3) World Health Organization, (4) Health Canada, (5) Environment Canada, (6) Canada Mortgage and Housing Corporation and (7) National Diabetes Surveillance System.

Definitions and Data Sources for Indicators

- A -

Aboriginal (2006)⁵⁷⁴

This is a collective name for all Aboriginal Peoples of Canada and their descendants. The *Constitution Act* of 1982 specifies that the Aboriginal Peoples in Canada consist of three groups – Indians, Inuit and Métis. Indians, Inuit and Métis peoples have unique heritages, languages, cultural practices and spiritual beliefs.

Data Source

Table 3.1: Indian and Northern Affairs Canada. (2009-03-18). *2006 Census - Aboriginal Population aged 0-11 by Area of Residence* [Custom Data File].
Appendix D: Statistics Canada. (2008-06-12). *Aboriginal Identity, Sex and Age Groups for the Population of Canada, Provinces, Territories and Forward Sortation Areas, 2006 Census - 20% Sample Data* [Data File].

First Nations (single ancestry) (2006)⁵⁷⁴

A term which came into common usage in the 1970s to replace Indian. Although the term First Nation is widely used, no legal definition of it exists. Among its uses, the term “First Nations Peoples” refers generally to the Indian Peoples in Canada, both Status and non-Status. Single ancestry indicates the person has identified only First Nations as their ancestors’ culture of origin.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].
Appendix D: Statistics Canada. (2008-06-12). *Aboriginal Identity, Sex and Age Groups for the Population of Canada, Provinces, Territories and Forward Sortation Areas, 2006 Census - 20% Sample Data* [Data File].

Inuit (single ancestry) (2006)⁵⁷⁴

Inuit are the Aboriginal People of Arctic Canada who live primarily in Nunavut, the Northwest Territories and northern parts of Labrador and Quebec. Single ancestry indicates the person has identified only Inuit as their ancestors’ culture of origin.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].
Appendix D: Statistics Canada. (2008-06-12). *Aboriginal Identity, Sex and Age Groups for the Population of Canada, Provinces, Territories and Forward Sortation Areas, 2006 Census - 20% Sample Data* [Data File].

Métis (single ancestry) (2006)⁵⁷⁴

A term which is used broadly to describe people with mixed First Nations and European ancestry who identify themselves as Métis, distinct from Indian people, Inuit or non-Aboriginal people. Single ancestry indicates the person has identified only Métis as their ancestors’ culture of origin.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].
Appendix D: Statistics Canada. (2008-06-12). *Aboriginal Identity, Sex and Age Groups for the Population of Canada, Provinces, Territories and Forward Sortation Areas, 2006 Census - 20% Sample Data* [Data File].

Alcohol consumption during pregnancy (2006-2007)³²⁴

Proportion of women who have given birth in the past 5 to 14 months and have consumed alcoholic beverages during their pregnancy.

Data Source

Table 4.1: Public Health Agency of Canada. (2009). *Data Tables - The Maternity Experiences Survey (MES) 2006-2007*.

Alcohol dependence (2002)^{199, 575}

Alcohol dependence is defined as tolerance, withdrawal, loss of control or social or physical problems related to alcohol use. A respondent (aged 15+ years) who reported having five drinks or more on one occasion at least once a month during the past 12 months and had five drinks or more during another 12-month period.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2002 (Cycle 1.2) from Statistics Canada* [Data File].

E Definitions and Data Sources for Indicators

Alzheimer's and other dementias (2000)⁵⁷⁶

Persons aged 65+ years who have been diagnosed as having Alzheimer's disease, vascular disease, frontal lobe dementia or Lewy Body disease (ICD-10 F01, F03, G30-G31).

Data Source

Appendix D: Mathers, C. E. & Leonardi, M. (2002). *Global burden of dementia in the year 2000: Summary of methods and data sources.* (World Health Organization).

Anxiety disorders (2002)^{199, 575}

A respondent (aged 15+ years) who reported experiencing any of the following criteria associated with agoraphobia, panic disorder and social phobia in the past 12 months was considered to meet the criteria for anxiety disorders:

- a panic attack in the past 12 months;
- significant emotional distress during a panic attack in the past 12 months;
- fear or avoidance of social or performance situation(s) in the past 12 months;
- clinically significant distress or impairment in social, occupational or other important areas of functioning;
- anxiety about being in at least two different places or situations from which escape might be difficult or embarrassing, along with fear of having a panic attack; and
- avoidance of situations associated with agoraphobia; or endurance of situations with marked distress or anxiety; or requiring the presence of a companion in the situations.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2002 (Cycle 1.2) from Statistics Canada* [Data File].

Arthritis/rheumatism (2007)⁵⁷⁷

Respondents (aged 12+ years) who report having arthritis or rheumatism, excluding fibromyalgia.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2007 (Cycle 4.1) from Statistics Canada* [Data File].

Asthma (2000)¹⁶⁴

Prevalence of physician diagnosed asthma at any point in the child's life.

Data Source

Table 3.2: Public Health Agency of Canada. (2007). *Life and Breath: Respiratory Disease in Canada.*

Asthma (2007)⁵⁷⁷

Respondents (aged 12+ years) who report having:

- asthma;
- asthma symptoms or attacks in the past 12 months; or
- taken medicine for asthma such as inhalers, nebulizers, pills, liquids or injections.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2007 (Cycle 4.1) from Statistics Canada* [Data File].

- B -

Breastfeeding (initiation) (2006-2007)^{311, 324}

The rate of breastfeeding is defined as the number of women who have given birth to a live born child in the past 5 to 14 months and ever breastfed that child, expressed as a proportion of all the women who delivered a live born child (in a given place and time).

Data Source

Table 4.1: Public Health Agency of Canada. (2009). *Data Tables - The Maternity Experiences Survey (MES) 2006-2007.*

Breastfeeding (6+ months) (2006-2007)^{311, 324}

The rate of breastfeeding is defined as the number of women who have given birth to a live born child in the past 5 to 14 months and breastfed that child for a minimum of six months, expressed as a proportion of all the women who delivered a live born child (in a given place and time).

Data Source

Table 4.1: Public Health Agency of Canada. (2009). *Data Tables - The Maternity Experiences Survey (MES) 2006-2007.*

- C -

Cancer incidence (2000-2004, 2008)⁵⁷⁸

Estimated number of children that are diagnosed with new cases of cancer.

Data Source

Table 3.2: Canadian Cancer Society, National Cancer Institute of Canada, Public Health Agency of Canada, Statistics Canada, & Provincial/Territorial Cancer Registries. (2008). *Canadian Cancer Statistics 2008*.

Appendix D: Canadian Cancer Society, National Cancer Institute of Canada, Public Health Agency of Canada, Statistics Canada, & Provincial/Territorial Cancer Registries. (2008). *Canadian Cancer Statistics 2008*; and Statistics Canada. (2009-03-02). *CANSIM Table 282-0004 - Labour force survey estimates (LFS), by educational attainment, sex and age group, annual* [Data File].

Children living in low income (after tax) (2006)²²⁶

Describes how many Canadians, between the ages of 0 and 11 years, live in families spending a share of their total post-tax income on food, clothing and footwear, and shelter 20 percentage points higher than did average families of the same size in the same broad community size. Low income is based on the consumption patterns for 1992 and adjusted for family size, community sizes and inflation based on the national Consumer Price Index.

Data Source

Table 4.1: Statistics Canada. (2009-03-13). *Number of children aged 0-11, living in low income (after-tax), Canada* [Custom Data File]. Statistics Canada. (2008). *Income in Canada, 2006*.

Children living in private households (2006)¹²⁹

Children identified in the 2006 Census as living within a private household.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

Children living in two-parent households (2006)¹²⁹

Children identified in the 2006 Census as living within a private household with two parents (married or common-law) present.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

Children living in single-parent households (2006)¹²⁹

Children identified in the 2006 Census as living within a private household with only a single parent present.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

Children living with single fathers (2006)¹²⁹

Children identified in the 2006 Census as living within a private household with only a single father present.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

Children living with single mothers (2006)¹²⁹

Children identified in the 2006 Census as living within a private household with only a single mother present.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

E Definitions and Data Sources for Indicators

Chlamydia (2007)⁵⁷⁹

Rate per 100,000 population where Chlamydia (Chlamydia trachomatis) has been identified by a laboratory.

Data Source

Appendix D: Public Health Agency of Canada. (2008-05-28). *Reported cases of notifiable STI from January 1 to June 30, 2007 and January 1 to June 30, 2008 and corresponding annual rates for the years 2007 and 2008.*

Chronic obstructive pulmonary disease (2005)⁵⁸⁰

Respondents (aged 35+ years) who report having chronic obstructive pulmonary disease.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2005 (Cycle 3.1) from Statistics Canada* [Data File].

Circulatory diseases (2005)⁵⁸¹

Deaths associated with circulatory diseases, classified as International Classification of Disease codes I00-I99, such as ischaemic heart disease, cerebrovascular diseases and pulmonary heart conditions.

Data Source

Appendix D: Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada]; and Statistics Canada. (2009-03-30). *CANSIM Table 102-0529 Deaths, by cause, Chapter IX: Diseases of the circulatory system (I00 to I99), age group and sex, Canada, annual* [Data File].

Congenital malformations, deformations and chromosomal abnormalities (2004, 2005)¹⁵⁴

Deaths associated with congenital malformations, deformations and chromosomal abnormalities (ICD-10 Q00-Q99) including but not limited to spina bifida, Down's syndrome, malformations of the heart and lungs.

Data Source

Table 3.2: Statistics Canada. (2009-03-26). *Causes of death in children 0 to 11 years of age, Canada, by age group, 2000 to 2004* [Custom Data File]; and Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada].

Contact with dental professional (2007)^{473, 582}

Persons who have consulted with a dental professional in the past 12 months.

Data Source

Appendix D: Statistics Canada. (2007-04-27). *CANSIM Table 105-0460 Contact with dental professionals in the past 12 months, by age group and sex, household population aged 12 and over, Canada, provinces, territories, health regions (June 2005 boundaries) and peer groups, every 2 years* [Data File].
Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

Crude birth rate (2006)¹³⁵

The number of live births per 1,000 population.

Data Source

Table 3.1: Statistics Canada. (2008-09-25). *CANSIM Table 102-4505 Live births, crude birth rate, age-specific and total fertility rates, Canada, provinces and territories, annual* [Data File].

Current smoker (2007)⁵⁸³

Respondents who have identified themselves as daily smokers and non-daily smokers (also known as occasional smokers).

Data Source

Appendix D: Health Canada. (2008-08-25). *Canadian Tobacco Use Monitoring Survey (CTUMS) 2007 - Table 1. Smoking status and average number of cigarettes smoked per day, by age group and sex, age 15+ years, Canada 2007.*

- D -

Diabetes (2005-2006)¹⁶⁶

Individuals were counted as having been diagnosed with diabetes when they had at least one hospitalization with a diagnosis of diabetes or had at least two physician visits with a diagnosis of diabetes within a two-year period.

Data Source

Table 3.2: Public Health Agency of Canada. (2009). *Report from the National Diabetes Surveillance System: Diabetes in Canada, 2008*. Appendix D: Public Health Agency of Canada. (2009). *Report from the National Diabetes Surveillance System: Diabetes in Canada, 2008*.

Disorders related to length of gestation and fetal growth (2005)¹⁵⁵

Deaths associated with length of gestation and fetal growth (ICD-10 P05-P08) including but not limited to fetal malnutrition, extremely low birth weight and extreme immaturity.

Data Source

Table 3.2: Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada]; and Statistics Canada. (2009-03-27). *CANSIM Table 102-0536 Deaths, by cause, Chapter XVI: Certain conditions origination in the perinatal period (P00 to P96), age group and sex, Canada, annual* [Data File].

- E -

Emotional problem-anxiety score (2004-2005)⁵⁸⁴

The proportion of children, as identified by parents or guardians, aged two to five years who exhibit high levels of emotional and/or anxiety problems, excluding those living in the territories, on reserve or in institutions.

Data Source

Table 3.2: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

Engaged in leisure-time physical activity (2007)⁵⁸⁵

Population aged 12 and over who reported a level of physical activity, based on their responses to questions about the nature, frequency and duration of their participation in leisure-time physical activity. Respondents are classified as active, moderately active or inactive based on an index of average daily physical activity over the past three months. For each leisure-time physical activity engaged in by the respondent, an average daily energy expenditure is calculated by multiplying the number of times the activity was performed by the average duration of the activity by the energy cost (kilocalories per kilogram of body weight per hour) of the activity. The index is calculated as the sum of the average daily energy expenditures of all activities. Respondents are classified as follows:

- 3.0 kcal/kg/day or more = physically active
- 1.5 to 2.9 kcal/kg/day = moderately active
- less than 1.5 kcal/kg/day = inactive

Data Source

Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

Excellent or very good self-rated health (2007)⁵⁸⁵

Population aged 12 years and over who reported perceiving their own health status as being either excellent or very good. Perceived health refers to the perception of a person's health in general, either by the person himself or herself, or, in the case of a proxy response, by the person responding. Health means not only the absence of disease or injury but also physical, mental and social well-being.

Data Source

Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

E Definitions and Data Sources for Indicators

Excellent or very good self-rated mental health (2007)⁵⁸⁵

Population aged 12 years and over who reported perceiving their own mental health status as being either excellent or very good. Perceived mental health refers to the perception of a person's mental health in general. Perceived mental health provides a general indication of the population suffering from some form of mental disease, mental or emotional problems, or distress, not necessarily reflected in perceived health.

Data Source

Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

- F -

Family functioning (2004-2005)⁵⁸⁶

Parents of children who have indicated on a survey a high degree of family dysfunction, including issues with problem solving, communicating, role definition, affective involvement, affective responsiveness and behaviour control.

Data Source

Table 4.1: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

Fine particulate matter (PM_{2.5}) exposure (2006)⁵⁸⁷

This indicator uses the warm seasonal average of daily 24-hour daily average concentrations, which is population-weighted to calculate trends and averages across monitoring stations located throughout the country.

Data Source

Appendix D: Environment Canada. (2009-03-12). *Canadian Environmental Sustainability Indicators Maps and Charts*.

First Nations (single ancestry) (2006)

See *Aboriginal*

Fruit and vegetable consumption (5+ times a day) (2004, 2007)^{179, 585}

Indicates the usual number of times (frequency) per day a person reported eating fruits and vegetables. Measure does not take into account the amount consumed.

Data Source

Table 4.1: Shields, M. (2006). Overweight and obesity among children and youth. *Health Reports*, 17(3), 27-42.
Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

- G -

Gonorrhea (2007)⁵⁷⁹

Rate per 100,000 population where Gonorrhea (*Neisseria gonorrhoeae*) has been identified by a laboratory.

Data Source

Appendix D: Public Health Agency of Canada. (2008-05-28). *Reported cases of notifiable STI from January 1 to June 30, 2007 and January 1 to June 30, 2008 and corresponding annual rates for the years 2007 and 2008*.

Ground-level ozone exposure (2006)⁵⁸⁷

This indicator uses the warm seasonal average of daily eight-hour maximum average concentrations, which is population-weighted to calculate trends and averages across monitoring stations located throughout the country.

Data Source

Appendix D: Environment Canada. (2009-03-12). *Canadian Environmental Sustainability Indicators Maps and Charts*.

- H -

Health-adjusted life expectancy (2001)¹⁴⁵

Health-adjusted life expectancy is the number of years in full health that an individual can expect to live given the current morbidity and mortality conditions. Health-adjusted life expectancy uses the Health Utility Index to weigh years lived in good health higher than years lived in poor health. Thus, health-adjusted life expectancy is not only a measure of quantity of life but also a measure of quality of life.

Data Source

Table 3.2: Statistics Canada. (2007-05-17). *CANSIM Table 102-0121 Health-adjusted life expectancy, at birth and at age 65, by sex and income group, Canada and provinces, occasional (years)* [Data File].
Appendix D: Statistics Canada. (2007-05-17). *CANSIM Table 102-0121 Health-adjusted life expectancy, at birth and at age 65, by sex and income group, Canada and provinces, occasional (years)* [Data File].

Heart disease (2007)⁵⁷⁷

Respondents (aged 12+ years) who report having heart disease.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2007 (Cycle 4.1) from Statistics Canada* [Data File].

Heavy drinking (5+ drinks on one occasion 12+ times in a year) (2007)⁵⁸⁵

Population aged 12 and over who reported having at least five drinks on a single occasion each month for the past 12 months.

Data Source

Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

High blood pressure (2007)⁵⁷⁷

Respondents (aged 20+ years) who report having:

- high blood pressure;
- been diagnosed with high blood pressure; or
- taken high blood pressure medication.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2007 (Cycle 4.1) from Statistics Canada* [Data File].

High school graduates (2008)⁵⁸⁸

Persons who have received, at minimum, a high school diploma or, in Quebec, a completed Secondary V or, in Newfoundland and Labrador, completed fourth year of secondary.

Data Source

Appendix D: Statistics Canada. (2009-03-02). *Table 282-0004 - Labour force survey estimates (LFS), by educational attainment, sex and age group, annual* [Data File].

HIV (2005)³³¹

The number of new HIV infections occurring in 2005.

Data Source

Appendix D: Public Health Agency of Canada. (2007). *HIV/AIDS - EPI Updates*.

Hyperactivity-inattention score (2004-2005)⁵⁸⁴

The proportion of children, as identified by parents or guardians, from two to five years of age who exhibit high levels of hyperactivity and/or inattention, excluding those living in the territories, on reserve or in institutions.

Data Source

Table 3.2: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

E Definitions and Data Sources for Indicators

- I -

Illicit drug use (in the past year) (2004)⁵⁸⁹

Illicit drug use by persons aged 25 years and older, in Canada, who have used illicit drugs (cannabis, cocaine, speed, ecstasy, hallucinogens or heroin) within the past year.

Note: *Current definition differs from* The Chief Public Health Officer's Report on the State of Public Health in Canada, 2008 - Addressing Health Inequalities.

Data Source

Appendix D: Health Canada. (2007). *Canadian Addiction Survey - A National Survey of Canadians' Use of Alcohol and Other Drugs*.

Immigrant (2006)⁵⁹⁰

A landed immigrant is a person who has been granted the right to live in Canada by immigration authorities.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

Appendix D: Statistics Canada. (2007-11-20). *Profile of Language, Immigration, Citizenship, Mobility and Migration for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2006 Census* [Data File].

By birth place (2006)^{591, 592}

The concept of place of birth applies to the country of a respondent if born outside Canada. Respondents are to report their place of birth according to international boundaries in effect at the time of enumeration not at the time of birth. Countries should be coded according to the most recent International Standardisation Organization codes and it is recommended that they be aggregated into regions according to the most recent United Nations' standards for the reporting of demographic and social data.

Data Source

Appendix D: Statistics Canada. (2007-11-20). *Profile of Language, Immigration, Citizenship, Mobility and Migration for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2006 Census* [Data File].

By years since immigration (2006)^{591, 592}

Year/Period of immigration refers to a person who is a landed immigrant by the period of time in which he or she first obtained landed immigrant status.

Data Source

Appendix D: Statistics Canada. (2007-11-20). *Profile of Language, Immigration, Citizenship, Mobility and Migration for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2006 Census* [Data File].

Infant mortality rate (under one year) (2006)⁵⁹³

Infant mortality rate is the number of infant deaths occurring within the first year of life during a given year per 1,000 live births in the same year.

Data Source

Table 3.2: Statistics Canada. (2009-04-27). *CANSIM Table 102-0507 Infant mortality, by age group, Canada, provinces and territories, annual* [Data File].

Appendix D: Statistics Canada. (2009-04-27). *CANSIM Table 102-0507 Infant mortality, by age group, Canada, provinces and territories, annual* [Data File].

Infectious syphilis (2007)⁵⁷⁹

Rate per 100,000 population where infectious syphilis (including primary, secondary and early latent stages) has been identified by a laboratory.

Data Source

Appendix D: Public Health Agency of Canada. (2008-05-28). *Reported cases of notifiable STI from January 1 to June 30, 2007 and January 1 to June 30, 2008 and corresponding annual rates for the years 2007 and 2008*.

Inuit (single ancestry) (2006)

See *Aboriginal*

Intentional and unintentional injuries (2004)¹⁵⁹

Deaths associated with accidents, also known as unintentional injuries (ICD-10 V01-Y89) including but not limited to transport accidents, drownings, burns, poisonings and assault.

Data Source

Table 3.2: Statistics Canada. (2009-03-26). *Causes of death in children 0 to 11 years of age, Canada, by age group, 2000 to 2004* [Custom Data File]; and Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada].

- L -

Life expectancy (2006)¹⁴⁴

Life expectancy is the number of years a person would be expected to live, starting from birth (for life expectancy at birth) and similarly for other age groups, on the basis of the mortality statistics for a given observation period.

Data Source

Table 3.2: Statistics Canada. (2009-04-27). *CANSIM Table 102-0511 Life expectancy, abridged life table, at birth and at age 65, by sex, Canada, provinces and territories, annual (years)* [Data File].

Appendix D: Statistics Canada. (2009-04-27). *CANSIM Table 102-0511 Life expectancy, abridged life table, at birth and at age 65, by sex, Canada, provinces and territories, annual (years)* [Data File].

Low birth weight (2006)¹⁴⁷

Live births where the measured birth weight of the infant is less than 2,500 grams.

Data Source

Table 3.2: Statistics Canada. (2008-09-26). *CANSIM Table 102-4509 Live births, by birth weight and sex, Canada, provinces and territories, annual* [Data File].

Low on at least one school readiness domain (2006)²⁸⁴

Percentage of vulnerable children in senior kindergarten who score low (below the 10th percentile cut-off of the site population) in one or more of the five domains (physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge) in select provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and New Brunswick).

Data Source

Table 4.1: The Offord Centre for Child Studies, McMaster University. *School Readiness to Learn National SK Cohort Results, Based on the Early Development Instrument Data Collection for Senior Kindergarten Students in Canada, Spring 2006*.

- M -

Major depression (2002)^{199, 575}

A major depressive episode is a period of two weeks or more with persistent depressed mood and loss of interest or pleasure in normal activities, accompanied by symptoms such as decreased energy, changes in sleep and appetite, impaired concentration, and feelings of guilt, hopelessness or suicidal thoughts. Respondents (aged 15+ years) who reported experiencing the following associated with major depressive episode were considered to fit the criteria for the 12-month period prevalence of major depression:

- a period of two weeks or more with depressed mood or loss of interest or pleasure and at least five additional symptoms;
- clinically significant distress or social or occupational impairment;
- the symptoms are not better accounted for by bereavement;
- meet the criteria for lifetime diagnosis of major depressive episode;
- report a 12-month episode; and
- report marked impairment in occupational or social functioning.

E Definitions and Data Sources for Indicators

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2002 (Cycle 1.2) from Statistics Canada [Data File]*. Retrieved on December 12, 2008.

Malignant cancers (2004, 2005)⁵⁹⁴

Deaths associated with malignant cancers (ICD-10 C00-C97) including but not limited to cancers of the lymph nodes, blood, brain and urinary tract.

Data Source

Table 3.2: Statistics Canada. (2009-03-26). *Causes of death in children 0 to 11 years of age, Canada, by age group, 2000 to 2004* [Custom Data File]; and Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada].

Appendix D: Statistics Canada. (2009-03-30). *CANSIM Table 102-0522 Deaths, by cause, Chapter II: Neoplasms (C00 to D48), age group and sex, Canada, annual* [Data File]; and Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada].

Maltreatment (2003)²⁴⁶

Substantiated cases within Canada, excluding Quebec, where sufficient evidence exists that abuse and/or neglect occurred. The information is then categorized into five broad subcategories including physical abuse, sexual abuse, neglect, emotional maltreatment and exposure to domestic violence.

Data Source

Table 4.1: Public Health Agency of Canada. (2005). *Canadian Incidence Study of Reported Child Abuse and Neglect - 2003: Major Findings*. (Public Health Agency of Canada).

Measles (2004-2005)⁵⁹⁶

The proportion of children, as identified by parents or guardians, to have had measles within the given year, excluding those living in the territories, on reserve or in institutions.

Data Source

Table 3.2: Human Resources and Social Development Canada, Public Health Agency of Canada, and Indian and Northern Affairs Canada. (2007). *The well-being of Canada's young children: Government of Canada Report 2006*.

Meningococcal Group C (2004-2005)⁵⁹⁶

The proportion of children, as identified by parents or guardians, to have had meningococcal group C infection within the given year, excluding those living in the territories, on reserve or in institutions.

Data Source

Table 3.2: Human Resources and Social Development Canada, Public Health Agency of Canada, and Indian and Northern Affairs Canada. (2007). *The well-being of Canada's young children: Government of Canada Report 2006*.

Métis (single ancestry) (2006)

See *Aboriginal*

Multiple births (2006)⁵⁹⁷

A delivery that results in more than one birth, whether live born or still born. This includes the delivery of twins, triplets, quadruplets, quintuplets and more.

Data Source

Table 3.2: Statistics Canada. (2008-09-25). *CANSIM Table 102-4515 Live births and fetal deaths (stillbirths), by type (single or multiple), Canada, provinces and territories, annual* [Data File].

- N -

Neighbourhood cohesion (2004-2005)¹⁴

Parents of children who have indicated on a survey that they felt little support in their neighbourhood, such as having adults children can look up to, people in their neighbourhood willing to help, and other adults that would watch out for the safety of children and suspicious activities.

Data Source

Table 4.1: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

Neighbourhood safety (2004-2005)¹⁴

Parents of children who have indicated on a survey that they felt unsafe participating in activities in and around their neighbourhood such as walking alone after dark or allowing children to play outside during the day.

Data Source

Table 4.1: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

Neonatal mortality rate (0 to 27 days) (2006)⁵⁹³

Neonatal mortality rate is the number of infant deaths occurring within the first 27 days of life during a given year per 1,000 live births in the same year.

Data Source

Table 3.2: Statistics Canada. (2009-04-27). *CANSIM Table 102-0507 Infant mortality, by age group, Canada, provinces and territories, annual [Data File]*.

- O -

Obese (2004)¹⁷⁹

The International Obesity Taskforce (IOTF) has implemented a new approach to measuring overweight and obesity among children because the measurements and classifications identified for adults do not accurately reflect those of children under 18 years of age.

The index is calculated for the population aged 2 to 17 years, by gender and age in six-month intervals (see Table E.1).

Table E.1 Body mass index for children, aged 2 to 17 years ¹⁸³

Age (years)	Overweight cut-points BMI greater than or equal to:		Obese cut-points BMI greater than or equal to:	
	Boys	Girls	Boys	Girls
2	18.41	18.02	20.09	19.81
2.5	18.13	17.76	19.80	19.55
3	17.89	17.56	19.57	19.36
3.5	17.69	17.40	19.39	19.23
4	17.55	17.28	19.29	19.15
4.5	17.47	17.19	19.26	19.12
5	17.42	17.15	19.30	19.17
5.5	17.45	17.20	19.47	19.34
6	17.55	17.34	19.78	19.65
6.5	17.71	17.53	20.23	20.08
7	17.92	17.75	20.63	20.51
7.5	18.16	18.03	21.09	21.01
8	18.44	18.35	21.60	21.57
8.5	18.76	18.69	22.17	22.18
9	19.10	19.07	22.77	22.81
9.5	19.46	19.45	23.39	23.46
10	19.84	19.86	24.00	24.11
10.5	20.20	20.29	24.57	24.77
11	20.55	20.74	25.10	25.42
11.5	20.89	21.20	25.58	26.05
12	21.22	21.68	26.02	26.67
12.5	21.56	22.14	26.43	27.24
13	21.91	22.58	26.84	27.76
13.5	22.27	22.98	27.25	28.20
14	22.62	23.34	27.63	28.57
14.5	22.96	23.66	27.98	28.87
15	23.29	23.94	28.30	29.11
15.5	23.60	24.17	28.60	29.29
16	23.90	24.37	28.88	29.43
16.5	24.19	24.54	29.14	29.56
17	24.46	24.70	29.41	29.69
17.5	24.73	24.85	29.70	29.84

Body mass index (BMI) is calculated by dividing the respondent's body weight (in kilograms) by their height (in metres) squared.

Data Source

Table 3.2: Shields, M. (2006). Overweight and obesity among children and youth. *Health Reports*, 17(3), 27-42.

E Definitions and Data Sources for Indicators

Obesity (2005)⁵⁹⁸

According to the WHO and Health Canada guidelines, the index for body weight classification is: less than 18.50 (underweight); 18.50 to 24.99 (normal weight); 25.00 to 29.99 (overweight); 30.00 to 34.99 (obese, class I); 35.00 to 39.99 (obese, class II); 40.00 or greater (obese, class III).

The index is calculated for the population aged 18 years and over, excluding pregnant females and persons less than 3 feet (0.914 metres) tall or greater than 6 feet 11 inches (2.108 metres).

Body mass index (BMI) is calculated by dividing the respondent's body weight (in kilograms) by their height (in metres) squared.

Data Source

Appendix D: Statistics Canada. (2007-04-27). *CANSIM Table 105-0407 Measured adult body mass index (BMI), by age group and sex, household population aged 18 and over excluding pregnant females, Canadian Community Health Survey (CCHS 3.1), Canada, every 2 years* [Data File].

Overweight (2004)

See *Obese*

- P -

Parental depression (2004-2005)¹⁴

Parents of children who have indicated on a survey that they feel depressed, withdrawn, tired, pessimistic about the future and despondent during the past week.

Data Source

Table 4.1: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

Parental education (2007)⁴⁷³

The proportion of households with children under the age of 12 with a minimum attainment of a high school education, as identified by parents or guardians, excluding those living in the territories, on reserve or in institutions.

Data Source

Table 4.1: Public Health Agency of Canada. (2008). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *Canadian Community Health Survey Cycle 2007 (C4.1 SHR)*, prepared by Statistics Canada].

People reporting food insecurity (2004)²³⁶

A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life.

Data Source

Table 4.1: Health Canada. (2007). *Canadian Community Health Survey Cycle 2.2, Nutrition (2004): Income-Related Household Food Security in Canada*.

Appendix D: Health Canada. (2007). *Canadian Community Health Survey Cycle 2.2, Nutrition (2004): Income-Related Household Food Security in Canada*.

Persons living in low income after tax (2006)³⁶³

Describes how many Canadians live in families spending a share of their total post-income tax income on food, clothing and footwear, and shelter 20 percentage points higher than did average families of the same size in the same broad community size. Low income is based on the consumption patterns for 1992 and adjusted for family size, community sizes and inflation based on the national Consumer Price Index (see Table E.2).

Data Source

Appendix D: Statistics Canada. (2008). *Income in Canada, 2006; and Statistics Canada. (2009-06-03). Table 3 Percentage of persons in low income (1992 base after-tax income, low-income cutoff)*.

Physical activity (7+ hours per week) (2004)¹⁷⁹

The amount of time spent doing physical activities that causes the child to be out of breath or to feel warmer than usual.

Data Source

Table 4.1: Shields, M. (2006). Overweight and obesity among children and youth. *Health Reports*, 17(3), 27-42.

Table E.2 Low-income cut offs, Canada, 2006 ³⁶⁸

Size of family unit	Rural Areas	Urban Areas			
		Less than 30,000 population	30,000 to 99,999 population	100,000 to 499,999 population	500,000 and over population
1 person	11,492	13,152	14,671	14,857	17,568
2 persons	13,987	16,008	17,857	18,082	21,381
3 persons	17,417	19,932	22,236	22,516	26,624
4 persons	21,728	24,867	27,741	28,091	33,216
5 persons	24,742	28,317	31,590	31,987	37,823
6 persons	27,440	31,404	35,034	35,474	41,946
7 or more persons	30,138	34,491	38,477	38,962	46,070

Physical aggression score (2004-2005)⁵⁸⁴

The proportion of children, as identified by parents or guardians, aged two to five years, who exhibit high levels of physical aggression, opposition and/or conduct disorder, excluding those living in the territories, on reserve or in institutions.

Data Source

Table 3.2: British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.

Population (2006, 2008)^{128, 599}

The census enumerates the entire Canadian population, which consists of Canadian citizens (by birth and by naturalization), landed immigrants and non-permanent residents and their families living with them in Canada. Non-permanent residents are persons who hold a work or student permit, or who claim refugee status.

The census also counts Canadian citizens and landed immigrants who are temporarily outside the country on Census Day. This includes federal and provincial government employees working outside Canada, Canadian embassy staff posted to other countries, members of the Canadian Forces stationed abroad, all Canadian crew members of merchant vessels and their families.

Data Source

Table 3.1: Statistics Canada. (2008-04-01). *Age and Sex for the Population of Canada, Provinces, Territories and Forward Sortation Areas, 2006 Census - 100% Data* [Data File].

Appendix D: Statistics Canada. (2008). *Quarterly Demographic Estimates, January to March 2008. Quarterly Demographic Estimates, 22(1), 1-99*.

Post-secondary education (2008)⁵⁸⁸

Persons who have completed a certificate (including a trade certificate), diploma or a minimum of a university bachelor's degree from an educational institution beyond the secondary level. This includes certificates from vocational schools, apprenticeship training, community colleges, Collège d'Enseignement Général et Professionnel (CEGEP), and schools of nursing.

Data Source

Appendix D: Statistics Canada. (2009-03-02). *CANSIM Table 282-0004 - Labour force survey estimates (LFS), by educational attainment, sex and age group, annual* [Data File].

Potential years of life lost ⁵⁸⁵

Potential years of life lost is the number of years of life lost when a person dies prematurely from any cause – before age 75. A person dying at age 25, for example, has lost 50 years of life.

Premature mortality due to malignant cancer (2001)⁶⁰⁰

The number of years of life lost when a person dies prematurely, before age 75, from any malignant cancer, classified as International Classification of Disease codes C00-C97, such as cancers of the lymph nodes, blood, brain and urinary tract.

Data Source

Appendix D: Statistics Canada. (2007-05-11). *CANSIM Table 102-0311 Potential years of life lost, by selected causes of death and sex, population aged 0 to 74, three-year average, Canada, provinces, territories, health regions and peer groups, occasional* [Data File].

E Definitions and Data Sources for Indicators

Premature mortality due to circulatory diseases (2001)⁶⁰⁰

The number of years of life lost when a person dies prematurely, before age 75, from any circulatory disease, classified as International Classification of Disease codes I00-I99, such as ischaemic heart disease, cerebrovascular diseases and pulmonary heart conditions.

Data Source

Appendix D: Statistics Canada. (2007-05-11). *CANSIM Table 102-0311 Potential years of life lost, by selected causes of death and sex, population aged 0 to 74, three-year average, Canada, provinces, territories, health regions and peer groups, occasional* [Data File].

Premature mortality due to HIV (2001)⁶⁰⁰

The number of years of life lost when a person dies prematurely, before age 75, from HIV infection, classified as International Classification of Disease codes B20-B24.

Data Source

Appendix D: Statistics Canada. (2007-05-11). *CANSIM Table 102-0311 Potential years of life lost, by selected causes of death and sex, population aged 0 to 74, three-year average, Canada, provinces, territories, health regions and peer groups, occasional* [Data File].

Premature mortality due to respiratory diseases (2001)⁶⁰⁰

The number of years of life lost when a person dies prematurely, before age 75, from any respiratory disease, classified as International Classification of Disease codes J00-J99, such as respiratory infections, influenza and pneumonia.

Data Source

Appendix D: Statistics Canada. (2007-05-11). *CANSIM Table 102-0311 Potential years of life lost, by selected causes of death and sex, population aged 0 to 74, three-year average, Canada, provinces, territories, health regions and peer groups, occasional* [Data File].

Premature mortality due to suicide and self-inflicted injuries (2004)⁶⁰¹

The number of years of life lost when a person dies prematurely, before age 75, due to suicide or self-inflicted injuries, classified as International Classification of Disease codes X60-X84 and Y87.0.

Data Source

Appendix D: Statistics Canada. (2008-07-09). *CANSIM Table 102-0110 Potential years of life lost, by selected causes of death (ICD-10) and sex, population aged 0 to 74, Canada, provinces and territories, annual* [Data File].

Premature mortality due to unintentional injuries (2004)⁶⁰¹

The number of years of life lost when a person dies prematurely, before age 75, due to unintentional injuries, classified as International Classification of Disease codes V01-X59 and Y85-Y86.

Data Source

Appendix D: Statistics Canada. (2008-07-09). *CANSIM Table 102-0110 Potential years of life lost, by selected causes of death (ICD-10) and sex, population aged 0 to 74, Canada, provinces and territories, annual* [Data File].

Pre-term birth rate (2006)⁶⁰²

Pre-term birth rate is the number of live births before 37 weeks' gestational age per 100 live births in any given year.

Data Source

Table 3.2: Statistics Canada. (2008-09-26). *CANSIM Table 102-4512 Live births, by weeks of gestation and sex, Canada, provinces and territories, annual* [Data File].

- R -

Regular family physician (2007)⁵⁸⁵

Population aged 12 and over who reported that they have a regular medical doctor. In 2003 and 2005, the indicator in French only included “médecin de famille”. Starting in 2007, this concept was widened to “médecin régulier”, which includes “médecin de famille”.

Note: *Current definition differs from* The Chief Public Health Officer’s Report on the State of Public Health in Canada, 2008 - Addressing Health Inequalities.

Data Source

Table 4.1: Public Health Agency of Canada. (2008). [Analyses were performed using Health Canada’s DAIS edition of anonymized microdata from the *Canadian Community Health Survey Cycle 2007 (C4.1 SHR)*, prepared by Statistics Canada]. Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

Respiratory diseases (2005)⁶⁰³

Deaths associated with respiratory diseases, classified as International Classification of Disease codes J00-J99, such as respiratory infections, influenza and pneumonia.

Data Source

Appendix D: Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada’s DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada]; and Statistics Canada. (2009-03-30). *CANSIM Table 102-0530 Deaths, by cause, Chapter X: Diseases of the respiratory system (J00 to J99), age group and sex, Canada, annual* [Data File].

- S -

Schizophrenia (2005)^{199, 580}

Respondents (aged 12+ years) reporting schizophrenia as diagnosed by a health professional. This is believed to underestimate the true prevalence since some people do not report that they have schizophrenia and the survey did not reach individuals who were homeless, in hospital or supervised residential settings.

Data Source

Appendix D: Public Health Agency of Canada. (2008). *Chronic Disease Prevention and Control, using the Canadian Community Health Survey, 2005 (Cycle 3.1)* from Statistics Canada [Data File].

Screen time (less than 1 hour per day) (2004)¹⁷⁹

The amount of time spent watching television or videos, playing video games or using a computer.

Data Source

Table 4.1: Shields, M. (2006). Overweight and obesity among children and youth. *Health Reports*, 17(3), 27-42.

Some post-secondary education (2008)⁵⁸⁸

Persons who worked toward, but did not complete, a degree, certificate (including a trade certificate) or diploma from an educational institution, including a university, beyond the secondary level. This includes vocational schools, apprenticeship training, community colleges, Collège d’Enseignement Général et Professionnel (CEGEP), and schools of nursing.

Data Source

Appendix D: Statistics Canada. (2009-03-02). *CANSIM Table 282-0004 - Labour force survey estimates (LFS), by educational attainment, sex and age group, annual* [Data File].

E Definitions and Data Sources for Indicators

Smoking during last 3 months of pregnancy (2006-2007)³²⁴

Female population who were pregnant within the past 5 to 14 months and indicated they smoked during the last three months of their pregnancy.

Data Source

Table 4.1: Public Health Agency of Canada. (2009). *Data Tables - The Maternity Experiences Survey (MES) 2006-2007*.

Sudden infant death syndrome (SIDS) rate (2005)⁶⁰⁴

SIDS refers to the sudden and unexpected death of an apparently healthy infant less than one year of age. SIDS rate is based on the number deaths as defined by the International Classification of Disease codes (R95) for the population under one year of age for the same year.

Data Source

Table 3.2: Statistics Canada. (2007-04-26). *CANSIM Table 102-0538 Deaths, by cause, Chapter XVIII: Symptoms, signs and abnormal clinical and laboratory findings, no elsewhere classified (R00 to R99), age group and sex, Canada, annual* [Data File]; and Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada].

- T -

Teen pregnancy rate (2005)⁶⁰⁵

Total number of pregnancies (including live births, induced abortions and fetal loss) for women aged 15 to 19 years.

Data Source

Appendix D: Statistics Canada. (2008-10-17). *CANSIM Table 106-9002 Pregnancy outcomes, by age group, Canada, provinces and territories, annual* [Data File].

Total fertility rate (2006)¹³⁵

Total fertility rate is an estimate of the average number of live births a female can be expected to have in her lifetime, based on the age-specific fertility rates (ASFR) of a given year.

Data Source

Table 3.1: Statistics Canada. (2008-09-25). *CANSIM Table 102-4505 Live births, crude birth rate, age-specific and total fertility rates, Canada, provinces and territories, annual* [Data File].

- U -

Unable to access acceptable housing (2006)²⁴¹

Refers to affordable dwellings (costing less than 30% of before-tax household income), adequate dwellings (those reported by their residents as not requiring any major repairs) and suitable dwellings (having enough bedrooms for the size and make-up of resident households according to National Occupancy Standard requirements).

Data Source

Table 4.1: Canada Mortgage and Housing Corporation. (2009). *2006 Census Housing Series: Issue 3 - The Adequacy, Suitability, and Affordability of Canadian Housing, 1991-2006*. Appendix D: Canada Mortgage and Housing Corporation. (2009). *2006 Census Housing Series: Issue 3 - The Adequacy, Suitability, and Affordability of Canadian Housing, 1991-2006*.

Unemployment rate (2008)⁵⁸⁸

The unemployment rate is the number of unemployed persons expressed as a percentage of the labour force.

Data Source

Appendix D: Statistics Canada. (2009-03-02). *CANSIM Table 282-0004 - Labour force survey estimates (LFS), by educational attainment, sex and age group, annual* [Data File].

Urban population (2006)⁶⁰⁶

An urban area has a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count.

Data Source

Table 3.1: Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].

Appendix D: Statistics Canada. (2007-11-24). *Population and dwelling counts, for urban areas, 2006 and 2001 censuses - 100% data* [Data File].

- V -

Very or somewhat strong sense of community belonging (2007)⁶⁰⁷

Population aged 12 years and over who reported their sense of belonging to their local community as being very strong or somewhat strong. Research shows a high correlation of sense of community belonging with physical and mental health.

Data Source

Appendix D: Statistics Canada. (2008-06-16). *CANSIM Table 105-0501 Canadian Community Health Survey (CCHS) indicator profile, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, annual* [Data File].

Violent crime incidents (2007)⁶⁰⁸

Offences that deal with the application or threat of application, of force to a person including homicide, attempted murder, various forms of sexual and non-sexual assault, robbery and abduction, as well as traffic incidents that result in death or bodily harm.

Data Source

Appendix D: Dauvergne, M. (2008). *Crime Statistics in Canada, 2007. Juristat, 28(7)*, 1-17.

References

1. Government of Canada. (2006-12-06). Bill C-5: Public Health Agency of Canada Act. LS-523E.
2. Last, J. M. (2001). *A dictionary of epidemiology*. (New York: Oxford University Press Inc.).
3. Graham, H. & Power, C. (2004). *Childhood disadvantage and adult health: a lifecourse framework*. (London: Health Development Agency).
4. Last, J. M. (2007). *A Dictionary of Public Health*. (New York: Oxford University Press Inc.).
5. Hertzman, C. & Power, C. (2003). Health and Human Development: Understandings From Life-Course Research. *Developmental Neuropsychology*, 24(2 & 3), 719-744.
6. Canadian Partnership for Children's Health & Environment. (2005). *Child Health and the Environment - A Primer*.
7. Whiteman, D. C., Whiteman, C. A., & Green, A. C. (2001). Childhood sun exposure as a risk factor for melanoma: a systematic review of epidemiologic studies. *Cancer Causes and Control*, 12(1), 69-82.
8. Children's Environmental Health Project. (2000). *Long-Latency Carcinogens*. Retrieved on April 20, 2009, from <http://www.cape.ca/children/cancer4.html>
9. Siskind, V., Aitken, J., Green, A., & Martin, N. (2002). Sun Exposure and Interaction with Family History in risk of Melanoma, Queensland, Australia. *International Journal of Cancer*, 97(1), 90-95.
10. Hertzman, C. (1999). Population Health and Human Development. In D.P.Keating & C. Hertzman (Eds.), *Developmental Health and the Wealth of Nations: Social, Biological, and Educational Dynamics* (pp. 21-40). (New York: Guilford Press).
11. Holly, E. A., Kelly, J. W., Shpall, S. N., & Chiu, SH. (1987). Number of melanocytic nevi as a major risk factor for malignant melanoma. *Journal of the American Academy of Dermatology*, 17(3), 459-468.
12. Wannamethee, S. G., Whincup, P. H., Shaper, G., & Walker, M. (1996). Influence of fathers' social class on cardiovascular disease in middle-aged men. *The Lancet*, 348, 1259-1263.
13. Power, C., Manor, O., & Matthews, S. (1999). The duration and timing of exposure: effects of socioeconomic environment on adult health. *American Journal of Public Health*, 89(7), 1059-1065.
14. Government of British Columbia. (2008). *Indicators of Early Childhood Health & Well-Being in British Columbia*.
15. Asthana, S. & Halliday, J. (2006). *What works in tackling health inequalities? Pathways, policies and practice through the lifecourse*. (Bristol: The Policy Press).
16. Hertzman, C. & Power, C. (2005). A Life Course Approach to Health and Human Development. In *Healthier Societies: From Analysis to Action* (pp. 83-106). (New York: Oxford University Press).
17. Canadian Council on Learning. (2006-02-01). *Lessons in Learning: How parents foster early literacy*. Retrieved on April 15, 2009, from <http://www.ccl-cca.ca/pdfs/LessonsInLearning/Feb-01-06-How-parents-foste.pdf>
18. Canadian Council on Learning. (2007). *Report on Learning in Canada 2007. State of Learning in Canada: No Time for Complacency*.
19. Power, C. & Hertzman, C. (1999). Health, Well-Being, and Coping Skills. In D.P.Keating & C. Hertzman (Eds.), *Developmental Health and the Wealth of Nations: Social, Biological, and Educational Dynamics* (pp. 41-54). (New York: Guilford Press).
20. Tremblay, R. E., Masse, B., Perron, D., Leblanc, M., Schwartzman, A. E., & Ledingham, J. E. (1992). Early Disruptive Behavior, Poor School Achievement, Delinquent Behavior, and Delinquent Personality: Longitudinal Analyses. *Journal of Consulting and Clinical Psychology*, 60(1), 64-72.
21. Galobardes, B., Lynch, J. W., & Smith, G. D. (2004). Childhood Socioeconomic Circumstances and Cause-specific Mortality in Adulthood: Systematic Review and Interpretation. *Epidemiologic Reviews*, 26(1), 7-21.
22. Forrest, C. B. & Riley, A. W. (2004). Childhood Origins of Adult Health: A Basis for Life-Course Health Policy. *Health Affairs*, 23(5), 155-164.
23. Lynch, J. & Davey Smith, G. (2005). A Life Course Approach to Chronic Disease Epidemiology. *Annual Review of Public Health*, 26, 1-35.
24. Contra Costa Health Services, Family, Maternal, and Child and Adolescent Health. (2005). *The Life Course Model and Maternal, Child and Adolescent Health: An Overview*.
25. McCain, M. & Mustard, J. F. (1999). *Reversing the Real Brain Drain, Early Years Study, Final Report*. (Toronto: Children's Secretariat).

References

26. Lincoln, P. (2007). Healthy childhood and a life-course approach to public health. In S.Griffiths & D. J. Hunter (Eds.), *New Perspectives in Public Health* Second ed., (pp. 149-157). (Oxford: Radcliffe Publishing).
27. Health Council of Canada. (2006). *Their Future is Now: Healthy Choices for Canada's Children and Youth*. (Toronto: Health Council of Canada).
28. Nores, M., Belfield, C. R., Barnett, W. S., & Schweinhart, L. (2005). Updating the Economic Impacts of the High/Scope Perry Preschool Program. *Educational Evaluation and Policy Analysis*, 27(3), 245-261.
29. Rolnick, A. & Grunewald, R. (2003). Early Childhood Development: Economic Development with High Public Return. *fedgazette*, March 2003, 6-12.
30. Butler-Jones, D. (2008). *The Chief Public Health Officer's Report on the State of Public Health in Canada, 2008 - Addressing Health Inequalities*. (Ottawa: Public Health Agency of Canada).
31. Davies, M. (1985). The fruits of their own labour. In E.Bernard (Ed.), *Working lives: Vancouver, 1886-1986* (pp. 101-102). (Vancouver: New Star Books).
32. Mercier, M. E. & Boone, C. G. (2002). Infant mortality in Ottawa, Canada, 1901: Assessing cultural, economic and environmental factors. *Journal of Historical Geography*, 28(4), 486-507.
33. McInnis, M. (1990). The Demographic Transition. In D.Kerr & D. W. Holdsworth (Eds.), *Historical Atlas of Canada: Volume III: Addressing the Twentieth Century-1891-1961*. (pp. 101-102). (Toronto: University of Toronto Press).
34. Barmaki, R. (2007). The Bourgeois Order and the 'Normal' Child: The case of Ontario, 1867-1900. *International Journal of Mental Health and Addiction*, 5(3), 263-276.
35. Neff, C. (2008). Government Approaches to Child Neglect and Mistreatment. *Social History*, 41(81), 165-214.
36. Government of Ontario, Nickalls, J., Thomson, H. C., Macfarlane, J., Great Britain, & Québec (Province) (1831). An Act to provide for the Education of Orphan Children. In *The statutes of the province of Upper Canada [1792-1831]: together with such British Statutes, ordinances of Quebec, and proclamations, as relate to the said province*. (Kingston: Francis M. Hill).
37. Gleason, M. (2005). From "Disgraceful Carelessness" to "Intelligent Precaution": Accidents and the Public Child in English Canada, 1900-1950. *Journal of Family History*, 30(2), 230-241.
38. McCord Museum. (2008). Keys to History: *EduWeb*. Retrieved on July 22, 2008, from <http://www.mccord-museum.qc.ca/en/eduweb/texts/textbooks/conditions/>
39. Human Resources and Social Development Canada (Labour Law Analysis - International and Intergovernmental Labour Affairs). (2006-10-16). *Minimum Age for Employment in Canada*. Retrieved on July 28, 2008, from [http://www.hrsdc.gc.ca/en/lp/spila/clli/eslc/minage\(e\).pdf](http://www.hrsdc.gc.ca/en/lp/spila/clli/eslc/minage(e).pdf)
40. Canadian Museum of Civilization Corporation. (2002-07-08). *Canadian Labour History, 1890-1999: Workers Unite. Working Children*. Retrieved on July 28, 2008, from <http://www.civilization.ca/cmc/exhibitions/hist/labour/labv16e.shtml>
41. Bradbury, B. (1982). The Fragmented Family: Family Strategies in the Face of Death, Illness, and Poverty, Montreal, 1860-1893. In J.Parr (Ed.), *Childhood and Family in Canadian History* (pp. 109-128). (McClelland and Stewart Limited).
42. Finkel, A. (2006). Early Canada: Continuity and Change, 1867-1914. In *Social Policy and Practice in Canada: A History* (pp. 65-93). (Waterloo: Wilfred Laurier University Press).
43. Oreopoulos, P. (2005). *Canadian Compulsory School Laws and their Impact on Educational Attainment and Future Earnings*. (Statistics Canada).
44. Obomsawin, R. (2007). *Historical and Scientific Perspectives on the Health of Canada's First Peoples*.
45. Crengle, S., Freemantle, J., Gallaher, G., McAullay, D., McShane, K., & Taulii, M. (2009). *Indigenous Children's Health Report: Health Assessment in Action*.
46. Waldram, J. B., Herring, D. A., & Young, T. K. (1995). *Aboriginal Health in Canada: Historical, Cultural, and Epidemiological Perspectives*. (University of Toronto Press).
47. Indian and Northern Affairs Canada. (1996). *Highlights from the Report of the Royal Commission on Aboriginal Peoples*.

48. Canadian Broadcasting Corporation. (2003-08-14). *A Lost Heritage: Canada's Residential Schools. A New Future*. Retrieved on August 18, 2008, from the CBC Digital Archives Website <http://archives.cbc.ca/society/education/topics/692-4003/>
49. Funk-Unrau, N. & Snyder, A. (2007). Indian residential school survivors and state-designed ADR: A strategy for co-optation? *Conflict Resolution Quarterly*, 24(3), 285-304.
50. Assembly of First Nations. (2007). *First Nations Regional Longitudinal Health Survey (RHS) 2002/03*.
51. Canadian Broadcasting Corporation. (2009). *Indian residential schools*. Retrieved on June 22, 2009, from <http://www.cbc.ca/canada/story/2008/05/16/f-faqs-residential-schools.html>
52. Public Health Agency of Canada (2006). *Canadian Immunization Guide*. (Seventh ed.).
53. Barreto, L. & Ruttly, C. J. (2002). The Speckled Monster: Canada, Smallpox and its Eradication. *Canadian Journal of Public Health*, 93(4), I1-I20.
54. Crawford, P. R. (1995). Fifty years of fluoridation. *Journal of Canadian Dental Association*, 61(7), 585-588.
55. Municipality of Metropolitan Toronto. (1997). *Pipe Dreams*. Retrieved on March 12, 2009, from <http://www.toronto.ca/archives/pipedreams/chem.htm>
56. Scriver, C. R. (2004). The human genome project will not replace the physician. *Canadian Medical Association Journal*, 171(12), 1461-1464.
57. Government of British Columbia. (2008-08). *Pasteurized and Raw Milk. HealthLinkBC File#03*. Retrieved on June 15, 2009, from <http://www.healthlinkbc.ca/healthfiles/hfile03.stm>
58. Lampron, N. (n.d.). *Infants, Nutrition and Health in 20th Century Montreal*. Retrieved on March 31, 2009, from http://www.mccord-museum.qc.ca/scripts/explore.php?Lang=1&tableid=11&tablename=theme&elementid=46__true&contentlong
59. University of Toronto. (2005). *History of the Department of Paediatrics. Historical Perspectives*. Retrieved on February 24, 2009, from <http://www.paeds.utoronto.ca/about/history>
60. Hick, S. (1998). Canada's Unique Social History. *Social History: Mothers' Allowances*. Retrieved on May 3, 2009, from <http://www.socialpolicy.ca/cush/m3/m3-t18.stm>
61. Hick, S. (2008). *Canada's Unique Social History. History of Income Security for Children*. Retrieved on September 22, 2008, from <http://www.socialpolicy.ca/slides/history%20of%20income%20security%20for%20children.htm>
62. Elatawi, H. (Producer), Terrill, S. (Director) & GAPC Entertainment Telewex. (2003). *Growing up Canadian: Health*. (National Film Board of Canada).
63. McCombie, F. & Gray, A. S. (1984). Dental Public Health in British Columbia. *Canadian Journal of Public Health*, 75, 368-369.
64. Richardson, S. (2002). Alberta's Provincial Travelling Clinic, 1924-42. *Canadian Bulletin of Medical History*, 19(1), 245-263.
65. Elatawi, H. (Producer), Terrill, S. (Director) & GAPC Entertainment Telewex. (2003). *Growing up Canadian: Health*. (National Film Board of Canada).
66. The Aboriginal Healing Foundation. (2007). *Misconceptions of Canada's Indian Residential School System*. Retrieved on May 4, 2009, from <http://www.ahf.ca/publications/residential-schools-resources>
67. Bryce, P. H. (1922). *The Story of a National Crime*. (Ottawa: James Hope & Sons).
68. Walker, J. (2009). *The Indian Residential Schools Truth and Reconciliation Commission*. (Ottawa: Library of Parliament).
69. Charpentier, L., Durocher, R., Laville, C., & Linteau, P.-A. (1985). *Nouvelle histoire du Québec et du Canada*. (Les Éditions du Boréal Express).
70. Statistics Canada. (2008-10-22). *Series B51-58 Stillbirths and rate, infant deaths and rate by sex, neonatal death rate and maternal mortality rate, Canada, 1921-1974 [Data File]*. Retrieved on January 27, 2009, from <http://www.statcan.gc.ca/pub/11-516-x/sectionb/4147437-eng.htm>
71. Statistics Canada. (2008-10-22). *Series B23-34 Average age-specific death rates, both sexes, Canada for five year periods, 1921 to 1974 [Data File]*. Retrieved on January 9, 2009, from <http://www.statcan.gc.ca/pub/11-516-x/sectionb/4147437-eng.htm>

References

72. Public Health Agency of Canada. (2007-03-16). *Vaccine-Preventable Diseases*. Retrieved on May 22, 2009, from <http://www.phac-aspc.gc.ca/im/vpd-mev/index-eng.php>
73. Graham, J., Swift, K. J., & Delaney, R. (2008). *Canadian Social Policy: An Introduction*. (Third ed.). (Toronto: Pearsons Education Canada).
74. Health Canada. (2004-10-01). *Health Care System: Canada Health Act*. Retrieved on March 31, 2009, from <http://www.hc-sc.gc.ca/hcs-sss/medi-assur/cha-lcs/overview-apercu-eng.php>
75. Madore, O. (2005-05-16). *The Canada Health Act: Overview and Options*. Retrieved on May 25, 2009, from <http://www.parl.gc.ca/information/library/PRBpubs/944-e.pdf>
76. Boase, P., Jonah, B. A., & Dawson, N. (2004). Occupant restraint use in Canada. *Journal of Safety Research*, 35(2), 223-229.
77. Canadian Paediatric Society. (2007). *Are We Doing Enough? A status report on Canadian public policy and child and youth health*. (Ottawa).
78. Pan, S. Y., Ugnat, A.-M., Semenciw, R., DesMeules, M., Mao, Y., & MacLeod, M. (2006). Trends in childhood injury mortality in Canada, 1979-2002. *Injury Prevention*, 12(3), 155-160.
79. Safe Kids Canada. (2003). *Child & Youth Unintentional Injury: 1994-2003 10 Years in Review*. Retrieved on October 9, 2008, from http://www.mhp.gov.on.ca/english/injury_prevention/skc_injuries.pdf
80. Health Canada. (1997). *Health Canada 1997-98 Estimates, Part III - Expenditure Plan*. (Ottawa: Canada Communications Group - Publishing).
81. Public Health Agency of Canada. (1999-06-16). *Measuring Up: A Health Surveillance Update on Canadian Children and Youth: Motor Vehicle Crashes*. Retrieved on March 31, 2009, from http://www.phac-aspc.gc.ca/publicat/meas-haut/mu_x_e.html
82. Health Canada. (1996). *Building toward breakthroughs in injury control: a legislative perspective on the prevention of unintentional injuries among children and youth in Canada*.
83. World Health Organization & World Bank. (2004). *World Report on Road Traffic Injury Prevention*. (Geneva).
84. Public Health Agency of Canada. (2003). *Evaluation of Food Fortification with Folic Acid for the Primary Prevention of Neural Tube Defects. Executive Summary, 1997-2003*.
85. De Wals, P., Tairou, F., Van Allen, M. I., Uh, S.-H., Lowry, R. B., Sibbald, B. et al. (2007). Reduction in Neural-Tube Defects after Folic Acid Fortification in Canada. *The New England Journal of Medicine*, 357(2), 135-142.
86. Public Health Agency of Canada. (2008-04-18). *Folic Acid and Prevention of Neural Tube Defects*. Retrieved on May 7, 2009, from <http://www.phac-aspc.gc.ca/fa-af/fa-af08-eng.php>
87. Human Resources and Skills Development Canada. (2005). *Summative Evaluation of EI Parental Benefits*.
88. Hunter, G. (2006). Child Poverty and the Canadian Welfare State. In A. Westhues (Ed.), *Canadian Social Policy: Issues and Perspectives* 4th ed., (pp. 179-202). (Waterloo: Wilfred Laurier University Press).
89. National Child Benefit. (2007). *The National Child Benefit: Progress Report*.
90. United Nations. (1989). *The Convention on the Rights of the Child*. Retrieved on June 2, 2009, from <http://www2.ohchr.org/english/law/crc.htm>
91. Office of the United Nations High Commissioner for Human Rights. (2002-01-18). *Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography*. Retrieved on July 27, 2009, from <http://www2.ohchr.org/english/law/crc-sale.htm>
92. Office of the United Nations High Commissioner for Human Rights. (2002-02-12). *Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict*. Retrieved on July 27, 2009, from <http://www2.ohchr.org/english/law/crc-conflict.htm>
93. Human Resources and Social Development Canada. (2004). *A Canada Fit for Children*.
94. United Nations. (2009-08-10). *United Nations Treaty Collection - 11. Convention on the Rights of the Child*. Retrieved on August 10, 2009, from http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-11&chapter=4&lang=en

References

95. Office of the United Nations High Commissioner for Human Rights. (1990-11-20). *Convention on the Rights of the Child*. Retrieved on May 20, 2009, from <http://www2.ohchr.org/english/law/crc.htm>
96. Health Canada. (2006). *Brighter Futures and Building Healthy Communities: Evaluation Summary. September 2006*.
97. Health Canada. (2005-03-04). *Aboriginal Head Start on Reserve*. Retrieved on March 31, 2009, from http://www.hc-sc.gc.ca/fniah-spnia/famil/develop/ahsor-papa_intro-eng.php
98. Public Health Agency of Canada. (2008-10-08). *Aboriginal Head Start*. Retrieved on March 31, 2009, from http://www.phac-aspc.gc.ca/dca-dea/programs-mes/ahs_main-eng.php
99. Health Canada. (2000-02-28). *The National Children's Agenda: Health Canada's contribution*. Retrieved on May 26, 2009, from <http://www.hc-sc.gc.ca/ahc-asc/performance/budget/children-enfants-eng.php>
100. Government of Canada. (1951). Indian Act. c.29. s.1.
101. Raptis, H. (2008). Implementing Integrated Education Policy for On-Reserve Aboriginal Children in British Columbia, 1951-1981. *Historical Studies in Education*, 20(1), 118-146.
102. Abele, F., Dittberber, C., & Graham, K. A. (2000). Towards a Shared Understanding in the Policy Discussion about Aboriginal Education. In M. Brant Castellano, L. Davies, & L. Lahache (Eds.), *Aboriginal Education: Fulfilling the Promise* (pp. 3-24). (Vancouver: UBC Press).
103. Assembly of First Nations. (2009). *Assembly of First Nations - The Story*. Retrieved on May 7, 2009, from <http://www.afn.ca/article.asp?id=59>
104. Indian and Northern Affairs Canada. (2008-12-29). *Dates in history between 1900-1980*. Retrieved on May 19, 2009, from <http://www.ainc-inac.gc.ca/ach/lr/ks/hst/1900-eng.asp>
105. Assembly of First Nations. (n.d.). *History of Indian Residential Schools*. Retrieved on May 4, 2009, from <http://www.afn.ca/residentialschools/history.html>
106. Royal Commission on Aboriginal Peoples. (1996). *Report of the Royal Commission on Aboriginal People*. Retrieved on May 15, 2009, from http://www.collectionscanada.gc.ca/webarchives/20071115053257/http://www.ainc-inac.gc.ca/ch/rcap/sg/sgmm_e.html
107. Statistics Canada. (2008-07-09). *CANSIM Table 102-0030 Infant mortality, by sex and birth weight, Canada, provinces and territories, annual* [Data File]. Retrieved on December 29, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII__&Array_Pick=1&ArrayId=1020030
108. Social Union. (n.d.). *Multilateral Framework on Early Learning and Child Care*. Retrieved on February 4, 2009, from http://www.union sociale.gc.ca/ecd-framework_e.htm
109. Public Health Agency of Canada. (2004-03-30). *Community Action Program for Children (CAPC) - About the Program*. Retrieved on May 8, 2009, from http://www.phac-aspc.gc.ca/dca-dea/programs-mes/capc_goals-eng.php#eval
110. Prairie Resource Associates Inc. (2007). *Canada Prenatal Nutrition Program: Profile of Participants. Fiscal Year 2004-2005*.
111. Safe Kids Canada. (2007-01-27). *Ban on Baby Walkers*. Retrieved on December 9, 2008, from <http://www.safekidscanada.ca/SKCFORMedia/section.asp?s=Media+Releases&sID=11445&ss=2004&ssID=11646&sss=Ban+on+Baby+Walkers&sssID=11649>
112. Government of Canada. (2009-01-20). *Canada's Universal Child Care Plan*. Retrieved on December 3, 2008, from <http://www.universalchildcare.ca/eng/support/index.shtml>
113. Canada Revenue Agency. (2008-02-26). *Children's Fitness Tax Credit*. Retrieved on March 31, 2009, from <http://www.cra-arc.gc.ca/fitness/>
114. Brownrigg, M. (2006). *Recreation in Middle Childhood. An Overview: A literature review prepared for the Middle Childhood Initiative of the National Children's Alliance*. (National Children's Alliance).
115. Office of the Prime Minister. (2008-06-23). *PM offers full apology on behalf of Canadians for the Indian Residential Schools system*. Retrieved on July 27, 2009, from <http://pm.gc.ca/eng/media.asp?id=2146>
116. Indian Residential Schools Truth & Reconciliation Commission. (n.d.). *Indian Residential Schools Truth & Reconciliation Commission*. Retrieved on June 19, 2009, from <http://www.trc-cvr.ca/about.html>

References

117. Statistics Canada. (2008-01-11). *CANSIM Table 102-0506 Infant mortality, by age group and sex, Canada, annual* [Data File]. Retrieved March 25, 2009 from http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.exe?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1020506
118. Australian Bureau of Statistics. (2006). *Table 46. Infant mortality rates, states and territories, 1901 onwards* [Data File]. Retrieved on April 15, 2009, from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3105.0.65.0012006?OpenDocument>
119. National Statistics. (2005-02-17). *Deaths 1921-2001. Childhood, infant and perinatal mortality: Stillbirth and infant death rates by age at death*. [Data File]. Retrieved on July 20, 2009, from <http://www.statistics.gov.uk/STATBASE/xsdataset.asp?vlnk=6668&More=Y>
120. Grove, R. D. & Hetzel, A. M. (1968). *Vital Statistics Rates in the United States, 1940-1960*. (Washington, D.C.: U.S. Department of Health, Education, and Welfare. Public Health Service).
121. Linder, F. E., Grove, R. D., & Dunn, H. L. (1947). *Vital Statistics Rates in the United States, 1900-1940*. (Washington, D.C.: Federal Security Agency. United States Public Health Service. National Office of Vital Statistics).
122. Statistics Sweden. (2009-02-17). *Swedish Population (in one-year groups) 1860-2008* [Data File]. Retrieved on April 16, 2009, from http://www.scb.se/Pages/ProductTables_____25809.aspx
123. Ministry of Health, Labour and Welfare. (n.d.). *Live birth rates, death rates, infant mortality rates, neonatal mortality rates, natural increase rates* [Data File]. Retrieved on April 16, 2009, from http://www.mhlw.go.jp/english/database/db-hw/vs_8/vs0.html
124. Human Mortality Database. (2008-10-31). *Sweden Deaths, 1751-2007, 1x1* [Data File]. Retrieved on April 16, 2009, from http://www.mortality.org/hmd/SWE/STATS/Deaths_1x1.txt
125. Public Health Agency of Canada. (2008). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *Infant mortality, Deaths per 1,000 live births, 1960 to 2007*, prepared by Organisation for Economic Co-operation and Development].
126. Human Mortality Database. (2008-09-29). *Finland Deaths, 1878-2007, 1x1* [Data File]. Retrieved on June 22, 2009, from http://www.mortality.org/hmd/FIN/STATS/Deaths_1x1.txt
127. Human Mortality Database. (2008-09-29). *Finland Births, 1865-2007, 1-year* [Data File]. Retrieved on June 22, 2009, from <http://www.mortality.org/hmd/FIN/STATS/Births.txt>
128. Statistics Canada. (2008-12-06). *Age and Sex for the Population of Canada, Provinces, Territories and Forward Sortation Areas, 2006 Census - 100% Data* [Data File]. Retrieved on June 9, 2008, from <http://www12.statcan.ca/english/census06/data/topics/RetrieveProductTable.cfm?ALEVEL=3&APATH=3&CATNO=97-551-XCB2006010&DETAIL=0&DIM=&DS=99&FL=0&FREE=1&GAL=0&GC=99&GK=NA&GRP=1&IPS=97-551-XCB2006010&METH=0&ORDER=1&PID=88988&PTYPE=88971&RL=0&S=1&ShowAll=No&StartRow=1&SUB=0&Temportal=2006&Theme=66&VID=0&VNAMEE=&VNAMEF=>
129. Statistics Canada. (2009-02-17). *2006 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 2006 Census* [Custom Data File].
130. Indian and Northern Affairs Canada. (2009-03-18). *2006 Census - Aboriginal Population aged 0-11 by Area of Residence* [Custom Data File].
131. Statistics Canada. (2009-02-17). *1991 Census Table - Persons 0-11 years old in private households in occupied private dwellings by age groups, by selected characteristics, for Canada, 1991 Census* [Custom Data File].
132. Gionet, L. (2009). First Nations people: Selected findings of the 2006 Census. *Canadian Social Trends*, Summer 2009(87), 54-60.
133. Gionet, L. (2009). Métis in Canada: Selected Findings of the 2006 Census. *Canadian Social Trends*, Summer 2009(87), 22-26.
134. Statistics Canada. (2008). *Aboriginal Peoples in Canada 2006: Inuit, Métis and First Nations, 2006 Census*.
135. Statistics Canada. (2008-09-25). *CANSIM Table 102-4505 Live births, crude birth rate, age-specific and total fertility rates, Canada, provinces and territories, annual* [Data File]. Retrieved on October 17, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1024505
136. Public Health Agency of Canada. (2007-11-28). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0013 Births, by sex, Canada, provinces and territories, annual (persons)*, prepared by Statistics Canada].
137. Statistics Canada. (2003-08-13). *Live births, crude birth rate, age-specific fertility rates, gross reproduction rate and percentage of births in hospital, Canada, 1921 to 1974*. Retrieved on August 27, 2008, from http://www.statcan.ca/english/freepub/11-516-XIE/section/B1_14.csv

138. Statistics Canada. (2006). *Report on the Demographic Situation in Canada, 2001*.
139. Statistics Canada. (2006). *Report on the Demographic Situation in Canada, 1995*.
140. Statistics Canada. (2006). *Women In Canada: A Gender-Based Statistical Report* (Fifth ed.).
141. Public Health Agency of Canada. (2006-10-25). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *CANSIM Table 051-0001 Estimates of population, by age group and sex, Canada, provinces and territories, annual (persons unless otherwise noted)*, prepared by Statistics Canada].
142. Statistics Canada. (2003). *Aboriginal peoples of Canada: A demographic profile*.
143. Statistics Canada. (2008-01-15). *Aboriginal identity population by age groups, median age and sex, 2006 counts, for Canada, provinces and territories - 20% sample data* [Data File]. Retrieved on June 8, 2009, from <http://www12.statcan.gc.ca/english/census06/data/highlights/Aboriginal/pages/Page.cfm?Lang=E&Geo=PR&Code=01&Table=1&Data=Count&Sex=1&Age=9&StartRec=1&Sort=2&Display=All>
144. Statistics Canada. (2009-04-27). *CANSIM Table 102-0511 Life expectancy, abridged life table, at birth and at age 65, by sex, Canada, provinces and territories, annual (years)* [Data File]. Retrieved on April 27, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1020511
145. Statistics Canada. (2007-05-17). *CANSIM Table 102-0121 Health-adjusted life expectancy, at birth and at age 65, by sex and income group, Canada and provinces, occasional (years)* [Data File]. Retrieved on June 9, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1020121
146. Statistics Canada. (2008-09-25). *CANSIM Table 102-4512 Live births, by weeks of gestation and sex, Canada, provinces and territories, annual* [Data File]. Retrieved on September 26, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1024512
147. Statistics Canada. (2008-09-25). *CANSIM Table 102-4509 Live births, by birth weight and sex, Canada, provinces and territories, annual* [Data File]. Retrieved on September 26, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1024509
148. Martin, R. P. & Dombrowski, S. C. (2008). *Prenatal Exposures: Psychological and Educational Consequences for Children*. (New York: Springer Science+Business Media, LLC).
149. Statistics Canada. (2008-09-25). *CANSIM Table 102-4511 Live births, birth weight indicators, by characteristics of the mother and child, Canada, annual* [Data File]. Retrieved on February 20, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1024511
150. Statistics Canada. (2008-09-25). *CANSIM Table 102-4513 Live births, weeks of gestation indicators, by characteristics of the mother and child, Canada, annual* [Data File]. Retrieved on February 20, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1024513
151. Statistics Canada. (2008-09-25). *CANSIM Table 102-4515 Live births and fetal deaths (stillbirths), by type (single or multiple), Canada, provinces and territories, annual* [Data File]. Retrieved on February 20, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1024515
152. KidsHealth. (2007-10). *Preparing for Multiple Births*. Retrieved on May 17, 2009, from http://kidshealth.org/parent/pregnancy_newborn/pregnancy/multiple_births.html
153. Public Health Agency of Canada. (2008). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *General demographics, Maternal and infant mortality, Infant mortality, Deaths per 1,000 live births*, prepared by Organisation for Economic Co-operation and Development].
154. Statistics Canada. (2009-03-27). *CANSIM Table 102-0537 Deaths, by cause, Chapter XVII: Congenital malformations, deformations and chromosomal abnormalities (Q00 to Q99), age group and sex, Canada, annual* [Data File]. Retrieved on June 12, 2009, from http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020537&Array_Pick=1&RootDir=CII/&ResultTemplate=CII/CII___
155. Statistics Canada. (2009-03-27). *CANSIM Table 102-0536 Deaths, by cause, Chapter XVI: Certain conditions origination in the perinatal period (P00 to P96), age group and sex, Canada, annual* [Data File]. Retrieved on June 12, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020536&Array_Pick=1&RootDir=CII/&ResultTemplate=CII/CII___
156. Canadian Foundation for the Study of Infant Deaths. (2007). *Number of SIDS Deaths in Canada: 1990-2003*. Retrieved on November 21, 2008, from http://www.sidscanada.org/images/Number_of_SIDS_Deaths_in_Canada_1990-2003.pdf

References

157. Statistics Canada. (2009-03-27). *CANSIM Table 102-0538 Deaths, by cause, Chapter XVIII: Symptoms, signs and abnormal clinical and laboratory findings, no elsewhere classified (R00 to R99), age group and sex, Canada, annual* [Data File]. Retrieved on January 20, 2009, from http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020538&Array_Pick=1&RootDir=CII/&ResultTemplate=CII/CII_____
158. Statistics Canada. (2009-03-26). *Causes of death in children 0 to 11 years of age, Canada, by age group, 2000 to 2004* [Custom Data File].
159. Statistics Canada. (2009-04-27). *CANSIM Table 102-0540 Deaths, by cause, Chapter XX: External causes of morbidity and mortality (V01 to Y89), age group and sex, Canada, annual* [Data File]. Retrieved on March 30, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020540&Array_Pick=1&RootDir=CII/&ResultTemplate=CII\CII_____
160. Canadian Paediatric Society. (2008). *Aboriginal child and youth health*. Retrieved on March 19, 2009, from <http://www.cps.ca/English/advocacy/aboriginal.htm>
161. Canadian Population Health Initiative. (2004). *Improving the Health of Canadians*. (Ottawa: Canadian Institute for Health Information).
162. UNICEF. (2001). *A League Table of Child Deaths by Injury in Rich Nations*. (Florence, Italy: UNICEF Innocenti Research Centre).
163. Leitch, K. K. (2007). *Reaching for the Top: A Report by the Advisor on Healthy Children & Youth*. (Ottawa: Health Canada).
164. Public Health Agency of Canada. (2007). *Life and Breath: Respiratory Disease in Canada*.
165. Garner, R. & Kohen, D. (2008). Change in the prevalence of asthma among Canadian children. *Health Reports*, 19(2), 45-50.
166. Public Health Agency of Canada. (2009). *Report from the National Diabetes Surveillance System: Diabetes in Canada, 2008*.
167. Canadian Diabetes Association. (2009). *Children and type 2 diabetes*. Retrieved on December 17, 2008, from <http://www.diabetes.ca/about-diabetes/youth/type2/>
168. Canadian Cancer Society, National Cancer Institute of Canada, Public Health Agency of Canada, Statistics Canada, & Provincial/Territorial Cancer Registries. (2008). *Canadian Cancer Statistics 2009*.
169. Public Health Agency of Canada. (2006). Supplement Canadian National Report on Immunization, 2006. *Canada Communicable Disease Report (CCDR)*, 32(S3), 1-44.
170. Public Health Agency of Canada. (2005). National Standards for Immunization Coverage Assessment: Recommendations from the Canadian Immunization Registry Network. *Canada Communicable Disease Report (CCDR)*, 31(9), 93-96.
171. Public Health Agency of Canada. (2008). *Office of Public Health Practice, using Hospital Morbidity Database (2005) from the Canadian Institute for Health Information* [Data File]. Retrieved on December 12, 2008.
172. Public Health Agency of Canada. (2008). *Office of Public Health Practice, using Hospital Morbidity Database (1995) from the Canadian Institute for Health Information* [Data File]. Retrieved on May 19, 2009.
173. Public Health Agency of Canada. (2008). *Office of Public Health Practice, using Hospital Morbidity Database (2000) from the Canadian Institute for Health Information* [Data File]. Retrieved on May 19, 2009.
174. The College of Family Physicians of Canada. (2009-06-22). *Head Injuries - What to watch out for afterward*. Retrieved on July 15, 2009, from <http://www.cfpc.ca/english/cfpc/programs/patient%20education/head%20injuries/default.asp?s=1>
175. Australian Centre for Posttraumatic Mental Health. (n.d.). *Trauma and Serious Injury*. Retrieved on December 9, 2008, from http://www.acpmh.unimelb.edu.au/site_resources/factsheets/ACPMH-trauma_serious_injury.pdf
176. American Academy of Experts in Traumatic Stress. (n.d.). *About Posttraumatic Stress Disorder in Children (PTSD)*. Retrieved on December 9, 2008, from <http://www.aaets.org/article147.htm>
177. Psych Central. (2008-09-11). *Serious Injury Can Lead to PTSD*. Retrieved on December 9, 2008, from <http://psychcentral.com/news/2008/09/11/serious-injury-can-lead-to-ptsd/2919.html>
178. Emedicine. (2008-03-04). *Posttraumatic Stress Disorder in Children*. Retrieved on December 9, 2008, from <http://www.emedicine.com/ped/topic3026.htm>
179. Shields, M. (2006). Overweight and obesity among children and youth. *Health Reports*, 17(3), 27-42.
180. Veugelers, P. J. & Fitzgerald, A. L. (2005). Prevalence of and risk factors for childhood overweight and obesity. *Canadian Medical Association Journal*, 173(6), 607-613.

181. Oliver, L. N. & Hayes, M. V. (2008). Study: Impact of neighbourhood income on child obesity. *BMC Public Health*, 8(16), 16-25.
182. Merrifield, R. (2007-03). *Healthy Weights for Healthy Kids*. (Ottawa: Report of the Standing Committee on Health).
183. Canadian Institute for Health Information. (2006). *Improving the Health of Canadians: Promoting Healthy Weights*.
184. Public Health Agency of Canada. (2004). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *Canadian Community Health Survey Cycle 2004 (C2.2-W1 SHR)*, prepared by Statistics Canada].
185. Statistics Canada. (2008). *Aboriginal Children's Survey, 2006: Family Community and Child Care*.
186. Indian and Northern Affairs Canada. (2009). *Food Mail Review - Interim Report*.
187. Goran, M. I. (2001). Metabolic precursors and effects of obesity in children: a decade of progress, 1990-1999. *The American Society for Clinical Nutrition*, 73(2), 158-171.
188. Plourde, G. (2006). Preventing and managing pediatric obesity. *Canadian Family Physician*, 52(3), 322-328.
189. Salsberry, P. J. & Reagan, P. B. (2005). Dynamics of Early Childhood Overweight. *Pediatrics*, 116(6), 1329-1338.
190. Luo, W., Morrison, H., de Groh, M., Waters, C., DesMeules, M., Jones-McLean, E. et al. (2007). The Burden of Adult Obesity in Canada. *Chronic Disease in Canada*, 27(4), 135-144.
191. Jonsson, S., Hedblad, B., Nilsson, P., Burglund, G., & Janson, L. (2002). Influence of Obesity on Cardiovascular Risk. Twenty-three-year follow-up of 22 025 men from an urban Swedish population. *International Journal of Obesity*, 26(8), 1046-1053.
192. Health Canada. (2003). *Canadian Guidelines for Body Weight Classification in Adults*.
193. Ebbeling, C. B., Pawlak, D. B., & Ludwig, D. S. (2002). Childhood obesity: public-health crisis, common sense cure. *The Lancet*, 360(9331), 473-482.
194. Strauss, R. S. (2000). Childhood Obesity and Self-Esteem. *Pediatrics*, 105(1), e15.
195. Krahnstoever Davison, K. & Lipps Birch, L. (2001). Weight Status, Parent Reaction, and Self-Concept in Five-Year-Old Girls. *Pediatrics*, 107(1), 46-53.
196. McCormick, S. E. & Clarke, C. I. (2004). Prevention and management of overweight/obesity in the community. *British Nutrition Foundation Nutrition Bulletin*, 29(3), 274-279.
197. Angold, A. & Costello, E. J. (1995). Developmental Epidemiology. *Epidemiologic Reviews*, 17(1), 74-82.
198. Canadian Institutes of Health Research. (2008). *Mental Health*. Retrieved on January 2, 2009, from http://www.cihr-irsc.gc.ca/e/pdf_24950.htm
199. Government of Canada. (2006). *The Human Face of Mental Health and Mental Illness in Canada*.
200. World Health Organization. (2001). *The World Health Report 2001, Mental Health: New Understanding, New Hope*. (Geneva).
201. Kirby, M. J. L. & Keon, W. J. (2006). *Out of the Shadows at Last: Transforming Mental Health, Mental Illness and Addiction Services in Canada*. (Ottawa: Standing Committee on Social Affairs, Science and Technology).
202. Kirby, M. J. L. & Keon, W. J. (2004-11). *Report 1. Mental Health, Mental Illness and Addiction: Overview of Policies and Programs in Canada*. (Ontario: Standing Senate Committee on Social Affairs, Science and Technology).
203. Waddell, C., McEwan, K., Shepherd, C. A., Offord, D. R., & Hua, J. M. (2005). A Public Health Strategy to Improve the Mental Health of Canadian Children. *Canadian Journal of Psychiatry*, 50(4), 226-233.
204. Waddell, C., Hua, J. M., Garland, O. M., Peters, R. D. & McEwan, K. (2002). Child Psychiatric Epidemiology and Canadian Public Policy-Making: The State of the Science and the Art of the Possible. *Canadian Journal of Psychiatry*, 47(9), 825-832.
205. Tremblay, R. E. (2004). Decade of Behavior Distinguished Lecture: Development of Physical Aggression During Infancy. *Infant Mental Health Journal*, 25(5), 399-407.
206. Learning Disabilities Association of Canada. (2002-01-30). *Official Definition of Learning Disabilities*. Retrieved on May 18, 2009, from http://www.ldac-taac.ca/Defined/defined_new-e.asp
207. Putting a Canadian Face on Learning Disabilities (PACFOLD). (2007). *National & Provincial Data Profiles*. Retrieved on May 18, 2009, from <http://www.pacfold.ca/profiles/index.shtml>

References

208. Ouellette-Kuntz, H., Coo, H., Yu, C. T., Chudley, A. E., Noonan, A., Breitenbach, M. et al. (2006). Prevalence of Pervasive Developmental Disorders in Two Canadian Provinces. *Journal of Policy and Practice in Intellectual Disabilities*, 3(3), 164-172.
209. Fombonne, E. (2003). Epidemiological Surveys of Autism and Other Pervasive Developmental Disorders: An Update. *Journal of Autism and Developmental Disorders*, 33(4), 365-379.
210. Bertrand, J., Mars, A., Boyle, C., Bove, F., Yeargin-Allsopp, M., & Decoufle, P. (2001). Prevalence of Autism in a United States Population: The Brick Township, New Jersey, Investigation. *Pediatrics*, 108(5), 1155-1161.
211. Fombonne, E., Zakarian, R., Bennett, A., Meng, L., & McLean-Heywood, D. (2006). Pervasive Developmental Disorders in Montreal, Quebec, Canada: Prevalence and Links with Immunizations. *Pediatrics*, 118(1), e139-e150.
212. Ouellette-Kuntz, H., Coo, H., Yu, C. T., Chudley, A. E., Noonan, A., Breitenbach, M. et al. (2005). *Autism Spectrum Disorders Canadian-American Research Consortium*.
213. National Institute of Neurological Disorders and Stroke. (2009-04-24). *National Institute of Neurological Disorders and Stroke (NINDS) Autism Information Page*. Retrieved on April 30, 2009, from <http://www.ninds.nih.gov/disorders/autism/autism.htm>
214. National Institute of Neurological Disorders and Stroke. (2009-04-24). *National Institute of Neurological Disorders and Stroke (NINDS) Asperger Syndrome Information Page*. Retrieved on April 30, 2009, from <http://www.ninds.nih.gov/disorders/asperger/asperger.htm>
215. National Institute of Neurological Disorders and Stroke. (2008-06-06). *Rett Syndrome Fact Sheet*. Retrieved on April 30, 2009, from http://www.ninds.nih.gov/disorders/rett/detail_rett.htm
216. World Health Organization. (2003). *Social Determinants of Health: The Solid Facts*. (Denmark: The Regional Office for Europe of the World Health Organization).
217. Obando, P. (2008). *Health Care Disparities and the Community*. Retrieved on December 9, 2008, from <http://www.echt.chm.msu.edu/BlockIII/Docs/CoreComp/B3CCHealthCareDisparitiesPPT.pdf>
218. Gouvernement du Québec. (2007). *Riches de tous nos enfants. Troisième rapport national sur l'état de la population du Québec*.
219. Collin, C. (2007). *Poverty Reduction Strategies in the United Kingdom and Ireland*. (Parliamentary Information and Research Service).
220. Raphael, D. (2002). *Poverty, Income Inequality and Health in Canada*. (Toronto: CSJ Foundation for Research and Education).
221. Canadian Institute for Health Information. (2008). *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada*. (Ottawa: Canadian Institute for Health Information).
222. Luo, Z.-C., Wilkins, R., & Kramer, M. S. (2006). Effect of neighbourhood income and maternal education on birth outcomes: a population-based study. *Canadian Medical Association Journal*, 174(10), 1415-1421.
223. Phipps, S. (2003). *The Impact of Poverty on Health*. (Ottawa: Canadian Institute for Health Information).
224. Secretary of State for Health. (2009). *The Government's Response to the Health Select Committee Report on Health Inequalities*.
225. United Nations. (n.d.). *What is Poverty*. Retrieved on March 20, 2009, from <http://www.unhcr.ch/development/poverty-02.html>
226. Human Resources and Skills Development Canada. (2008). *Low Income in Canada: 2000-2006 Using the Market Basket Measure*.
227. Statistics Canada. (2009-03-13). *Number of children aged 0-11, living in low income (after-tax), Canada* [Custom Data File].
228. Ross, D. P. & Roberts, P. (1999). *Income and Child Well-being: A new perspective on the poverty debate*. (Ottawa: Canadian Council on Social Development).
229. Campaign 2000. (2008). *2007 Report Card on Child and Family Poverty in Canada*.
230. Chen, W.-H. & Corak, M. (2005). *Innocenti Working Paper 2005-02. Child Poverty and Changes in Child Poverty in Rich Countries since 1990*. (Florence, Italy: UNICEF Innocenti Research Centre).
231. UNICEF. (2005). *Report Card No.6 Child Poverty in Rich Countries, 2005*. (Florence, Italy: UNICEF Innocenti Research Centre).
232. UNICEF. (2007). *Report Card 7 Child poverty in perspective: An overview of child well-being in rich countries*. (Florence, Italy: UNICEF Innocenti Research Centre).
233. Yalnizyan, A. (2007). *The Rich and the Rest of Us - The changing face of Canada's growing gap*. (Toronto: Canadian Centre for Policy Alternatives).

References

234. Health Disparities Task Group of the Federal/Provincial/Territorial Advisory Committee on Population Health and Health Security. (2005). *Reducing Health Disparities - Roles of the Health Sector: Recommended Policy Directions and Activities*.
235. Food and Agriculture Organization. (1996-11). *Rome Declaration on World Food Security and World Food Summit Plan of Action*. Retrieved on January 31, 2008, from <http://www.fao.org/docrep/003/w3613e/w3613e00.htm>
236. Health Canada. (2007). *Canadian Community Health Survey Cycle 2.2, Nutrition (2004): Income-Related Household Food Security in Canada*.
237. Canadian Tuberculosis Committee. (2007). *An Advisory Committee Statement (ACS) - Housing conditions that serve as risk factors for tuberculosis infection and disease*.
238. Statistics Canada. (2003). *Aboriginal People's Survey 2001: Initial findings: Well-being of the non-reserve Aboriginal Population*.
239. Shaw, M. (2004). Housing and Public Health. *Annual Review of Public Health*, 25(1), 397-418.
240. Inuit Tapiriit Kanatami. (2004). *Backgrounder on Inuit and Housing For Discussion at Housing Sectoral Meeting, November 24 and 25th in Ottawa*.
241. Canada Mortgage and Housing Corporation. (2009). *2006 Census Housing Series: Issue 3 - The Adequacy, Suitability, and Affordability of Canadian Housing, 1991-2006*.
242. Eggertson, L. (2008). Investigative report: 1766 boil-water advisories now in place across Canada. *Canadian Medical Association Journal*, 178(10), 1261-1263.
243. Health Canada. (2009-02-06). *Giardia And Cryptosporidium In Drinking Water*. Retrieved on June 26, 2009, from http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/giardia_cryptosporidium-eng.php
244. Public Health Agency of Canada. (2000-06-02). *Infectious Diseases News Brief. Escherichia coli O157:H7 Infection: Ontario*. Retrieved on June 26, 2009, from <http://www.phac-aspc.gc.ca/bid-bmi/dsd-dsm/nb-ab/2000/nb2200-eng.php>
245. Statistics Canada. (2005). National Longitudinal Survey of Children and Youth: Home environment, income and child behaviour. *The Daily*, February 21, 2005, 6-9.
246. Public Health Agency of Canada. (2005). *Canadian Incidence Study of Reported Child Abuse and Neglect - 2003: Major Findings*.
247. Fergusson, D. M. & Lynskey, M. T. (1997). Physical Punishment/Maltreatment During Childhood and Adjustment in Young Adulthood. *Child Abuse and Neglect*, 21(7), 617-630.
248. Turner, H. A., Finkelhor, D., & Ormrod, R. (2005). The effect of lifetime victimization on the mental health of children and adolescents. *Social Science & Medicine*, 62(1), 13-27.
249. National Clearinghouse on Family Violence. (1998). *The Consequences of Child Maltreatment: A Reference Guide for Health Practitioners*.
250. Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (2002). *World report on violence and health*. (Geneva, Switzerland: World Health Organization).
251. Muhajaine, N. & D'Arcy, C. (1999). Physical abuse during pregnancy: prevalence and risk factors. *Canadian Medical Association Journal*, 160(7), 1007-1111.
252. Stewart, D. E. & Cecutti, A. (1993). Physical abuse in pregnancy. *Canadian Medical Association Journal*, 149(9), 1257-1263.
253. Public Health Agency of Canada. (2004-02). *Physical Abuse During Pregnancy*. Retrieved on March 25, 2009, from <http://www.phac-aspc.gc.ca/rhs-ssg/factshts/abuseprg-eng.php>
254. Petersen, R., Gazmararian, J., Spitz, A., Rowley, D., Goodwin, M. M., Saltzman, L. E. et al. (1997). Violence and adverse pregnancy outcomes: a review of the literature and directions for further research. *American Journal of Preventive Medicine*, 13(5), 366-373.
255. Justice Canada. (2008-03-28). *Child Abuse: A Fact Sheet from the Department of Justice Canada*. Retrieved on December 16, 2008, from <http://www.justice.gc.ca/eng/pi/fv-vf/facts-info/child-enf.pdf>
256. Kessler, R. C., Davis, C. G., & Kendler, K. S. (1997). Childhood Adversity and Adult Psychiatric Disorder in the US National Comorbidity Survey. *Psychological Medicine*, 27(5), 1101-1119.
257. Leiter, J. & Johnsen, M. C. (1997). Child Maltreatment and School Performance Declines: An Event-History Analysis. *American Educational Research Journal*, 34(3), 563-589.

References

258. Public Health Agency of Canada. (2006). *Street Youth in Canada - Findings from Enhanced Surveillance of Canadian Street Youth, 1999-2003*.
259. The National Clearinghouse on Family Violence. (2009-01-05). *Youth and Violence*. Retrieved on January 2, 2009, from http://www.phac-aspc.gc.ca/nfv-cnivf/familyviolence/html/nfntsylviolence_e.html
260. Federal/Provincial/Territorial Early Childhood Development Agreement. (2003). *The Well-Being of Canada's Young Children: Government of Canada Report 2003*. (Human Resources Development Canada and Health Canada).
261. Egeland, B., Jacobvitz, D., & Sroufe, A. (1988). *Breaking the Cycle of Abuse: How to Move Beyond Your Past to Create an Abuse-Free Future*. (Hoboken: John Wiley & Sons, Inc.).
262. Canadian Council on Social Development. (2006). *The Progress of Canada's Children and Youth: 2006*.
263. Media Awareness Network & Government of Canada. (2001). *Young Canadians in a Wired World - the students' view*.
264. Mishna, F., MacFadden, R., Saini, M., & Cook, C. (2007). *Prevention and intervention of cyber abuse targeting children and adolescents: A systematic review to evaluate current approaches*.
265. Mishna, F., Saini, M., & Solomon, S. (2009). Ongoing and online: Children and youth's perceptions of cyber bullying. *Children and Youth Services Review*.
266. Statistics Canada. (2006). *Child Care in Canada*.
267. Friendly, M., Beach, J., Ferns, C., & Turiano, M. (2007). *Early childhood education and care in Canada 2006*. (Toronto: Childcare Resource and Research Unit).
268. Government of Ontario. (2009-06-18). *An Updated and Annotated Summary of Evidence. A Compendium To: With Our Best Future in Mind*. Retrieved on July 28, 2009, from http://www.ontario.ca/en/initiatives/early_learning/ONT06_018921
269. Organisation for Economic Co-Operation and Development. (2004). *Early Childhood Care and Education Policy: Canada Country Note*. (Paris: OECD Secretariat).
270. Goelman, H., Anderson, L., Kershaw, P., & Mort, J. (2008). *Expanding Early Childhood Education and Care Programming: Highlights of a Literature Review, and Public Policy Implications for British Columbia*. (Vancouver: Human Early Learning Partnership, University of British Columbia).
271. Beach, J. & Friendly, M. (2005). *Child care fee subsidies in Canada (working document)*. (Toronto: Childcare Resource and Research Unit, University of Toronto).
272. Canadian Mental Health Association & Hicks-Dellcrest Centre. (2004). *Handle with Care: Strategies for Promoting the Mental Health of Young Children in Community-Based Child Care*.
273. University of British Columbia & United Way of The Lower Mainland. (2007). *Middle Childhood Inside and Out: The Psychological and Social World of Children 9-12*. (Burnaby: United Way of the Lower Mainland).
274. UNICEF. (2008). *The child care transition, Innocenti Report Card 8*. (Florence, Italy: UNICEF Innocenti Research Centre).
275. Public Health Agency of Canada. (2008). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *Canadian Community Health Survey Cycle 2005* (C3.1 PUB), prepared by Statistics Canada].
276. Stewart, M. (2003). Immigrants and Refugees: Perspectives on Supportive Policies, Programs, and Practices. *Eighth International Metropolis Conference*. (Vienna, Austria).
277. Kirmayer, L., Galbaud du Fort, G., Young, A., Weinfeld, M., & Lasry, J. C. (1996). *Pathways and Barriers to Mental Health Care in an Urban Multicultural Milieu: An Epidemiological and Ethnographic Study*. Culture & Mental Health Research Unit Report No. 6 (Part 1).
278. Tjepkema, M. (2002). The Health of the Off-reserve Aboriginal Population. *Health Reports*, Supplement to Health Reports(13), 73-88.
279. Ontario Dental Association. (2008). Oral Health Issues for Ontarians. *Tooth Decay in Ontario's Children: An Ounce of Prevention - A Pound of Cure*.
280. Healthy Smile Happy Child Project Manitoba. (2004). *Tooth Care (& Mouth Care) Starts at Birth: Newborn to 6 Years*.
281. Health Canada. (2008). *It's Your Health: The Effects of Oral Health on Overall Health*.

References

282. The Ontario Coalition of CAPC and CPNP, Catholic Family Counselling Centre, & Centre for Research and Education in Human Services. (2004). *Determining Family Dental Health. Family dental health in Ontario: A snapshot of community stories, 2004*. Retrieved on June 19, 2009, from <http://individual.utoronto.ca/accessandcare/Lamotey.pdf>
283. Janus, M., Brinkman, S., Duku, E., Hertzman, C., Santos, R., Sayers, M. et al. (2007). *The Early Development Instrument: A Population-based Measure for Communities: A Handbook on Development, Properties, and Use*. (The Offord Centre for Child Studies).
284. The Offord Centre for Child Studies McMaster University. (2006). *School Readiness to Learn National SK Cohort Results, Based on the Early Development Instrument Data Collection for Senior Kindergarten Students in Canada, Spring 2006*.
285. Lloyd, J. E. V. & Hertzman, C. (2009). From Kindergarten readiness to fourth-grade assessment: Longitudinal analysis with linked population data. *Social Science & Medicine*, 68(1), 111-123.
286. Public Health Agency of Canada. (2008-12-12). *Safe, Healthy Environments*. Retrieved on June 26, 2009, from http://www.phac-aspc.gc.ca/dca-dea/allchildren_touslesenfants/she_main-eng.php
287. Carver, A., Timperio, A., & Crawford, D. (2008). Playing it safe: The influence of neighbourhood safety on children's physical activity - A review. *Health & Place*, 14(2), 217-227.
288. Weir, L. A., Etelson, D., & Brand, D. A. (2006). Parents' perceptions of neighborhood safety and children's physical activity. *Preventive Medicine*, 43(3), 212-217.
289. Lumeng, J. C., Appugliese, D., Cabral, H. J., Bradley, R. H., & Zuckerman, B. (2006). Neighborhood Safety and Overweight Status in Children. *Archives of Pediatrics Adolescent Medicine*, 160(1), 25-31.
290. Curtis, L. J., Dooley, M. D., & Phipps, S. A. (2004). Child well-being and neighbourhood quality: evidence from the Canadian National Longitudinal Survey of Children and Youth. *Social Science & Medicine*, 58(10), 1917-1927.
291. Health Canada. (2008-08-26). *Canadian Tobacco Use Monitoring Survey (CTUMS) 2007 - Table 9: Exposure of children at home to Environmental Tobacco Smoke (ETS), by province and age group, Canada 2007*. Retrieved on August 26, 2008, from http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/_ctums-esutc_2007/ann-table9-eng.php;
292. Health Canada. (2006). *It's Your Health: Second-hand Smoke*.
293. Wigle, D. T. (2003). *Child Health and the Environment*. (New York: Oxford University Press).
294. Committee on the Assessment of Asthma and Indoor Air, Division of Health Promotion and Disease Prevention, & Institute of Medicine (2000). *Clearing the Air: Asthma and Indoor Air Exposure*. The National Academies Press.
295. Ward, D. J. & Ayres, J. G. (2004). Particulate air pollution and panel studies in children: a systematic review. *Occupational and Environmental Medicine*, 61(4), e13-e25.
296. US Department of Health and Human Services, Public Health Services, & Agency for Toxic Substances and Disease Registry. (2007). *Toxicological Profile for Lead*.
297. Schnaas, L., Rothenberg, S. J., Flores, M. F., Martinez, S., Hernandez, C., Osorio, E. et al. (2006). Reduced Intellectual Development in Children with Prenatal Lead Exposure. *Environmental Health Perspectives*, 114(5), 791-797.
298. Daniels, J. L., Olshan, A. F., & Savitz, D. A. (2007). Pesticides and Childhood Cancers. *Environmental Health Perspectives*, 105(10), 1068-1077.
299. Daniels, J. L., Olshan, A. F., Teschke, K., Hertz-Picciotto, I., Savitz, D. A., Blatt, J. et al. (2001). Residential Pesticide Exposure and Neuroblastoma. *Epidemiology*, 12(1), 20-27.
300. Linet, M. S., Wacholder, S., & Zahm, S. H. (2003). Interpreting Epidemiologic Research: Lessons from Studies of Childhood Cancer. *Pediatrics*, 112(1), 218-232.
301. Zoar, S. H. & Ward, M. H. (1998). Pesticides and Childhood Cancers. *Environmental Health Perspectives*, 106(S3), 893-908.
302. Health Canada. (2008-02-15). *Mercury in Fish, Consumption Advice: Making Informed Choices About Fish*. Retrieved on May 1, 2009, from <http://www.hc-sc.gc.ca/fn-an/secureit/chem-chim/envIRON/mercur/cons-adv-etud-eng.php>
303. Government of Canada. (2009-07-09). *Government of Canada Protects Families With Bisphenol A Regulations*. Retrieved on May 4, 2009, from http://www.chemicalsubstanceschimiques.gc.ca/challenge-defi/bisphenol-a_e.html

References

304. Health Canada. (2008-03-07). *Proposal for legislative action on di(2-ethylhexyl) phthalate under the Hazardous Products Act*. Retrieved on June 26, 2009, from <http://www.hc-sc.gc.ca/cps-spc/advisories-avis/info-ind/ethylhexyle-eng.php>
305. Health Canada. (2009-06-26). *Government of Canada Acts to Protect Newborns and Infants from Bisphenol A in Polycarbonate Plastic Baby Bottles*. Retrieved on July 14, 2009, from http://hc-sc.gc.ca/ahc-asc/media/nr-cp/_2009/2009_106-eng.php
306. Health Canada. (2009-06-19). *Government of Canada Acts to Make Soft Vinyl Toys, Child-Care Articles Safer*. Retrieved on July 14, 2009, from http://hc-sc.gc.ca/ahc-asc/media/nr-cp/_2009/2009_96-eng.php
307. Dell, S. & To, T. (2001). Breastfeeding and Asthma in Young Children. *Archives of Pediatrics & Adolescent Medicine*, 155(11), 1261-1265.
308. Gillman, M. W., Rifas-Shiman, S. L., Camargo Jr., C. A., Berkey, C. S., Frazier, A. L., Rockett, H. R. H. et al. (2001). Risk of Overweight Among Adolescents Who Were Breastfed as Infants. *The Journal of American Medical Association*, 285(19), 2461-2467.
309. Duffy, L. C., Faden, H., Wasielewski, R., Wolf, J., Krystofik, D., & Tonawanda/Williamsville Pediatrics. (1997). Exclusive Breastfeeding Protects Against Bacterial Colonization and Day Care Exposure to Otitis Media. *Journal of American Medical Association*, 100(4), e7-e15.
310. Miller, W. & Maclean, H. (2005). Breastfeeding Practices. *Health Reports*, 16(2), 23-33.
311. Public Health Agency of Canada. (2009). *Data Tables - The Maternity Experiences Survey (MES) 2006-2007*.
312. Public Health Agency of Canada. (2008). *Canadian Perinatal Health Report, 2008 Edition*.
313. Canadian Paediatric Society & Boland, M. (2009-02). *Exclusive breastfeeding should continue to six months*. Retrieved on May 12, 2009, from <http://www.cps.ca/english/statements/n/breastfeedingmar05.htm>
314. Public Health Agency of Canada. (2005). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *Canadian Community Health Survey Cycle 2005* (C3.1 SHR), prepared by Statistics Canada].
315. Greaves, L., Cormier, R., Devries, K., Bottorff, J., Johnson, J., Kirkland, S. et al. (2003). *Expecting to Quit: A Best Practices Review of Smoking Cessation Interventions for Pregnant and Postpartum Girls and Women*. (Vancouver: British Columbia Centre of Excellence for Women's Health).
316. Gaffield, C. (1982). Schooling, the Economy, and Rural Society in Nineteenth-Century Ontario. In J.Parr (Ed.), *Childhood and Family in Canadian History* (pp. 69-92). (Toronto: McClelland and Stewart Limited).
317. Simcoe Muskoka District Health Unit. (n.d.). *Smoking During Pregnancy*. Retrieved on September 30, 2008, from http://simcoemuskokahealthstats.org/Topics_Tobacco_Smoking_SmokingPregnancy.aspx
318. Public Health Agency of Canada. (2008). *The Sensible Guide to a Healthy Pregnancy*.
319. Public Health Agency of Canada. (2005). *Fetal Alcohol Spectrum Disorder (FASD)*.
320. Public Health Agency of Canada. (2008-03-20). *Fetal Alcohol Spectrum Disorder (FASD) - Data collection and reporting*. Retrieved on March 30, 2009, from http://www.phac-aspc.gc.ca/fasd-etcaf/pubs/fs-fi_05-eng.php
321. Health Canada. (2000). *Awareness of the Effects of Alcohol Use During Pregnancy and Fetal Alcohol Syndrome: Results of a National Survey*.
322. Canadian Paediatric Society. (1997). *Prevention of Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Effects (FAE) in Canada*. Retrieved on October 2, 2008, from <http://www.cps.ca/English/statements/FN/cps96-01.htm>
323. Public Health Agency of Canada. (2006). *Alcohol Use and Pregnancy: An Important Canadian Public Health and Social Issue*.
324. Public Health Agency of Canada. (2006). *The Maternity Experiences Survey, 2006 Questionnaire*.
325. The Hospital for Sick Children. (2007-01-11). *Neonatal Abstinence Syndrome*. Retrieved on November 19, 2008, from <http://www.aboutkidshealth.ca/Pregnancy/Neonatal-Abstinence-Syndrome.aspx?articleID=9541&categoryID=PG-nh2-09o>
326. Linares, T., Singer, L., Kirchner, H., Short, E., Min, M., Hussey, P. et al. (2006). Mental Health Outcomes of Cocaine-Exposed Children at 6 Years of Age. *Journal of Pediatric Psychology*, 31(1), 85-97.
327. Public Health Agency of Canada. (2009). *Brief Report on Sexually Transmitted Infections in Canada: 2006*.
328. Public Health Agency of Canada. (2007-09-25). *HIV/AIDS - Key Populations*. Retrieved on May 8, 2009, from <http://www.phac-aspc.gc.ca/aids-sida/populations-eng.php#wo>

References

329. Canadian Paediatric Society. (2009-04). *Congenital syphilis: No longer just of historical interest*. Retrieved on May 12, 2009, from <http://www.cps.ca/english/statements/ID/CongenitalSyphilis.htm>
330. Public Health Agency of Canada. (2008). *Updates to the Canadian Guidelines on Sexually Transmitted Infections*.
331. Public Health Agency of Canada. (2007). *HIV/AIDS - Epi Updates*.
332. Public Health Agency of Canada. (2003-12-11). *Notifiable Diseases On-Line - Syphilis*. Retrieved on March 25, 2009, from http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/diseases/syph_e.html
333. Singh, A. E., Sutherland, K., Lee, B., Robinson, J. L., & Wong, T. (2007). Resurgence of early congenital syphilis in Alberta. *Canadian Medical Association Journal*, 177(1), 33-36.
334. Public Health Agency of Canada. (1997). *Chlamydia Trachomatis in Canada: An Update*. *Canada Communicable Disease Report (CCDR)*, 23(15), F-1-F-5.
335. Public Health Agency of Canada. (2000). *Family-Centred Maternity and Newborn Care: National Guidelines*.
336. Pellowe, C. & Pratt, R. J. (2006). Neonatal conjunctivitis and pneumonia due to chlamydia infection. *Sexually Transmitted Diseases*, 2(1), 16-17.
337. Public Health Agency of Canada. (2008-04-22). *Canada's Physical Activity Guide for Children and Youth*. Retrieved on May 12, 2009, from http://www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/chilids_play.html
338. Garriguet, D. (2006). *Overview of Canadians' Eating Habits*. (Statistics Canada).
339. Health Canada. (2007-02-05). *Canada's Food Guide - How Much Food You Need Every Day*. Retrieved on May 4, 2009, from <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/basics-base/quantit-eng.php>
340. Cavadini, C., Siega-Riz, A. M., & Popkin, B. M. (2000). US adolescent food intake trends from 1965 to 1996. *Archives of Diseases in Childhood*, 83(1), 18-24.
341. Ludwig, D. S., Peterson, K., & Gortmaker, S. L. (2001). Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. *The Lancet*, 357(9255), 505-508.
342. Young, L. R. & Nestle, M. N. (2002). The Contribution of Expanding Portion Sizes to the US Obesity Epidemic. *American Journal of Public Health*, 92(2), 246-249.
343. Public Health Agency of Canada. (2001-12-18). *Improving the Health of Canada's Aboriginal People*. Retrieved on June 5, 2009, from <http://www.phac-aspc.gc.ca/ph-sp/report-rapport/toward/back/impro-eng.php>
344. Dietitians of Canada. (2007). *Community Food Security: Position of Dietitians of Canada*.
345. Commission on the Social Determinants of Health. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health*. (Geneva: World Health Organization).
346. Canada Mortgage and Housing Corporation. (n.d.). *History of CMHC*. Retrieved on June 9, 2009, from <http://www.cmhc.ca/en/corp/about/hi/index.cfm>
347. Canada Mortgage and Housing Corporation. (2008). *2008 Annual Report: Enduring Commitment Proven Results*.
348. Canada Mortgage and Housing Corporation. (n.d.). *Programs and Financial Assistance*. Retrieved on June 8, 2009, from <http://www.cmhc-schl.gc.ca/en/co/prfinas/index.cfm>
349. Canada Mortgage and Housing Corporation. (n.d.). *Affordable Housing Initiatives*. Retrieved on June 8, 2009, from http://www.cmhc-schl.gc.ca/en/inpr/afhoce/fias/fias_015.cfm
350. Canada Revenue Agency. (2009-05-07). *CCTB: Application and Eligibility*. Retrieved on July 14, 2009, from http://www.cra-arc.gc.ca/bnfts/cctb/fq_qlfyng-eng.html
351. Canada Revenue Agency. (2009-03-27). *WITB: Application and Eligibility*. Retrieved on July 14, 2009, from http://www.cra-arc.gc.ca/bnfts/wtb/fq_qlfyng-eng.html
352. Hay, D. I. (2009). *Poverty Reduction Policies and Programs, Canada*. (Canadian Council on Social Development).
353. Andreychuk, R. & Fraser, J. (2007). *Children: The Silenced Citizens. Effective Implementation of Canada's International Obligations with Respect to the Rights of Children*. (Ottawa: Standing Senate Committee on Human Rights).

References

354. Eggleton, A. & Keon, W. J. (2008). *Poverty, Housing and Homelessness: Issues and Options*. (Ottawa: Standing Senate Committee on Social Affairs, Science, & Technology).
355. Fairbairn, J. & Gustafson, L. J. (2008). *Beyond Freefall: Halting Rural Poverty*. (Ottawa: Standing Senate Committee on Agriculture and Forestry).
356. House of Commons. (2009). *Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities (HUMA)*. Retrieved on July 28, 2009, from <http://www2.parl.gc.ca/CommitteeBusiness/StudiesActivities.aspx?Cmte=HUMA&Language=E&Mode=1&Parl=40&Ses=2>
357. Government of Ontario. (2008). *Breaking the Cycle, Ontario's Poverty Reduction Strategy*.
358. Government Offices of Sweden. (2008). *Sweden's Strategy Report for Social Protection and Social Inclusion 2008-2010*.
359. Gouvernement du Québec. (2007). *Government Action Plan to Combat Poverty and Social Exclusion 2004-2009 Third Year Progress Report*.
360. Collin, C. (2007). *Poverty Reduction Strategies in Quebec and in Newfoundland and Labrador*. (Parliamentary Information and Research Service).
361. Assembly of First Nations. (2007). *From Poverty to Prosperity: Opportunities to Invest in First Nations*.
362. Lundberg, O., Åberg Yngwe, M., Kölegård Stjerne, M., Bjork, L., & Fritzell, J. (2008). *The Nordic Experience: Welfare States and Public Health (NEWS)*. (Stockholm, Sweden: Centre for Health Equity Studies).
363. Statistics Canada. (2008). *Income in Canada, 2006*.
364. Organisation for Economic Co-operation and Development. (2008). *OECD Family Database - C08: Child Poverty*.
365. The Conference Board of Canada. (2009). *Society - Child Poverty*. Retrieved on May 27, 2009, from <http://www.conferenceboard.ca/hcp/details/society/child-poverty.aspx>
366. Hirsch, D. (2009). *Ending child poverty in a changing economy*. (Joseph Rowntree Foundation).
367. Irwin, L., Siddiqi, A., & Hertzman, C. (2007). *Early Childhood Development: A Powerful Equalizer. Final Report for the World Health Organization's Commission on the Social Determinants of Health*.
368. Committee on Integrating the Science of Early Childhood Development (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. (Washington, D.C.: National Academy Press).
369. Organisation for Economic Co-operation and Development. (2006). *Starting Strong II: Early Childhood Education and Care*.
370. Government of Manitoba. (n.d.). *Healthy Child Manitoba: Ensuring the best possible start for our province's children and youth*.
371. Sure Start. (2009-06-18). *Sure Start Children's Centres*. Retrieved on March 31, 2009, from <http://www.surestart.gov.uk/aboutsurestart/about/thesurestartprogramme2/>
372. Healthy Child Manitoba. (2000). *Investing in Our Future*.
373. Pascal, C. E. (2009). *With Our Best Future Forward: Report to the Premier by the Special Advisor on Early Learning*. (Government of Ontario).
374. Tougas, J. (2002). *Reforming Quebec's early childhood care and education: the first five years*. (Childcare Resource and Research Unit, Centre for Urban and Community Studies, University of Toronto).
375. Famille et Aînés Québec. (2007). *Services gratuits pour les personnes à faible revenu*. Retrieved on February 11, 2009, from <http://www.mfa.gouv.qc.ca/services-de-garde/parents/places-a-contribution-reduite/exemption-de-paiement.asp>
376. Famille et Aînés Québec. (2007). *Des services de garde accessibles aux enfants handicapés*. Retrieved on February 11, 2009, from <http://www.mfa.gouv.qc.ca/services-de-garde/parents/services-et-progr-specialises/enfants-handicapes.asp>
377. Famille et Aînés Québec. (2007). *Services offerts*. Retrieved on February 11, 2009, from <http://www.mfa.gouv.qc.ca/services-de-garde/parents/places-a-contribution-reduite/services-offerts.asp>
378. Cleveland, G. (2007). Coûts et bénéfices des services de garde au Québec. *ACFAS Conference*. (Trois-Rivieres, Québec).
379. Lefebvre, P. (2004-03). Quebec's Innovative Early Childhood Education and Care Policy and Its Weaknesses. *Policy Options/Options Politiques*, 25, 52-57.

References

380. Melhuish, E., Belsky, J., & Leyland, A. (2005). *Early Impacts of Sure Start Local Programmes on Children and Families*. National Evaluation Report, Report 13.
381. Sure Start. (n.d.). *Frequently asked questions*. Retrieved on March 13, 2009, from <http://www.surestart.gov.uk/faqs/>
382. Sure Start. (2009-05-04). *Sure Start Children's Centres - What are Sure Start Children's Centres*. Retrieved on March 13, 2009, from <http://www.surestart.gov.uk/surestartservices/settings/surestartchildrenscentres/>
383. McCain, M. N., Mustard, J. F., & Shanker, S. (2007). *Early Years Study 2: Putting Science into Action*. (Toronto: Council for Early Child Development).
384. Grunewald, R. & Rolnick, A. (2006). *A Proposal for Achieving High Returns on Early Childhood Development*. (Washington D.C.: Federal Reserve Bank of Minneapolis).
385. High/Scope Educational Research Foundation. (2009). *High/Scope Perry Preschool Study*. Retrieved on March 31, 2009, from <http://www.highscope.org/Content.asp?ContentId=219>
386. Schweinhart, L. J. (n.d.). *The High/Scope Perry Preschool Study Through Age 40: Summary, Conclusions and Frequently Asked Questions*. (Michigan: High/Scope).
387. HighScope. (2009-03-12). *Historical Narrative*. Retrieved on July 14, 2009, from <http://www.highscope.org/Content.asp?ContentId=232>
388. Government of Canada. (2009-01-20). *The Universal Child Care Plan provides support*. Retrieved on July 14, 2009, from <http://www.universalchildcare.ca/eng/support/index.shtml>
389. Indian and Northern Affairs Canada. (2008-11-03). *First Nation Child and Family Services Program*. Retrieved on July 28, 2009, from <http://www.ainc-inac.gc.ca/hb/sp/fncf/index-eng.asp>
390. Citizenship and Immigration Canada. (2005-01-03). *Evaluation of the Immigration Settlement and Adaptation Program (ISAP)*. Retrieved on July 28, 2009, from <http://www.cic.gc.ca/english/resources/evaluation/isap/intro.asp>
391. Citizenship and Immigration Canada. (2009-04-24). *Government of Canada supports immigrant families at the Hospital for Sick Children in Toronto*. Retrieved on July 28, 2009, from <http://www.cic.gc.ca/english/department/media/releases/2009/2009-04-24.asp>
392. Marshall, K. (2003). Benefiting from extended parental leave. *Perspectives on Labour and Income*, 4(3), 5-11.
393. Human Resources and Skills Development Canada. (2009-07-14). *Indicators of Well-being in Canada*. Retrieved on January 13, 2009, from <http://www4.hrsdc.gc.ca/home.jsp?lang=eng>
394. Health Canada. (2003). Growing Up with CAPC.
395. Public Health Agency of Canada. (2004-03-30). *Community Action Program for Children (CAPC)*. Retrieved on March 30, 2009, from http://www.phac-aspc.gc.ca/dca-dea/programs-mes/capc_goals-eng.php
396. Public Health Agency of Canada. (2007). *Formative Evaluation of the Community Action Program for Children*.
397. Boyle, M. H. & Willms, J. D. (2002). Impact Evaluation of a National, Community-Based Program for At-Risk Children in Canada. *Canadian Public Policy - Analyse de Politiques*, 28(3), 461-481.
398. First Nations and Inuit Health Branch. (Personal Communications on the Aboriginal Head Start Program, June 25, 2009).
399. International Symposium on the Social Determinants of Indigenous Health. (2007). *Social determinants and Indigenous health: The International experience and its policy implications*. Retrieved on May 14, 2009, from http://www.who.int/social_determinants/resources/indigenous_health_adelaide_report_07.pdf
400. Blackstock, C., Trocmé, N., & Bennett, M. (2004). Child Maltreatment Investigations among Aboriginal and non-Aboriginal Families in Canada. *Violence Against Women*, 10(8), 1-16.
401. Royal Commission on Aboriginal Peoples. (1996). *People to people, nation to nation: Highlights of the Royal Commission on Aboriginal Peoples*.
402. Aboriginal Healing and Wellness Strategy. (2004). *Aboriginal Healthy Babies Healthy Children Program*. Retrieved on March 20, 2009, from http://www.ahwsontario.ca/programs/ahbhc/ahbhc_top.html
403. ARC Applied Research Consultants & University of Guelph. (2005). *Healthy Babies, Healthy Children Report Card: 2000-2002*.

References

404. National Head Start Association. (2009). *About the National Head Start Association*. Retrieved on December 30, 2008, from http://www.nhsa.org/about_nhsa
405. U.S. Department of Health and Human Services. (2002). *Early Head Start Research. Making a Difference in the Lives of Infants and Toddlers and their Families: The impacts of Early Head Start*.
406. Public Health Agency of Canada. (2004-02-06). *Aboriginal Head Start. Program Overview. Introduction*. Retrieved on January 26, 2009, from http://www.phac-aspc.gc.ca/dca-dea/programs-mes/ahs_overview-eng.php
407. Social Development Canada, Public Health Agency of Canada, & Indian and Northern Affairs Canada. (2005). *Early Childhood Development Activities and Expenditures: Early Learning and Child Care Activities and Expenditures. Government of Canada Reports 2003-2004*.
408. Indian and Northern Affairs Canada. (2008). *Eel Ground First Nation*. Retrieved on March 20, 2009, from <http://www.ainc-inac.gc.ca/ecd/ab/abss/eeg/ssfactrn08-eng.asp>
409. Duplessie, C. (2005-02). *ICT Integration - Technology in the Classroom: Creating Creative Problem Solvers*. Retrieved on June 15, 2009, from <http://www.eelgroundschool.ca/dreamcatching/pbl.html>
410. Eel Ground School. (2009). *Eel Ground School - Culture, Tradition, Technology*. Retrieved on June 15, 2009, from <http://www.eelgroundschool.ca/>
411. Joint Consortium for School Health. (2009). *What is Comprehensive School Health?* Retrieved on March 16, 2009, from http://eng.jcsh-cces.ca/index.php?option=com_content&view=article&id=40:what-is-somprehensive-school-health&catid=28:current-users&Itemid=62
412. Joint Consortium for School Health. (2009). *Joint Consortium for School Health (JCSH) - Governments Working Across the Health and Education Sectors*. Retrieved on July 28, 2009, from <http://www.jcsh-cces.ca/upload/About%20the%20Consortium.pdf>
413. City of Calgary. (2008-10-14). *3-6 p.m.:critical hours for youth*. Retrieved on June 10, 2009, from http://www.calgary.ca/portal/server.pt/gateway/PTARGS_0_0_104_0_0_35/http%3B/content.calgary.ca/CCA/City+Hall/Business+Units/Customer+Service+and+Communications/What+We+Do/Corporate+Communications/CityTalk+eNews/Archives/October+14+2008/3+to+6+p.m.+critical+hours+for+youth.htm
414. Active Healthy Kids Canada. (2009). *Canada's Report Card on Physical Activity for Children and Youth for 2009*.
415. Australian Sports Commission. (2008). *Helping Kids and Communities get Active: An interim report of the evaluation of the Australian Sports Commission's Active After-school Communities program 2005-2007*. Retrieved on June 10, 2009, from http://www.ausport.gov.au/participating/schools_and_juniors/aasc/about/research_and_evaluation
416. Today's Parent. (2009). *Healthy Kids*. Retrieved on June 10, 2009, from http://www.todayparent.com/healthykids/article.jsp?content=20090224_163504_880&page=1
417. Health Canada. (2002). *Family Violence Initiative: Year Five Report*.
418. Knoke, D., Trocme, N., MacLaurin, B., & Fallon, B. (2009). Reliability of the Canadian Incidence Study Data Collection Instrument. *The Canadian Journal of Program Evaluation*, 23(1), 87-112.
419. Roots of Empathy. (2006). *Roots of Empathy: About Our Program*. Retrieved on December 17, 2008, from <http://www.rootsofempathy.org/ProgDesc.html>
420. Tremblay, R. E., Nagin, D. S., Séguin, J. R., Zoccolillo, M., Zelazo, P. D., Boivin, M. et al. (2005). Physical Aggression During Early Childhood: Trajectories and Predictors. *The Canadian Child and Adolescent Psychiatry Review*, 14(1), 3-9.
421. Tremblay, R. E. (2000). The Origins of Youth Violence. *Canadian Journal of Policy Research*, 1(2), 19-24.
422. Butchart, A., Phinney Harvey, A., Mian, M., Fürniss, T., & Kahane, T. (2006). *Preventing Child Maltreatment: A Guide to Taking Action and Generating Evidence*. (Geneva: World Health Organization).
423. World Health Organization. (2006-10-11). *How can violence against children be prevented?* Retrieved on October 6, 2008, from <http://www.who.int/features/qa/44/en/index.html>
424. Roots of Empathy. (2008). *Roots of Empathy: A Summary of Research Studies Conducted 2000-2007*.
425. Zwi, K. J., Woolfenden, S. R., Wheeler, D. M., O'Brien, T. A., Tait, P., and Williams, K. W. (2007-07-18). School-based education programmes for the prevention of child sexual abuse (Review). *Cochrane Database of Systematic Reviews* 7-18-2007, Issue 3. Art. No.: CD004380. DOI: 10.1002/14651858.CD004380.pub2.

References

426. Finkelhor, D. (2007). Prevention of Sexual Abuse Through Educational Programs Directed Toward Children. *Pediatrics*, 120, 640-645.
427. Gibson, L. E. & Leitenberg, H. (2000). Child Sexual Abuse Prevention Programs: Do They Decrease The Occurrence Of Child Sexual Abuse? *Child Abuse & Neglect*, 24(9), 1115-1125.
428. Tremblay, R. E. & Craig, W. M. (1995). Developmental Crime Prevention. *Crime and Justice: A Review of Research*, 19, 151-236.
429. Geeraert, L., Van den Noortgate, W., Grietens, H., & Onghena, P. (2004). The Effects of Early Prevention Programs for Families with Young Children at Risk for Physical Child Abuse and Neglect: A Meta-Analysis. *Child Maltreatment*, 9(3), 277-291.
430. Robert Wood Johnson Foundation & Goodman, A. (2006). *The Story of David Olds and the Nurse Home Visiting Program: Grant Results Special Report*.
431. Indian and Northern Affairs Canada. (2008-11-03). *Family Violence Prevention Program*. Retrieved on July 28, 2009, from <http://www.ainc-inac.gc.ca/hb/sp/fvp-eng.asp>
432. Gough, P. (2006). *Kinship Care. Centre of Excellence for Child Welfare*.
433. Wright, A., Hiebert-Murphy, D., Mirwaldt, J., & Muswaggon, G. (2006). *Factors that Contribute to Positive Outcomes in the Awasis Pimicikamak Cree Nation Kinship Care Program*. (Manitoba: Centre of Excellence for Child Welfare, Health Canada).
434. Rubin, D. M., Downes, K. J., O'Reilley, A. L. R., Mekonnen, R., Luan, X., & Localio, R. (2008). Impact of Kinship Care on Behavioral Well-being for Children in Out-of-Home Care. *Archives of Pediatrics & Adolescent Medicine*, 162(6), 550-556.
435. Public Health Agency of Canada. (2006). *What We Have Learned: Key Canadian FASD Awareness Campaigns*.
436. United Nations Office on Drugs and Crime. (2004). *Substance abuse treatment and care for women*.
437. Herzig, K., Danley, D., Jackson, R., Petersen, R., Chamberlain, L., & Gerbert, B. (2006). Seizing the 9-month moment: Addressing behavioural risks in prenatal patients. *Patient Education and Counselling*, 61(2), 228-235.
438. Heaman, M., Green, C., Newburn-Cook, C., Elliott, L., & Helewa, M. (2003). Social Inequalities in Use of Prenatal Care in Manitoba. *Journal of Obstetrics and Gynaecology Canada*, 29(10), 806-816.
439. Mustard, C. & Roos, N. (1994). The Relationship of Prenatal Care and Pregnancy Complications to Birthweight in Winnipeg, Canada. *The American Journal of Public Health*, 84(9), 1450-1457.
440. Melnikow, J. & Alemagno, S. (1993). Adequacy of prenatal care among inner-city women. *Journal of Family Practice*, 37(6), 575-578.
441. United Nations Office on Drugs and Crime. (2004). *Substance abuse treatment and care for women: Case studies and lessons learned*. (New York: United Nations).
442. Public Health Agency of Canada. (2007). *The Canada Prenatal Nutrition Program. A Decade of Promoting the Health of Mothers, Babies and Communities*.
443. Public Health Agency of Canada. (2002-09-02). *Canada Prenatal Nutrition Program (CPNP) - What is CPNP?* Retrieved on July 28, 2009, from http://www.phac-aspc.gc.ca/dca-dea/programs-mes/cpnp_goals-eng.php
444. Health Canada. (2007). *First Nations and Inuit Health Program Compendium*.
445. Poole, N. (2000). *Evaluation Report of the SHEWAY Project for High-Risk Pregnant and Parenting Women*. (British Columbia Centre of Excellence for Women's Health).
446. Poole, N. & Isaac, B. (2001). *Apprehensions, Barriers to Treatment for Substance-Using Mothers*. (British Columbia Centre of Excellence for Women's Health).
447. Jessup, M. A., Humphreys, J. C., Brindis, C. D., & Lee, K. A. (2003). Extrinsic Barriers to Substance Abuse Treatment Among Pregnant Drug Dependant Women. *Journal of Drug Issues*, 33(2), 285-304.
448. Vancouver Native Health Society. (2007-07-11). *SHEWAY Overview*. Retrieved on September 30, 2008, from http://www.vnhs.net/index.php?option=com_content&view=article&id=49&Itemid=56
449. Public Health Agency of Canada. (2004-03-11). *Canadian Perinatal Surveillance System - Overview*. Retrieved on July 25, 2009, from <http://www.phac-aspc.gc.ca/rhs-ssg/overview-apercu-eng.php>
450. Walmsley, S. (2003). Opt in or opt out: What is optimal for prenatal screening for HIV infection? *Canadian Medical Association Journal*, 168(6), 707-708.

References

451. Patrick, D. M., Money, D. M., Forbes, J., Dobson, S. R. M., Rekart, M. L., Cook, D. A. et al. (1998). Routine prenatal screening for HIV in a low-prevalence setting. *Canadian Medical Association Journal*, 159(8), 942-947.
452. Wolff, T., Shelton, E., Sessions, C., & Miller, T. (2009). Screening for Syphilis Infection in Pregnant Women: Evidence for the U.S. Preventive Services Task Force Reaffirmation Recommendation Statement. *Annals of Internal Medicine*, 150(10), 710-716.
453. Public Health Agency of Canada. (2008). *Canadian Guidelines on Sexually Transmitted Infections*.
454. Haslam, C. (2000). A targeted approach to reducing maternal smoking. *British Journal of General Practice*, 50(457), 661-669.
455. Armstrong, M., Osejo, V., Lieberman, L., Carpenter, D., Pantoja, P., & Escobar, G. (2003). Perinatal Substance Abuse Intervention in Obstetric Clinics Decreases Adverse Neonatal Outcomes. *Journal of Perinatology*, 23(1), 3-9.
456. Health Canada. (2005). *Fetal Alcohol Spectrum Disorder. Knowledge and Attitudes of Health Professionals about Fetal Alcohol Syndrome: Results of a National Survey*. (Allium Consulting Group Inc.).
457. Hulse G, Milne, E., English, D., & Holman, C. (1997). The relationship between maternal use of heroin and methadone and infant birth weight. *Addiction*, 92(11), 1571-1580.
458. British Columbia Women's Hospital and Health Centre. (2009). Substance Use and Pregnancy. Retrieved on January 27, 2009, from <http://www.bcwomens.ca/Services/PregnancyBirthNewborns/HospitalCare/SubstanceUsePregnancy.htm>
459. Kirby, M. J. L. & Keon, W. J. (2004). *Mental Health, Mental Illness and Addiction*. (Ottawa: Standing Committee on Social Affairs, Science and Technology).
460. McEwan, K., Waddell, C., & Barker, J. (2007). Bringing children's mental health "out of the shadows". *Canadian Medical Association Journal*, 176(4), 471-472.
461. Kirby, M. (2007-05-17). *Children's Mental Health is Everybody's Business*. An Address to the Empire Club. (Toronto).
462. Kinark Child and Family Services. (2007-05-02). *Study shows children's mental health still taboo in Canada*. Retrieved on July 29, 2009, from <http://www.kinark.on.ca/news/news02StudyMediaRelease.aspx>
463. Martin, N. & Johnston, V. (2007). *A time for action: Tackling stigma and discrimination. Report to the Mental Health Commission of Canada*.
464. Mental Health Commission of Canada. (2009). *Anti-Stigma Initiative*. Retrieved on January 23, 2009, from <http://www.mentalhealthcommission.ca/English/Pages/AntiStigmaCampaign.aspx>
465. Martin, N. (2009). *International Anti-Stigma Initiatives*. Retrieved on April 6, 2009, from http://www.mentalhealthcommission.ca/SiteCollectionDocuments/Key_Documents/en/2008/AppendixA.pdf
466. Merry, S., McDowell, H., Hetrick, S., Bir, J., and Muller, N. Psychological and/or educational interventions for the prevention of depression in children and adolescents. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD003380. DOI: 10.1002/14651858.CD003380.pub2.
467. Better Beginnings Better Futures. (2008). *Better Beginnings, Better Futures*. Retrieved on November 13, 2008, from http://www.betterbeginnings.ca/English_main.htm
468. Better Beginnings Better Futures. (n.d.). *Better Beginnings, Better Futures: A Comprehensive Community-Based Early Childhood Development Project*. Retrieved on December 16, 2008, from http://bbbf.queensu.ca/pdfs/Better_Beginnings_Brochure.pdf
469. Peters, R. D., Petrunka, K., & Arnold, R. (2003). The Better Beginnings, Better Futures Project: A Universal, Comprehensive, Community-Based Prevention Approach for Primary School Children and Their Families. *Journal of Clinical Child and Adolescent Psychology*, 32(2), 215-227.
470. Roche, J., Petrunka, K., & Peters, R. D. (2008). *Investing in Our Future: Highlights of Better Beginnings, Better Futures Research Findings at Grade 9*. (Kingston, Ontario: Better Beginnings, Better Futures Research Coordination Unit).
471. Barankin, T. & Khanlou, N. (2007). *Growing up Resilient: Ways to Build Resilience in Children and Youth*. (Toronto: Centre for Addiction and Mental Health).
472. Werner, E. (2005). Resilience and recovery: Findings from the Kauai Longitudinal Study. *Research, Policy, and Practice in Children's Mental Health*, 19(1), 11-14.

References

473. Public Health Agency of Canada. (2008). [Analyses were performed using Health Canada's DAIS edition of anonymized microdata from the *Canadian Community Health Survey Cycle 2007* (C4.1 SHR), prepared by Statistics Canada].
474. Canadian Mental Health Association. (2008-09-24). *Federal leadership needed to create national mental health system*. Retrieved on October 17, 2008, from http://www.cmha.ca/bins/content_page.asp?cid=6-20-21-2226-2441&lang=1
475. Mental Health Commission of Canada. (2009). *About the Commission*. Retrieved on January 23, 2009, from <http://www.mentalhealthcommission.ca/english/pages/default.aspx>
476. Australian Government. (2008-07-21). *New Early Intervention Services for Parents, Children and Young People*. Retrieved on March 24, 2009, from <http://www.health.gov.au/internet/mentalhealth/publishing.nsf/Content/early-intervention-1>
477. Council of Australian Governments. (2006). *National Action Plan on Mental Health 2006-2011*.
478. Flinders University & University of South Australia (Department of Education and Children's Services South Australia). (2009). *Evaluation Kids Matter, Progress Report*.
479. KidsMatter. (n.d.). *Pilot Evaluation: About the KidsMatter Primary trial and evaluation*. Retrieved on May 13, 2009, from <http://www.kidsmatter.edu.au/evaluation/>
480. Australian Government. (2009). *KidsMatter Early Childhood: Welcome to KidsMatter Early Childhood*. Retrieved on July 24, 2009, from <http://www.kidsmatter.edu.au/kmec/>
481. World Health Organization. (2003). *Global strategy on diet, physical activity and health - Obesity and overweight*. Retrieved on November 3, 2008, from <http://www.who.int/dietphysicalactivity/publications/facts/obesity/en/>
482. World Health Organization. (2003). *Diet, Nutrition and the Prevention of Chronic Diseases*. (Geneva, Switzerland).
483. Tremblay, M. S. & Willms, J. D. (2000). Secular trends in the body mass index of Canadian children. *Canadian Medical Association Journal*, 163(11), 1429-1433.
484. Tremblay, M. S., Katzmarzyk, P. T., & Willms, J. D. (2002). Temporal trends in obesity in Canada, 1981-1996. *International Journal of Obesity*, 26(4), 538-543.
485. Nicklas, T. & Johnson, R. (2004). Position of the American Dietetic Association: Dietary Guidance for Healthy Children Ages 2 to 11 Years. *Journal of the American Dietetic Association*, 4(104), 660-677.
486. Clément, K. & Ferre, P. (2003). Genetics and the Pathophysiology of Obesity. *Pediatric Research*, 53(5), 721-725.
487. Perusse, L. & Bouchard, C. (2000). Gene-diet interactions in obesity. *The American Journal of Clinical Nutrition*, 72(5), 1285s-1290s.
488. Bouchard, C. (1991). Current understanding of the etiology of obesity: genetic and nongenetic factors. *The American Journal of Clinical Nutrition*, 53, 1561s-1565s.
489. Frumkin, H. (2002). Urban Sprawl and Public Health. *Public Health Reports*, 117, 201-217.
490. Jackson, R. J. & Kochtitzky, C., (Centres for Disease Control and Prevention). (n.d.) *Creating a Healthy Environment: The Impact of the Built Environment on Public Health. Sprawl Watch Clearinghouse Monograph Series*. (Washington, D.C.: Sprawl Watch Clearinghouse).
491. Health Canada. (2007-12-20). *Eating Well with Canada's Food Guide*. Retrieved on November 26, 2008, from <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>
492. Public Health Agency of Canada. (2007-12-03). *Canada's Physical Activity Guide to Healthy Active Living: Family Guide to Physical Activity for Children*. Retrieved on November 26, 2008, from http://www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/pdf/kids_family_guide_e.pdf
493. Public Health Agency of Canada. (2008-05-23). *Federal-Provincial-Territorial Governments to Boost Aboriginal Participation in Sport, Set Physical Activity Targets for Children and Youth, and Encourage Action to Reduce Violence in Sport*. Retrieved on January 28, 2009, from http://www.phac-aspc.gc.ca/media/nr-rp/2008/2008_09-eng.php
494. Active Healthy Kids Canada. (2009). *The Active Healthy Kids Canada: Report Card on Physical Activity for Children and Youth*.
495. Consumers International & International Association for the Study of Obesity-International Obesity Taskforce. (2008). *Recommendations for an International Code on Marketing of Foods and Non-Alcoholic Beverages to Children*.
496. Canadian Association of Broadcasters & Advertising Standards Canada. (2007-04). *The Broadcast Code for Advertising to Children*. Retrieved on May 12, 2009, from <http://www.adstandards.com/en/clearance/childrens/broadcastCodeForAdvertisingToChildren.aspx>

References

497. Advertising Standards Canada. (2007-11). *Canadian Code of Advertising Standards: Self Regulation of Advertising in Canada*. Retrieved on June 1, 2009, from <http://www.adstandards.com/en/Standards/canCodeOfAdStandards.aspx>
498. Advertising Standards Canada, Association of Canadian Advertisers, The Canadian Association of Broadcasters, Concerned Children's Advertisers, & Institute of Communication and Advertising. (2006). *Advertising to Children in Canada: A Reference Guide*.
499. Gouvernement du Québec. (2009-02-11). *L.R.Q., chapitre P-40.1; Loi sur la protection du consommateur (Québec)*. Retrieved on February 16, 2009, from http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/P_40_1/P40_1.html
500. Sultan, R. (2006-11-26). *A Strategy for Combatting Childhood Obesity and Physical Inactivity in British Columbia*. (Victoria: Select Standing Committee on Health & Legislative Assembly of British Columbia).
501. Jacobson, M. F. & Brownell, K. D. (2000). Small Taxes on Soft Drinks and Snack Foods to Promote Health. *American Journal of Public Health*, 90(6), 854-857.
502. Heart and Stroke Foundation of Canada. (2007). *Alleviating the Burden of Heart Disease and Stroke*. (House of Commons Standing Committee on Finance).
503. Kilborn, P. T. (1993-03-24). Soft-Drink Industry Is Fighting Back Over New Taxes. *The New York Times*.
504. Caraher, M. & Cowburn, G. (2005). Taxing food: implications for public health nutrition. *Public Health Nutrition*, 8(8), 1242-1249.
505. Leicester, A. & Windmeijer, F. (2008). *The 'Fat Tax': Economic Incentives to Reduce Obesity*. (Institute for Fiscal Studies).
506. Cash, S. B., Sunding, D. L., & Zilberman, D. (2005). Fat Taxes and Thin Subsidies: Prices, Diet, and Health Outcomes. *Acta Agriculturae Scandinavica, Section C - Economy*, 2(3-4), 167-174.
507. Reger, B., Wootan, M. G., Booth-Butterfield, S., & Smith, H. (1998). 1% or less: a community-based nutrition campaign. *Public Health Reports*, 113(5), 410-419.
508. Frank, L. D., Andresen, M. A., & Schmid, T. L. (2004). Obesity relationships with community design, physical activity and time spent in cars. *American Journal of Preventive Medicine*, 27(2), 87-96.
509. British Columbia Provincial Health Services Authority. (2007). *Creating a Healthier Built Environment in British Columbia - Summary Report*.
510. Harrington, J., Friel, S., Thunhurst, C., Kirby, A., & McElroy, B. (2008). Obesogenic island: the financial burden of private transport on low-income households. *Journal of Public Health*, 30(1), 38-44.
511. Leyden, K. M. (2003). Social Capital and the Built Environment: The Importance of Walkable Neighborhoods. *American Journal of Public Health*, 93(9), 1546-1551.
512. Saelens, B. E., Sallis, J. F., Black, J. B., & Chen, D. (2003). Neighborhood-based differences in physical activity: an environment scale evaluation. *American Journal of Public Health*, 93(9), 1552-1558.
513. Saelens, B. E., Sallis, J. F., & Frank, L. D. (2003). Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures. *Annals of Behavioral Medicine*, 25(2), 80-91.
514. Ewing, R., Schmid, T., Killingsworth, R., Zlot, A., & Raudenbush, S. (2003). Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity. *American Journal of Health Promotion*, 18(1), 47-57.
515. Oliver, L. N. & Hayes, M. V. (2005). Neighbourhood Socio-economic Status and the Prevalence of Overweight Canadian Children and Youth. *Canadian Journal of Public Health*, 96(6), 415-420.
516. Lake, A. & Townshend, T. (2006). Obesogenic environments: exploring the built and food environments. *The Journal of the Royal Society for the Promotion of Health*, 126, 262-267.
517. Lee, R. E. & Cubbin, C. (2002). Neighborhood Context and Youth Cardiovascular Health Behaviors. *American Journal of Public Health*, 92(3), 428-436.
518. International Obesity TaskForce & European Association for the Study of Obesity. (2002). *Obesity in Europe: The Case For Action*. (London).
519. Hume, C., Salmon, J., & Ball, K. (2005). Children's perception of their home and neighborhood environments, and their association with objectively measured physical activity: a qualitative and quantitative study. *Health Education Research*, 20(1), 1-13.

References

520. Ayadi, K. & Young, B. (2006). Community Partnerships: preventing childhood obesity. *Young Consumers: Insight and Ideas for Responsible Marketers*, 7(4), 35-40.
521. Elliott, C. (2008). Marketing Fun Foods: A Profile and Analysis of Supermarket Food Messages Targeted at Children. *Canadian Public Policy*, 34(2), 259-274.
522. Kuhle, S. & Veugelers, P. J. (2008). Why does the social gradient in health not apply to overweight? *Health Reports*, 19(4), 1-64.
523. Kant, A. K. & Graubard, B. I. (2004). Eating out in America, 1987-2000: trends and nutritional correlates. *Preventive Medicine*, 38(2), 243-249.
524. Binkley, J. K., Eales, J., & Jekanowski, M. (2000). The relation between dietary change and rising US obesity. *International Journal of Obesity*, 24(8), 1032-1039.
525. Canadian Association of Paediatric Health Centres, Canadian Institutes of Health Research: Institute of Nutrition, Metabolism and Diabetes, & Paediatric Chairs of Canada. (2004). *Addressing Childhood Obesity: The Evidence for Action*.
526. Wrotniak, B. H., Epstein, L. H., Paluch, R. A., & Roemmich, J. N. (2004). Parental Weight Change as a Predictor of Child Weight Change in Family-Based Behavioral Obesity Treatment. *Archives of Pediatric & Adolescent Medicine*, 158(4), 342-347.
527. Golan, M., Weizman, A., Apter, A., & Fainaru, M. (1998). Parents as the exclusive agents of change in the treatment of childhood obesity. *American Journal of Clinical Nutrition*, 67(6), 1130-1135.
528. Oude Luttikhuis, H., Baur, L., Jansen, H., Shrewsbury, V. A., O'Malley, C., Stolk, R. P., and Summerbell, C. D. (2009). Interventions for treating obesity in children (Review). *Cochrane Database of Systematic Reviews* 2009, Issue 1. Art. No.: CD001872.
529. Simonetti D'Arca, A., Tarsitani, G., Cairella, M., Siani, V., De Filippis, S., Mancinelli, S. et al. (1986). Prevention of obesity in elementary and nursery school children. *Public Health*, 100(3), 166-173.
530. Kropski, J. A., Keckley, P. H., & Jensen, G. L. (2008). School-based obesity prevention programs: An evidence-based review. *Obesity*, 16(5), 1009-1018.
531. Stone, E. J., McKenzie, T. L., Welk, G. J., & Booth, M. L. (1998). Effects of physical activity interventions in youth. *American Journal of Preventive Medicine*, 15(4), 298-315.
532. Wright, J. (2006). *Environmental Scan: Physical Education, Mandated Physical Activity, Non-mandated Physical Activity, Sport and Surveillance and Monitoring Activities in Canada*. (Canadian Association for Health, Physical Education, Recreation and Dance).
533. Ontario Ministry of Education. (2006). *Daily Physical Activity in Schools - Guide for School Boards*.
534. Canadian Association for Health, P. E. R. D. (2006-04-21). *Quebec Ministry of Education Commended for its Focus on Children's Quality Physical Education*. Retrieved on May 12, 2009, from <http://www.cahperd.ca/membersonly/e/intouch/documents/CAHPERD.pdf>
535. Datar, A. & Sturm, R. (2004). Physical education in elementary school and body mass index: evidence from the early childhood longitudinal study. *American Journal of Public Health*, 94(9), 1501-1506.
536. Summerbell C.D., Waters E., Edmunds L.D., Kelly S., Brown T., and Campbell K.J. (2005). Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews* 2005, Issue 3. Art. No.: CD00187. DOI 10.1002/14651858.CD001871.pub2.
537. Gortmaker, S. L., Sobol, A. M., Peterson, K., Weicha, J., Dixit, S., Fox, M. K. et al. (1999). Reducing obesity via a school-based interdisciplinary intervention among youth. *Archives of Pediatric & Adolescent Medicine*, 153(4), 409-418.
538. Annapolis Valley Regional School Board. (2009). *Annapolis Valley Health Promoting School Project*. Retrieved on February 19, 2009, from http://www.avrsb.ednet.ns.ca/main/index.php?pagecontentid=230&p_type=1
539. Public Health Agency of Canada. (2009-04-20). *Annapolis Valley Health Promoting Schools*. Retrieved on July 23, 2009, from <http://cbpp-pcpe.phac-aspc.gc.ca/intervention/291/view-eng.html>
540. Veugelers, P. J. & Fitzgerald, A. L. (2005). Effectiveness of school programs in preventing childhood obesity: a multilevel comparison. *American Journal of Public Health*, 95(3), 432-435.
541. Canada in motion. (2009). *Canada in motion: Physical Activity - do it for life*. Retrieved on March 27, 2009, from http://www.canadainmotion.ca/in_motion_national_inst/
542. Saskatoon Regional Health Authority. (2005). *Saskatoon in motion: Five Years In The Making*.

References

543. Public Health Agency of Canada. (2002-09-20). *Activity Guidelines*. Retrieved on May 29, 2009, from http://www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/children/guidelines.html
544. Saskatoon Regional Health Authority. (2003). *Children and Youth*. Retrieved on May 5, 2009, from http://www.canadainmotion.ca/get_in_motion/
545. Smart Risk. (n.d.). *About Smartrisk No Regrets*. Retrieved on October 23, 2008, from http://www.smartrisk.ca/youth/smartrisk_no_regrets/about_smartrisk_no_regrets.html
546. Smart Risk. (n.d.). *About Smartrisk*. Retrieved on October 23, 2008, from http://www.smartrisk.ca/about_us/about_smartrisk/about_smartrisk.html
547. Ungar, M. (2007). *Too safe for their own good: How risk and responsibility help teens thrive*. (Toronto: McClelland and Stewart).
548. Health Canada. (2005-07-19). *Sudden Infant Death Syndrome "Back to Sleep" Campaign*. Retrieved on January 19, 2009, from <http://www.hc-sc.gc.ca/ahc-asc/activit/marketsoc/camp/sids-eng.php>
549. Hauck, F. R. & Tanabe, K. O. (2008). International Trends in Sudden Infant Death Syndrome: Stabilization of Rates Requires Further Action. *Pediatrics*, 122(3), 660-666.
550. Impact the injury prevention centre of Children's Hospital. (n.d.). *A Review of Best Practices Preventing Suffocation and Choking Injuries in Manitoba*.
551. Ehiri, J. E., Ejere, H. O. D., Magnussen, L., Emusu, D., King, W., & Osberg, J. S. (2006). Interventions to increase booster seat use among 4-8 year olds: A Cochrane review. *International Journal of Epidemiology*, 35(5), 1136-1139.
552. Gielen, A. C. & Sleet, D. (2004). Application of Behavior-Change Theories and Methods to Injury Prevention. *Epidemiologic Reviews*, 25(1), 65-76.
553. McGinnis, J., Williams-Russo, P., & Knickman, J. (2002). The Case for More Active Policy Attention to Health Promotion. *Health Affairs*, 21(2), 78-93.
554. Safe Kids Canada. (2009-06-04). *Safe Kids Canada*. Retrieved on June 4, 2009, from <http://www.safekidscanada.ca/safekidsCanada/>
555. Think First. (n.d.). *About Us*. Retrieved on June 4, 2009, from <http://www.thinkfirst.ca/aboutus/index.aspx>
556. Safe Kids Canada. (2008). *Child Passenger Safety*. Retrieved on October 24, 2008, from <http://www.safekidscanada.ca/SKCPublicPolicyAdvocacy/section.asp?s=Child%2BPassenger%2BSafety&sID=15073>
557. Wesson, D. E., Stephens, D., Lam, K., Parsons, D., Spence, L., & Parkin, P. C. (2008). Trends in Pediatric and Adult Bicycling Deaths Before and After Passage of a Bicycle Helmet Law. *Pediatrics*, 122(3), 605-610.
558. MacPherson, A. K., To, T. M., MacArthur, C., Chipman, M. L., Wright, J. G., & Parkin, P. C. (2002). Mandatory Helmet Legislation and Bicycle-Related Head Injuries in Children. *Pediatrics*, 110(5), e60.
559. Health Canada. (2006-07-10). *Playground Equipment*. Retrieved on December 9, 2008, from <http://www.hc-sc.gc.ca/cps-spc/sport/equip-play-jeu/index-eng.php>
560. Howard, A. W., MacArthur, C., Willan, A., Rothman, L., Moses-Mckeag, A., & MacPherson, A. K. (2005). The effect of safer play equipment on playground injury rates among school children. *Canadian Medical Association Journal*, 172(11), 1443-1446.
561. Hemenway, D. (2008). Protecting Children from Firearm Violence. In *Big Ideas for Children: Investing in Our Nation's Future* (pp. 203-210). (Washington D.C.: First Focus).
562. World Health Organization & UNICEF. (2008). *World report on child injury prevention*. (Geneva: World Health Organization).
563. Bergman, A. B. & Rivara, F. P. (1991). Sweden's Experience in Reducing Childhood Injuries. *Pediatrics*, 88(1), 69-74.
564. Bergman, A. B. (2000). Ragnar Berfenstam's Legacy. *Injury Prevention*, 6(4), 4.
565. Ramsay, S. (2001). Child-injury death rates - do international comparisons help? *The Lancet*, 357(9254), 454.
566. Statistics Canada. (2008). *Canadian Demographics at a Glance*.
567. Keon, W. J. & Pépin, L. (2009). *A Healthy Productive Canada: A Determinant of Health Approach*. (Ottawa: Standing Committee on Social Affairs, Science and Technology).

References

568. Public Health Agency of Canada. (2009-04-22). *Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)*. Retrieved on July 28, 2009, from <http://www.phac-aspc.gc.ca/injury-bles/chirpp/index-eng.php>
569. Attaran, A. (2008). A legislative failure of epidemic proportions. *Canadian Medical Association Journal*, 179(1), 9.
570. University of Manitoba. (2003). *POPULIS - What is it anyway?* Retrieved on July 29, 2009, from <http://mchp-appserv.cpe.umanitoba.ca/concept/populis.html>
571. Pronovost, G. (2003). Le congé parental en Suède. *Bulletin de Recherche Sur La Famille*, 4(1), 12.
572. Melhuish, E., Belsky, J., Leyland, A. H., & Barnes, J. (2008). Effects of fully-established Sure Start Local Programmes on 3-year-old children and their families living in England: a quasi-experimental observational study. *The Lancet*, 372, 1641-1647.
573. Hancock, T. (2009). *Act Locally: Community-based population health promotion*.
574. Communications Branch, I. A. N. A. C. (2002). *Words First: An Evolving Terminology Relating to Aboriginal Peoples in Canada*.
575. Public Health Agency of Canada. (2003-09). *Canadian Community Health Survey Cycle 1.2 Public Use Microdata File (PUMF) User Guide*. Retrieved on December 12, 2008, from http://www.statcan.gc.ca/imdb-bmdi/instrument/5015_Q1_V1-eng.pdf
576. Mathers, C. & Leonardi, M. (2000). *Global Burden of Disease 2000. Global burden of dementia in the year 2000: Summary of methods and data sources*. (World Health Organization).
577. Public Health Agency of Canada. (2008-06-05). *Canadian Community Health Survey Cycle 4.1 Public Use Microdata File (PUMF) User Guide*. Retrieved on December 12, 2008, from http://www.statcan.gc.ca/imdb-bmdi/instrument/3226_Q1_V4-eng.pdf
578. Canadian Cancer Society, National Cancer Institute of Canada, Public Health Agency of Canada, Statistics Canada, & Provincial/Territorial Cancer Registries. (2008). *Canadian Cancer Statistics 2008*.
579. Public Health Agency of Canada. (2008-05-28). *Reported cases of notifiable STI from January 1 to June 30, 2007 and January 1 to June 30, 2008 and corresponding annual rates for the years 2007 and 2008*. Retrieved on March 25, 2009, from <http://www.phac-aspc.gc.ca/std-mts/stdcases-casmts/cases-cas-08-eng.php>
580. Public Health Agency of Canada. (2005-06). *Canadian Community Health Survey Cycle 3.1 Public Use Microdata File (PUMF) User Guide*. Retrieved on December 12, 2008, from http://www.statcan.gc.ca/imdb-bmdi/instrument/3226_Q1_V3-eng.pdf
581. Statistics Canada. (2009-03-30). *CANSIM Table 102-0529 Deaths, by cause, Chapter IX: Diseases of the circulatory system (I00 to I99), age group and sex, Canada, annual* [Data File]. Retrieved on March 30, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020529&Array_Pick=1&RootDir=CII/&ResultTemplate=CII\CII___
582. Statistics Canada. (2007-04-27). *CANSIM Table 105-0460 Contact with dental professionals in the past 12 months, by age group and sex, household population aged 12 and over, Canada, provinces, territories, health regions (June 2005 boundaries) and peer groups, every 2 years* [Data File]. Retrieved on November 21, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII\CII___&Array_Pick=1&ArrayId=1050460
583. Health Canada. (2008-08-26). *Canadian Tobacco Use Monitoring Survey (CTUMS) 2007 - Table 1. Smoking status and average number of cigarettes smoked per day, by age group and sex, age 15+ years, Canada 2007*. Retrieved on August 25, 2008, from http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/_ctums-esutc_2007/ann-table1-eng.php
584. New Brunswick Family and Community Services. (n.d.). *Greater Opportunities for New Brunswick Children: An Early Childhood Development Agenda*.
585. Statistics Canada. (2007-07-13). *Definitions, data sources and methods - Health Status*. Retrieved on November 21, 2008, from <http://www.statcan.ca/english/freepub/82-221-XIE/2007001/defin/defin1.htm>
586. Statistics Canada & Human Resources and Social Development Canada. (2006). *National Longitudinal Survey of Children & Youth. Cycle 6 Survey Instruments 2004/2005. Book 1 - Parent, Child & Youth*.
587. Environment Canada. (2009-03-12). *Canadian Environmental Sustainability Indicators 2008*. Retrieved on March 12, 2009, from <http://ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=4B5631F9-1>
588. Statistics Canada. (2009-03-02). *CANSIM Table 282-0004 - Labour force survey estimates (LFS), by educational attainment, sex and age group, annual* [Data File].
589. Health Canada. (2007). *Canadian Addiction Survey - A National Survey of Canadians' Use of Alcohol and Other Drugs*.

References

590. Statistics Canada. (2008-07-25). *Immigration*. Retrieved on November 21, 2008, from <http://www.statcan.ca/english/concepts/definitions/immigration.htm>
591. Statistics Canada. (2007-11-20). *Profile of Language, Immigration, Citizenship, Mobility and Migration for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2006 Census* [Data File]. Retrieved on November 21, 2008, from <http://www12.statcan.ca/english/census06/data/profiles/release/RetrieveProductTable.cfm?TPL=RETR&ALEVEL=3&APATH=3&CATNO=&DETAIL=0&DIM=&DS=99&FL=0&FREE=0&GAL=0&GC=99&GK=NA&GRP=1&IPS=&METH=0&ORDER=1&PID=89770&PTYPE=89103&RL=0&S=1&ShowAll=No&StartRow=1&UB=0&Temporal=2006&Theme=70&VID=0&VNAMEE=&VNAMEF=>
592. Statistics Canada. (2008-07-28). *Place of Birth*. Retrieved on November 21, 2008, from <http://www.statcan.ca/english/concepts/definitions/birth.htm>
593. Statistics Canada. (2009-04-27). *CANSIM Table 102-0507 Infant mortality, by age group, Canada, provinces and territories, annual* [Data File]. Retrieved on April 27, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1020507
594. Statistics Canada. (2009-03-30). *CANSIM Table 102-0522 Deaths, by cause, Chapter II: Neoplasms (C00 to D48), age group and sex, Canada, annual* [Data File]. Retrieved on March 30, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020522&Array_Pick=1&RootDir=CII/&ResultTemplate=CII\CII___
595. Ellison, L. F. & Wilkins, K. (2009). Cancer prevalence in the Canadian population. *Health Reports*, 20(1), 7-19.
596. Human Resources and Social Development Canada, Public Health Agency of Canada, & Indian and Northern Affairs Canada. (2007). *The Well-Being of Canada's Young Children: Government of Canada Report 2008*.
597. Statistics Canada. (2008). *Births, 2006*.
598. Statistics Canada. (2009-06-24). *CANSIM Table 105-0407 Measured adult body mass index (BMI), by age group and sex, household population aged 18 and over excluding pregnant females, Canadian Community Health Survey (CCHS 3.1), Canada, every 2 years* [Data File]. Retrieved on June 13, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1050407
599. Statistics Canada. (2008). Quarterly Demographic Estimates, January to March 2008. *Quarterly Demographic Estimates*, 22(1), 1-99.
600. Statistics Canada. (2007-05-11). *CANSIM Table 102-0311 Potential years of life lost, by selected causes of death and sex, population aged 0 to 74, three-year average, Canada, provinces, territories, health regions and peer groups, occasional* [Data File]. Retrieved on December 12, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1020311
601. Statistics Canada. (2008-12-04). *CANSIM Table 102-0110 Potential years of life lost, by selected causes of death (ICD-10) and sex, population aged 0 to 74, Canada, provinces and territories, annual* [Data File]. Retrieved on November 4, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1020110
602. Public Health Agency of Canada. (1999-06-16). *Measuring Up: A Health Surveillance Update on Canadian Children and Youth - Preterm Birth*. Retrieved on July 26, 2009, from http://www.phac-aspc.gc.ca/publicat/meas-haut/mu_d_e.html
603. Statistics Canada. (2009-03-30). *CANSIM Table 102-0530 Deaths, by cause, Chapter X: Diseases of the respiratory system (J00 to J99), age group and sex, Canada, annual* [Data File]. Retrieved on March 30, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&ArrayId=1020530&Array_Pick=1&RootDir=CII/&ResultTemplate=CII\CII___
604. Public Health Agency of Canada. (2002-09-02). *Sudden Infant Death Syndrome (SIDS)*. Retrieved on January 13, 2009, from <http://www.phac-aspc.gc.ca/dca-dea/prenatal/sids-eng.php>
605. Statistics Canada. (2008-10-17). *CANSIM Table 106-9002 Pregnancy outcomes, by age group, Canada, provinces and territories, annual* [Data File]. Retrieved on January 8, 2009, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.exe?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1069002
606. Statistics Canada. (2007-09-05). *Urban Area*. Retrieved on November 24, 2008, from <http://www12.statcan.ca/english/census06/reference/dictionary/geo049.cfm>

References

607. Statistics Canada. (2009-06-26). *CANSIM Table 105-0501 Health indicator profile, annual estimates, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, occasional* [Data File]. Retrieved on July 16, 2008, from http://cansim2.statcan.ca/cgi-win/cnsmcgi.pgm?Lang=E&RootDir=CII/&ResultTemplate=CII/CII___&Array_Pick=1&ArrayId=1050501
608. Dauvergne, M. (2008). Crime Statistics in Canada, 2007. *Juristat*, 28(7), 1-17.

