

FEDERAL/PROVINCIAL/TERRITORIAL
EARLY CHILDHOOD DEVELOPMENT AGREEMENT

THE WELL-BEING OF CANADA'S
YOUNG CHILDREN:

GOVERNMENT OF CANADA REPORT
2003



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PREFACE

In September 2000, the Government of Canada, in partnership with provincial and territorial governments, reached an agreement to improve and expand the services and programs they provide for children under 6 years of age and their families.¹ In the Federal/Provincial/Territorial Early Childhood Development Agreement, Canada's First Ministers committed to help young children reach their potential, and to help families and the communities in which they live support their children.

Under the Agreement, governments committed to report regularly to Canadians on outcome indicators of young children's well-being. Governments identified a common set of 11 indicators of well-being which provide valuable information on the physical health and early development of young children in Canada.

This report fulfills the Government of Canada's commitment to report on the well-being of Canada's young children. This is the second outcome indicators report published by the Government of Canada; the first *The Well-Being of Canada's Young Children: Government of Canada Report 2002* was released on November 20, 2002.

This report provides a discussion of the environment in which young Canadian children are growing up and the impact it has on their well-being. In particular, the report focuses on two aspects of environment—the physical environment (including food, air, water and soil) and the family environment. In addition, the report continues to monitor the indicators set out by the Government of Canada in last year's report, *The Well-Being of Canada's Young Children: Government of Canada Report 2002*. In addition to the common set of indicators of children's physical health and early development agreed to by all governments, this report also includes measures of key family and community influences on child well-being. The data presented in this report are for 2000–2001, building on the 1998–1999 baseline established last year. Future reports will continue to report on these indicators to allow for more detailed tracking over time.

As part of their commitment to public reporting in the Early Childhood Development Agreement, governments also agreed to report annually to Canadians on their progress in enhancing early childhood development programs and services.

As a complement to the information in this report, the reader may wish to refer to *Early Childhood Development Activities and Expenditures: Government of Canada Report 2002–2003*, which provides information on the progress the Government of Canada has made in enhancing early childhood development programs and services. This report also includes the Government of Canada's baseline report on early learning and child care programs and services as agreed to in the March 2003 Multilateral Framework on Early Learning and Child Care.

¹ While the Government of Quebec supports the general principles of the ECD Agreement, it did not participate in developing this initiative because it intends to preserve its sole responsibility on social matters. However, Quebec receives its share of federal funding and the Government of Quebec is making major investments toward programs and services for families and children.





Chapter 1: INTRODUCTION

The Early Childhood Development Agreement

In September 2000, the Government of Canada, in partnership with provincial and territorial governments reached an agreement to improve and expand the services and programs they provide for children under the age of 6 and their families. The Early Childhood Development Agreement is a long-term commitment to help young children reach their full potential, and to help families support their children.

As part of this agreement, governments committed to keeping the public apprised of progress in the area of early childhood development. Specifically, First Ministers committed to report on investments in early childhood development programs and services as well as on child well-being.

In the fall of 2002, federal, provincial and territorial governments began regular reporting on child well-being using an agreed upon set of common indicators. Reporting on child well-being is helping to build public awareness of how young children are faring in Canada, as well as demonstrating governments' continuing commitment to meet the objectives of the Early Childhood Development Agreement.

This report fulfills the Government of Canada's commitment to report on how young children in Canada are developing.

“Providing children with a safe and nurturing environment, investing in their health and education, and promoting secure families are all critical to children’s sound development and ability to learn.”

Federal Budget, February 28, 2000

Environmental Influences on Young Children’s Well-Being

The time from conception to entry into Grade 1 shapes children’s early development and sets the foundation for later learning, behaviour and health.² Early experiences can exert a powerful influence on later well-being, building coping abilities and competencies and helping make children physically strong and emotionally healthy.

As they are developing, children are extremely sensitive to the environments around them. Subtle changes can have significant impacts on a child’s development. Understanding the key factors that influence child development can help society make choices that build supportive environments for children.

² M. McCain and F. Mustard, *Early Years Study* (Toronto: Government of Ontario, 1999).

The National Children's Agenda, developed in partnership by federal, provincial and territorial governments, sets out a shared vision for children in Canada. This vision identifies five key environmental influences that affect children's development: biological inheritance; family; child care and school; physical and community environments; and society. This report focuses on two of these influences—physical environment and family.

The physical environment greatly affects the health and well-being of young children. Access to clean air, food, and water all have an impact on healthy child development.

The family environment is also instrumental in ensuring positive child well-being. Parents and families play the primary role in children's lives. How a family functions, including parenting practices and lifestyle are key in shaping how a child develops.

Format of the Report

Chapter 2, "The Physical Environment and Its Impact on Child Well-Being" provides an overview of key elements of the physical environment and its potential effect on the health and development of young children. Chapter 3, "The Family Environment and Its Impact on Child Well-Being" presents a discussion of the key elements of family life, focusing on family dynamics, income, maternal education and family structure, and their impacts on young children's well-being.

The report also continues to monitor the well-being of young children in Canada. Chapter 4 of the report begins to track the indicators set out by the Government of Canada in *The Well-Being of Canada's Young Children: Government of Canada Report 2002*. These indicators expand upon the common set of 11 indicators of physical health and development identified by governments to include measures of key family and community determinants.

Chapter 5 provides a brief overview of recent information and research about the perinatal health of children living in First Nations communities.

Chapter 6 presents a summary discussion of recent survey information about young children with disabilities in Canada.

The Early Childhood Development Agreement – Common Indicators of Young Children's Well-Being

Physical Health and Motor Development

- Healthy Birthweight
- Incidence of Meningococcal Group C Disease
- Incidence of Measles
- Incidence of Haemophilus Influenzae–b (Hib)
- Infant Mortality Rate
- Motor and Social Development

Emotional Health

- Emotional Problem–Anxiety
- Hyperactivity–Inattention
- Physical Aggression–Conduct Problem

Social Knowledge and Competence

- Personal–Social Behaviour

Cognitive Learning and Language Communication

- Language





Chapter 2: THE PHYSICAL ENVIRONMENT AND ITS IMPACT ON CHILD WELL-BEING³



In the past few years, there has been growing international concern about the effects of the physical environment on children's health.

In 1997, the G8 Environment Ministers acknowledged that environmental hazards pose significant threats to the health of children throughout the world. They also committed to working together to address these issues. Four years later, in 2001, these same Ministers pledged to "develop policies and implement actions to provide children with a safe environment, including during prenatal and postnatal development". Canada, the United States and Mexico, through the Commission for Environmental Cooperation, have committed to working together on the trilateral Cooperative Agenda for Children's Health and the Environment in North America (2002).

This chapter summarizes how hazards in the physical environment, including chemical contaminants and biologic agents (molds, mildew, bacteria, house-dust, mites, etc.), can affect the health of young children in Canada. It draws from national data on Canadian children whenever possible. Relevant information from other countries has also been included.

The first section of the chapter outlines why it is important to understand the links between environmental hazards and children's health. Subsequent sections summarize available scientific information on children's exposures to hazards in the physical environment and potential health effects.

Why Are Children Uniquely Vulnerable to Environmental Hazards?

Recent scientific evidence indicates that children are more vulnerable to environmental hazards than adults because of their unique patterns of exposure behaviours, as well as their rapid growth and physiological development. There is also increasing evidence that child health is a determinant of adult health.

Children's exposures are often greater and/or different than those of adults. On a weight-for-weight basis, children eat more food, drink more water and breathe more air than adults because their metabolic rates are much higher. Therefore, if the food, water or air around them contains harmful substances, children will experience higher levels of exposure. Children's behaviours can also increase their exposures. Young children tend to play on the ground and often put dirty objects in their mouths. As a result, children's ingestion of soil and dust is higher than adults'. Also, a child's "breathing zone" is closer to the ground, where levels of particulate matter⁴ and some chemicals may be higher.⁵

³ Acknowledgement for the development of this chapter is extended to Kate Davies.

⁴ Particulate matter comprises solid, liquid, or mixed particles suspended in air with variable size, composition and origins. D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

⁵ D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

Rapid growth is a key factor in the greater risk children face from environmental hazards. Typically, infants double their birth weight within the first 4–6 months of life, and triple it by their first birthday.⁶ Cells that are growing and dividing most rapidly are more likely to be affected by environmental contaminants than those that are less active.⁷ Children's physiology is also different. For example, children are more susceptible to the effects of some toxic chemicals because their blood-brain barrier is more permeable than adults. They have immature immune and detoxification systems, and are less able to cope with environmental exposures. They also absorb more lead and other substances through the gastrointestinal tract than adults.⁸

Fetal Exposure

The fetus is especially vulnerable to chemicals that can cross the placenta and enter the fetal bloodstream, including polychlorinated biphenyls (PCBs),⁹ lead and alcohol.¹⁰ Several studies have shown a relationship between the mother's exposure to environmental contaminants during and before pregnancy and subtle neurodevelopmental effects in infants.¹¹ But it is not just the types and dose of hazardous agents that are important in determining whether there is a health effect or not—the timing of the exposure may also be critically important. There are “windows of susceptibility” during pregnancy for exposure to some environmental contaminants.

Some groups of children are especially vulnerable to the effects of environmental hazards, such as those with an underlying disease or those living in poverty. For example, several chronic diseases, including asthma and cystic fibrosis, are worsened by exposure to poor air quality.¹² Children living in low-income families are more likely to grow up in neighbourhoods adjacent to polluting industries and major roads.¹³

Taken together, these factors highlight the need for information on hazards in the physical environment and how they affect children's health.

⁶ World Health Organization Working Group on Infant Growth, 1994. *An Evaluation of Infant Growth*. Nutrition Unit, (WHO), Geneva.

⁷ G. W. Chance and E. Harmsen, “Children are Different: Environmental Contaminants and Children's Health,” *Canadian Journal of Public Health* 89, 1 (1998): S9–13.

⁸ D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

⁹ PCBs have a wide variety of industrial uses including as sealants, lubricants and electrical equipment. They have been linked to neurodevelopmental delay in children exposed in utero.

¹⁰ J. W. Hanson, A. P. Streissguth and D. W. Smith, “The Effects of Moderate Alcohol Consumption During Pregnancy on Fetal Growth and Morphogenesis,” *Journal of Pediatrics* 92 (1978): 457–460.

¹¹ See section on neurodevelopmental effects.

¹² D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

¹³ N. Chaudhuri, “Child Health, Poverty and the Environment: The Canadian Context,” *Canadian Journal of Public Health* 89, Suppl. 1 (1998): 26–30.

How Are Children Exposed to Environmental Hazards?

Young children can be exposed to environmental hazards in many different ways. The following section outlines the ways in which children are exposed to these hazards in the natural and indoor environments.

The Natural Environment

The environment plays a crucial role in the healthy growth and development of children, and enhances their quality of life. In the natural environment, children can be exposed to environmental hazards in the air they breathe, the water they drink, the food they eat, and even the soil they come into contact with.

Outdoor Air Quality

In 2000, Canada set new emission standards for the major components of smog (particulate matter and ozone) to be achieved by 2010. Several regions of Canada require major improvements in air quality to achieve these goals. However, most areas are below the maximum acceptable guidelines for other pollutants.

Air pollution is primarily associated with everyday human activities. Pollutants are released by motor vehicles, industrial processes (pulp and paper mills, ore smelters, petroleum refineries, power generating stations and incinerators), and the burning of fossil fuels such as gas, oil, coal and wood.

The most commonly measured outdoor air pollutants in Canada include ground level ozone, particulate matter, carbon monoxide, sulphur dioxide and nitrogen oxides. These substances are the principal ingredients or precursors of smog, and some also contribute to acid rain.

The types of health outcomes associated with air pollution in children (Table 1) are similar to those in adults, but children are more vulnerable. This is because children tend to play outdoors and are more active than adults. Moreover, children have a higher metabolic rate than adults, resulting in a threefold higher intake of air per unit weight per day. Because children's lungs are still developing, damage from repeated exposure to air pollutants can impede lung development and may lead to chronic lung disease later in life.¹⁴

¹⁴ W. J. Gauderman, G. F. Gilliland, et al., "Association Between Air Pollution and Lung Function Growth in Southern California Children: Results From a Second Cohort," *Am. J. Respir. Crit. Care Med.* 166, 1 (July 1, 2002): 76–84.

Table 1: Health Outcomes Associated with Common Air Pollutants¹⁵

Air Pollutant	Health Outcomes
Particulate Matter	Increased mortality risk Reduced lung function and growth Worsens asthma Increased hospitalization for heart and lung disease and respiratory illness
Ground Level Ozone	Lung irritation and inflammation Reduced lung function Cough, chest pain, shortness of breath Reduced ability to exercise Worsens asthma and bronchitis Increased mortality risk Increased hospitalization for heart and lung disease and respiratory conditions
Carbon Monoxide	Reduced capacity of the blood to carry oxygen Reduced capacity to exercise Reduced time to onset of angina pain Neurobehavioural effects
Sulphur Dioxide	Worsens asthma Wheezing, chest tightness, shortness of breath
Nitrogen Oxides	Decreased lung function Cough, chest pain, shortness of breath Increased hospitalization for asthma

Water Quality

Access to a safe and adequate supply of water for drinking, cooking and washing is essential for healthy child development. Safe drinking water is especially important for children's health because they drink more than two and half times more water than adults.¹⁶ Young children can be exposed to water-borne chemical and biologic pollutants through the consumption of contaminated water, or in some cases by absorbing chemical contaminants from water directly through their skin during recreational activities such as swimming or playing in water.

¹⁵ Based on information in US Environmental Protection Agency, *America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illness*, Second Edition, 2003.

¹⁶ WHO UN Children's Fund 2000 Water Supply and Sanitation Assessment.

Today, about 87% of Canadians and their children receive treated municipal drinking water in their homes, resulting in one of the lowest rates of serious water-borne disease in the world.¹⁷ In Canada, the most common bacteria found in untreated water include *Campylobacter*, *Escherichia coli* (E. Coli), *Salmonella* and *Shigella*.¹⁸ In 1996, *Campylobacter* was the most common enteric disease brought to the attention of public health authorities,¹⁹ followed by *Salmonella* and *Giardia* (a parasite).²⁰ Rates of reported *Salmonella* infection are higher in infants under one year of age than in any other age group and *Campylobacter*, *Shigella*, *Giardia* and *E. coli* O157²¹ infections are reported more often for children 1–4 years of age than for any other group.²² Infections from these organisms can also come from food, and it is difficult to identify from sources of data on enteric infections whether they arise from water or food-borne pathogens. Children who are at greater risk of exposure include those who do not receive treated municipal water, for example, children living in rural and remote regions of the country.

Levels of chemical contaminants in treated drinking water are usually below the minimum detection levels or very low. However, water from private wells on, or close to, farms can contain high levels of nitrates, which have been linked to blood disorders in very young infants.

Food Quality

In Canada, food is the main route of exposure to biologic and chemical contaminants. It is especially important for children because they eat three to four times more than an average adult in relation to their body weight.²³ Food-borne bacterial contamination results in over 10 000 reported cases of food-related illness in Canadian adults and children every year, and it is estimated that there may be as many unreported cases.²⁴ The leading causes of food-borne illness are *Salmonella*, *Campylobacter*, and *E. coli*. Most cases of illness could be prevented by proper food handling, storage and cooking.

Approximately 80%–90% of total daily exposure to persistent organic pollutants (POPs), such as PCBs, dioxins, and organochlorine pesticides, occurs through food.²⁵ However, levels of many POPs in the environment have decreased over the past decade. The Northern Contaminants Program has found that some Inuit women from the North who eat traditional foods have levels of certain POPs and mercury in their bodies that are above Health Canada guidelines. Their infants may experience subtle neurodevelopmental effects as a result of early exposures to these toxic substances. Although the consumption of

¹⁷ Health Canada, *Health and Environment: Partners for Life*, Catalogue Number H49-112/1997E, 1997.

¹⁸ Ibid.

¹⁹ An enteric disease is an infection in the intestinal tract. The most common symptom is diarrhea.

²⁰ *Statistical Report on the Health of Canadians*, Federal, Provincial, Territorial, Advisory Committee on Population Health, 1999.

²¹ *E. Coli* O157 is the most toxic form of *E. Coli* infection.

²² *Statistical Report on the Health of Canadians*, Federal, Provincial, Territorial, Advisory Committee on Population Health, 1999.

²³ US National Research Council, *Pesticides in the Diets of Infants and Children* (National Academy Press: Washington DC, 1993).

²⁴ Health Canada, *Health and Environment: Partners for Life*, Catalogue Number H49-112/1997E, 1997.

²⁵ Ibid.

traditional foods containing contaminants may be associated with greater exposures and health risks, diets containing these foods have substantial nutritional benefits and are the foundation of the social, cultural and spiritual way of life for Canada's Aboriginal peoples.²⁶

Research has shown the value of breastmilk for newborn's health and almost 80% of Canadian infants are breast fed at birth.²⁷ However, it can contain very low levels of POPs accumulated in the mother's body, including PCBs and even some pesticides. Health Canada has monitored levels of these chemicals in breast milk since 1967. The results show that levels have decreased over time.

Although infants can be exposed to POPs through breast milk, Health Canada, the World Health Organization (WHO), the Canadian Pediatric Society and the American Pediatric Society all state that breast feeding provides known health benefits that far outweigh the theoretical risks associated with current levels of contaminants in breast milk.²⁸

Soil and Dust

Infants and toddlers can ingest soil or dust by playing on the ground or by putting objects or their fingers into their mouths. It has been estimated that the average child ingests 0.1–0.2 milligrams of soil per day. However, children with “pica” (abnormal cravings for dirt or other non-food substances) can ingest from 5–10 grams of soil per day.²⁹

The ingestion of dust and soil is widely regarded as the key pathway for childhood exposure to lead and other metals. Concentrations of many key metals and metalloids—including lead, mercury, arsenic, cadmium, copper, zinc and antimony—are commonly elevated in indoor dust compared to exterior dust and soil in ordinary urban environments. The precise causes for this enrichment in household dust are, in most cases, unknown.³⁰ However, lead-based paint, used in older homes, contributes to lead levels in dust.

The Indoor Environment

Young children in Canada spend over 90% of their time indoors,³¹ primarily at home. The vast majority live in housing that meets or exceeds current standards for suitability, adequacy, affordability, and core need. Further work is needed to explore whether there is a causal relationship between housing and healthy child development.

²⁶ J. Van Oostdam, S. Donaldson, M. Feeley and N. Tremblay, *Canadian Arctic Contaminants Assessment Report II: Human Health*, Northern Contaminants Program, 2003.

²⁷ Human Resources Development Canada/Statistics Canada, *National Longitudinal Survey of Children and Youth, Cycle 3 (1998–1999)*.

²⁸ Health Canada, *Health and Environment: Partners for Life*, Catalogue Number H49-112/1997E, 1997.

²⁹ Ibid.

³⁰ P. E. Rasmussen, Subramanian, and B. J. Jessiman, “A Multi-Element Profile of Household Dust in Relation to Exterior Dust and Soils in the City of Ottawa, Canada,” *Science of the Total Environment* 267 (2001): 125–140.

³¹ D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

Indoor Air Quality

Indoor air pollution is one of the primary risks to public health.³² Table 2 shows the most common indoor air pollutants of concern to children and their sources.

Table 2: Selected Indoor Air Pollutants of Concern to Children³³

Contaminant	Potential Sources
Asbestos	Old insulation on heating pipes and equipment Some vinyl floor tiles Pre-1977 drywall joint-finishing materials Cement-asbestos millboard and exterior wall shingles Old (pre-1970s) finishing plaster
Combustion By-Products <ul style="list-style-type: none"> • Carbon monoxide (CO) • Nitrogen dioxide (NO₂) • Sulphur dioxide (SO₂) • Particulate soot • Nitrogenated compounds 	Gas stoves and appliances Wood and coal stoves Gas and propane engines Fireplaces Back-drafting of exhaust flues Candles and incense
Tobacco Smoke <ul style="list-style-type: none"> • CO • NO₂ • Carbon dioxide • Hydrogen cyanide • Nitrosamine • Aromatic Hydrocarbons • Benzo-(a)-pyrene • Particles • Benzene • Formaldehyde • Nicotine 	Cigarettes Pipes Cigars
Aldehydes	Some particle board, plywood, pressed board, paneling Some carpeting and carpet backing (especially new materials) Some furniture and dyed materials Some household cleaners and deodorizers Some glues and resins Tobacco smoke Permanent press textiles

³² Ibid.

³³ Adapted from J. M. Samet and J. D. Spengler, *Indoor Air Pollution – A Health Perspective* (Baltimore: The John Hopkins University Press, 1991). Cited in M. Raizenne, R. Dales and R. Burnett, "Air Pollution Exposures and Children's Health," *Canadian Journal of Public Health* 89, Suppl. 1 (1998): S43–48.

Biologic Agents <ul style="list-style-type: none"> • Fungal spores • Bacteria • Virus • Pollens • Arthropods • Protozoa 	Mold, mildew and other fungi Humidifiers and stagnant water Water-damaged surfaces and materials Condensing coils and drip pans in HVAC systems Drainage pans in refrigerators Some thermophilics on dirty heating coils Animals, rodents, insects Humans
Radon <ul style="list-style-type: none"> • Radon gas and radon progeny 	Soil- and water-derived radon gas Some building materials such as granite
Volatile Organic Compounds (VOCs) <ul style="list-style-type: none"> • Alkanes • Aromatic Hydrocarbons • Esters • Alcohols • Aldehyde • Ketones 	Solvents, fabric softeners, deodorizers and cleaning products Paints, glues, resins, stored gasoline, waxes and polishing materials Spray propellants, dry cleaning fluids Some fabrics and furnishings Pens and markers Binders and plasticizers

Environmental Tobacco Smoke

Environmental tobacco smoke is the most harmful of all indoor air pollutants. Its main impacts on child health include increased risk of middle ear infections, asthma, bronchiolitis, low birth weight, sudden infant death syndrome, and burns.³⁴

In 2001, 21% of Canadian children under 12 years of age were exposed to environmental tobacco smoke on a regular basis in their home. This figure represents just over 800 000 children. It is, however, a significant improvement from 1996–1997 when smoking occurred in 33% of homes with young children.³⁵

Biologic Agents

Biologic agents, including molds, mildew, bacteria, dust mites, pollen, pet dander, and arthropods (such as cockroaches) are a second major source of indoor air pollution. Molds and mildew thrive in moist environments such as kitchens, bathrooms and basements. They can cause allergic reactions in some children. One study of 30 Canadian

³⁴ Aligne and Stoddard, 1997 as cited in: D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

³⁵ Canadian Tobacco Use Monitoring Survey, 2001. Health Canada. Available at: <http://www.hc-sc.gc.ca/hecs-sesc/tobacco/research/ctums/2001/2001ets.html>

communities showed that rates of asthma, bronchitis, chest illness, wheeze, and cough were significantly higher in damp and moldy homes.³⁶ The presence of house dust mites, pet dander and cockroaches can also trigger allergic reactions, and are associated with exacerbation of asthma.³⁷

Pesticides

Young children can be exposed to pesticides at home and studies indicate that pesticide products are used in over 90% of households.³⁸ In one American study, more than 80% of the families surveyed used pesticides while someone in the house was pregnant and 70% used pesticides in the first six months of a child's life.³⁹ Tracking of pesticide-contaminated soil and dust into homes by pets and people is a major source of pesticide residues in house dust.⁴⁰ A recent article on children living in agricultural areas indicates that approximately 30% of the children had detectable concentrations of the herbicides 2,4-D or MCPA in their urine when these herbicides were used on their farm.⁴¹

Chemical Contaminants in Consumer Products

Occasionally, products intended for use by children have been found to contain chemical residues that could be harmful. For example, in the mid-1980s the use of diethylhexyl phthalate (DEHP) in soft vinyl children's products was phased out because of health concerns, and in 1998, Health Canada issued a Health Advisory regarding di-isonyl phthalate, which was used as a replacement for DEHP.⁴² Products affected by the Advisory included soft teethingers, rattles and other soft vinyl toys that very young children may chew or suck.

Young children can be exposed to chemical hazards in other types of products, especially those used to build, decorate or furnish the home. Particle-board, carpets, draperies, solvents, paints, glues and varnishes can all release volatile organic compounds, such as aldehydes, especially when they are new or newly applied. Children can also be exposed to low levels of the chemicals used in wood preservatives if they touch treated wood or ingest contaminated soils via hand-to-mouth activity. Although the health risks are very small,⁴³ the wood industry is phasing out—by the end of 2003—the use of copper chromated arsenate (CCA) to treat wood used for residential purposes.⁴⁴

³⁶ The Air Children Breathe: The Effects on their Health, 5. The Air Children Breathe – Indoors, Presentation by David Miller.

³⁷ D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

³⁸ Ibid.

³⁹ J. R. Davis, R. C. Brownson, and R. Garcia, "Family Pesticide Use in the Home, Garden, Orchard and Yard," *Archives of Environmental Contamination and Toxicology* 22 (1992): 260–266.

⁴⁰ D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

⁴¹ T. E. Arbuckle et al., *Epidemiology*: In Press.

⁴² http://www.hc-sc.gc.ca/english/protection/warnings/1998/98_85e.htm

⁴³ Capital Health, *Risk Evaluation of Arsenic Exposure in Playgrounds* (July 22, 2003).

⁴⁴ http://www.hc-sc.gc.ca/pmra-arla/english/pdf/fact/fs_cca-june2003-e.pdf

In recent years, levels of polybrominated diphenyl ethers (PBDEs) have increased significantly in the environment⁴⁵ and in human breast milk.⁴⁶ PBDEs are used to decrease the likelihood and intensity of fire in a wide variety of products, including vehicles, furniture, textiles, carpets, building materials, electronic circuit boards. They are suspected to disrupt thyroid metabolism and have adverse neurological effects,⁴⁷ but further research is needed to confirm these findings.

Measures of Health and Disease

It is often very difficult to establish that environmental hazards cause specific health problems in children. This is because most health problems can be caused by a variety of factors—not just exposures to environmental hazards. However, epidemiological and toxicological studies can provide information suggesting or indicating that environmental exposures play a role in causing disease. For example, a recent American study has estimated that 30% of all childhood asthma, 10% of neurobehavioural disorders, 5% of cancer and 100% of all childhood lead poisoning are related to environmental pollutants.⁴⁸

This report considers three measures of child health and disease that have been associated with environmental hazards: asthma, birth outcomes, and neurodevelopmental disorders.

Asthma

Air pollution and other environmental hazards are associated with several respiratory conditions, including exacerbation of asthma. Asthma can cause wheezing, difficulty in breathing, and chest pain. It is the most common chronic disease among children.⁴⁹

Susceptibility to asthma among children appears to be determined during fetal development and in the first 3–5 years of life. Air pollution is not likely to cause asthma on its own, but can make it worse. Other possible environmental risk factors include exposure to environmental tobacco smoke and airborne allergens such as molds, pet dander, house dust mites, and cockroaches.

Ten percent of young Canadian children from birth to 5 years of age were diagnosed with asthma in 2000–2001.⁵⁰ Asthma is a major cause of hospitalization for children in Canada, contributing to 12% of all admissions in the birth to 4 years age group. In 1998, children

⁴⁵ J. B. Manchester-Neesvig, K. Valters, and W. C. Sonzogni, “Comparison of Polybrominated Diphenyl Ethers (PBDEs) and Polychlorinated Biphenyls (PCBs) in Lake Michigan Salmonids,” *Environmental Science and Technology* 35: 1072–1077.

⁴⁶ D. Meironyté, Å. Bergman and K. Norén, *Organohalogen Compounds* Swedish Environmental Protection Agency: Stockholm, Sweden, Vol. 35 (1998).

⁴⁷ J. B. Manchester-Neesvig, K. Valters, and W. C. Sonzogni, “Comparison of Polybrominated Diphenyl Ethers (PBDEs) and Polychlorinated Biphenyls (PCBs) in Lake Michigan Salmonids,” *Environmental Science and Technology* 35: 1072–1077.

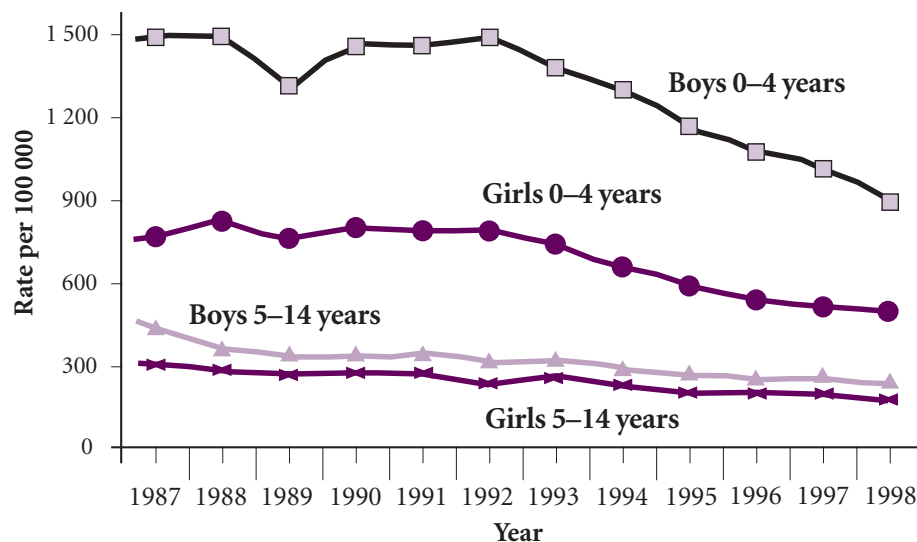
⁴⁸ Landrigan, et al., “Environmental Pollutants and Disease in American Children: Estimates of Morbidity, Mortality, and Costs for Lead Poisoning, Asthma, Cancer, and Developmental Disabilities,” *Environmental Health Perspectives* 110 (2002): 721–728.

⁴⁹ US EPA, *America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illness*, Second Edition (2003).

⁵⁰ Human Resources Development Canada/Statistics Canada, *National Longitudinal Survey of Children and Youth, Cycle 4 (2000–2001)*.

less than 5 years of age had the highest hospitalization rates resulting from symptoms of asthma of any age group, and boys of this age are more likely to be hospitalized than girls.⁵¹ However, hospitalization rates are now decreasing for both boys and girls (see Figure 1).

Figure 1: Asthma Hospitalization Rates (per 100 000) by Sex for Children from Birth to 4 Years of Age, 1987/88–1998/99 (standardized to 1991 Canadian population)⁵²



Source: Centre for Chronic Disease Prevention and Control, Health Canada using data from Hospital Morbidity File, Canadian Institute for Health Information.

Birth Outcomes

A healthy birth weight is a key determinant of child health. Low birth weight (less than 2 500 grams or about 5.5 pounds) can result in serious health problems and developmental delays. In 2000, 5.6% of all babies born in Canada had a low birth weight. More than half of all low birth weight babies are premature,⁵³ meaning they were born before 37 weeks of gestation.

⁵¹ Canadian Institute for Health Information. 2001. Respiratory Disease in Canada. Available at: <http://secure.cihi.ca/cihiweb/products/RespiratoryComplete.pdf>

⁵² Ibid.

⁵³ Statistics Canada, Canadian Vital Statistics – Birth Database.

An environmental factor that influences birth weight is maternal smoking. In 2000–2001, 18.5% of mothers of young children indicated that they had smoked during their pregnancy.⁵⁴ Other environmental factors that may be important include maternal exposure to PCBs, lead, some pesticides and outdoor air pollution.⁵⁵ One recent study in Canada's North found that prenatal exposure to PCBs decreased birth weight and length as well as duration of pregnancy.⁵⁶ These findings are consistent with previous studies conducted with other populations.⁵⁷

Neurodevelopmental Disorders

Studies suggest that between 3% and 8% of babies born each year in the United States will be affected by neurodevelopmental disorders.⁵⁸

Neurodevelopmental disorders are disabilities in the functioning of the brain and/or nervous system that affect behaviour, memory and/or the ability to learn. The causes of these problems are largely unknown. However, some studies have indicated that exposure to some environmental contaminants may play a role.

Exposure to lead, in pregnancy or early childhood, is associated with several neurodevelopmental effects, including learning problems, reduced intelligence and impaired cognitive development. It has also been linked with attention deficit/hyperactivity disorder, increased likelihood of dropping out of school, having a reading disability, lower vocabulary, lower class standing in school, and increases the risk of antisocial and delinquent behaviour.⁵⁹ Fortunately, average blood lead levels in most Canadian children have been dropping since the early 1970s, primarily because of the phase-out of leaded gasoline.

Neurodevelopmental effects have been reported in three major studies on children from New Zealand, the Seychelles, and the Faeroe Islands who were born to women who ate sea fish or mammals containing methylmercury during and before pregnancy.⁶⁰ The effects included reduced intelligence, inattentiveness and poor memory and the extent of the effects correlated with the mothers' exposures. The effects on children in New Zealand and the Faeroe Islands were still present at 7 years of age, while they had faded in the Seychelles

⁵⁴ Human Resources Development Canada/Statistics Canada, National Longitudinal Survey of Children and Youth, Cycle 4 (2000–2001).

⁵⁵ D. Wigle, *Child Health and the Environment* (New York: Oxford University Press, 2003).

⁵⁶ J. Van Oostdam, S. Donaldson, M. Feeley, and N. Tremblay, *Canadian Arctic Contaminants Assessment Report II: Human Health*, Northern Contaminants Program (2003).

⁵⁷ Ibid.

⁵⁸ B. Weiss and P. J. Landrigan, "The Developing Brain and the Environment: An Introduction," *Environmental Health Perspectives* 108, 3 (2000): 373–4.

⁵⁹ S.T. Wang, S. Pizzolato, H/P. Demshar and L. Smith, "Decline in Blood Lead in Ontario Children Correlated to Decreasing Consumption of Leaded Gasoline, 1983–1992," *Clinical Chemistry* 43 (1997):1251–1252.

⁶⁰ K. S. Crump, T. Kjellstrom, A. M. Shipp, A. Silvers, and A. Stewart, "Influence of Prenatal Mercury Exposure Upon Scholastic and Psychological Test Performance: Benchmark Analysis of a New Zealand Cohort," *Risk Analysis* 18, 6 (1998): 34–46; G. J. Myers, P. W. Davidson, C. Cox, C. F. Shamlaye, D. Palumbo et al., "Prenatal Methylmercury Exposure from Ocean Fish Consumption in the Seychelles Child Development Study," *Lancet* 361, 9370 (2003): 1686–92; U. Steuerwald et al., "Maternal Seafood Diet, Methylmercury Exposure, and Neonatal Neurological Function," *Journal of Pediatrics* 136 (2002): 599–605.

children whose mothers had lower mercury levels at the start of the study. Canadian studies of remote fishing communities in Northern Quebec have shown a correlation between immune system development and exposure in utero to methylmercury, PCBs, and lead.⁶¹

While studies have linked maternal consumption of foods contaminated with PCBs and measures of cognitive functioning in infancy or childhood, the mechanism of action is not clear.⁶² It may be that PCBs disrupt normal endocrine hormone metabolism, which may have an impact on neurodevelopment.

Conclusion

Studies are increasingly indicating that the physical environment significantly affects the health and development of children. Ongoing research will help to further our understanding of the linkages between environmental hazards and specific health problems in children.

Emerging Environmental Issues Impacting on Children: Climate Change

In Canada, the climate is a powerful and dynamic force in our physical environment. Canadian children are at risk of hypothermia from the extreme cold of winter in many parts of the country, as well as sunburn and dehydration in the very hot summers. In 1996, the Intergovernmental Panel on Climate Change stated: “the balance of evidence... suggests a discernible human influence on climate”.⁶³ Climate change is likely to cause direct and indirect effects on human health including increased health-related mortality, the spread of vector-borne diseases and changes in food production.⁶⁴ Children may be especially vulnerable to the effects of climate change because of their metabolism, physiology and behaviour, which includes long periods of outdoor play. As a northern country, Canada is likely to experience disproportionate climate change. Hence, the health effects experienced by Canadians and their children are likely to be more significant than those in many other countries at lower latitudes. Information is needed to understand more fully how climate change is likely to affect Canadian children.⁶⁵

⁶¹ M. Belles Isles, P. Ayotte, E. Dewailly, J. P. Weber, and R. Roy, “Cord Blood Lymphocyte Functions in Newborns From a Remote Maritime Population Exposed to Organochlorines and Methylmercury,” *Journal of Toxicology and Environmental Health* 65, 2 (2002): 165–182; G. Muckle, P. Ayotte, E. Dewailly, S. W. Jacobson, and J. L. Jacobson, “Prenatal Exposure of the Northern Quebec Inuit Infants to Environmental Contaminants,” *Environmental Health Perspectives* 109, 12 (2001): 1291–1299.

⁶² S. Schantz, J. Widholm, and D. Rice, “Effects of PCB Exposure on Neurophysiological Function in Children,” *Environmental Health Perspectives* 111 (2003): 357–376.

⁶³ IPCC, Climate Change 1995: IPCC Second Assessment Report. Vol. 1. *The Science of Climate Change*, J. T. Houghton et al., eds., (Cambridge: Cambridge University Press, 1996).

⁶⁴ A. Haines, A. J. McMichael, and P. Epstein, “Global Climate Change and Health,” Chapter 6 in: *Life Support: The Environment and Human Health*, M. McCally, ed., (Cambridge, MA: MIT Press, 2002).

⁶⁵ The Canadian Institute of Child Health has published a report *Changing Habits, Changing Climate: A Foundation Analysis* to provide background information for a public outreach strategy on climate change.



Chapter 3: THE FAMILY ENVIRONMENT AND ITS IMPACT ON CHILD WELL-BEING⁶⁶



Children are shaped by the world around them. For children under 6 years of age, nothing has greater influence on their development than their family. Families filter children's experiences with others and provide nurture and care that strongly influences early child development. Families determine the quality of a young child's world and shape the foundations for later development.

“Parents and families play the primary role in children’s lives, and a nurturing supportive family is the best foundation for good child development.”⁶⁷

This chapter provides an overview of what is known about the relationship between the family environment and young children's health and well-being. It examines key aspects of family functioning (including parenting and parental health), family income level, maternal education and family structure. Canadian research on the relationship between families and child well-being relies heavily on the National Longitudinal Survey of Children and Youth (NLSCY).⁶⁸ As new releases of data from the NLSCY become available, researchers will be able to build on the existing knowledge base and provide additional insight into the complex relationship between families and child well-being.

The Importance of Family Dynamics on the Well-Being of Young Children

Research has shown that family dynamics is one of the most important elements affecting healthy child development. Positive family functioning can help mitigate the influence of other factors in child development, such as family income and family structure.⁶⁹

Family functioning refers to how well family members communicate with each other, work together, and treat each other. It also has to do with how well family members function as a unit. While the majority of children grow up in families that are functioning well, there is a small percentage who do not.⁷⁰ Children living in dysfunctional families are about 35% more likely to display signs of problematic behaviour such as aggression or difficult

⁶⁶ Acknowledgement for the development of this chapter is extended to Kathleen Guy of Guy Associates and Jane Bertrand of the Atkinson Centre for Society and Child Development.

⁶⁷ Federal/Provincial/Territorial Council of Ministers on Social Policy Renewal, *A National Children's Agenda – Developing A Shared Vision* (Canada, 1999).

⁶⁸ In the NLSCY, the Person Most Knowledgeable about the Child (PMK), which is typically the mother, provides information for all selected children in the household, as well as the sociodemographic information about herself and her spouse. The latter information is used to describe the socioeconomic situation of the child's family. Only one PMK was selected per household.

⁶⁹ H. R. Schaffer, *Making Decisions About Children: Psychological Questions and Answers*, 2nd edition (Oxford: Blackwell, 1998).

⁷⁰ Human Resources Development Canada/Statistics Canada, National Longitudinal Survey of Children and Youth, Cycle 4 (2000–2001).

temperament than their counterparts living in families that are functioning well.⁷¹ This relationship between family functioning and behaviour problems is particularly evident when examining the display of signs associated with aggressive behaviours, such as getting into fights, kicking, biting and/or destroying belongings.

The Negative Impacts of Family Violence, Abuse and Neglect

Family violence can have long-lasting negative effects on children. Marital conflict that involves the child witnessing scenes of verbal and/or physical violence and discord has a direct negative effect on social development, as young children are highly sensitive to other people's emotions. A child who has witnessed scenes of violence in the home is more likely to exhibit hyperactive behaviour, to have emotional disorders, and to be physically aggressive.⁷²

Children who experience parental abuse and/or neglect are more likely to show negative child outcomes that carry forward into adult life. These children are more likely to exhibit problems with emotional regulation, self-concept, social skills and academic motivation. Over time, studies have reported that children who experience abuse often show serious learning and adjustment problems, including academic failure, severe depression, aggressive behaviour, peer difficulties, substance abuse, and delinquency.

The recent Canadian Incidence Study of Reported Child Abuse and Neglect⁷³ is the first nation-wide study to examine the incidence of reported child abuse and neglect. It reported that in 67% of all child welfare investigations for maltreatment in 1998, abuse or neglect were substantiated or suspected. However, this figure does not include the large number of unreported and unknown cases of child abuse and neglect. This study also found that most child maltreatment investigation involved allegations against parents.

⁷¹ Y. Racine and M. Boyle, "Family Functioning and Children's Behavior Problems," in *Vulnerable Children – Findings from Canada's National Longitudinal Survey of Children and Youth*, J. Doug Willms, ed. (Alberta: University of Alberta Press, 2002: 199–209).

⁷² E. M. Cummings, "Marital Conflict and Children's Functioning," in *Social Development* (3, 1994): 16–36.

⁷³ N. Trocme et al., *Canadian Incidence Study of Reported Child Abuse and Neglect – Final Report* (Ottawa: Health Canada, 2001).

Parenting Practices

How well a family functions is tied to the quality of the relationship between parents and their children. This relationship is a critical ingredient in shaping early child development and setting developmental pathways into adulthood.⁷⁴ Research in Canada and the United States has consistently shown that parenting practices influence a range of childhood outcomes, such as aggressive behaviour, pro-social behaviour, academic achievement and high school completion.⁷⁵

Effective parenting puts sensitive child-rearing practices at the centre of parent-child interactions. These practices include carefully monitoring a child's behaviour, providing a warm and caring environment, and encouraging independence. This combination of monitoring, responsiveness, and encouragement has been defined as an "authoritative style of parenting".⁷⁶ Specifically, "authoritative parents" monitor their children's behaviour, respond to their needs, set reasonable boundaries and encourage increasing independence. While setting firm limits with their children, authoritative parents present options, discuss alternative ways of behaving and encourage independence. In contrast, "authoritarian parents" are generally controlling and sometimes harsh in their approach to discipline and can be seen as less flexible and lacking responsiveness and warmth in their interactions with their children. "Permissive parents" are characterized as overly indulgent and extremely tolerant of misbehaviour in their children.

What Does the Term "Vulnerability" Mean?

The term "vulnerability" refers to young children who are experiencing either learning or behaviour difficulties. These children may have problems getting along with others, meeting challenges, regulating their emotions, attending to tasks, or learning new concepts or skills. The vulnerability index, developed in 2000, reveals that approximately 28% of Canadian children are vulnerable.⁷⁷

Research indicates that children raised in an environment of authoritative parenting are the least likely to exhibit signs of vulnerability. This style is positively related to better behaviour and school performance. Positive parenting practices, as demonstrated by an

⁷⁴ M. Bornstein, L. Davidson, C. Keyes, and K. Moore, *Well-Being: Positive Development Across the Life Course*, (Mahwah, N.J.: Erlbaum, 2003).

⁷⁵ M. Bornstein and R. Bradley, *Socioeconomic Status, Parenting and Child Development*, (Mahwah, New Jersey: Erlbaum, 2003); R. Tremblay, "When Children's Social Development Fails." *Developmental Health and the Wealth of Nation*, D. Keating and C. Hertzman eds. (New York: Guilford Press, 1999: 55–71).

⁷⁶ D. Baumrind, "Child Care Practices Antecedent 3 Patterns of Preschool Behaviour," in *Genetic Psychology Monographs* 75 (1967): 43–88.

⁷⁷ J. Doug Willms, *Vulnerable Children – Findings from Canada's National Longitudinal Survey of Children and Youth* (Alberta: University of Alberta Press, 2002).

authoritative style, also decrease the chances of developmental problems in Canadian children by 25 to 52%, depending on the type of developmental problem.⁷⁸ In contrast, researchers have found that inconsistent, non-positive parenting can lead to signs of vulnerability such as poorer school outcomes.⁷⁹

An American longitudinal study is reporting that mothers' sensitivity to their infant's signals (cries, smiles, coos and gazes) is a strong predictor of positive outcomes including a child's emotional health, ability to get along with others, increased vocabulary and ability to regulate attention.⁸⁰

Work-Family Balance

Not only is the style of parenting important, but also parents' level of involvement in their children's daily lives. Research indicates that the amount of time in which parents are interacting directly with their children is positively related to child outcomes.⁸¹ However, the importance of time is not measured by the actual number of hours the parents spend with the child, but rather the "quality" of that time.

The participation in the workforce of mothers with young children is one of the most dramatic changes in family life over the past twenty years. Approximately 60% of women with children under 3 years of age were working in the paid labour force in 2001—up from approximately 40% in the early 1980s.⁸² Researchers have long been debating the impact that this increase has on child development outcomes.

Overall, research has found that children with mothers who work outside the home are not at any disadvantage in terms of developmental outcomes. Parents are increasingly aware of the importance of promoting the early development of their children. As a result, despite

⁷⁸ Ibid.

⁷⁹ G. S. Ginsberg and M. Bornstein, "Family Factors Related to Children's Intrinsic/Extrinsic Motivational Orientation and Academic Performance," in *Child Development* 64 (1993): 1461–1474; R. D. Conger et al., "A Family Process Model of Economic Hardship and Adjustment of Early Adolescent Boys," in *Child Development* 63 (1992): 526–541.

⁸⁰ NICHD Early Child Care Research Network, "Child Care and Mother-Child Interaction in the First Three Years of Life" in *Developmental Psychology* 35, 96 (1999): 1399–1413; NICHD Early Child Care Research Network, "The Relation of Child Care to Cognitive and Language Development," *Child Development* 71, 4 (2000): 960–980; NICHD Research Network, "Early Child Care and Children's Development Prior to School Entry," *Research Symposium* (Minneapolis: Society for Research in Child Development, April 19, 2001).

⁸¹ C. Cook and J. D. Willms, "Balancing Work and Family Life," in *Vulnerable Children – Findings from Canada's National Longitudinal Survey of Children and Youth*, J. Doug Willms, ed. (Alberta: University of Alberta Press, 2002): 183–197.

⁸² Human Resources Development Canada/Government of Manitoba, *A New Generation of Canadian Families: Raising Young Children – A New Look at Data from National Surveys* (Canada, 2003).

increased demands in the workplace, working Canadian parents significantly increased the amount of direct care (physical care, playing and travelling time) and their overall contact time with children aged 5 and younger between 1986 and 1998.⁸³

The increase in the number of mothers participating in the labour force means that more children are now in child care settings. A recent review concluded that quality child care can reduce the negative impact on child development of a stressed, disadvantaged home life, regardless of a family's income level.⁸⁴ This review concluded that the use or non-use of child care is not the issue. Rather, the key factor is the quality of the child care. Other studies have bolstered this conclusion, finding that child care does not negatively impact the mother-child relationship (except when very young children are extensively exposed to poor quality child care). Parents' behaviour and beliefs are a substantially greater factor in child development than child care.⁸⁵ Studies have also found that children in low- and moderate-income families who attend home-based and centre-based child care have improved vocabulary development at 4 and 5 years of age compared to children living in the same circumstances who do not attend out-of-home child care.⁸⁶

The amount of time that parents spend reading out loud to their children is another important aspect of parental engagement for young children. Research is demonstrating the significant influence that daily reading to a young child has on his or her development. Parents who read frequently with their children contribute to their healthy development, particularly their language and reading skills.⁸⁷ Studies also show a link between early and frequent reading and social development. Daily reading seems to reduce the likelihood of behaviour problems.

Parental Well-Being

The well-being of a parent also plays a key role in how the family functions.

Researchers have found that maternal depression is a key determinant of childhood vulnerability, in particular, young children living with mothers who are depressed are more likely to have behaviour and learning problems.⁸⁸ For example, infants of depressed mothers are less attentive, and more irritable and fussy. Children 5 years of age and younger were about one and one-half times as likely to have poor verbal skills if their mothers were depressed. In addition, children were about twice as likely to display behavioural problems if their mothers were depressed.⁸⁹

⁸³ J. Zuzanek, "Parenting Time: Enough or Too Little," in *Isuma Canadian Journal of Policy Research* (Canada: Government of Canada, Summer 2001): 125–133.

⁸⁴ M. E. Lamb, "Nonparental Child Care: Context Quality, Correlated," in *Handbook of Child Psychology vol. 4: Child Psychology in Practice*, 5th edition, W. Damon, I. E. Sigel, and K. A. Renniger, eds. (New York: John Wiley and Sons Inc., 1998): 73–134.

⁸⁵ J. Shonkoff and D. Phillips, eds., *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Washington: National Academy Press, 2000).

⁸⁶ D. Kohen, C. Hertzman, and J. D. Willms, "The Importance of Quality Child Care," in *Vulnerable Children – Findings from Canada's National Longitudinal Survey of Children and Youth*, J. Doug Willms, ed. (Alberta: University of Alberta Press, 2002): 261–276.

⁸⁷ S. Neuman and D. Dickinson, eds., *Handbook of Early Literacy Research* (New York: Guilford Press, 2001).

⁸⁸ A. G. Billings and R. H. Moos, "Comparisons of Children of Depressed and Nondepressed Parents: A Social-Environmental Perspective," in *Journal of Abnormal Child Psychology* 11, 4 (1983): 463–486.

⁸⁹ M. A. Somers and J. D. Willms, "Maternal Depression and Childhood Vulnerability," in *Vulnerable Children – Findings from Canada's National Longitudinal Survey of Children and Youth*, J. Doug Willms, ed. (Alberta: University of Alberta Press, 2002): 211–228.

Researchers have also found that maternal heavy drinking is related to negative parenting practices and children's behaviour and emotional problems. While only 3.5% of children had mothers who drank heavily (five or more drinks on more than 12 occasions during the past year) these children had more emotional problems, separation anxiety, hyperactivity and aggressiveness, as well as a higher likelihood to commit property crimes. Heavy drinking mothers reported fewer positive interactions with their children compared to non-drinking and moderate-drinking mothers, and they appear to be more hostile and ineffective in their parenting style.⁹⁰

The Importance of Income and Maternal Education on the Well-Being of Young Children

In general, growing up in a family that is functioning well with parents who exhibit positive parenting practices will reduce the effects of other factors such as income and maternal education. Despite these mitigating effects, however, income and maternal education have been shown to contribute significantly to child outcomes.

Family Income

The majority of children in low-income families do very well, having average or above average scores on their cognitive measures and not exhibiting major behavioural problems. Family income, however, is acknowledged as a consistent, significant contributor to child outcomes. While there is a demonstrated relationship between income and vocabulary development, it is important to note that other factors such as parental education, reading habits, and participation in early childhood activities are also important in influencing the vocabulary development of children. Children who live in low-income families at 4 and 5 years of age are more likely to have lower vocabulary skills than their counterparts living in middle-and upper-income families.⁹¹ Children living in families with lower incomes are also less likely than children in higher-income families to participate in recreational activities. Participation in these types of early childhood activities helps build the foundation for core skills and success in school.⁹²

Maternal Education

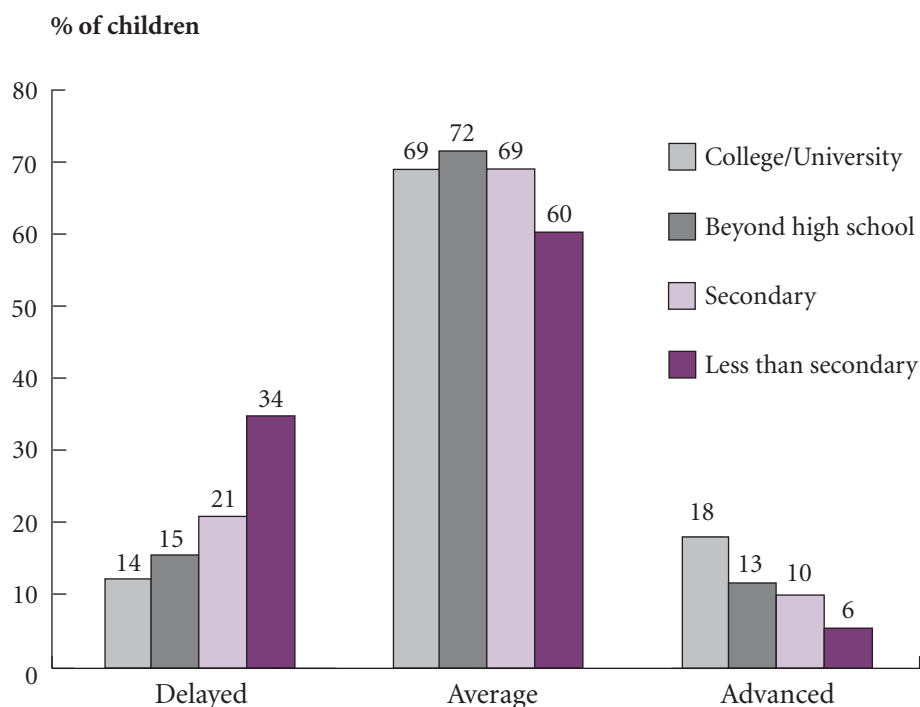
The education level of the mother also has a significant impact on child development. Recent research has demonstrated a strong link between maternal education and levels of vocabulary development.

⁹⁰ R. O. Pihl et al., *Alcohol and Parenting: The Effects of Maternal Heavy Drinking* Working Paper: W-98-27E (Ottawa: Human Resources Development Canada, 1998).

⁹¹ Human Resources Development Canada/Statistics Canada, *National Longitudinal Survey of Children and Youth, Cycle 4 (2000–2001)*.

⁹² Human Resources Development Canada/Government of Manitoba, *A New Generation of Canadian Families: Raising Young Children – A New Look at Data from National Surveys* (Canada, 2003).

Figure 2: Young Children's Scores on the Peabody Picture Vocabulary Test – Revised by Maternal Education Level, 2000/01



Source: National Longitudinal Survey of Children and Youth, Cycle 4 (2000-2001).

The more language a child hears, the more they are likely to use. Mothers with higher levels of education are more likely to talk with their children and use a broader range of vocabulary.⁹³ As Figure 2 illustrates, in 2000–2001, children of mothers with college/university education were more likely to have average to advanced language skills. Studies looking at preschool vocabulary in relation to reading and math skills four years later have suggested that the mother's education level has both a short-term and a long-term impact on the child's development.⁹⁴

The effects of maternal education are not confined solely to academic skills. They also have an impact on a child's social skills. Data show that mothers who complete more than a secondary school education are less likely to have toddlers with problematic personal and social behaviours. Research demonstrates that this will have a longer term effect as children

⁹³ B. Hart and T. Risley, *Meaningful Differences in the Everyday Experience of Young American Children* (Baltimore: Paul H. Brookes Publishing Co., 1995).

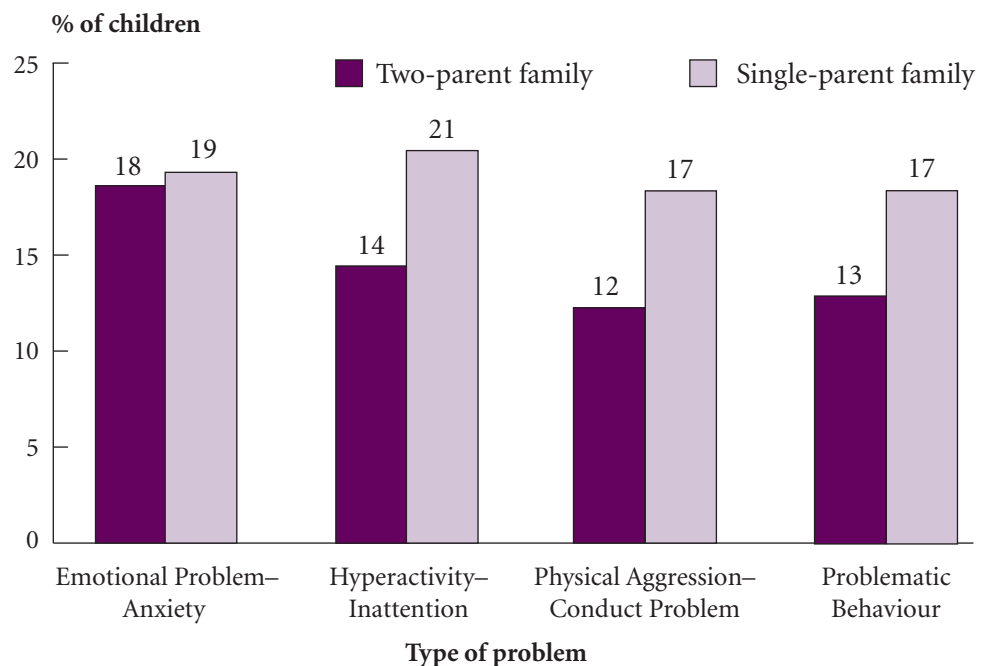
⁹⁴ J. Hodinott et al., *Is History Destiny? Resources, Transitions and Child Education Attainments in Canada* Working Paper: SP-551-12-02E (Ottawa: Human Resources Development Canada, 2002).

who get along with other children at 4 and 5 years of age are less likely to be aggressive with other children when they are older than children who are aggressive when they are 4 and 5 years of age.⁹⁵ In addition, maternal education is correlated to family income. The more educated a mother, the more likely the family is to have a higher income.

The Importance of Family Structure on the Well-Being of Young Children

Numerous studies have examined the impact of single- and two-parent families on children's developmental outcomes, including measures of academic achievement and social emotional well-being. They have demonstrated that children growing up in single-parent families are more likely to repeat grades, to possess poorer language skills, and to be less healthy than children living in two-parent families. These children are also less likely to get along well with friends and parents than children living in two-parent families.⁹⁶

Figure 3: Prevalence of Problematic Behaviour by Family Type, 2000/01



Source: National Longitudinal Survey of Children and Youth, Cycle 4 (2000–2001).

⁹⁵ R. Tremblay, "When Children's Social Development Fails," in *Development Health and the Wealth of Nations*, D. Keating and C. Hertzman, eds. (New York: Guilford Press, 1999): 55–71.

⁹⁶ L. J. Walker and K. H. Hennig, "Parent-Child Relationships in Single-Parent Families," in *Canadian Journal of Behavioural Science* 29 (1997): 63–75.

As Figure 3 illustrates, children in single-parent families are slightly more likely to show signs of problematic behaviour such as emotional disorder/anxiety, hyperactivity/inattention and physical aggression/conduct disorder than children living in two-parent families.⁹⁷

Behavioural problems in young children are not solely an issue for single-parent families. It is important to note that 85% of young children continue to live in two-parent families and as a result, the majority of children experiencing behavioural problems live in two-parent families. As previously mentioned, the effects of family structure on child development are mitigated by such factors as family functioning and parenting. In addition, the outcomes for children from single-parent families vary with the distribution of other factors affecting the family such as the level of the mother's education and family income.

Parental Separation

Many young children in Canada experience changes in family structure before they enter Grade 1 due to separation or divorce of their parents. In fact, approximately 25% of children now experience parental separation before the age of 6 compared to only 8% in the 1960s.⁹⁸

The impact of parental separation can have short-term and long-term effects on children's outcomes. Data show that children living in post-divorce custodial arrangements have a higher prevalence of behavioural or emotional problems than children living in non-divorced families.⁹⁹ Twenty-eight percent of children living with both parents have one or more behavioural problem as compared to 32.8% of children who are living in post-divorce custody arrangements.¹⁰⁰

Parental separation and divorce often result in lower family income and changes in a child's residence—both of which are associated with negative impacts on child outcomes.¹⁰¹ Children seem to be most at risk for experiencing difficulties in the period immediately following their parents' separation. Children benefit from maintaining contact and relationships with both biological parents after parental separation.¹⁰²

The overall conclusion from research studies is that positive parenting practices and continued contact with both parents seem to mitigate the negative developmental consequences of separation and divorce for young children.¹⁰³

⁹⁷ Human Resources Development Canada/Statistics Canada, National Longitudinal Survey of Children and Youth, Cycle 4 (2000–2001).

⁹⁸ N. Marcil-Gratton, *Growing Up with Mom and Dad? Children and Family Instability* (Ottawa: Human Resources Development Canada, 1998).

⁹⁹ T. O'Connor and J. Jenkins, *Marital Transitions and Children's Adjustments* Working Paper: W-01-1-3E (Ottawa: Human Resources Development Canada, August 2000).

¹⁰⁰ Ibid.

¹⁰¹ E. M. Hetherington, *Coping with Divorce, Single Parenting and Remarriage: A Risk and Resilience Perspective* (New Jersey: Erlbaum, 1999).

¹⁰² T. Haddad, *Custody Arrangements and the Development of Emotional or Behavioural Problems in Children* Working Paper: W-98-9E (Ottawa: Human Resources Development Canada, 1998).

¹⁰³ T. O'Connor and J. Jenkins, *Marital Transitions and Children's Adjustments* Working Paper: W-01-1-3E (Ottawa: Human Resources Development Canada, August 2000); E. M. Hetherington, *Coping with Divorce, Single Parenting and Remarriage: A Risk and Resilience Perspective* (New Jersey: Erlbaum, 1999).

Conclusion

The research indicates that the nature of children's family environments has a very strong effect on children's cognitive and behavioural development, and on the prevalence of childhood vulnerability. The factors within this environment that have been shown to have an impact on child development are parenting skills, the cohesiveness of the family unit, the educational level and mental health of the mother, and the extent to which parents are actively engaged with their children. However, there is still much that is unknown about this complex relationship. Ongoing research will help to further enhance our understanding of healthy child development.



Chapter 4: MONITORING THE WELL-BEING OF CANADA'S YOUNG CHILDREN



The September 2000 Early Childhood Development Agreement commits governments to report regularly on indicators of young children's well-being. Governments have identified a common set of 11 indicators of well-being which provide information on the physical health and early development of young children in Canada.

Governments began their reporting on this common set of indicators in the fall of 2002. As the National Longitudinal Survey of Children and Youth (NLSCY) is a key data source for many of the indicators of child well-being, the most recent data available at that time was from 1998–1999 (cycle 3). *The Well-Being of Canada's Young Children: Government of Canada Report 2002*, released on November 20, 2002, describes in detail the indicators the Government of Canada committed to monitor over time. These indicators expand upon the common set of indicators of children's physical health and early development to include measures of key family and community influences on child well-being. The federal and provincial/territorial governments agreed to release second reports on the common set of indicators in the fall of 2003 to coincide with the release of 2000–2001 NLSCY data (cycle 4).

The information presented in Table 3 includes indicators of well-being for young children from birth to 5 years of age as well as family- and community-related measures for both 1998–1999 and 2000–2001. Explanations for how the indicators and measures based on NLSCY scales were derived can be found in Annex A.

It is important to note that, for the majority of indicators and determinants presented in Table 3, change over time will occur gradually. Significant improvements can be identified only when a large number of children are developing better than earlier cohorts. The two-year period between the data collected in 1998 and 2000 is not sufficient time for investments in families and children to achieve substantial gains. Furthermore, small changes in either direction should be interpreted with caution as they may reflect sampling variability rather than true changes. It is only when changes in the same direction are consistently observed over time that a trend may be established.



Table 3: Indicators of Child Well-Being and Family- and Community- Related Measures

(Note: Those indicators denoted with an asterisk [*] are part of the common set of indicators of young children's well-being that all governments participating in the Early Childhood Development Agreement have agreed to report.)

Indicators of Child Well-Being

Name	Indicator (1998–1999 unless otherwise indicated) ¹⁰⁴	Indicator (2000–2001 unless otherwise indicated)
% of Young Children Born at a Healthy Birth Weight*	81.3% (1999)	80.6% (2000)
Pre-term Birthrate – % of Children Born at 37 weeks of Gestation or Later	92.7% (1999)	92.5% (2000)
Number of Cases of Haemophilus Influenzae-b Among Young Children*	14 (1999)	16 (2001)
Number of Cases of Meningococcal Group C Disease Among Young Children*	12 (1999)	27 (2001)
Number of Cases of Measles Among Young Children*	11 (1999)	7 (2001)
Infant Mortality Rate – Number of Deaths per 1 000 Live Births*	5.3 (1999)	5.3 (2000)
% of Young Children Who Are Being or Were Breastfed	79.9%	Data not yet available
% of Young Children Diagnosed With Asthma	9.9%	10%
Injury Hospitalization – Number of Cases Among Young Children	10 148 (1999)	9 386 (2000)
Injury Mortality Rate – Proportion of All Deaths Among Young Children that were the Result of an Injury (per 100 000)	9.3 (1999)	7.9 (2000)
% of Young Children Displaying Average to Advanced Levels of Motor and Social Development (MSD)*	86.1%	85.7%

¹⁰⁴ There may be slight discrepancies apparent between some of the indicators for 1998–1999 reported in the 2002 Government of Canada report and those presented this year. Statistics Canada has a long standing policy that sample weights for surveys are calculated using the most reliable population counts available for the appropriate point in time. For intercensal years, these weights are typically based on population estimates. Once more reliable population counts become available (primarily via the Census, which is conducted every 5 years), the initial weights for the intercensal years are adjusted to reflect the final population counts. Updating the sample weights for surveys such as the National Longitudinal Survey of Children and Youth (NLSCY) and Survey of Labour and Income Dynamics (SLID) is essential to ensure consistency between Statistics Canada's official population figures and the survey estimates.

In order to ensure comparability between the data reported for 1998–1999 and 2000–2001, all NLSCY- and SLID-based indicators for 1998–1999 are being re-reported to reflect the revised weights. For those indicators based on the NLSCY, the cycle 3 (1998–1999) weight now reflects the population on January 1, 1999 according to the 2001 Census. For those indicators based on the SLID, the 2000 historical weight has been revised to population counts based on the 1996 Census.

Indicators of Child Well-Being

Name	Indicator (1998–1999 unless otherwise indicated) ¹⁰⁴	Indicator (2000–2001 unless otherwise indicated)
% of Young Children Not Displaying Behaviours Associated with Emotional Problem–Anxiety*	86.2%	82.2%
% of Young Children Not Displaying Behaviours Associated with Hyperactivity–Inattention*	87.8%	84.9%
% of Young Children Not Displaying Behaviours Associated with Physical Aggression–Conduct Problem*	86.5%	87.4%
% of Young Children Not Displaying longer Behaviours Associated with Low Prosocial Behaviour*	89.8%	This information is no longer captured in the National Longitudinal Survey of Children and Youth. The indicator has been replaced by Personal-Social Behaviour
% of Children Displaying Age Appropriate Personal–Social Behaviour*		84%
Language Skills* – % of Children Displaying Average to Advanced Verbal Development	84.1%	82.7%

Family- and Community- Related Measures

Name	Measure (1998–1999 unless otherwise indicated) ¹⁰⁴	Measure (2000–2001 unless otherwise indicated)
Parental Education – % Who Had Obtained Postsecondary Education	Mothers – 45.3% Fathers – 48.7%	Mothers – 47.8% Fathers – 49.9%
Level of Income – % of All Families with Young Children Living Above the Post-Tax Low-Income Cut-Off	84.5% (1999)	87.2% (2001)
% of Parents Not Displaying Signs of Parental Depression	88.8%	89.5%
% of Mothers Who Use Tobacco During Pregnancy	19.4%	18.5%
% of Mothers Who Consume Alcohol During Pregnancy	14.5%	13.9%
Parental Smoking – % Who Do No Smoke At All	Person Most Knowledgeable About the Child – 72.6% Spouse of the Person Most Knowledgeable about the Child – 70.4%	Person Most Knowledgeable About the Child – 74% Spouse of the Person Most Knowledgeable about the Child – 72.5%
% of Parents Indicating Positive Family Functioning Among Family Members	89.1%	88.7%
Positive Parenting – % of Parents Indicating Positive Interaction Within the Family	88%	83.9%
Reading by Adult – % of Children Who Are Read to Daily or Several Times Per Day	69.7%	66.1%
% of Parents Indicating a Sense of Neighbourhood Cohesion	84.9%	85.9%
% of Parents Indicating A Sense of Neighbourhood Safety	This measure was not captured in 1998/99	75.6%
% of Families with Children Living in Core Housing Need	Rental households – 36% Owner households – 7% (1996)	Data not yet available

As indicated in the table above, for many of the indicators presented, the situation for young children has remained constant (e.g. pre-term birth rate, infant mortality rate, and prevalence of diagnosed asthma) or improved slightly (e.g. incidence of measles, injury hospitalization, injury mortality rate, physical aggression–conduct problem, income, tobacco use during pregnancy, parental smoking and neighbourhood cohesion). However, there are noted exceptions.

Several of the indicators and determinants for which there was a significant decline between 1998–1999 and 2000–2001 (e.g. motor and social development, emotional problem–anxiety, hyperactivity–inattention, and positive parenting) are based on the NLSCY. Information in the NLSCY is derived from a series of questions asked of the Person Most Knowledgeable about the Child (PMK), which is typically the mother, concerning all selected children in the household, as well as the sociodemographic information about herself and her spouse. Slight variations in the data can most likely be attributed to the nature of survey data, as it tends to be more sensitive to subjective variation in the respondent, which in this case is the PMK, than direct assessment measures. However, there may be other potential factors that could be affecting these results. Further research is required to determine the potential causes of changes in these indicators.

It will be important to continue to track these indicators over time to determine if the fluctuations seen between 1998–1999 and 2000–2001 are the start of a discernable trend or solely a one-time occurrence. Future Government of Canada reports will continue to assess these issues as additional trend data become available.





Chapter 5: YOUNG FIRST NATIONS CHILDREN IN CANADA¹⁰⁵



Last year's report, *The Well-Being of Canada's Young Children: Government of Canada Report 2002*, provided a profile of young Aboriginal children using the most current data at that time. There continues to be a lack of comparable national data for young Aboriginal children as a whole (including First Nations, Métis, Inuit and other groups). As a result, this chapter is focusing specifically on the perinatal¹⁰⁶ health of First Nations children living on reserve, providing the most recent information and research from the year 2000. Future reports will continue to enhance our understanding of the situation of all young Aboriginal children, drawing on new data as they become available. For example, data from the recently released children's component of the second Aboriginal Peoples Survey will provide insight into the health and well-being of young Aboriginal children.

The First Nations Population is Younger

Canada's First Nations population has proportionally more young people than the overall Canadian population. In 1999, 12.4% of First Nations people were under 4 years of age, compared with 6.6% for the general population. While the proportion of young First Nation's children has declined slightly between 1979 and 1999 (12.9% to 12.4% respectively)¹⁰⁷, the population distribution for First Nations people continues to be substantially younger than is seen in the general population in Canada.

Consistent with the decreasing birth rate of the general population, the birth rate of First Nations people has continued to show a declining trend, from 30.1 births per 1 000 population in 1987 to 25 births per 1 000 in 2000.¹⁰⁸ Despite this decline, the birth rate in First Nations communities is still more than twice that of the general population, at 10.7 births per 1 000 in 2000.¹⁰⁹ Other indigenous populations in the United States and Australia have birth rates that are comparable to the Canadian First Nations population.¹¹⁰

¹⁰⁵ Acknowledgement for the development of this chapter is extended to Susan Taylor-Clapp of the First Nations and Inuit Health Branch, Health Canada.

¹⁰⁶ Perinatal is defined as the period around childbirth, especially the five months before and one month after birth.

¹⁰⁷ *A Statistical Profile on the Health of First Nations In Canada* (Government of Canada: Health Canada 2002).

¹⁰⁸ Ibid.

¹⁰⁹ Statistics Canada. www.statcan.ca/english/Pgdb/demo04b.htm

¹¹⁰ United States Indian Health Service, 2000; R.W. Edwards and R. Maddon, *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander People* (Canberra: Australia Bureau of Statistics, 2001).

First Nations Women are Having Children at a Young Age

In 2000, First Nations women tended to have their children at younger ages compared to the general Canadian population. The largest proportion (33%) of births were to mothers in their early twenties, 20 to 24 years of age. Less than 1% of births were attributed to very young mothers (10–14 years of age) while fewer than 10% of mothers 35 to 49 years of age had babies. Almost 20% of First Nations births were to teenaged mothers from 15 to 19 years of age. By comparison, the proportion of mothers of this same age group in the general population is less than 6%.¹¹¹ The birth patterns for First Nations people in Canada are consistent with the patterns found in indigenous groups in the United States and Australia.¹¹²

Defining Low and High Birth Weight

Low birth weight is defined as the number of births under 2 500 grams, while high birth weight is defined as equal to or greater than 4 000 grams. Low birth weight has been implicated in contributing to increased risk of dying in the first year of life, developmental disabilities, and disease. High birth weight may increase maternal and infant risk for perinatal complications and adverse outcomes such as birth injuries.

More Young First Nations Children Are Born at a High Birth Weight

Increased health risks are associated with both very low and very high birth weights. The proportion of low birth weight babies in the First Nations population is 5.3%, which is slightly lower than the rate of 6% found in the general population. However, a significant proportion (21%) of mothers in the First Nations population had high birth weight babies, as compared to 13% in the general population. Although mean birth weights for infants in developed countries have been increasing¹¹³, the differences between the proportion of babies over 4 000 grams in the First Nations population and the general population remains significant.

¹¹¹ Statistics Canada, 2000.

¹¹² R.W. Edwards and R. Maddon, *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander People* (Canberra: Australia Bureau of Statistics, 2001).

¹¹³ Ananth & Wen, "Trends in fetal growth", *Seminars in Perinatology*, 26 (2002).

Young First Nations Children Experience High Rates of Mortality

The infant mortality rate, which refers to the rate of children who die within the first year of life (excluding still births), has been steadily decreasing among First Nations people since 1979, when it peaked at 27.6 deaths per 1 000 live births. In 2000, the infant mortality rate in the First Nations population was 6.2 per 1 000 live births.

Despite the steady decline, the infant mortality rate for First Nations people remains higher than that found in the general population (5.4 per 1 000 live births).¹¹⁴ The rate for First Nations infants is consistent with the rate found among the lowest income groups in urban Canada, where there is a 1.6 times greater risk of infant death compared to high income groups.¹¹⁵



¹¹⁴ *Canadian Perinatal Health Report* (Canada: Health Canada, 2000).

¹¹⁵ *Ibid.*



CHAPTER 6: YOUNG CHILDREN WITH DISABILITIES IN CANADA¹¹⁶



When examining the young Canadian population, the situation of very young children with disabilities poses one of the greatest challenges for researchers. While defining “disability” is difficult in any age group, it is particularly so when dealing with very young children. The full impact of many underlying conditions is often difficult, if not impossible, to detect in children in the early stages of development. The methods used to identify children with disabilities often differ from those used for adults. In 2001, substantial changes were made to the filter question used to identify disability on the Canadian census of the population. Even more important are the changes made to the new post-censal survey designed to examine disability issues. Replacing the Health and Activity Limitations Surveys (HALS) of 1986 and 1991, the Participation and Activity Limitations Survey (PALS) of 2001 employs a very different sampling plan than its predecessor. As well, PALS relies upon a different set of filter questions to detect the presence of a disability. For this reason, there can be no comparison between the results of the HALS (1986 and 1991) and the results of the PALS (2001).¹¹⁷

The 2001 PALS identifies children with disabilities based upon a set of filter questions regarding: difficulty “hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities” and the presence of a “physical condition or mental condition or health problem” which reduces the amount or the kind of activity the child can perform at home, school, or in any other pursuit such as transportation or leisure. It further relies upon information gathered concerning the presence of delayed development or a professional diagnosis of developmental disabilities or disorders, and the presence of a list of chronic health conditions.

Last year's report, *The Well-Being of Canada's Young Children: Government of Canada Report 2002*, provided a profile of young children with disabilities using the most current data at that time. This chapter builds on the profile provided last year, incorporating findings of the recently-released 2001 PALS data on very young children with disabilities.

Young Children Have a Low Rate of Disability

The rate of disability among young children in Canada is lower than it is among adults. This is partly because some disabilities in children have not yet been detected and also because the majority of disabilities are acquired after childhood. In 2001, the disability rate among children 4 years of age and under in Canada¹¹⁸ was 1.6% (1.9% for boys and

¹¹⁶ Acknowledgement for the development of this chapter is extended to Gail Fawcett and Paul Roberts of the Canadian Council on Social Development.

¹¹⁷ Approximately 8 000 children with disabilities were sampled in the PALS 2001. Children under 5 years of age and those 5 to 14 years of age were asked many common questions, however, there are portions of the survey that do not apply to younger children. For more information regarding the differences between the HALS and the PALS, refer to: “A New Approach to Disability Data: Changes between the 1991 Health and Activity Limitation Survey (PALS)”, December 2002, catalogue no. 89-578-XIE, Statistics Canada, Housing, Family and Social Statistics Division.

¹¹⁸ Unlike the 1986 and 1991 HALS which provided data on all provinces and territories, the 2001 PALS was conducted only in the ten provinces; the 2001 PALS does not cover any of the three territories.

1.3% for girls) under the new sampling procedure and screening criteria. This represents some 26 210 children (16 030 boys and 10 180 girls).¹¹⁹ Among children 5 to 9 years of age in 2001, there is a higher disability rate at 3.7% (4.6% for boys and 2.7% for girls). Among children 10 to 14 years of age, the rate is 4.2% (5.1% for boys and 3.3% for girls). While some children acquire disabilities with age (through illness or accident), it is also the case that some types of disabilities are simply not detectable until the child is older.

The Majority of Disabilities in Young Children are Mild to Moderate

The majority of disabilities in children 4 years of age and under range from “mild to moderate” in nature.¹²⁰ According to the 2001 PALS, 57.5% of children with disabilities 4 years of age and under had a “mild to moderate” disability (representing 15 080 children); and 42.5% (representing 11 130 children) had a “severe to very severe” disability.

The 2001 PALS identified the most prevalent disability type among children 4 years of age and under as “developmental delay”. Developmental delay is described as a “delay” in the child’s development which is either a “physical, intellectual or another type”. In 2001, 68% of children with disabilities 4 years of age and under (17 820 children) had some type of “delay”. This was more likely to occur in boys (71.7%, or 11 500) than in girls (62.1%, or 6 320). Disabilities due to chronic illness were also very common among children 4 years of age and under, with 62.6% (16 400 children) of young children with disabilities being affected. Among girls 4 years of age and under, 61.2% (6 230) had a disability due to chronic illness compared with 63.4 % (10 170) of their male counterparts.¹²¹

Nearly One in Five Young Children With Disabilities Lives in a Lone- Parent Family

A fairly high proportion of children with disabilities live in lone-parent families: among children 5 years of age and under with disabilities, 19.7% lived in a lone-parent family in 2001.

¹¹⁹ According to the 1986 HALS, the disability rate in this age group was 3.4%. According to the 1991 HALS, this figure had risen to 4.5%. Unlike the 1986 and 1991 HALS, however, no time comparison can be made with the 2001 PALS due to fundamental changes in the nature of the survey. The much lower rates being found in 2001 *cannot* be interpreted as a drop in the disability rate.

¹²⁰ For children 4 years of age and under in the 2001 PALS, severity level is divided into only two groups: “mild to moderate” and “severe to very severe”. The severity scale is based upon both the number of types of activity limitations as well as the intensity of the limitations.

¹²¹ Among children 4 years of age and under in 2001, only five types of disabilities were identified. In order of prevalence among children with disabilities in this age groups, these disability types are: delay (68%); chronic illness (62.6%); hearing (12.1% – use with caution due to low sample size); unknown disability type (8.9% – use with caution due to low sample size); and seeing (8% – use with caution due to low sample size).

Young Children With Disabilities Have an Impact on Parental Employment

The employment situation of parents of young children with disabilities is often affected by the presence of a child with a disability.¹²² The more severe the disability, the more likely the family is to experience some type of labour force impact. According to the 2001 PALS, for example, 54.1% of children under 5 years of age with a mild to moderate disability have at least one parent whose employment has been affected by the child's disability; among children under 5 years of age with a severe to very severe disability, 72.3% experienced some type of impact on parental employment.

According to the 2001 PALS, the most typical employment impact reported by parents of young children with disabilities is either turning down a promotion or turning down a better job; 38.2% of children with disabilities under 5 years of age had a parent reporting this.¹²³ Other types of employment impact reported among families of young children with disabilities include: working fewer hours (31.3%); not taking a job (31.2%); changing working hours (22.8%); and quitting paid employment (18.6%). Many children had parents reporting more than one type of employment impact as well.

Over a Quarter of Young Children With Disabilities Live in Low-Income Families

According to the 2001 PALS, 26.6% of children under 5 years of age with disabilities lived in families with incomes below the low-income cut-off (LICO) (using the pre-tax LICO); this compares with 20.1% of young children without disabilities¹²⁴.

This tendency to live in families with lower levels of household income, coupled with the potential for higher disability-related expenses, can often lead to financial problems within the child's family. For example, according to the 2001 PALS, 23.1%¹²⁵ of children under 5 years of age with mild to moderate disabilities lived in families which reported experiencing financial problems as a result of the child's disability; among young children with severe to very severe disabilities, 35.1% lived in families reporting such difficulties.

¹²² This was reported by 61.8% of all children with disabilities under 5 years of age.

¹²³ Among parents of young children with severe to very severe disabilities, this figure was 48.9%; and among parents of young children with mild to moderate disabilities, it was 30.3%.

¹²⁴ This excludes children living in the Territories and children for whom the concept of LICO is 'not applicable'. These figures cannot be compared with those released in last year's publication since they utilize different surveys with different screening criteria and different sampling techniques.

¹²⁵ Use estimate with caution due to sample size.

Balancing Work, Family and Child Care is a Challenge for Parents of Children With Disabilities

Parents of children with disabilities may take on multiple roles of therapist, teacher, playmate and advocate, in addition to providing physical care.¹²⁶ Survey research suggests that 93% of families with children with special needs¹²⁷ reported feeling moderate to high levels of tension as a result of balancing work, family and child care responsibilities.¹²⁸

One source of stress in this 'balancing act' is finding child care. According to the 2001 PALS, parents of one in five children with disabilities between birth and 4 years of age reported being refused child care due to their child's disability or health problem.¹²⁹

In addition to caring for their child with a disability, parents often require assistance balancing other responsibilities. In the 2001 PALS, parents of children with disabilities were asked if they required help with housework, family responsibilities, or time for personal activities due to their child's disability. Among parents of children with disabilities under 5 years of age, 52.6% indicate such a requirement.¹³⁰ Most parents who require such assistance, however, either don't receive any help at all (43.6%) or receive some help, but still require more (31.7%¹³¹); only about a quarter (24.6%) of parents requiring this type of help actually receive all the assistance they require.¹³²

¹²⁶ *Voices for Children Home Page, 2002.* <http://www.voicesforchildren.ca> (September 6, 2002).

¹²⁷ *Special needs* refers to "disabilities, delays or health disorders that significantly increase the difficulty of obtaining and keeping adequate child care and/or child care-related services." (According to S. Irwin and D. Lero in their book *In Our Way: Child Care Barriers to Full Workforce Participation Experienced by Parents of Children with Special Needs – and Potential Remedies*, Pp. vi.)

¹²⁸ Canadian Institute of Child Health, *The Health of Canada's Children: A CICH Profile – Third edition* (Ottawa: Canadian Institute of Child Health, 2000).

¹²⁹ The severity level of the child's disability did not seem to make much difference when it came to being refused child care.

¹³⁰ Among those with severe to very severe disabilities, this figure was 70.1%; among those with mild to moderate disabilities, it was 39.5%.

¹³¹ Use estimate with caution due to sample size.

¹³² For more information on the derivation of some of these variables using the 2001 PALS and for some similar data for children 5 to 14 years of age with disabilities, see also: *Children with Disabilities and their Families – Tables*, July 2003, Catalogue No. 89-586-XIE.

ANNEX A – TECHNICAL NOTES

The following outlines how the indicators and measures which are based on NLSCY scales, presented in Chapter 4 “Monitoring the Well-Being of Canada’s Young Children”, were operationalized for the purpose of this report.

Measurement of Motor and Social Development

The NLSCY incorporates a scale consisting of a set of 15 questions that measure dimensions of the motor and social development of young children from birth through 3 years of age. Within this scale, the questions used to capture motor and social development are age sensitive. These questions are answered by the person most knowledgeable about the child and reflect a parental assessment of the child’s motor and social development, not a professional diagnosis.

The results of these questions are combined into a standardized scale in which the average score for the population is set at 100 with a standard deviation of 15. This standardized score takes account of the child’s age and allows for comparisons of scores to be made across age groups. Based on the score, children scoring between **85 and 115** points are considered to have average development. Children scoring **below 85** display symptoms of delayed development, while those scoring **above 115** show evidence of advanced development.

Measurements of Behaviour

This report discusses four measures of behaviour from the NLSCY: emotional problem–anxiety, hyperactivity, physical aggression–conduct problem and personal–social behaviour. For each behaviour, a set of questions is used and the answers combined into a scale to give a more valid representation of the different types of behaviour. These questions are answered by the person most knowledgeable about the child, reflecting a parental assessment of the child’s behaviours, not a professional diagnosis. Examples of the types of behaviours captured for each measure follow:

Emotional Problem–Anxiety is characterized by feelings of anxiety/nervousness or depression (i.e. child cries a lot, is sad or unhappy).

Hyperactivity is characterized by restlessness, fidgeting, lack of concentration and inability to wait for his or her turn.

Physical Aggression–Conduct Problem is identified if the child gets into fights, is threatening or physically aggressive.

Personal–Social Behaviour is identified by how the baby-interacts with him/herself, with strangers, with the parent, and with objects such as toys.

To identify the presence of behavioural problems, thresholds (or cut-off points) were identified for each of the behaviours. These thresholds were established by taking the scale score that is *closest* to the 90th percentile for each of the individual scales. The data presented in Chapter 4 represent the proportion of children who do not exhibit signs of problems for each of the individual behaviours.

Measurement of Language and Receptive Vocabulary

The Peabody Picture and Vocabulary Test – Revised (PPVT-R) is a direct assessment tool intended to measure receptive or hearing vocabulary in children 4 and 5 years of age. The interviewer administers the test directly to the child in either English or French once the child's parents have given consent.

Based on the results of the test, a standardized score is developed, in which the average score for the population is set at 100 with a standard deviation of 15. This standardized score takes account of the child's age and allows for comparisons of scores to be made across age groups. Based on the standardized score, children who scored between **85 and 115** are considered to have average verbal development. Children scoring **below 85** display signs of delayed verbal development while children scoring **above 115** show evidence of advanced verbal development.

Measurements of Family and Community

This report discusses five family- and community-related measures that are based on NLSCY scales: parental depression, family functioning, positive parenting, neighbourhood cohesion and neighbourhood safety. For each, a set of questions is used and the answers combined into a scale. These questions are answered by the person most knowledgeable about the child, reflecting a parental assessment, not a clinical diagnosis. Examples of the types of items captured for each measure follow:

Parental Depression is characterized by a poor appetite, an inability to shake off the blues and/or concentrate, feelings of depression and restless sleep.

Family Functioning is characterized by ability to solve problems, effective communications and supporting family members.

Positive Parenting is identified by the level of interaction parents have with their child(or children), such as praising a child and playing games with a child.

Neighbourhood Cohesion reflects the respondents' perceptions of their neighbours and the extent to which there is a sense of cohesion.

Neighbourhood Safety is characterized by the level of safety associated with such activities as walking alone after dark and children playing outside.

To identify the presence of problems in each of these measures, thresholds (or cut-off points) were identified by taking the scale score that is *closest* to the 90th percentile for each of the individual scales. The data presented in Chapter 4 represent the proportion of children living in families exhibiting positive aspects for each of these measures.



