



GROWING UP *in* NORTH AMERICA:

Child Health and Safety in Canada, the United States, and Mexico



SHARED UNDERSTANDINGS

WHAT HAPPENS TO CHILDREN AFFECTS US ALL. If our children do not thrive, our societies will not thrive. Decision-makers, both public and private, must take children's well-being into account as they undertake social and economic development. **ALL CHILDREN MUST BE INCLUDED IN SOCIAL AND ECONOMIC PROGRESS.** All children must be prepared for the future. Some groups of children and families are not doing as well as others in the new knowledge-based, global economy. Disparities that thwart the healthy development of children in the present and limit the life chances of children in the future must be addressed. **CHILDREN EXPERIENCE CHANGE IN AND THROUGH MULTIPLE CONTEXTS.** Children are affected by all the environments in which they live. The family is the first circle around the child. Beyond the family, the community has a role to play in child development. The circles widen to regional, national, and international contexts. **CHILDREN ARE ENTITLED TO BASIC HUMAN RIGHTS.** Children's rights are economic, social, and cultural, as well as civil and political. Children have a right to participate, and to express their perceptions and aspirations. Children are entitled to the protection of society from exploitation and abuse. They also must be able to count on society to ensure their healthy development, beyond mere survival. **KNOWLEDGE ABOUT CHILD WELL-BEING MUST LEAD TO ACTION.** Monitoring and reporting on measures of child well-being across North America can help us better understand the diverse experiences of childhood in different contexts. But monitoring is not an end in itself. Its purpose is to highlight our successes and challenges. Both can help to drive change.

PROJECT PARTNERS

The [Annie E. Casey Foundation](http://www.aecf.org) is a private charitable organization dedicated to helping build better futures for disadvantaged children in the United States. The primary mission of the Foundation is to foster public policies, human-service reforms, and community supports that more effectively meet the needs of today's vulnerable children and families. For more information, visit www.aecf.org.

The [Canadian Council on Social Development](http://www.ccsd.ca) is one of Canada's key authoritative voices promoting better social and economic security for all Canadians. A national, self-supporting, membership-based organization, the CCSD's main product is information and its main activity is research, focusing on issues such as child and family well-being, economic security, employment, poverty, and government social policies. For more information, visit www.ccsd.ca.

[Red por los Derechos de la Infancia en México](http://www.derechosinfancia.org.mx) (The Children's Rights Network in Mexico) is the union of 64 Mexican civil organizations and networks, which develops programs to offer support to Mexican children in vulnerable situations. To realize its mission for children and adolescents to know, exercise, and enjoy their rights, the Network promotes a social and cultural movement in favor of children's rights, advocates for equitable legal frameworks and public policies, and strengthens the capacity of Mexican civil organizations dedicated to children. For more information, visit www.derechosinfancia.org.mx.

The [Population Reference Bureau](http://www.prb.org) informs people around the world about population, health, and the environment, and empowers them to use that information to advance the well-being of current and future generations. For more information, visit www.prb.org.

GROWING UP IN NORTH AMERICA: CHILD HEALTH AND SAFETY IN CANADA, THE UNITED STATES, AND MEXICO



The Children in North America Project aims to highlight the conditions and well-being of children and youth in Canada, Mexico, and the United States. Through a series of indicator reports, the project hopes to build a better understanding of how our children are faring and the opportunities and challenges they face looking to the future.

4	Preface
6	Executive Summary
9	Introduction
10	Key Health Indicators
20	Challenges Facing Youth
27	Emerging Issues
47	Conclusion
49	Endnotes
58	Project Team/Acknowledgements

Preface

THE CHILDREN IN NORTH AMERICA PROJECT STRIVES TO CREATE A SOCIAL AND ECONOMIC PORTRAIT OF NORTH AMERICA'S CHILDREN, HIGHLIGHTING DIFFERENT DIMENSIONS OF CHILD WELL-BEING AGAINST THE BACKDROP OF THE CHANGING ENVIRONMENTS IN WHICH CHILDREN AND FAMILIES ARE LIVING.

Representatives from the Canadian Council on Social Development, Red por los Derechos de la Infancia en México (The Children's Rights Network in Mexico), and the Annie E. Casey Foundation have come together to create the *Children in North America Project* based on our shared interest in the well-being of all children. We recognize that Canada, Mexico, and the United States have common bonds and challenges in ensuring that our children grow up healthy, not just because of geography, but also because of increasing economic, social, and cultural interaction.

There are enormous differences in the opportunities children have both within and across countries. These differences have important implications both for their current well-being and the extent to which they are equipped or prepared for the future. Our objective is to create awareness of the continent's children, the groups that are prospering and those that are struggling to carve out a place in the world.

Knowing that data are a powerful tool to raise awareness and lead to action that benefits children and strengthens families, a cross-national partnership began. The collaboration became the first-ever tri-national project on child well-being. All three nations monitor the status of children and youth in a variety of ways, but most of the work that is being done has a national focus. This project widens the lens.

The Children in North America Project strives to create a social and economic portrait of North America's children, highlighting different dimensions of child well-being against the backdrop of the changing environments in which children and families are living. The project's first report, *Growing Up in North America: Child Well-Being in Canada, the United States, and Mexico*, presented a basic demographic profile of children in the region. The report also introduced the three different dimensions of child well-being that will be considered in this and future reports—health and safety, economic security, and capacity and citizenship.

Drawing on a variety of national and international sources, the project seeks to document how children are faring in each country and across North America; develop a baseline against which to measure and monitor their well-being over time; and build capacity in and across the three nations to continue the important work of measuring and monitoring the well-being of children.



Executive Summary

6

GOOD HEALTH IS AN ESSENTIAL FACTOR IF CHILDREN ARE TO LIVE TO THEIR FULLEST POTENTIAL. CHILDREN IN NORTH AMERICA SHARE A NUMBER OF SIMILAR EXPERIENCES WHEN IT COMES TO THEIR HEALTH AND WELL-BEING.

There are roughly 120 million children in North America—73 million in the United States, more than 39 million in Mexico, and about 7 million in Canada. They account for over one-quarter of the 426 million people who live on this continent.

Their daily lives are shaped by where they live. They are residents of a continent undergoing significant change in the way their elders cooperate, do business, and engage with the rest of the world.

So far, the existing trilateral efforts among the governments of Canada, the United States, and Mexico have resulted in detailed monitoring and reporting on diverse issues—from textile production to shipping to avian flu. But fundamental issues are being ignored. There exists no such detailed monitoring and reporting on the well-being of those who will have a significant role to play in achieving future prosperity.

BUT IT IS NOT TOO LATE.

As the relationship among Canada, the United States, and Mexico develops, it creates the opportunity to ask ourselves if and how continental prosperity is benefiting our most significant asset—our children.

Does a child raised on this continent have the best chance at health, education, and safety? Will a child raised on this continent be able to face the challenges that globalization brings—today and in the future?

Securing the well-being of our young people requires greater cooperation and information sharing. The tri-national work done for this report through the *Children in North America Project* shows that we have only a partial picture of how our children are doing—there are significant knowledge gaps that if better understood could help us make wise and cost-effective decisions in support of children and youth.

Information about child health forms the basis of this report. Good health is an essential factor if children are to live to their fullest potential. Children in North America share a number of similar experiences when it comes to their health and well-being. While the context of their lives varies, and there are some differences in the health challenges they face, there are surprising similarities across the continent. In fact, there are a number of critical health problems that could profitably be addressed through tri-national initiatives.

Obesity All three countries report that the rates of obesity and being overweight among young people are too high—between 26 percent and 30 percent. However, there is a significant paradox surrounding this health problem. In Canada and the United States, obesity rates are soaring, yet a number of children live with hunger. In Mexico, while growing numbers of children are becoming obese, malnutrition and anemia continue to be significant health problems.

Respiratory Illness Respiratory illness has become epidemic in large portions of North America. In some regions of the continent, there has been a fourfold increase in asthma prevalence in the last 20 years. Air pollutants know no boundaries—making this issue of primary concern to all governments.

Chemical Exposure Continued exposure of some children to lead in their environment—a well-known neurotoxin—is having serious effects on their development. And experts have increasing concerns about children being exposed to chemicals in the environment and resultant neurodevelopmental disorders such as attention deficit hyperactivity disorder (ADHD). The North American Commission for Environmental Cooperation's (CEC) children's environmental health indicators initiative was making important progress in coming to grips with the scale of this problem. However, this important children's environmental health indicators initiative was recently cancelled.

Mental Health All three countries have identified depression as a serious mental health problem among youth. They have all reported concerns about eating disorders. While the three countries have different measures of mental health and illness, all three recognize that better data and measures are needed to address this issue.

Cancer For all three countries, cancer is the second leading cause of death for children age 5 to 14. Children in Mexico are more likely to die from leukemia (and other types of cancer) than are children in Canada and the United States. It is critical to share knowledge and experience across the continent to benefit the children of Mexico.

Safety and Security Unintentional injury remains the leading cause of death in all three countries among children and youth over the age of one—and it takes a considerable toll on the teens and young adults of all three nations. In 2000, more than 21,000 young North Americans age 15 to 24 years died as a result of unintentional injuries, many of which were preventable. These accounted for 41 percent of all deaths in this age group.



Intentional injuries—or homicide and assault—are significant problems also. While the rates of homicide are much higher in Mexico and the United States, Canada has reported increasing homicides in recent years. Across North America, homicides claimed the lives of over 7,500 youth age 15 to 24 in 2000. Bullying also has been identified as a significant problem in both the United States and Canada—where more than one-quarter of 11-year-old girls and more than one-third of 11-year-old boys reported bullying other children.

Health Disparities Across the continent, significant health disparities exist. In Canada, Aboriginal children rank with many children in the developing world on several key indicators, including infant mortality and injury deaths. In Mexico, children living in rural and indigenous communities experience worse health outcomes than those who live in cities. And, in the United States, children of color suffer poorer health on a number of indicators.

Children's health and security demand our attention. The United Nations Convention on the Rights of the Child recognizes the right of children to enjoy the highest attainable standard of health and to have access to health care. It states that every child has the right to a standard of living adequate for their development, including nutrition. While parents have a primary responsibility to secure the conditions to ensure the health of their children, governments and society overall have committed to assist parents in providing for these rights.

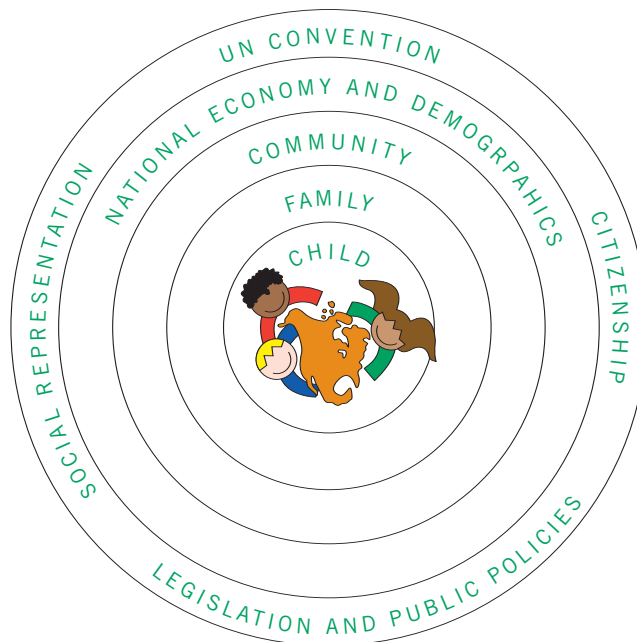
Decision-making without data is a recipe for costly mistakes. As leaders work to maximize the opportunities of a North American partnership, they need to consider a key factor—the future of the continent's children and youth. Security and prosperity are more complex than improving transportation across borders and developing common industrial standards. They require a sustainable plan for the future of children and youth. Investing in this now will help ensure that North America is “the safest and best place to live” for all of our children and youth.

Introduction

This report continues the story from the project's first publication, *Growing Up in North America: Child Well-Being in Canada, the United States, and Mexico*, and presents an overview of the health and safety of children in North America. It is based on the ecological indicator model that was developed for the *Children in North America Project*.

The project's first publication provided an overview of the status of children within and across the three countries in North America and gave critical baseline information from which policymakers, politicians, and children's advocates can make good decisions—to ensure that our children and youth have the quality of life and the life prospects to which they are entitled. This report—the first of three more specialized reports—examines 58 health and safety indicators, which are organized according to the environments that influence children's development and impact their well-being. The complete list of indicators and a more detailed fact sheet can be found on the project's website at www.childreninnorthamerica.org.

This report highlights basic indicators such as infant health, death rates, and access to health services; points to emerging and sometimes worrisome health issues in the three nations such as mental health and nutrition; and examines some particularly challenging issues facing youth in North America.



Key Health Indicators

THREE IMPORTANT INDICATORS PROVIDE A PICTURE OF THE WELL-BEING OF BABIES—INFANT MORTALITY, LOW BIRTHWEIGHT, AND BREASTFEEDING. THE CONTINENT HAS WITNESSED IMPROVEMENTS IN INFANT HEALTH IN MANY AREAS. HOWEVER, THERE IS STILL A WAY TO GO.

A GOOD START IN LIFE

In 2004, more than 6,660,000 babies were born in North America. Just over 60 percent of these babies were born in the United States, 33 percent in Mexico, and 5 percent in Canada. Between 1994 and 2004, the number of babies born in the United States increased slightly (by just over 4 percent) while Mexico and Canada saw a decrease—11 percent and 25 percent, respectively.^{1,2}

Health during pregnancy, birth, and infancy provides the foundation for optimal development and well-being throughout childhood and youth. At the same time, this is a period of increased vulnerability for women, babies, and families. Therefore, providing the conditions for healthy pregnancies and births is a critical factor in promoting the health and well-being of all North American children.

The continent has witnessed improvements in infant health in many areas. However, there is still a way to go. Three important indicators provide a picture of the well-being of babies—infant mortality, low birthweight, and breastfeeding.

Infant Mortality Infant mortality is a basic indicator of the well-being of a population and of the health status of the children. According to data from the Organization for Economic Cooperation and Development (OECD), a collaboration of 30 member countries sharing a commitment to democratic government and a market economy, Mexico's infant mortality rate was the highest at 20.5 per 1,000 live births in 2003 (this is also the second highest rate in the OECD). Canada had the lowest infant mortality rate of the three countries in 2003 at 5.3 per 1,000 live births. The United States rate stood at 6.9 deaths per 1,000 live births in 2003, above the OECD average of 5.7.³

Since 1970 there has been a dramatic decline in infant mortality rates in all three nations. Mexico's rate has declined 75 percent over that time period. It is speculated that this is a result of two important factors—an increase in universal immunization coverage of babies and a decline in the rates of respiratory and digestive infections.

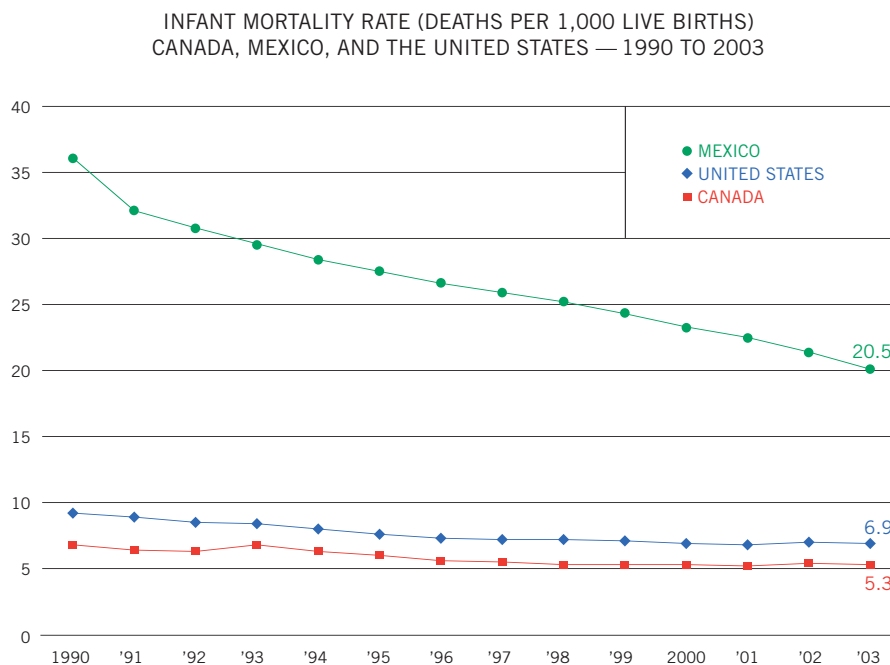
While Canada's rate has declined overall by 70 percent since 1970, there has been virtually no decline since 1998.⁴ The infant mortality rate in the United States has also fallen greatly since 1970, but not as much as in Canada and Mexico. After several decades of consistently falling infant mortality rates in the United States, improvement has stalled.⁵ In fact, in both Canada and the United States, the 2002 infant mortality rate worsened slightly—while the rate continued to fall in Mexico. And while this may be a one-time blip, it remains troubling. In both Canada and the United States, an increasing rate of preterm births (babies born before 37 weeks) is a significant contributor to the rates of infant mortality. The preterm birth rate is trending upward as a result of a number of

factors—one being the use of reproductive technology leading to multiple births. Between 1990 and 2002, there was a 42 percent increase in the multiple birth rate in the United States.⁶ In Canada, the rate increased steadily from 2.1 percent of births in 1991 to 2.7 percent in 2000.⁷ The infant mortality rate is also influenced by mothers having babies at later ages, by obstetricians intervening to deliver babies earlier when the fetus is in jeopardy, and by complications attributed to a lack of early, consistent prenatal care for some women.⁸

The two leading causes of infant death are similar across the continent: conditions that arise in the perinatal period (the period around birth) and congenital anomalies (birth defects). However, in Canada and the United States, the third leading cause is sudden infant death syndrome (SIDS).⁹ SIDS deaths are strongly associated with socioeconomic and environmental conditions. In Mexico, respiratory diseases and infectious diseases rank third and fourth—these conditions may be a reflection of social and environmental conditions and limited access to health care.¹⁰

Within this context of declining infant mortality rates in all three countries, there are disparities. For example, in Mexico, infant mortality in the poorest southern states (Chiapas, Oaxaca, and Guerrero) is about 50 percent higher than the rate of Mexico City and the state of Nuevo León in the north. In the United States, the infant mortality rate for African Americans is more than twice the rate for non-Hispanic whites.¹¹ In Canada, the infant mortality rate among the First Nations¹² population is 1.5 to 2 times that of the general Canadian population.¹³ And Canadian babies born to women in low-income neighborhoods are 1.6 times more likely to die in their first month of life than those in high-income neighborhoods.¹⁴

Low Birthweight Low birthweight is a key determinant of infant survival, health, and development. Babies born weighing less than 2,500 grams (about 5.5 pounds) have a high probability of having disabilities.¹⁵ They are more likely to die during their first year of



Source: OECD Health Division, www.ecosante.fr/OCDEENG/11.html.

life. For example, in the United States the risk of dying during the first year of life for low-birthweight babies is nearly 25 times that for babies of normal birthweight.¹⁶

The rate of low birthweight has slowly but steadily increased in the United States—by 18 percent between 1984 and 2003. In fact, the 2003 rate (7.9 percent) was the highest since 1972.¹⁷ In Canada, in 2001, 5.5 percent of babies born were low birthweight. The rate of low-birthweight babies has not decreased appreciably in Canada since 1979.¹⁸ The biggest contributor to this situation (as mentioned earlier) is an increase in preterm births in both Canada and the United States.

The proportion of Mexican babies with low birthweight has been consistently decreasing—from 9.5 percent in 1999 to 6.1 percent in 2001. However, researchers and experts advise that these figures should be interpreted with caution, since in many situations the baby's weight is estimated.¹⁹

Breastfeeding Breastfeeding is an important contributor to children's health. Breastfed babies are more likely to have healthy brain and nervous system development and be protected against infectious diseases. They are less likely to die from sudden infant death syndrome (SIDS), or develop diabetes, asthma, and obesity.^{20,21}

While the way each country measures breastfeeding differs, it appears that Mexico has the highest rates of breastfeeding, followed by Canada and then the United States. It is encouraging that in

all three countries the rate of breastfeeding is increasing.

Once again, there are variations within the countries. Mothers who live in rural Mexico and those who speak an indigenous language are more likely to breastfeed than are those in urban areas and those who are not indigenous.²² The most educated women are slightly less likely to breastfeed than the least educated. However, in the

BREASTFEEDING IN CANADA, THE UNITED STATES, AND MEXICO—TRENDS OVER TIME

CANADA*	1995	2003
Percentage of women age 15 to 55 who had a baby in the previous five years and initiated breastfeeding	75%	85%
UNITED STATES**	1990	2003
Percentage of women with a baby between one and 12 months of age who breastfed their infant in the hospital	52%	66%
MEXICO***	1972	1997
Percentage of infants who have been breastfed consistently—that is received only mother's milk	83%	90%

Sources: *Public Health Agency of Canada, *Making Every Mother and Child Count: Report on Maternal and Child Health in Canada*, Ottawa: Public Health Agency of Canada, 2005. **Ross Products Division of Abbott Laboratories, "Breastfeeding Trends: 2003," accessed online at www.ross.com/images/library/BF_Trends_2003.pdf, on July 26, 2006. ***Estimations of the Consejo Nacional de Población (CONAPO), based on the ENADID, 1997.



United States and Canada, mothers with more education are currently more likely to breastfeed.^{23,24} In the United States, Hispanic women are most likely to breastfeed, followed by non-Hispanic white women and non-Hispanic black women.²⁵ Poor women are less likely to breastfeed than are those who are well off. In Canada, there is a distinct regional variation—with the lowest rates in Atlantic Canada—and the rates progressively increasing as you move west across the country.²⁶

The World Health Organization (WHO) recommends exclusive breastfeeding for six months.²⁷ In Mexico, the prevalence of exclusive breastfeeding at six months was 20 percent in 1999.²⁸ In Canada, the rate was 17 percent in 2003²⁹ and 14 percent in the United States in 2004.³⁰

Immunization Immunizations are one of the most important tools we have to protect children from a wide range of diseases, including polio, measles, mumps, rubella, influenza, tetanus, diphtheria, and pertussis. Without immunizations, a much larger number of children in North America would die each year or live with the chronic effects of these diseases. Immunization coverage can also be an indicator of access to primary health care.

In the United States, the proportion of children age 19 to 35 months receiving the recommended schedule of vaccines has increased from 69 percent in 1994 to 82 percent in 2005.³¹ Still, many children in the United States are missing one or more recommended vaccines. Vaccine coverage among children differs from state to state, with the highest estimated coverage in Massachusetts (94 percent) and the lowest in Nevada (67 percent).³²

In Canada, according to data from the Pan American Health Organization, in 2005, 94 percent of infants under one year of age had received their complete series of diphtheria, pertussis, and tetanus vaccine (DPT); 89 percent received their polio series; and 94 percent had received the measles, mumps, and rubella (MMR) vaccine.³³ However, a 2005 study in the province of Ontario concluded rates of complete immunization coverage among two-year-old children were low—with only 66 percent of two-year-olds having complete up-to-date immunization coverage.³⁴ This was despite universal access to primary care services and a large number of primary care visits. A study in Saskatoon found that 70 percent of two-year-olds in the city had received all recommended doses of the MMR vaccine.³⁵ The reasons for low immunization coverage are complex. However, most commonly, low immunization rates are associated with low incomes. These inequalities exist whether free immunization programs are delivered primarily by public health practitioners or by physicians. This indicates that low-income families face barriers other than the direct cost of vaccines.³⁶

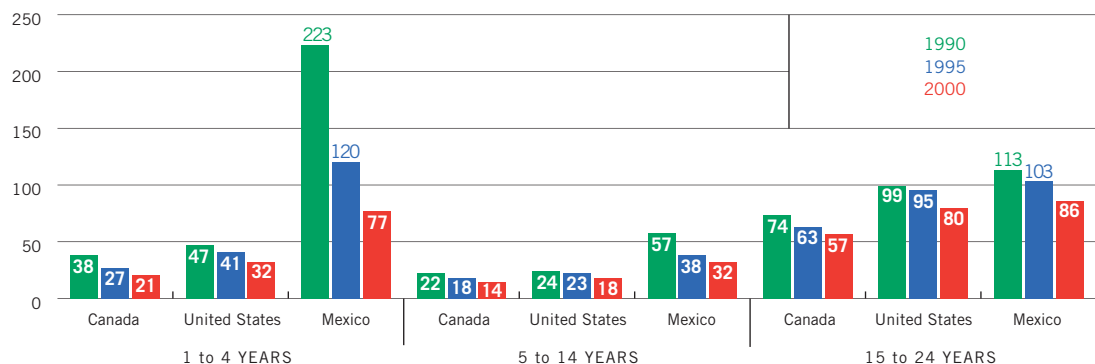
After the measles pandemic reached Mexico in 1990 and killed almost 6,000 babies, the Mexican government established a central authority to oversee the national vaccination campaign, known as the National Immunization Program. Babies are given their first immunizations—against polio and tuberculosis—in the hospital right after birth. They also receive a government-issued National Vaccination Record, on which the vaccines they receive throughout their lives will be tallied. The vaccine record must be presented in order to enter school, to get passports or other identification papers, and even to get some jobs and loans. Immunization campaigns—done with great fanfare—are run three times a year. In addition, uniformed brigades of nurses keep careful watch over vaccination rates, neighborhood by neighborhood. This sharply focused vision has proved remarkably effective—95 percent of one-year-olds have full immunization coverage. With respect to measles, coverage of one-year-olds increased from 79 percent in 1993 to 96 percent in 2003.³⁷

CHILD AND TEEN MORTALITY

In 2000, approximately 78,500 North American children and youth age 1 to 24 died. Death rates among children and youth have been declining in recent decades—in all countries, among all age groups. Between 1990 and 2000, Mexico has seen the greatest decline in death rates.³⁸

Children Age 1 to 4 Years In 2000, over 12,000 North American children age one to four years died. In all three countries, the largest contributor to the death rate of children in this age range was unintentional injuries.³⁹ However, following this, the leading causes are very different. In Mexico, infectious diseases were the second leading cause of death—almost two-thirds of

DEATHS, ALL CAUSES, BY AGE GROUPS: CANADA, MEXICO, AND THE UNITED STATES
RATE PER 100,000 POPULATION



Source: World Health Organization, Mortality Database.
www3.who.int/whosis/mort/table1.cfm?path=whosis,inds,mort,mort_table1&language=english.



these being due to gastrointestinal infections. Respiratory illnesses followed, with more than half of these deaths being caused by pneumonia. Malnutrition accounted for 6 percent of all deaths of young Mexican children age one to four and was the sixth leading cause of death.⁴⁰ These illnesses are all closely associated with the children's life circumstances—for example, access to clean water, combined with access to health services and other environmental influences such as family income.

The picture is different in the United States and Canada. Congenital defects, also known as birth defects, were the second leading cause of death, followed by cancer in both countries in 2000. Intentional injuries (violence) were the fourth leading cause of death in the United States, compared to the ninth in Canada.⁴¹

Children Age 5 to 14 Years In 2000, over 15,000 children between the ages of 5 and 14 died in North America. Thirty-seven percent of them died of unintentional injuries—the leading cause in all three countries. More than 40 percent—or almost 2,400 of these children—died as a result of motor vehicle collisions.⁴²

Cancer was the second leading cause of death in this age group in all three countries, claiming 2,200 lives. The death rate due to cancer is similar in Canada and the United States (about 2.5 per 100,000 population), but it is twice that rate in Mexico.

Leukemia is the leading single type of cancer that claims these children's lives in all three countries, accounting for 27 percent of children's cancer deaths in Canada and 31 percent in the United States. However, in Mexico, it accounts for 58 percent of cancer deaths of children age 5 to 14. The leukemia death rate is 2.9 per 100,000 population in Mexico—it is 0.8 in the United States and 0.6 in Canada.⁴³ The exact explanation for the higher leukemia death rate in Mexico is unknown. However, the WHO observes that in rich countries, some 50 percent of cancer patients die of the disease, while in developing countries, 80 percent of cancer victims have late-stage incurable disease when they are diagnosed—pointing to the need for better detection programs.⁴⁴ Furthermore, research from the Pan American Health Organization has indicated that the rates in Mexico may have been influenced by a combination of the delay in the adoption of effective therapies and improved accuracy of diagnosis.⁴⁵ Mexican experts also report that there is a significant level of distrust and ultimate avoidance of chemotherapy treatments among parents.⁴⁶ In addition, researchers are investigating links with environmental exposures—particularly high tension wires and oil stations.⁴⁷

ACCORDING TO THE WORLD HEALTH ORGANIZATION, IN 2000, MORE THAN 21,000 YOUNG NORTH AMERICANS AGE 15 TO 24 YEARS DIED AS A RESULT OF UNINTENTIONAL INJURIES, MANY OF WHICH WERE PREVENTABLE.

In Mexico, infectious diseases still rank as one of the five leading causes of death among children age 5 to 14 years.

Youth Age 15 to 24 Years In 2000, over 51,000 North American teens and older youth age 15 to 24 years died. The death rates among young people in this age group were similar to each other in the United States and Mexico—80 and 86 per 100,000 population, respectively. They were quite a bit higher than Canada's rate of 57 per 100,000 population.

The leading cause of death among youth age 15 to 24 years in all three countries is unintentional injuries. In Mexico and the United States, intentional injuries (violence) are the second leading cause of death. Infectious diseases are the fifth leading cause of death in Mexico.⁴⁸

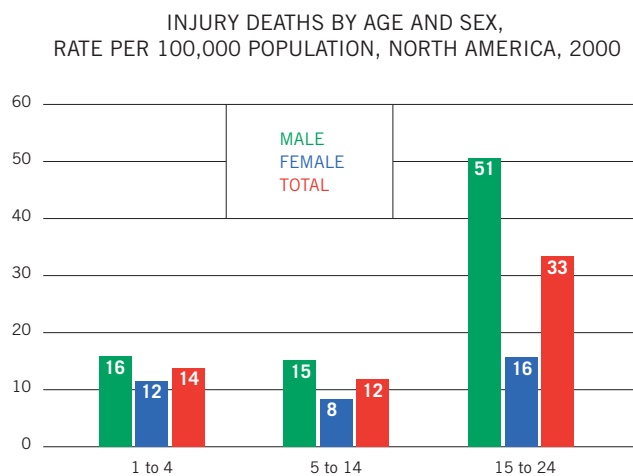
Unintentional injuries⁴⁹ take a tremendous toll on the youth of our continent every year. While younger children also die as a result of unintentional injuries, the greatest burden is borne by youth age 15 to 24—with their rate being more than twice that of children between one and 14 years. According to the WHO, in 2000, more than 21,000 young North Americans age 15 to 24 years died as a result of unintentional injuries, many of which were preventable. These accounted for 41 percent of all deaths in this age group.⁵⁰

Young men are three times more likely to die from unintentional injuries than are young women.⁵¹ In 2000, the United States had the highest unintentional youth injury death rate at 36 per 100,000 young people, followed by Mexico at 30 and Canada at 25.⁵²

Injury death rates are declining in all three countries. Between 1990 and 2000, Canada saw a 29 percent decline in injury death rates; in Mexico, it was 27 percent; and in the United States, it was 18 percent.⁵³ Motor vehicle traffic collisions are the leading cause of these deaths in all three countries.⁵⁴

ACCESS TO HEALTH CARE

Access to quality health care is important for children's well-being. This involves access to a first-level



Source: World Health Organization Statistical Information System (2005), Mortality Database, www3.who.int/whosis/mort/table1.cfm?path=whosis,inds,mort,mort_table1&language=english.

qualified provider, and then access to appropriate referral systems. It encompasses the availability of regular physical exams, preventive care, health education, immunization, and care of children when they are sick.⁵⁵

In North America, access to health care varies among and within countries. When children and families have unequal access to health care, the consequences can be significant in terms of health outcome inequalities and life prospects. For example, children who do not have access to vaccines for preventable illness may die, and children suffering from developmental disabilities who do not have timely diagnosis and referral may not develop to their potential. Some families deal with ongoing struggles to obtain the supports that are critical for their children's development.

Canada has a publicly funded, universally accessible health care system—where medical and hospital services are covered. It has played an important role in reducing health access inequities. In the United States, the mix of employer-based private insurance and public insurance for the poor (Medicaid) and for people age 65 and over (Medicare) provides uneven access, especially among working-age households. In Mexico, there is also a mix between those who are insured and those who are not—resulting in uneven access, particularly among the poor, self-employed, and professional middle class. Comparable data on many aspects of access to health care are not available, for example, access to primary care. This report examines access to health care on two important indicators—insurance coverage and availability of health care providers.

Health Insurance Coverage In 2004, 11 percent of children in the United States under age 18 did not have any health insurance. These 8 million children are less likely to have a regular source of health care and are less likely to have access to prescription medicines than those with insurance. They tend to receive late or no primary care, which results in higher levels of hospitalization for avoidable health problems. “Once in a hospital, they receive fewer services and are more likely to die than insured patients. Being born into an uninsured household increases the probability of death before age 1 by about 50 percent.”⁵⁶

There are clear differences in access to insurance among children in the United States by income and by race. Hispanic children, for example, are the least likely to be covered by health insurance (public or private). In 2004, 79 percent of Hispanic children had coverage, compared with 92 percent of white non-Hispanic children, 90 percent of Asian and Pacific Islander children, and 87 percent of African-American children.⁵⁷ Minorities who have health insurance coverage in the United States are more likely to be covered through Medicaid or publicly funded programs such as the State Children's Health Insurance Program (SCHIP).⁵⁸ Health insurance provided through employers is generally more comprehensive than public health insurance because it provides better coverage and is accepted by more physicians.⁵⁹

Access to health care is a critical issue for Mexico as well. In 2000, two-thirds of children under age 14 did not have access to private or public health insurance. In total, more than 55 million Mexicans did not have access to publicly sponsored health care services, including 20.3 million children under 14. These children are forced to rely on fee-for-service public clinics if they are available in their areas and can afford the fees. The result is that health care is beyond the means of many poor Mexican families and their children.⁶⁰

WHAT DOES NORTH AMERICA SPEND ON HEALTH CARE?

What a country spends on health care is one of the factors affecting access to care. However, spending more on health care does not equal better health outcomes.

The United States spends the most per capita (total population) on health care, \$6,100 (\$U.S., 2004), followed by Canada \$3,165 (\$U.S.) and Mexico \$662 (\$U.S.). Health spending rose in all three countries between 1990 and 2004 at a rate faster than their GDP. In 2004, health care spending accounted for 15.3 percent of the U.S. GDP, 9.9 percent in Canada, and 6.5 percent in Mexico.⁶¹ The aging of the population and increased spending on pharmaceuticals are the major contributing factors.⁶²

The public sector is the main source of health funding in Canada, 70 percent was funding from public sources in 2004. That compares with 46 percent in Mexico and 45 percent in the United States.⁶³

There are concerns that if health care spending continues to increase, governments will need to raise taxes, cut spending in other areas, or look more and more to private payers—including making people pay more out of their own pockets in order to maintain their existing health care system. In Mexico, direct out-of-pocket spending is already a large source of financing, accounting for 51 percent—the highest of all countries in the OECD.⁶⁴ Low-income families with high out-of-pocket medical care expenses often have trouble paying their bills—increasing the likelihood that they will drop health care coverage altogether.⁶⁵



Some children are more disadvantaged than others. In 2000, 83 percent of indigenous language speakers in Mexico did not have any health coverage compared to 56 percent of the rest of the population.

Health Care Providers Another factor affecting access to medical care is the availability of health care providers. The Pan American Health Organization reported that increases in the supply of health human resources over time has had a consistent and positive influence on population health status.⁶⁶ Therefore, this report examines the supply of doctors and nurses and the availability of trained personnel at birth. However, it is recognized that a full complement of health care workers are required to provide quality health care through all stages of life.

The supply of doctors and nurses is low in Mexico by OECD standards. In 2004, the doctor-to-population ratio was half of the OECD average—1.6 practicing physicians per 1,000 population in Mexico versus 3 in the OECD overall. The nurse-to-patient ratio was one-quarter (2.2 nurses per 1,000 population in Mexico versus the OECD average of 8.3). Despite the relatively high level of health expenditure in Canada and the United States, there are fewer physicians per capita than in most other OECD countries—2.1 per 1,000 population in Canada and 2.4 in the United States.⁶⁷

Availability of trained personnel at birth is an important contributor to both maternal and child health. In Canada and the United States, 99 percent of births were attended by trained personnel (2002), compared with 87 percent in Mexico (2001).⁶⁸

Families living in rural parts of Mexico, the United States, and Canada face particular challenges in finding good care because there are fewer health care providers available in their communities. For example, there are six times as many pediatricians per 100,000 people in large U.S. cities, compared to small, rural counties.⁶⁹ In Canada, in 2004, 9.4 percent of all physicians were located in rural areas, compared with 21 percent of Canadians—a situation virtually unchanged since 1996.⁷⁰

Challenges Facing Youth

SEXUAL HEALTH

Sexual attitudes and behaviors are established during adolescence. Healthy sexuality is a positive and life-affirming part of being human. However, sexual activity among teens can pose some health risks—for example, not practicing safer sex puts young people at higher risk of unwanted pregnancy and sexually transmitted diseases (STDs). There are social, health, and financial costs to unwanted teen pregnancy or to acquiring STDs. Therefore, it is important to monitor sexual activity and contraceptive use among teenagers.⁷¹

The trends in sexual health among teens across North America are similar. In both Canada and the United States, young people appear to be delaying the start of sexual activity. While trend data are not available for Mexico, in 2000, about two-thirds of 15- to 29-year-olds reported that their first sexual experience was between the ages of 15 to 19.⁷²

There is evidence in Mexico and the United States that the use of contraception is increasing—and that contraception use is high in Canada.

SEXUAL ACTIVITY—CANADA AND THE UNITED STATES

	1989	2002
CANADA*		
GRADE 9		
Males who had sexual intercourse at least once	31%	23%
Females who had sexual intercourse at least once	21%	19%
GRADE 11		
Males who had sexual intercourse at least once	49%	40%
Females who had sexual intercourse at least once	46%	46%
UNITED STATES**		
GRADES 9–12		
Males who had sexual intercourse at least once	57%	48%
Females who had sexual intercourse at least once	51%	45%

Source: *W. Boyce, M. Doherty, C. Fortin, and D. MacKinnon, *Canadian Youth, Sexual Health and HIV/AIDS Study*, Council of Ministers of Education, Canada, 2003. **Youth Risk Behavior Surveillance System, *Youth Online: Comprehensive Results*, accessed online at <http://apps.nccd.cdc.gov/yrbss>, November 2006.

CONTRACEPTION USE

MEXICO*	1992	1997
15- to 19-year-old sexually active females using contraception	36%	45%
20- to 24-year-old sexually active females using contraception	55%	59%
UNITED STATES**	1991	2005
Sexually active 9th and 12th graders using condoms ⁷³	46%	63%
CANADA***	2002 MALES	2002 FEMALES
9th graders who used some form of contraception the last time they had sexual intercourse	90%	92%
11th graders who used some form of contraception the last time they had sexual intercourse	95%	94%

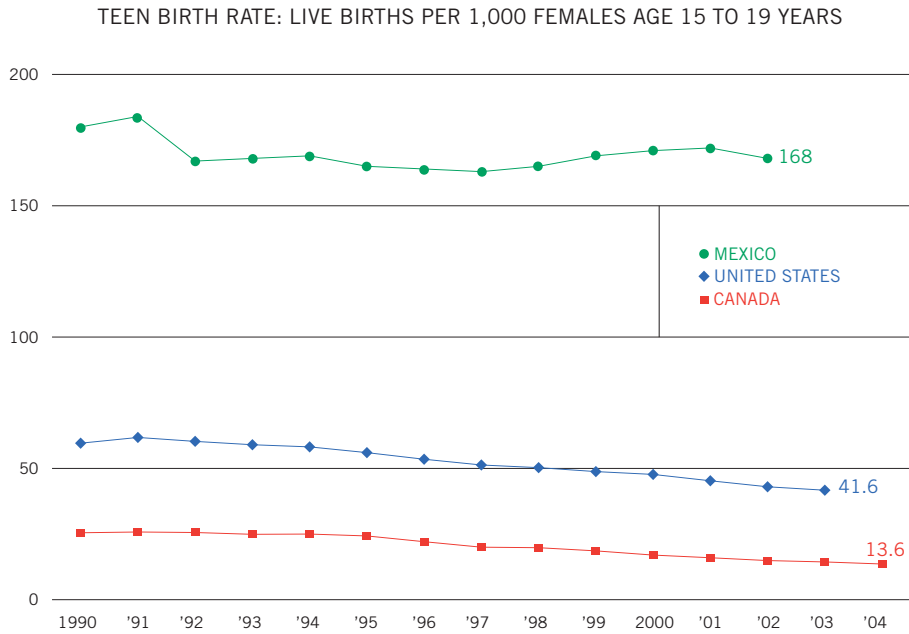
Sources: **Encuesta Nacional de la Juventud 2000*, Instituto Mexicano de la Juventud, Centro de Investigación y Estudios sobre Juventud. **YRBSS: Youth Online, Comprehensive Results, retrieved February 22, 2005, from <http://apps.nccd.cdc.gov/yrbss/>. General: Centers for Disease Control and Prevention, Surveillance Summaries, May 21, 2004, MMWR 2004:53 (No. SS-2): Table 44. ***Council of Ministers of Education, *Canadian Youth, Sexual Health and HIV/AIDS Study: Factors Influencing Knowledge, Attitudes and Behaviors*, Toronto: Council of Ministers of Education, 2003.

Births to Teen Moms All three countries have seen declines in the teenage birth rate. In the United States, between 1991 and 2003, the teen birth rate dropped by 33 percent. Even so, in 2003, U.S. teen birth rates were 42 births per 1,000 teens. The teen birth rate varies significantly in different parts of the United States—from a low of 18 births per 1,000 teen girls in New Hampshire to 63 in Mississippi, New Mexico, and Texas.⁷⁴

In Canada, teen birth rates have been steadily declining—overall by 48 percent between 1994 and 2004. Canada had the lowest rates of the three countries at 13.6 live births per 1,000 females age 15 to 19 years in 2004.⁷⁵

Mexico has much higher teen birth rates—but has also seen a small decline of 7 percent since 1990.⁷⁶ The rates vary by states—from a high of 206 births per 1,000 females less than 20 years of age in Nayarit to a low of 136 in Distrito Federal.

The implications of teenage childbearing are different among and within the countries. For example, in the United States, the poverty rate for children born to teenage mothers who have



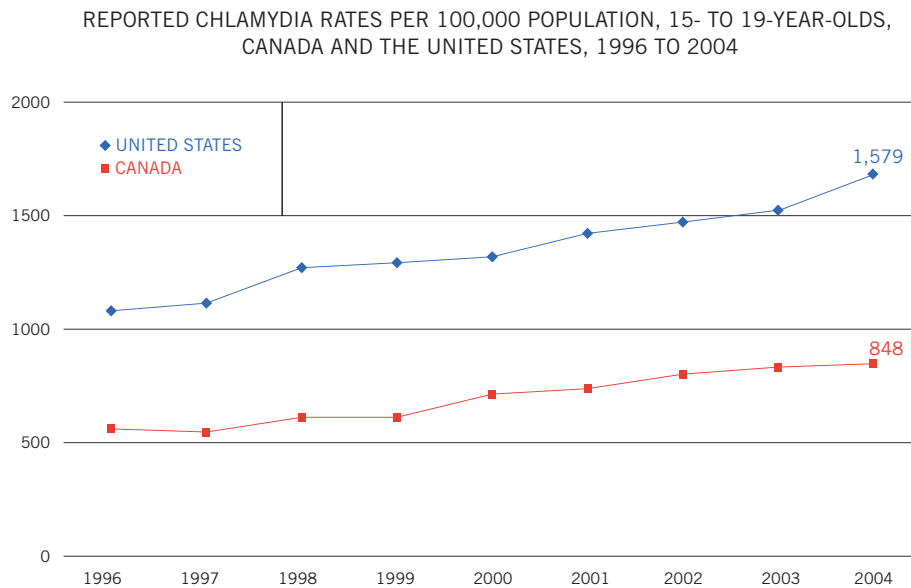
Sources: Mexico: INEGI, Estadísticas Demográficas, Cuaderno de Población No. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14. Aguascalientes, Ags. 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002.
 United States: Centers for Disease Control and Prevention, National Center for Health Statistics, Hyattsville, MD: U.S. Department of Health and Human Services, CDC.
 Canada 1990 to 2003: Statistics Canada, Canadian Vital Statistics, Birth Database and Stillbirth Database; Canadian Institute for Health Information, Hospital Morbidity Database and Therapeutic Abortion Database. The Statistics Canada publication *Reproductive Health: Pregnancies and Rates, Canada, 1974-1993* (Catalogue No. 82-568-XPB) was a major source of data for the years prior to 1994.

never married and who did not graduate from high school is 78 percent compared with 9 percent among married women over 20 with a high school diploma.⁷⁷ In Canada, children living with young single mothers are the poorest group in the country.⁷⁸ In Mexico, unplanned pregnancy among teens is of great concern. It is a major contributor to maternal deaths in this age group. The origin of the problem is the lack of sexual education, limited access and use of some methods of contraception, and a lack of specialized services for adolescents.

While it is important not to generalize about the potentially negative outcomes of teenage child-bearing, based on cultural differences, adequate supports for teen moms are not available in most communities.⁷⁹

Sexually Transmitted Diseases Sexually transmitted diseases (STDs) are on the rise among young people in Canada and the United States—as well as in other western countries. (Data are not available for Mexico.) For example, reported rates of chlamydia infection have increased in Canada among young people age 15 to 19 years by 51 percent between 1996 and 2004 and by 46 percent between 1996 and 2004 in the United States. However, the reported rates of chlamydia are lower in Canada than in the United States. Young women account for 67 percent of reported cases in Canada and 86 percent of reported cases in the United States.^{80,81}

Chlamydia can pose a significant threat to the health and well-being of young people. It can have potential permanent effects on fertility, and is suspected of contributing to the increasing rates of infertility in Canada.



Source: Canada: 2004 Canadian Sexually Transmitted Infections Surveillance Report, Public Health Agency of Canada. United States: Data from 1990 to 2003: Centers for Disease Control and Prevention (CDC), STD 2003 Surveillance Report, For total rates per 100,000 population by age and sex, Table 10, retrieved July 15, 2005, from www.cdc.gov/std/stats/tables/table10.htm, for rates per 100,000 population by race/ethnicity, age group, and sex, Table 11B, www.cdc.gov/std/stats/tables/table11b.htm; Data for 1998: CDC, 2002 Surveillance Report, Table 12B, www.cdc.gov/std/stats02/tables/table12B.htm; Data for 1997: CDC, 2001 Surveillance Report, Table 12B. Retrieved online July 15, 2005; Data for 1996: CDC, 2000 Surveillance Report, Table 11B.

TOBACCO, ALCOHOL, AND OTHER DRUG USE

Young peoples' desire for independence and their curiosity to discover the world around them contribute to initial experimentation with tobacco, alcohol, and other drugs such as marijuana. Many do not venture beyond the experimentation phase, but others continue to be involved in a lifestyle that predisposes them to various health risks.⁸²

Trends in Substance Use Among Youth The ill-effects of tobacco in the general population are well documented. Smoking among young people is linked to increased frequency and severity of respiratory illnesses, decreased rate of lung growth and lung capacity, and higher resting heart rates that affect physical performance and endurance.⁸³ Many adults who are currently addicted to tobacco began smoking as adolescents, and it is estimated that more than 5 million of today's underage smokers will die of tobacco-related illnesses.⁸⁴ Therefore, it is encouraging that fewer youth smoke tobacco in all three countries.

Substantial proportions of young people consume alcohol in all three countries. It does appear, however, that the consumption rates might be higher in Canada and the United States than in Mexico.

CIGARETTE SMOKING

CANADA*	2000	2005
15- to 19-year-olds who smoke daily	18%	11%
UNITED STATES**	1998	2005
12th grade students reporting daily cigarette smoking in the previous 30 days	22%	14%
MEXICO***	1997	2003
7th, 8th, and 9th graders who have used tobacco in the past 30 days		
MALE	16%	13%
FEMALE	12%	12%

Sources: *Health Canada, Tobacco Use Statistics, Tobacco Use Monitoring Survey, www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/index_e.html. **Federal Interagency Forum on Child and Family Statistics, *America's Children: Key National Indicators of Well-Being, 2006*, Washington, DC: U.S. Government Printing Office. ***J. Villatoro, M.E. Medina-Mora, C. Rojano, N. Amador, P. Bermúdez, H. Hernández, C. Fleiz, M. Gutiérrez, and A. Ramos, *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal, 1997, 2000 y 2003, Reporte Estadístico*, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz (INPRFM)—Secretaría de Educación Pública (SEP), México, 2004.

ALCOHOL USE

CANADA*	1994/95	2002/03
15- to 19-year-olds who consumed alcohol in the past 12 months	74%	72%
UNITED STATES**	1991	2005
12th grade students who had at least one drink in the past year	78%	69%
MEXICO***	1997	2003
18-year-olds who drank alcohol in the past month	56%	60%

Sources: *Canadian Council on Social Development calculations using Statistics Canada's CCHS 2000/01, 2002/03 and NPHS 1994/95, 1996/97, and 1998/99. **National Institute of Drug Abuse (NIDA), "Monitoring the Future National Results on Adolescent Drug Use: Overview of Key Findings 2005." <http://monitoringthefuture.org/pubs/monographs/overview2005.pdf>. ***Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.

Alcohol use, especially when excessive, is often associated with risky behaviors such as unprotected sexual activity. Driving while impaired is still a problem of concern in all three countries. In Canada, the highest rate of impaired-driving deaths occurs at age 19.⁸⁵ In the United States, "young men age 18 to 20 (under the legal drinking age) reported driving while impaired more frequently than any other age group."⁸⁶ It is estimated that 45 percent of the deaths of young people in Mexico are related to alcohol.⁸⁷

The trends are mixed with regard to alcohol use. In Mexico City, the prevalence of youth age 14 to 18 who drank alcohol monthly increased between 1997 and 2003.⁸⁸ In Canada, over the past several years, alcohol consumption among youth age 12 to 14 has declined but there were no dramatic changes in alcohol consumption among older teens (15 to 19).⁸⁹ The United States has seen a decrease in alcohol use among 8th, 10th, and 12th graders.⁹⁰

Marijuana is the most commonly used illicit drug in all three countries. In the United States in 2005, 20 percent of 12th graders reported using marijuana during the past month. This rate has been relatively stable during the past decade.⁹¹



WHAT DO YOUTH SAY ABOUT ALCOHOL?

Surveys suggest that about half of youth in all three countries identify potential dangers associated with alcohol use and abuse.

- Forty-five percent of American 12th graders believe that weekend binge drinking puts people at “great risk” of harm.⁹²
- In 2003, 50 percent of high school students in Mexico City thought that drinking alcohol was very dangerous.⁹³
- In Canada, 41 percent of grade 12 students in the province of Ontario report that there is great risk in drinking one or two drinks daily.⁹⁴

In Canada, marijuana use has been increasing in the last 12 years. In 2002, 45 percent of grade 10 males and 35 percent of grade 10 females had used marijuana in the previous year. Twenty percent of boys and 9 percent of girls had used it 20 times or more. Between 1990 and 2002, the proportion of boys in grade 10 who had ever used marijuana doubled and the proportion of young women in the same age group increased by two-thirds.^{95,96}

In Mexico, the proportion of youth in grades 7–12 in Mexico City who have used marijuana increased from 4 percent to 7 percent between 1990 and 2003.⁹⁷ It appears that marijuana use is much lower in Mexico than on the rest of the continent. This can be partly explained by the fact that marijuana is more expensive than synthetic drugs in Mexico—therefore, young people are more likely to choose synthetic forms of illicit drugs. This is supported by the fact that use of synthetic drugs is increasing in Mexico.⁹⁸

The use of other illicit drugs has decreased in the United States, but increased in Canada and Mexico. In Canada, between 1990 and 2002, the proportion of youth who used cocaine, amphetamines, and ecstasy was smaller than those using marijuana, but the proportion of young people who have tried these drugs increased.

Emerging Issues

A thorough review of the indicators revealed a number of emerging health and safety issues. These were identified in all three countries, and in some cases are confirmed to be issues worldwide. While children in Canada, Mexico, and the United States are all confronting these issues, they experience them differently, depending on the country they live in and their life circumstances.

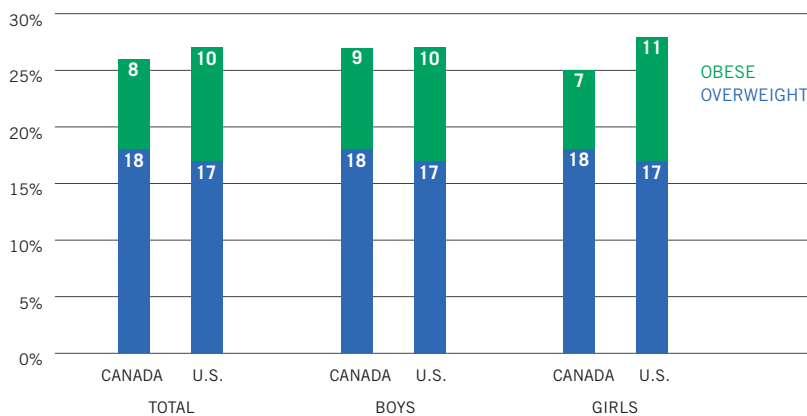
NUTRITION: A PARADOX

Nutrition is an important foundation for health and development. Better nutrition means stronger immune systems, prevention of chronic disease, optimal weight, and better health. Healthy children learn better and are more likely to participate fully in their communities and societies.

A paradox exists in North America—an emerging obesity problem and, at the same time, a persistent problem with access to food and undernutrition for some children. This is a paradox that appears to be emerging worldwide. Undernourished children are at higher risk of infectious diseases. Overweight and obese children are at higher risk of many non-communicable diseases and for long-term health problems.

Overweight and Obesity—A Shared Health Problem Being overweight or obese during childhood can have a lifelong impact on health and quality of life. These children are more likely to be overweight and obese throughout their school years and into adulthood; are more likely to

OVERWEIGHT AND OBESITY RATES, BY SEX, CHILDREN AND YOUTH; AGE 2–17 YEARS
CANADA (2004) AND THE UNITED STATES (1999–2002)



Source: M. Shields (2005), Nutrition: Findings From the Canadian Community Health Survey, Issue No. 1, Measured Obesity: Overweight Canadian Children and Adolescents, Ottawa: Statistics Canada Catalogue No. 82-620-MWE2005001. Data sources: 2004 Canadian Community Health Survey; Nutrition; Canada Health Survey 1978/79.

OBESITY AND BEING OVERWEIGHT ARE EMERGING HEALTH PROBLEMS THROUGHOUT NORTH AMERICA. THE THREE COUNTRIES HAVE STUDIED DIFFERENT AGE GROUPS, BUT THEY ALL REACH THE SAME CONCLUSION: CHILDREN'S OVERWEIGHT AND OBESITY RATES, WHICH ARE BETWEEN 26 PERCENT AND 30 PERCENT, ARE TOO HIGH.

develop related health problems such as type 2 diabetes, hypertension, heart disease, arthritis, and cancer^{99,100,101}; and often have lower self-esteem, which can be associated with lower academic achievement.¹⁰²

Obesity and being overweight are emerging health problems throughout North America. The three countries have studied different age groups, but they all reach the same conclusion: children's overweight and obesity rates, which are between 26 percent and 30 percent, are too high.^{103,104,105,106,107,108}

There is clear evidence in the United States and Canada that this problem is getting worse. The prevalence of overweight and obesity among U.S. children changed relatively little from the early 1960s through 1980. However, since 1980 it has more than doubled.¹⁰⁹ In Canada, between 1979 and 2004 the rate of overweight and obesity among children almost doubled.¹¹⁰ Unfortunately, trend data are not available for Mexico.

There are disparities within each country. In Mexico, the problem is greater in urban areas and in the northern states. Indigenous children are less likely to be overweight or obese than are their non-indigenous counterparts.¹¹¹ Fast-food diets have had a particular influence on the diets of urban children—and urban children are more likely to be non-indigenous.

In the United States, African-American and Mexican-American children are almost twice as likely to be overweight than non-Hispanic white children.¹¹² In Canada, there are wide variations between the provinces, from 36 percent in Newfoundland and Labrador to 22 percent in Alberta.¹¹³

Obesity is a global problem. The WHO reports that high and increasing rates of obesity are being reported in many countries around the world.¹¹⁴ They state that, "at the other end of the malnutrition scale, obesity is one of today's most blatantly visible—yet most neglected—public health problems. Paradoxically coexisting with undernutrition, an escalating global epidemic of overweight and obesity—'globesity'—is taking over many parts of the world. If immediate action is not taken, millions will suffer from an array of serious health problems."¹¹⁵

PERCENTAGE OF CHILDREN 5 TO 11 YEARS WHO ARE OVERWEIGHT OR OBESE IN MEXICO BY REGION AND RURAL/URBAN, 1999

REGION & RURAL/URBAN	PERCENTAGE
North	35
Centre	25
Mexico City	33
South	22
Mexico	27
Rural girls	22
Urban girls	31
Rural boys	18
Urban boys	29

Encuesta Nacional de Nutrición, 1999, Instituto Nacional de Salud Pública (INSP) and Instituto Nacional de Estadística Geografía e Informática (INEGI), Mexico.

Type 2 Diabetes One of the results of the increasing rates of obesity is an increase in the incidence of type 2 diabetes among children.

In the United States, nationally representative statistics on type 2 diabetes among children are not available.¹¹⁶ However, research has shown that prior to 1994, fewer than 5 percent of U.S. children newly diagnosed with diabetes had type 2 diabetes. In subsequent years, 30 percent to 50 percent of children newly diagnosed with diabetes were type 2.¹¹⁷ While no ethnic group is untouched, certain groups are disproportionately affected—especially American Indian, African-American, Mexican-American, and Pacific Islander youth.

While Mexico does not have data specifically related to youth, the country has one of the highest rates of type 2 diabetes in the world. There is an average of 300,000 new cases a year, with a national prevalence of 11 percent. The number of people with diabetes grew sevenfold over the past 20 years. In 1968, diabetes was 35th in the leading causes of death in Mexico, it is now third.¹¹⁸

In Canada, while national incidence data are not available, type 2 diabetes is increasingly being recognized as a disease affecting the pediatric population as well as the adult population. One group that has been clearly identified as being at high risk for developing type 2 diabetes is the children of First Nations descent in northwestern Ontario and northern Manitoba. The rates of type 2 diabetes in Aboriginal children in Canada are rising.¹¹⁹

The Paradox—Access to Food and Malnutrition In spite of this emerging problem with obesity, there are still hungry children in all three countries.

In Mexico, there is physical evidence of children's lack of access to nutritious food. According to the WHO, 8 percent of Mexican children under five are underweight for their age (compared with 1.6 percent in the United States)¹²⁰; 2 percent suffer from moderate and severe wasting; and 18 percent are stunted for their age (compared with 1 percent in the United States).¹²¹ In rural areas, these figures are even higher, with 12 percent being underweight and 32 percent stunted. Indigenous children are more likely to be malnourished than are non-indigenous children. Malnutrition and other nutrition deficiencies remain a leading cause of death among young Mexican children—in 2000, they accounted for 6 percent of all deaths.¹²²

In Mexico, one of the largest manifestations of malnutrition is anemia,¹²³ which is a widespread public health problem with major consequences for health as well as social and economic development. The most dramatic health effects of anemia are increased risk of maternal and child mortality.¹²⁴ A national survey estimated that almost 4.1 million children under 18 in Mexico had anemia in 2005—almost 15 percent of the total population. The prevalence in young children age

one to four was 24 percent and 17 percent among children 5 to 11 years.¹²⁵ Anemia is the most widespread in rural areas.

In the United States, in 2005, about 4 percent of households had very low food security.^{126,127} Most U.S. families protect their children from hunger, even if adults in the household do not always have enough to eat.¹²⁸ In 2005, there were 270,000 households (0.7 percent of households with children), where at least one child experienced “reduced food intake and disrupted eating patterns at some time during the year.”¹²⁹ However, a bigger problem for food insecurity and low-income families is that higher-quality diets are expensive. Therefore, they are often forced to purchase less nutritious, calorie-dense foods because they are less expensive.

In Canada, in 2004, 9.3 percent of children under age 12 experienced some level of food insecurity—that is they were unable to afford the food that they needed. In this age group, 2.5 percent of all Canadian children experienced food insecurity with hunger; while 6.5 percent experienced food insecurity without hunger. It is a well-accepted fact that parents will deny themselves food in order to ensure that their children are not hungry.¹³⁰ Between 1989 and 2004 there has been a consistent increase in the number of Canadians who use food banks. Children accounted for about 40 percent of food bank users in 2004.¹³¹

MENTAL HEALTH

The mental health of children and youth is considered a critical health issue worldwide. The WHO contends that currently available epidemiological data suggest a worldwide prevalence of child and adolescent mental disorders of approximately 20 percent, and nowhere in the world is the documented need for services fully met.^{132,133} The experience documented in North America certainly mirrors these concerns. Furthermore, in all three countries, experts have identified a need for better indicators of mental health and illness and surveillance of the prevalence of mental disorders.

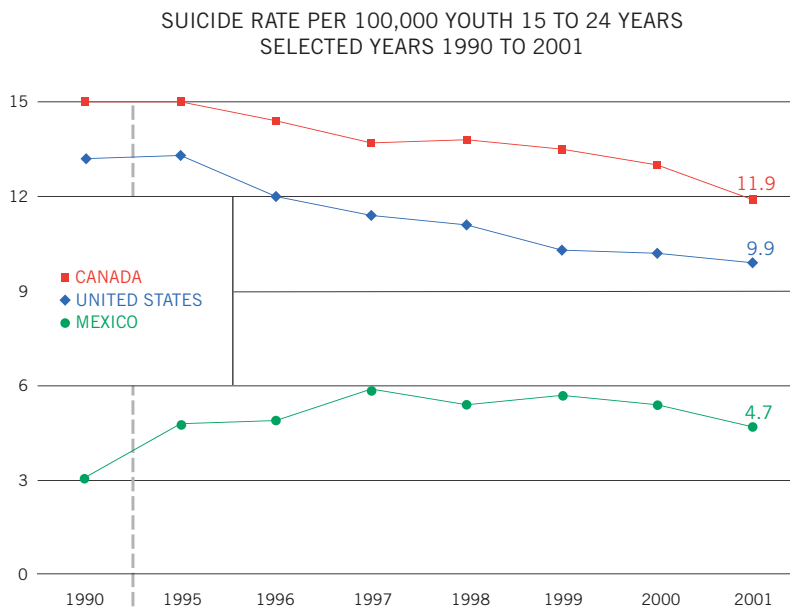
Depression All three countries have identified depression as a serious mental health problem among youth. In Canada, it is estimated that 1.1 million—or 14 percent—of children under the age of 20 have mental health conditions that affect their lives at home, at school, and in the community.¹³⁴ Furthermore, a national survey of youth age 15 to 24 years found that 18 percent of them had symptoms consistent with a mental health disorder—they were the most likely age group in the population to suffer.^{135,136} The most commonly experienced mental health disorder was a major depressive episode (6.4 percent).^{137,138} Likewise in Mexico, it has been estimated that 8 percent of the population has suffered a major depressive episode sometime during their life, with a starting

median age of 24 years.¹³⁹ Among all those having a major depressive episode once in their life, 28 percent had their first episode during childhood or adolescence. Studies in the United States have estimated the prevalence of depression with onset in childhood, between 9 and 17 years of age, to be approximately 5 percent.¹⁴⁰

Suicide Suicide is a serious problem for young people in North America. It is the second leading cause of death among teenagers in Mexico¹⁴¹ and Canada,¹⁴² and is third in the United States.¹⁴³

Suicide rates are highest in Canada among youth age 15 to 24 years. They have decreased slightly in Canada and the United States between 1990 and 2001. In Mexico, suicide rates increased between 1990 and 1999, and have been relatively stable since. In all three countries, the rate of suicide is higher among young men than it is among young women.

Certain populations of young people are at particular risk of suicide—this is the case in all three countries. In Canada, the suicide rate for Aboriginal youth is three times that of non-Aboriginal youth—and accounted for 38 percent of deaths of Aboriginal youth in 1999.¹⁴⁴ In the United States, the rate of suicide among 15- to 24-year-olds is highest among American Indian males followed by white non-Hispanic males. In fact, the suicide rate of white non-Hispanic males (21 per 100,000



Source: World Health Organization, Mortality Database, www3.who.int/whosis/mort/ and World Health Organization, 2004, Mental Health: Suicide Prevention, www.who.int/mental_health/prevention/suicide.

population, 2003) is more than twice that of black or African-American males (9 per 100,000 population).¹⁴⁵

Attention Deficit Hyperactivity Disorder In Canada, it is estimated that 5 percent of school-age children 4 to 17 years have attention deficit hyperactivity disorder (ADHD).¹⁴⁶ In the United States, 7.7 percent of children between 5 to 17 years had this diagnosis in 2001–2004.¹⁴⁷ The incidence is much higher for boys than girls.^{148,149}

There are disparities among groups of children. U.S. data indicate that “almost 13 percent of white non-Hispanic children living in families with incomes below poverty level were reported to have ADHD—the highest of any group.”¹⁵⁰

CHILDREN WITH ADHD

Children with ADHD have difficulty paying attention and controlling their behavior. Many children with ADHD also have learning disabilities that affect school performance.¹⁵¹

ADHD can affect children’s lives in many ways, especially when it goes untreated.

Children with ADHD may have a difficult time making and maintaining friendships—and as a result can experience sadness and feelings of rejection. Adolescents with ADHD may be more likely than their peers to use alcohol and tobacco, have negative moods, and spend less time with their families.¹⁵² Their impulsivity and lack of judgment may bring them into conflict with the law.¹⁵³ The effects of ADHD may be cumulative and negatively influence adult functioning.¹⁵⁴



Although mental health experts in Mexico identify ADHD as one of the more important mental health problems in the country, there are no national epidemiological studies available. In Mexico, the AMDAHTA (Asociación Mexicana para el Déficit de Atención, Hiperactividad y Trastornos Asociados) estimates that approximately 1.5 million Mexican children have ADHD. A 2003 survey by the National Psychiatry Institute in Mexico City, estimated a conservative prevalence of 5 percent among children age 4 to 16 years.¹⁵⁵

Researchers have concluded that it is unclear whether there has been an increase in the percentage of children with ADHD in recent years. Although more children are being diagnosed with and treated for ADHD, this may not reflect an increase in incidence, but rather greater awareness of the condition due to media attention, development of effective treatments, or other factors.¹⁵⁶ A diagnosis of ADHD depends not only on the presence of particular symptoms and behaviors in a child, but on concerns being raised by a parent or teacher about the child's behavior and on the child's access to a doctor.



AUTISM

Canada and the United States are becoming increasingly concerned about the incidence of autism. Once thought to be rare, autism is now becoming recognized as a common neurological disorder affecting children and possibly one of the most common developmental disabilities.^{157,158} It is difficult to track because of inconsistencies in definitions, measurement, and diagnostic tools.¹⁵⁹

In Canada, epidemiological studies are still in the early stages, and more surveillance and research are needed to develop accurate data on the prevalence of autism spectrum disorders (ASDs).¹⁶⁰ While national rates for Canada are not available, it is estimated that ASDs may occur in about 1 in 160 children.¹⁶¹ The largest U.S. study ever conducted on autism found that 1 in 150 children have the disorder—about the same rate as in Canada.¹⁶²

Autism has not been identified as a major health problem in Mexico. One national prevalence study in 1996 found that 46,000 children had autism. Studies of medical cases indicate that autism is growing at an exponential rate, although data are not available to support this.¹⁶³

ASDs are four times more common in boys than girls. Signs usually appear during the first two to three years of life and ASDs are often diagnosed before the child reaches school age.¹⁶⁴

No one knows the cause of autism, although ongoing research is investigating many possibilities, including genetic influences, environmental factors, pre- and post-natal development, and immune deficiencies.¹⁶⁵

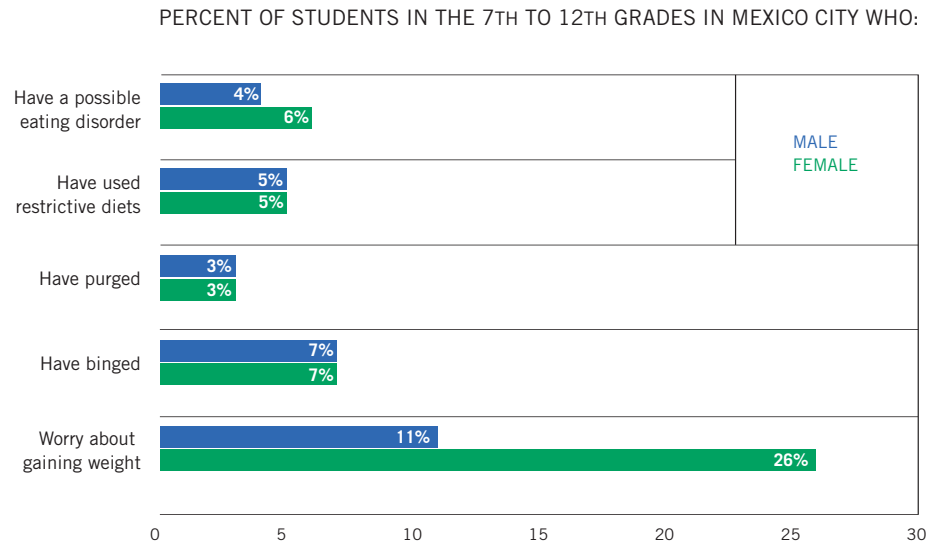
EATING DISORDERS involve serious disturbances in eating behavior, such as extreme and unhealthy reduction of food intake or severe overeating, as well as feelings of distress or extreme concern about body shape or weight. Eating disorders are not due to a failure of will or behavior; rather, they are real, treatable medical illnesses in which certain maladaptive patterns of eating take on a life of their own.¹⁶⁶

Eating Disorders and Body Image In North America, some teenagers, especially young women, are becoming preoccupied with achieving an “ideal” body. In the worst-case scenario, a fixation on body image can lead to eating disorders such as anorexia nervosa or bulimia. These disorders can become very serious. The death rate for eating disorders is high—estimated around 20 percent.¹⁶⁷

While the three countries measure different aspects of this problem, they all have reached the same conclusion—eating disorders are a concern.

- In Canada, 4 percent of young women (15 to 24 years) are considered at high risk for an eating disorder.¹⁶⁸ In a study in the largest province, Ontario, 27 percent of 12- to 18-year-old girls were reported to have significant symptoms of eating disorders. According to the Canadian Paediatric Society, eating disorders are the third most common chronic illness in adolescent girls.¹⁶⁹
- In the United States, it is estimated that 0.5 percent to 3.7 percent of females suffer from anorexia nervosa in their lifetime, and 1.1 percent to 4.2 percent have bulimia in their lifetime.¹⁷⁰
- In Mexico City, it is reported that 6.1 percent of young women in grades 7–12 have a possible eating disorder.¹⁷¹

There are a number of behaviors associated with eating disorders—dieting, self-induced vomiting, using laxatives, and bingeing. These practices can lead to serious medical problems.¹⁷² All three



countries report worrisome findings related to these behaviors. In the Ontario Study, 23 percent of 12- to 18-year-old girls reported dieting for weight loss, 15 percent reported binge eating, and 8 percent reported self-induced vomiting.¹⁷³

In the United States in 2005, about 5 percent of all youth in grades 9–12 reported vomiting or taking laxatives to control their weight.¹⁷⁴ In Mexico City, 7 percent of both males and females in grades 7–12 have binged, 3 percent have purged, and 5 percent have engaged in very restrictive dieting (i.e., eating nothing or water only for days) to control their weight.¹⁷⁵

All three countries report that many young women feel dissatisfied with their weight.¹⁷⁶ For example, in 2002, in Canada and the United States, more than 40 percent of 15-year-old girls were dissatisfied with their body weight. Substantially fewer boys in that age group felt that way—23 percent in Canada and 30 percent in the United States.¹⁷⁷ In Mexico City, 51 percent of boys and 52 percent of girls in grades 7–12 had a distortion of their body image—that is they believed they were either overweight or underweight even when they were not. Eleven percent of boys and 18 percent of girls were worried about gaining weight.¹⁷⁸

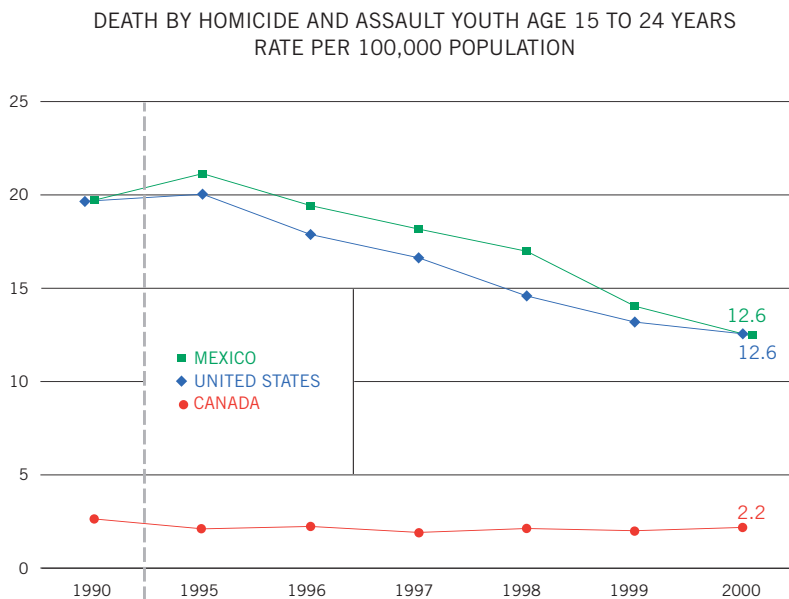
Although most of these attitudes are often benign, their presence can still carry significant psychological and medical risks, and can be associated with an increased subsequent risk of clinical eating disorders.

SAFETY AND SECURITY

Canada, Mexico, and the United States are all concerned with violence in today's society, the safety of their communities, and the welfare of their children. Measuring children's safety and security is often difficult, as pertinent data are not readily available. However, there are a number of measures that can be used to examine this problem. In this report, three indicators were chosen that have been identified on the continent as being important issues—deaths due to violence, bullying, and family violence. The perceptions of children and youth about violence in their communities are also shared.

Deaths Due to Violence In 2000, homicide and assault claimed the lives of over 7,500 youth age 15 to 24 years in North America. This is the second leading cause of death in this age group in Mexico and the United States—at 12.6 deaths per 100,000 population in both countries. The rate is far lower in Canada, at 2.2 per 100,000—and it is the fifth leading cause of death.

Death rates due to homicides and assaults appear to have been declining in both Mexico and the United States—by over 35 percent in each country.¹⁷⁹ In Canada, these death rates have increased slightly.



Source: World Health Organization Statistical Information System (2005), Mortality Database, www3.who.int/whosis/mort/table1.cfm?path=whosis,inds,mort,mort_table1&language=english.



WHAT IS BULLYING?

Bullying is a problem of relationship; it is the assertion of interpersonal power through aggression. Bullying involves negative physical or verbal action that has hostile intent, causes distress to the victims, is repeated over time, and involves a power differential between bullies and their victims. Victimization by bullying occurs when a person is made the recipient of aggressive behavior; the victim is typically someone less powerful than the perpetrator, who may be larger, stronger, or older. Repeated bullying consolidates the power relationships between bullies and their victims: the former gain power and the latter lose it. In such a relationship, the children who are being bullied become increasingly unable to defend themselves.¹⁸⁰

Young men are far more likely than young women to die violent deaths in all three countries. The male to female ratio is eight to one in Mexico, six to one in the United States, and three to one in Canada.

Bullying According to the World Health Organization, aggression in schools is a problem in many countries around the world. Healthy relationships form the foundation for healthy development of children and youth and bullying is seen as a relationship problem. Bullying and victimization have immediate and long-term effects. Children who are bullies tend to be bullies as adults and have children who are bullies; similarly, children who are victimized tend to have children who are victimized.^{181,182}

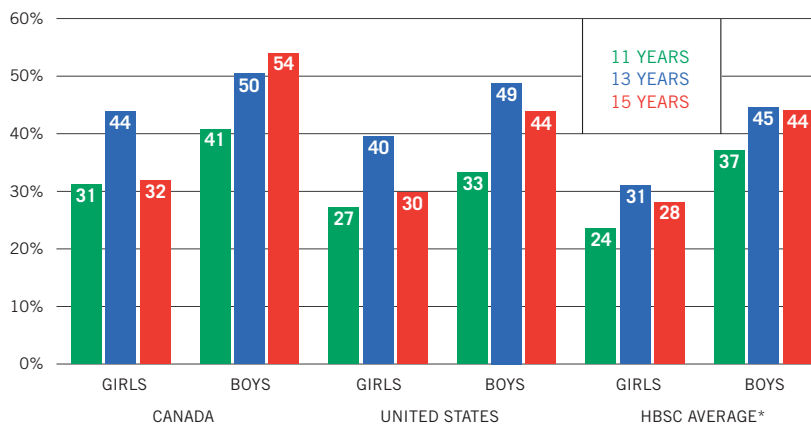
Bullying can occur anywhere—but bullying at school has come under recent attention. It affects children's participation in school. "The stresses of being bullied can interfere with student's

engagement and learning in school, as well as cause fear of going to school.”¹⁸³ “Bystanders to bullying are also impacted. The climate of fear and disrespect that bullying creates negatively impacts student learning.”¹⁸⁴ The WHO reports that “the costs of involvement in bullying to individuals, families, schools, and society are high. Children who bully or are victimized generate life-long costs because they become involved in multiple systems, such as mental health services, juvenile justice, special education, and social services. Interrupting this pattern of behavior is a critical issue.”¹⁸⁵

According to the WHO’s international Health Behaviour in School-aged Children (HBSC) study, Canada and the United States rank high with regard to the prevalence of bullying.¹⁸⁶

According to U.S. reports, “the incidence of behaviors such as bullying has increased, while school violence has declined in the past several years.”¹⁸⁷ Canadian experts are concerned that too many children are victims of violence and aggression in the schoolyard, the playground, and elsewhere. Some studies indicate that violent behavior of young people is increasing, that the violence is directed at other young people, and that the violence is committed by younger children than was the case in the past.¹⁸⁸

PERCENTAGE OF YOUNG PEOPLE WHO BULLIED OTHERS AT LEAST ONCE
IN THE PREVIOUS COUPLE OF MONTHS, 2001/2002



Source: C. Currie, C. Roberts, A. Morgan, R. Smith, W. Settertobulte, O. Samdal, and V.B. Rasmussen (Eds.), “Young People’s Health in Context, International Report from the Health Behaviour in School-aged Children (HBSC), 2001/2002 Survey,” WHO Policy Series: Health Policy for Children and Adolescents. Issue 4, 2004, Fig. 3.33, www.who.dk/Document/e82923.pdf.

*Average of all participating countries.

How Safe Do Children Feel at School? According to a 2001 national survey in the United States, 6 percent of students said they were afraid of being attacked at school and on the way to and from school—down from 12 percent in 1995. Between 2001 and 2003, the rates remained the same.¹⁸⁹

In Mexico, a 2003 national survey of high school students (grades 7, 8, and 9) found that their sense of security at school is declining. In 1997, 76 percent of boys and 83 percent of girls thought their schools were safe—by 2003, those proportions had declined to 63 percent and 69 percent, respectively.¹⁹⁰

In 2000, a Canadian national survey found that 56 percent of 10- and 11-year-olds felt safe at school all the time. Girls were more likely than boys to feel that way—61 percent vs. 52 percent. Sixty-two percent of both boys and girls felt safe all the time on the way to and from school.¹⁹¹

Do Children and Youth Experience Violence at Home? All three countries report that measuring the prevalence of family violence is difficult and they have different ways of measuring the issue. But they all conclude that it is a significant problem.

Exposure to violence at home can lead to social and behavioral problems for children, including low self-esteem, withdrawal, and aggression.^{192,193} The negative effects of domestic violence on mental health and social development can also contribute to physical health problems for children, including allergies, gastrointestinal problems, asthma, and headaches.¹⁹⁴

In the United States, exact figures on the number of children exposed to domestic violence are not known, but it is reported that each year millions of children are directly or indirectly affected.¹⁹⁵ Over half of female victims of intimate violence (violence between spouses, ex-spouses, boyfriends, girlfriends, and former boyfriends and girlfriends) live in households with children under age 12.¹⁹⁶ It is estimated that more than half of all homeless women and children in the United States are fleeing domestic violence.¹⁹⁷

In Mexico, according to a 2003 national survey, 17 percent of students in grades 7–12 reported that their parents and the adults in their homes fight—the proportion was 28 percent for girls. Fourteen percent said that these fights are related to alcohol consumption.¹⁹⁸

In Canada, in 2000, about 8 percent of children age 4 to 11—or approximately 247,000 children—witnessed adults or teens in their home physically fighting, hitting, or otherwise trying to hurt others. This rate is similar to the 9 percent reported in 1994 and 8 percent in 1996.¹⁹⁹



ENVIRONMENTAL HEALTH

Respiratory Illness One of the most disturbing health trends in recent decades has been the increase in the prevalence of respiratory illness among children in North America. In some regions of the continent there has been a fourfold increase in asthma prevalence in the past 20 years.²⁰⁰ “Asthma has been epidemic in large portions of North America for the past 15 to 30 years, affecting all ages, races, and ethnic groups.”²⁰¹ Children are most affected. It is a major cause of children being hospitalized and is the most common chronic disease of childhood in North America.²⁰²

The exact cause of asthma in children is unknown, but it appears to be the result of a complex interaction of many factors, including predisposition, environmental factors (e.g., indoor and outdoor air pollutants), and aggravating factors—or those that increase the frequency and/or severity of asthma attacks (e.g., environmental tobacco smoke).²⁰³ Heredity plays a role in the development of asthma; however, it cannot explain the large increase in asthma prevalence.²⁰⁴

While this increase in asthma is a generalized trend, along the U.S.-Mexico border, economic integration has been identified as one factor behind the rising rates. Large industrial plants have been established in this area and there is evidence of poor air quality and inadequate water and sanitation facilities. This prompted the North American Commission for Environmental Cooperation (CEC) to take up the issue of children and the prevalence of respiratory illness.

In 2004, about 12 percent of American children under the age of 18 had been diagnosed with asthma at some time in their lives—about 9 percent were reported to currently have asthma.²⁰⁵ The rate of children being admitted to hospitals for asthma and other respiratory illnesses has also been increasing in the United States—from 369 per 10,000 children in 1992 to 405 per 10,000 children in 2002.²⁰⁶

In Canada, the risk of asthma among children and youth increased sharply from the late 1970s to the mid-1990s. Since the mid-1990s, the rate has been relatively stable for teens but the rate has continued to increase for young children.^{207,208} In 2000, 13 percent of children under 12 had been diagnosed with asthma.²⁰⁹ Thirteen percent of 12- to 14-year-olds and 12 percent of 15- to 19-year-olds were reported to have asthma in 2003.²¹⁰

Respiratory illness is also a significant health concern in Mexico.²¹¹ Young children—those one to four years of age—have the highest rates of asthma in the population, and their rates are increasing.²¹² Each year, there are 16,000 new cases of acute respiratory infection per 100,000 children under age one reported in Mexico.²¹³ Acute respiratory infections have increased (slightly) among

young children age one to four years—from 7,500 per 100,000 population in 1998 to 8,100 per 100,000 children in 2002.²¹⁴

Asthma is known to disproportionately burden certain groups of children.²¹⁵ For example, lower-income urban populations are at greater risk of developing asthma because of suboptimal levels

YOU ARE WHAT YOU BREATHE

Many parts of North America have unacceptable air quality. This poses a potential threat to our children's health. Air pollution has serious short- and long-term health effects for children—contributing to respiratory illness and negatively affecting their development.^{216, 217, 218}

Canada, Mexico, and the United States have different data and information on outdoor air quality. In all three cases, there are causes for concern. In Canada, the two major components of air pollution—ground-level ozone²¹⁹ and fine particulate matter (PM_{2.5})²²⁰ are of concern. Ground-level ozone levels fluctuate from year to year, but have not improved significantly in the Prairies, Ontario, and Quebec over the past 13 years.²²¹ In Mexico, the levels of ground-level ozone and fine particulate matter (PM₁₀) were higher than accepted standards in a number of key metropolitan areas—e.g., ground-level ozone in Mexico City and particulate matter in Guadalajara, Mexico City, Monterrey, Toluca, and Ciudad Juárez.²²² In the United States, a high percentage of children live in counties where levels of ground-level ozone are higher than acceptable standards. A smaller, but still significant, percentage of children are living in counties where fine particulate matter (PM_{2.5}) levels exceed standards; however, this has been decreasing.^{223, 224}

Indoor air pollution is another issue. While the exposure of children to environmental tobacco smoke (ETS) in Canada and the United States is declining, 14 percent of Canadian children under six still face this risk²²⁵ as do 11 percent of American children under the age of seven.^{226, 227} While Mexico does not have data on the prevalence of children's exposure to environmental tobacco smoke, ETS is considered a significant public health threat in Mexico.²²⁸ Burning firewood or charcoal for cooking also causes indoor air pollution and is an important environmental health risk in Mexico. This biomass²²⁹ use is highest in southern Mexico and north central Mexico where 90–100 percent of children may be exposed. These are largely rural states with some of Mexico's poorest populations.²³⁰

of care, and because they may have higher exposures to pollutants.²³¹ In the United States, the percentage of children with asthma differs by race/ethnicity and family income. Between 2001 and 2004, 11 percent of children under 18 who lived below the poverty level were reported to have asthma, compared with 8.1 percent of those who lived at or above poverty.²³² Thirteen percent of black non-Hispanic children and youth were reported to have asthma, compared with 8.1 percent of white non-Hispanic and 6.9 percent of Hispanic children and youth.²³³

In Mexico, it has been reported that the residents of coastal states are more likely to exhibit asthma. Researchers have speculated that this may be due to the high ambient humidity, where dust in homes has a higher probability of entering the respiratory tract in the form of suspended particles. The higher prevalence of asthma in these regions has also been attributed to the use of air conditioning systems, which harbor a large quantity of dust and molds that can trigger asthmatic episodes.²³⁴

Lead and Other Neurotoxins Lead is a known major environmental hazard for young children. Exposure to lead can result in neurological damage in young children that can lead to behavioral disorders, learning disabilities, and lower IQs.²³⁵ Recent research suggests that there is *no* acceptable threshold for the adverse effects of lead on developing central nervous systems.

The United States is the only country of the three that monitors the blood lead levels of children on a national basis. Blood lead levels in young children (under six years of age) have declined over the past 25 years. In 1978, about 4.7 million children age one to five had unacceptably high blood lead levels.²³⁶ In 2001–02, that figure was 200,000.²³⁷ Poor children are more likely to have higher blood lead levels than are non-poor children, and black non-Hispanic children have higher levels than white non-Hispanic children and Hispanic children.²³⁸

Children may be exposed to lead found in homes and other indoor environments due to the widespread past uses of lead in gasoline, paint, plumbing and building products, and other consumer goods. In Canada and the United States, indoor lead sources include lead in dust, lead-based paint, and lead in plumbing. In Mexico, a major source of indoor lead is home-based pottery operations using lead-based glaze along with use of this pottery in food preparation, serving, and storage.²³⁹ New sources of lead exposure from consumer products—many of which are intended for use by children—are also being discovered on the commercial market.

CHEMICAL EXPOSURE AND NEURODEVELOPMENT

As was seen in the data reported on mental health, neurodevelopmental conditions such as attention deficit hyperactivity disorder and autism are of increasing concern in North America. Neurodevelopmental disorders are disabilities in the functioning of the brain that affect a child's behavior, memory, or ability to learn. Researchers are only able to estimate the prevalence of these conditions at this time. According to the Environmental Protection Agency (EPA) in the United States, it is estimated that between 3 percent and 8 percent of the babies born in the United States each year will be affected by neurodevelopmental disorders such as attention deficit hyperactivity disorder or mental retardation.²⁴⁰ Experts caution, however, that these could be low estimates, and have reported that the prevalence of certain neurodevelopmental disorders—autism and attention deficit hyperactivity disorder, in particular—might be increasing, but the data to explore this are limited.²⁴¹

The EPA states that these conditions may be, in part, a result of exposure to environmental contaminants, but that the extent of their impact is currently unknown. While a few industrial chemicals are recognized causes of neurodevelopmental disorders, many more chemicals are known to cause neurotoxic effects in adults and many more have been shown to be neurotoxic in laboratory models. The toxic effects of such chemicals in the developing human brain are not known and they are not regulated to protect children.²⁴²

Lead is one chemical that has long been recognized as a neurodevelopmental toxin. The EPA states that “childhood exposure to lead contributes to learning problems such as reduced intelligence and cognitive development. Studies have also found that childhood exposure to lead contributes to attention deficit hyperactivity disorder and hyperactivity and distractibility; increases the likelihood of dropping out of high school, having a reading disability, lower vocabulary, lower class standing in high school, and the risk for antisocial and delinquent behavior.”²⁴³



CLEAN WATER

Access to clean, safe drinking water is essential to protect children from infections like giardiasis. According to the Commission for Environmental Cooperation (CEC), the risk of diseases associated with drinking water continues to be a concern in North America.²⁴⁴

Canada, Mexico, and the United States all have standards or guidelines that are designed to protect the health of the public from contaminants found in drinking water. These standards are monitored and enforced for public water delivery systems but typically do not cover private wells, which are found more frequently in rural and remote communities.²⁴⁵

- In Canada, about 25 percent of the population—or 6.8 million Canadians—are not connected to public water systems. These families live mostly in rural areas—but it is not known nationally how many people have wells that are subject to contamination or how many treat or disinfect their water before consumption.²⁴⁶ Water quality is a serious problem in First Nations communities. One-third of First Nations adults consider their household water unsafe to drink. Over 70 percent of all First Nations adults resort to alternative sources for drinking water.²⁴⁷
- In Mexico, the proportion of the population without access to running water has been decreasing—however, rural families are far less likely than are urban families to have access. The highest percentage of the population without piped water supply is in the southern states, with 30 percent to 50 percent of the population without coverage.²⁴⁸
- In 2004, 9 percent of American children were served by community water systems that did not meet all applicable health-based drinking water standards—this was down from 20 percent in 1993.²⁴⁹



Waterborne Illnesses Giardiasis is an intestinal parasitic infection that can be contracted through water that is contaminated. In Mexico, the prevalence of giardiasis among children declined between 1998 and 2002—and young children under the age of five are most likely to be infected. While the mortality rate of children under five for diarrheic diseases has declined in Mexico over the past decade, intestinal infections remain a leading cause of death among young children in Mexico, unlike the United States and Canada.²⁵⁰

In Canada, children age one to four are more likely to be infected with giardiasis than the rest of the population. However, their exposure is most likely to be through an infection in a child care setting—spread hand to mouth. The number of cases of giardiasis in Canada has been declining since 1992.²⁵¹

Conclusion

While the context of their lives varies, the 120 million children of North America share many common health issues.

North American children have collectively enjoyed improvements in health and declines in threats to their well-being. For example, the likelihood of babies dying before they are a year old has declined since the 1970s in all three countries. In fact, children and youth of all age groups—preschoolers, school-age children, teens, and young adults—are all less likely to die than they were 30 years ago. Fewer youth are smoking across the continent. Fewer youth are dying in car collisions. Young people are delaying the start of sexual activity and more likely to use contraception than they were in the past. And teen birth rates have declined in all three nations.

However, there are a number of serious health issues that have developed and are threatening the future well-being of North America's youth. Many young people are struggling with mental health problems such as depression, attention deficit hyperactivity disorder, and eating disorders. While the rates of unintentional injuries have declined, they are still too high across the continent and claim too many lives. Many of these deaths are preventable. Obesity has become an epidemic, and is leading to serious, chronic health problems such as type 2 diabetes among children and youth. Children are facing increasing threats in their environments, and it appears that they are paying the price with increasing rates of respiratory illness and high rates of neurodevelopmental disorders. And, within all three countries, not all children enjoy the same level of health. Disparities exist based on geography, race and ethnicity, and, most commonly, economic status.

Along with these similarities, there are some striking differences in the health and well-being of children in North America. In Mexico and the United States, significant numbers of children and youth do not have access to insured health services. In Mexico, a country in transition, children's lives are still threatened to a large degree by a number of traditional health problems. For example, infectious diseases such as respiratory and gastrointestinal disorders—illnesses that rarely claim the lives of children in Canada and the United States—are still leading causes of death in Mexico. Children in Mexico struggle with malnutrition and anemia. Leukemia takes the lives of a large number of Mexican children, due, in part, to lack of access to adequate treatment. In the United States and Mexico, homicides and assaults are major threats to the lives of young people, with rates almost six times those in Canada. In Canada, in spite of universal access to primary care, immunization rates in some areas are lower than is acceptable.



The nations of North America have the opportunity—and obligation—to work collectively to solve these shared health problems and to learn from each other to improve the health of the children in each country. If the children of North America are to live to their fullest potential, they must enjoy good health. Furthermore, this is their right. The United Nations Convention on the Rights of the Child recognizes the right of children to enjoy the highest attainable standard of health and to have access to health care. It states that every child has the right to a standard of living adequate for their development, including nutrition. While parents have a primary responsibility to secure the conditions for the health of their children, governments and society overall have responsibilities to assist parents in providing for these rights. As individual countries and as a continent, we must address our obligation to ensure that our children and youth have the quality of life and the life prospects to which they are entitled.

Endnotes

- 1 Canada: 328,000; Mexico: 2,201,000; United States: 4,143,000 – 2004. UNICEF, *The State of the World's Children*, 2006.
- 2 Ibid.
- 3 Organization for Economic Co-operation and Development, *OECD Health Data 2006*, www.oecd.org/document/46/0,2340,en_2649_37407_34971438_1_1_1_37407,00.html.
- 4 Ibid.
- 5 Ibid.
- 6 K.D. Kochanek and J.A. Martin, "Supplemental Analyses of Recent Trends in Infant Mortality," accessed online at www.cdc.gov/nchs/products/pubs/pubd/hestats/infantmort/infantmort.htm, on Feb. 28, 2007.
- 7 Health Canada, *Canadian Perinatal Health Report*, Canadian Perinatal Surveillance System, 2003.
- 8 R. Walker, "Infant Mortality in the U.S. and Canada," *Ob. Gyn. News*, April 1, 2005.
- 9 World Health Organization, Mortality Database, Mort_tab2_2450-2000 (US) and mort_table2_2090-2000 (Canada), www3.who.int/whosis/mort/table2.cfm?path=whosis.indc,mort,mort_table2&language=english.
- 10 WHO, Mortality Database, Mort_tab2_2310-2001, www3.who.int/whosis/mort/table2.cfm?path=whosis.indc,mort,mort_table2&language=english.
- 11 Annie E. Casey Foundation, *KIDS COUNT Data Book*, 2006.
- 12 First Nations are one of the founding nations of Canada—the original or indigenous occupants of Canada. First Nations people are indigenous peoples of Canada, and their descendants. Collectively, First Nations, Inuit, and Métis peoples are known as Aboriginal peoples. They have been referred to as Indians, Native Canadians, and Aboriginal peoples. They are known officially by the Government of Canada as registered Indians if they are entitled to benefits under the Indian Act. There are over 630 First Nations' communities in Canada.
- 13 Health Canada, First Nations and Inuit Health Branch, *Statistical Profile on the Health of First Nations in Canada*, Ottawa: Health Canada, 2003.
- 14 Z.C. Luo, W.J. Kierans, R. Wilkins, R.M. Liston, J. Mohamed, and M.S. Kramer for the British Columbia Vital Statistics Agency, "Disparities in Birth Outcomes by Neighborhood Income—Temporal Trends in Rural and Urban Areas, British Columbia," *Epidemiology*, 2004 15: 679–686.
- 15 Statistics Canada, *Health Indicators*, Vol. 2005. No. 3. Catalogue No. 82-221-XIE, 2005.
- 16 Casey Foundation, *Data Book*.
- 17 Child Trends, DataBank.
- 18 Statistics Canada, CANSIM Table 102-4005, Vital Statistics – Birth Database—3231.
- 19 For 1999, SSA. Boletín de Información Estadística No. 19. Vol. II, Daños a la salud, 1999. México, D.F. 2000. For 2000, SSA. Boletín de Información Estadística No. 20. Vol. II, Daños a la salud, 2000. México, D.F. 2001 (medios magnéticos). For 2001, SSA. Boletín de Información Estadística No. 21. Vol. II, Daños a la salud, 2001. México, D.F. 2002 (medios magnéticos), www.inegi.gob.mx/est/contenidos/espanol/tematicos/mediano/med.asp?t=mpob36&c=3213.
- 20 American Academy of Pediatrics, "Section on Breastfeeding—Breastfeeding and the Use of Human Milk," *Pediatrics*, 2005, 115(2): 496-506.
- 21 S. Arenz, et al., "Breast-Feeding and Childhood Obesity: A Systematic Review," *International Journal of Obesity and Related Metabolic Disorders*, 2004, 28(10): 1247–1256.
- 22 T. Gonzalez-Cossio, et al., "Breast-Feeding Practices in Mexico: Results from the Second National Nutrition Survey, 1999," *Salud Pública Méx.* 2003, Vol. 45, Tomo 4:477–489.
- 23 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, "Breastfeeding: Data and Statistics: Breastfeeding Practices—Results from the 2004 National Immunization Survey," accessed online at www.cdc.gov/breastfeeding/data/NIS_data/data_2004.htm, on July 26, 2006.
- 24 Health Canada, *Canadian Perinatal Health Report*.

- 25 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, "Breastfeeding: Data and Statistics."
- 26 Health Canada, *Canadian Perinatal Health Report*.
- 27 World Health Organization, *Global Strategy for Infant and Young Child Feeding, The Optimal Duration of Exclusive Breastfeeding*, Geneva, 2001, www.who.int/gb/ebwha/pdf_files/WHA54/ea54id4.pdf.
- 28 Gonzalez-Cossio, *Breast-Feeding Practices in Mexico*.
- 29 Statistics Canada. "Health Reports: Use of Alternative Health Care (2003)," *The Daily*, March 15, 2005.
- 30 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, "Breastfeeding: Data and Statistics."
- 31 Child Trends, DataBank.
- 32 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, "Estimated Vaccination Coverage with Individual Vaccines and Selected Vaccination Series Among Children 19–35 Months of Age by State and Immunization Action Plan, US," *National Immunization Survey, Q1/2005–Q4/2005*," accessed online at www.cdc.gov/nip/coverage/NIS/05/tab03_antigen_state.xls, on Dec. 15, 2006.
- 33 Pan American Health Organization, *Health Situation in the Americas: Basic Indicators*, Washington DC: PAHO, 2006.
- 34 Up-to-date immunization coverage was defined as ≥ 5 immunizations by 2 years of age, i.e., the recommended 3 doses and 1 booster of diphtheria-polio-tetanus-pertussis/*Haemophilus influenzae* type b vaccine and 1 dose of measles-mumps-rubella vaccine.
- 35 Saskatoon Health Region, Public Health Services, *Immunization Report: Report of the Medical Health Officer*, Saskatoon Health Region, 2006.
- 36 Health Council of Canada, *Their Future Is Now: Health Choices for Canada's Children and Youth*, Toronto: Health Council of Canada, 2006.
- 37 *Millennium Development Goals in Mexico: Progress Report for 2005*, Mexican Government.
- 38 WHO Mortality Database, www3.who.int/whosis/mort/table1.cfm?path=whosis,inds,mort,mort_table1&language=english.
- 39 Ibid.
- 40 Ibid.
- 41 Ibid.
- 42 Ibid.
- 43 Ibid.
- 44 World Health Organization, *World Cancer Report*, 2003.
- 45 C. Bosetti and C. La Vecchi, "Cancer Mortality in Latin America: Implications for Prevention," *Rev Panam Salud Pública* 2005, 18(1) Editorial.
- 46 J. M. Mejia-Arangure, et al., "Incidence of Acute Leukemia in Children of Mexico City; 1982 to 1991," *Salud Pública Méx.*, Sept./Oct. 2000, Vol. 42, No. 5:431–437.
- 47 Ibid.
- 48 WHO Mortality Database, www3.who.int/whosis/mort/table1.cfm?path=whosis,inds,mort,mort_table1&language=english.
- 49 Definition of unintentional injury based on the ICD10 codes used from the WHO database.
- 50 WHO Mortality Database, *Mort_tab2_2310-2001*, www3.who.int/whosis/mort/table2.cfm?path=whosis,inds,mort,mort_table2&language=english.
- 51 Ibid.
- 52 Ibid.
- 53 Ibid.
- 54 Ibid.

- 55 M. Green (Ed.), *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. Arlington, VA: National Center for Education in Maternal and Child Health, 1994.
- 56 United Nations Development Program, "Inequality and Health in the United States," *Human Development Report 2005*, New York: UNDP, 2005:58.
- 57 Child Trends, DataBank.
- 58 The Henry J. Kaiser Family Foundation, *Key Facts: Race, Ethnicity & Medical Care*, 2003.
- 59 Ibid.
- 60 Estimations from XII Censo General de Población y Vivienda 2000, Instituto Nacional de Estadística, Geografía e Informática (INEGI) and Indicadores Socioeconómicos de los Pueblos Indígenas de México 2002, Comisión Nacional para el Desarrollo de los Pueblos Indígenas (CDI).
- 61 OECD, *OECD Health Data, 2006*.
- 62 National Center for Policy Analysis, *Health Care Spending: What the Future Will Look Like*, accessed online at www.ncpa.org/pub/st/st286/, on July 26, 2006.
- 63 OECD, *OECD Health Data 2006*.
- 64 Organization for Economic Co-operation and Development, *OECD Factbook 2006*.
- 65 M. Merlis, D. Gould, and B. Mahato, *Rising Out-of-Pocket Spending for Medical Care: A Growing Strain on Family Budgets*, The Commonwealth Fund, February 2006.
- 66 Pan American Health Organization, *Health Human Resources Trends in the Americas: Evidence for Action*, 2006.
- 67 OECD, *OECD Factbook 2006*.
- 68 Pan American Health Organization, *Health Human Resources Trends*.
- 69 W. O'Hare and K. Johnson, *Child Poverty in Rural America*, *PRB Reports on America*, 4, No. 1, 2004.
- 70 R.W. Pong and J.R. Pitblado, *Geographic Distribution of Physicians in Canada: Beyond How Many and Where*. Ottawa: Canadian Institute of Health Information, 2006.
- 71 www.cdc.gov/nchs/data/series/sr_23/sr23_024.pdf
- 72 National Youth Survey 2000, Mexican Institute of Youth, Center of Research and Studies about Youth.
- 73 In the last month.
- 74 Population Reference Bureau and Child Trends analysis of 1990–2003 Natality Data Set CD Series 21, Numbers 2–9, 11–12, 14–16 (SETS versions), and 16H (ASCII version), National Center for Health Statistics.
- 75 Statistics Canada, Births 2004, Catalogue No. 84F0210X1E and Health Canada, *Canadian Perinatal Health Report*.
- 76 This statistic is based on registered births and should be interpreted with caution since this may happen many months or years after the birth.
- 77 The Annie E. Casey Foundation, "Teen Motherhood at Record Low in United States," accessed online at www.aecf.org/kidscount/sld/snapshot_teenmother.isp, on Feb. 28, 2007.
- 78 Canadian Council on Social Development, *The Progress of Canada's Children: 2006*, Ottawa: Canadian Council on Social Development, 2006.
- 79 A. McKay, "Adolescent Sexual and Reproductive Health in Canada: A Report Card in 2004," *The Canadian Journal of Human Sexuality*, Vol. 13 (2) Summer 2004, SIECCAN (The Sex Information and Education Council of Canada).
- 80 Canada data from Canadian Sexually Transmitted Infections Surveillance Report, Public Health Agency of Canada, 2004; U.S. data from 1990 to 2004: Centers for Disease Control and Prevention (CDC), STD 2004 Surveillance Report. For total rates per 100,000 population by age and sex, table 10. Retrieved October 24, 2006 from www.cdc.gov/std/stats/tables/table10.htm.
- 81 Experts state that the increase in chlamydia is partially influenced by new diagnostic tests being available.
- 82 W. Boyce, "Young People in Canada: Their Health and Well-Being," *Health Behaviours of School-Aged Children*, Health Canada, 2004.
- 83 Centers for Disease Control and Prevention, 1993.

- 84 Federal Interagency Forum on Child and Family Statistics, *America's Children: Key National Indicators of Well-Being, 2006*. Washington, DC: U.S. Government Printing Office, 2006.
- 85 Canadian Public Health Association, *Fact Sheet: Alcohol and Injury*, www.drinkingfacts.ca, accessed December 2006.
- 86 National Centre for Injury Prevention and Control, *Impaired Driving Fact Sheet*, Centers for Disease Control and Prevention, 2005, www.cdc.gov/ncipc/factsheets/drving.htm, accessed December 2006.
- 87 Salud: México 2003, Secretaría de Salud (SSA), México. Secretaría de Salud (SSA). *Salud: México 2003*. México.
- 88 J. Villatoro, M.E. Medina-Mora, C. Rojano, N. Amador, P. Bermúdez, H. Hernández, C. Fleiz, M. Gutiérrez, and A. Ramos, *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal, 1997, 2000 y 2003, Reporte Estadístico*. Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz (INPRFM) – Secretaría de Educación Pública (SEP), México, 2004.
- 89 Canadian Council on Social Development calculations using the Canadian Community Health Survey.
- 90 National Institute of Drug Abuse, *Monitoring the Future National Results on Adolescent Drug Use: Overview of Key Findings 2005*, <http://monitoringthefuture.org/pubs/monographs/overview2005.pdf>, accessed July 5, 2006.
- 91 Ibid.
- 92 Ibid.
- 93 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.
- 94 Ontario Student Drug Use Survey, Centre for Addiction and Mental Health.
- 95 Boyce, *Young People in Canada*.
- 96 Health Canada, *Trends in the Health of Canadian Youth: Health Behaviours of School-Aged Children*. Ottawa: Health Canada, 1999.
- 97 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.
- 98 Ibid.
- 99 P.J. Veugelers and A.L. Fitzgerald, "Prevalence of and Risk Factors for Childhood Overweight and Obesity," *CMAJ*, 2005, 173(6):607–13.
- 100 A. Must and R.S. Strauss, "Risks and Consequences of Childhood and Adolescent Obesity," *International Journal of Obesity and Related Metabolic Disorders*, 1999, 23(Suppl2):S2–11.
- 101 Casey Foundation, *Data Book*, 2005.
- 102 M.S. Tremblay, J.W. Inman, and J.D. Willms, "Relationships between Physical Activity, Self-Esteem, and Academic Achievement in Ten- and Eleven-Year-Old Children," *Pediatric Exercise Science*, 2000, 11(3):312–23.
- 103 According to the body mass index and USA reference population.
- 104 Instituto Nacional de Salud Pública (INSP) and Instituto Nacional de Estadística, Geografía e Informática (INEGI), *Encuesta Nacional de Nutrición 1999*, México.
- 105 Instituto Mexicano de la Juventud (IMJ) and Centro de Investigación y Estudios sobre Juventud, *Encuesta Nacional de la Juventud 2000*, México.
- 106 Federal Interagency Forum on Child and Family Statistics, *America's Children: Key National Indicators of Well-Being, 2005*. Washington, DC: U.S. Government Printing Office, 2005.
- 107 M. Shields, "Nutrition: Findings From the Canadian Community Health Survey," Issue No. 1: *Measured Obesity: Overweight Canadian Children and Adolescents*, Ottawa: Statistics Canada, Catalogue No. 82-620-MWE2005001, 2005.
- 108 The American study used the height and weight of a nationally representative sample of Americans directly measured as part of the National Health and Nutrition Examination Survey; Canada used the Canadian Community Health Survey, 2004, based on direct measurements of the height and weight of a nationally representative sample of Canadian children and youth. In these studies, overweight and obesity rates were calculated using the body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared.
- 109 Federal Interagency Forum on Child and Family Statistics, *America's Children*, 2005.
- 110 Shields, "Nutrition."

- 111 INSP and INEGI, *Encuesta Nacional de Nutrición* 1999.
- 112 Federal Interagency Forum on Child and Family Statistics, *America's Children*, 2005.
- 113 Shields, "Nutrition": Data Sources: 2004 Canadian Community Health Survey; Nutrition; Canada Health Survey 1978/79.
- 114 T. Lobstein, L. Baur, and R. Uauy for the International Obesity TaskForce. "Obesity in Children and Young People: A Crisis in Public Health," *Obesity Reviews* 2004, 5 (Suppl 1):4-85.
- 115 WHO, "Obesity: Preventing and Managing the Global Epidemic," *WHO Technical Report Series* 894, Geneva: World Health Organization.
- 116 National Institute of Diabetes and Digestive and Kidney Diseases, National Diabetes Information Clearinghouse, accessed online at <http://diabetes.niddk.nih.gov/dm/pubs/statistics/index.htm>, on December 19, 2006.
- 117 A. Fagot-Campagna, D.J. Pettitt, M.M. Engelgau, et al., "Type 2 Diabetes among North American Children and Adolescents: An Epidemiologic Review and a Public Health Perspective," *Journal of Pediatrics* 2000, 136 (5):664-72; F.R. Kaufman, "Type 2 Diabetes Mellitus in Children and Youth: A New Epidemic," *Journal of Pediatric Endocrinology and Metabolism*, 2002, 15 Suppl 2:737-44.
- 118 Sistema Epidemiológico y Estadístico de Defunciones (CIE-10), 2001.
- 119 First Nations and Inuit Health Committee, Canadian Paediatric Society (CPS), "Risk Reduction for Type 2 Diabetes in Aboriginal Children in Canada," *Paediatrics & Child Health*, 2005, 10(1):49-52, Reference No. FNIH05-01.
- 120 WHO, *World Health Statistics 2006, Core Health Indicators*.
- 121 WHO, *Global Database on Child Growth and Malnutrition* (www.who.int/nutgrowth_db/database/en/), Mexico 1998-99 and United States 1999-02.
- 122 WHO, Mortality Database, www3.who.int/whosis/mort/table1.cfm?path=whosis.indc.mort.mort_table1&language=english.
- 123 Anaemia is defined as haemoglobin concentration below established cut-off levels.
- 124 WHO and United Nations Children's Fund, *Focusing on Anaemia*, Joint Statement by the World Health Organization and the United Nations Children's Fund, 2004.
- 125 Instituto Nacional de Salud Pública (INSP) and Secretaría de Salud (SSA), *Encuesta Nacional de Salud y Nutrición* (ENSANUT) 2006, México.
- 126 M. Nor, M. Andrews, and S. Carlson, *Household Food Security in the United States*, 2005, U.S. Department of Agriculture, Economic Research Service, accessed online at www.ers.usda.gov/Publications/ERR29/ERR29fm.pdf on December 2006.
- 127 Very low food security is defined as being when: the food intake of some household members was reduced and their normal eating patterns were disrupted because of the lack of money and other resources.
- 128 Federal Interagency Forum on Child and Family Statistics, *America's Children*, 2005.
- 129 Nor, et al., *Household Food Security*.
- 130 Statistics Canada, *Canadian Community Health Survey*, Nutrition, 2004, CANSIM Table 105-2004, www.statcan.ca/english/research/82-620-MIE/2005001/tables/t006_en.htm.
- 131 Canadian Council on Social Development, *The Progress of Canada's Children: 2006*, Ottawa: CCSD, 2006.
- 132 WHO, *The World Health Report 2001 – Mental Health: New Understanding, New Hope*, Geneva: World Health Organization, 2001.
- 133 WHO, *Caring for Children and Adolescents with Mental Disorders: Setting WHO Directions*, Geneva: World Health Organization, 2003.
- 134 C. Waddell, D.R. Offord, C.A. Shepherd, J.M. Hua, and K. McEwan, "Child Psychiatric Epidemiology and Canadian Public Policy-Making: The State of the Science and the Art of the Possible," *Canadian Journal of Psychiatry*, 2002, 47:825-832.
- 135 Statistics Canada, *Canadian Community Health Survey: Mental Health and Well-Being-2002*, Catalogue No. 82-617, Table 33.
- 136 The five disorders were major depressive episode, manic episode (mania), panic disorder, social phobia (social anxiety disorder) and agoraphobia. The substance dependence problems were alcohol and illicit drugs.

- 137 Statistics Canada, *Canadian Community Health Survey*.
- 138 This is based on the depression scale constructed from self-reported survey data—not a clinical diagnosis.
- 139 C. Benjet, G. Borges, M.E. Medina-Mora, C. Fleiz-Bautista, and J. Zambrano-Ruiz, "Early Onset Depression: Prevalence, Course, and Treatment Latency," *Salud Pública Méx.*, 2004, Vol. 46:417–424.
- 140 D. Shaffer, P. Fisher, M.K. Dulcan, M. Davies, J. Placentini, M.E. Schwab-Stone, et al., *The NIMH Diagnostic Interview Schedule for Children Version*.
- 141 Instituto Nacional de Estadística, Geografía e Informática (INEGI), *Estadísticas Vitales 2002*, México.
- 142 Statistics Canada, Table 102-0521, Vital Statistics Death Database, 2002.
- 143 Child Trends Data Bank, 2003 Data, www.childtrendsdatbank.org, 2006.
- 144 Centre for Suicide Prevention, *SIEC Alert #52*, September 2003, www.suicideinfo.ca.
- 145 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Health, United States, 2005*, Table 46: Death Rates for Suicide, According to Sex, Race, Hispanic Origin, and Age: United States, Selected Years 1950–2003, accessed online at www.cdc.gov/nchs/data/abus/hus05.pdf#highlights, on October 25, 2006.
- 146 C. Waddell, K. McEwan, C. Shepherd, D.R. Offord, and J.M. Hua, "A Public Health Strategy to Improve the Mental Health of Canadian Children," *Canadian Journal of Psychiatry*, 2005, 50:226–233.
- 147 Environmental Protection Agency, *America's Children and the Environment*, accessed online at www.epa.gov/envirohealth/children/index.htm, November 2006.
- 148 Ibid.
- 149 Waddell, "A Public Health Strategy."
- 150 Environmental Protection Agency, *America's Children and the Environment*.
- 151 National Institute of Mental Health, "Attention Deficit Hyperactivity Disorder," accessed online at www.nimh.nih.gov/publicat/adhd.cfm#intro, on July 26, 2006.
- 152 The Centre for Knowledge on Health Child Development, Offord Centre for Child Studies, *Attention Deficit Hyperactivity Disorder (ADHD)*, accessed online at http://knowledge.offordcentre.com/behavior/adhd/adhd_new.html, August 2006.
- 153 U.S. Department of Health and Human Services, *Mental Health: A Report to the Surgeon General*, Rockville, MD: U.S. Department of Health and Human Services, 1999.
- 154 ChildTrends Data Bank, 2006.
- 155 Instituto Nacional de Psiquiatría Ramón de la Fuente, *Encuesta Nacional de Epidemiología Psiquiátrica en México*, 2003 SSA.
- 156 T.J. Woodruff, D.A. Axelrad, A.D. Kyle, O. Nweke, and G.G. Miller, *America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses*, 2nd Edition, Office of Children's Health Protection, National Center for Environmental Economics and Policy Economics Innovation, 2003.
- 157 E. Fombonne, "Epidemiology of Autism and Other Pervasive Disorders: An Update," *J. Autism Dev. Disor.*, 2003, 33:365–381.
- 158 E. Fombonne, "Modern Views of Autism," *Can. J. Psychiatry*, 2003, 48:503–505.
- 159 The National Institute of Mental Health, "The Numbers Count: Mental Disorders in America," accessed online at www.nimh.nih.gov/publicat/numbers.cfm#Yearin-Allsopp_Autism, on December 15, 2006.
- 160 Autism spectrum disorder (ASD) refers to a group of neurodevelopmental disorders that affect the way the brain functions. For many individuals with ASD, this results in trouble communicating with others or difficulty with regular social interactions. ASD includes autism (also known as autistic disorder), Asperger syndrome and other related conditions. The types of ASD cover a wide variety of symptoms and levels of impairment.
- 161 Health Canada, *Background on Autism Spectrum Disorder*, accessed online at www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2006/2006_111bk1_e.html, November 2006.
- 162 Centers for Disease Control and Prevention, "Prevalence of the Autism Spectrum Disorders (ASDs) in Multiple Areas of the United States, 2000 and 2002," accessed online at www.cdc.gov/ncbddd/autism/documents/AutismCommunityReport.pdf, on February 12, 2007.

- 163 Sistema Nacional para el Desarrollo Integral de la Familia (DIF), Secretaría de Educación Pública (SEP) and Instituto Nacional de Geografía Estadística e Informática (INEGI). Primer Registro Voluntario de Menores con Discapacidad, México, 1996.
- 164 Health Canada, *Backgrounder on Autism*.
- 165 Ibid.
- 166 National Institute of Mental Health, *Eating Disorders: Facts About Eating Disorders and the Search for Solutions*, Bethesda: NIMH, 2001, www.nimh.nih.gov/publicat/index.cfm, 2.
- 167 C. Cavanaugh, "What We Know about Eating Disorders: Facts and Statistics," in R. Lemberg and L. Cohn, *Eating Disorders: A Reference Sourcebook*, Phoenix, AZ: Oryx Press, 1999.
- 168 Statistics Canada, "Canadian Community Health Survey: Mental Health and Well-Being, 2002," *The Daily*, September 3, 2003.
- 169 Adolescent Medicine Committee, Canadian Paediatric Society, "Eating Disorders in Adolescents: Principles of Diagnosis and Treatment," *Paediatrics and Child Health*, 1998, 3(3):189-92, reaffirmed January 2001.
- 170 NIMH, *Eating Disorders*.
- 171 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.
- 172 Child Trends Data Bank, 2006.
- 173 J.M. Jones, S. Bennett, M.P. Olmsted, M.L. Lawson, and G. Rodin, "Disordered Eating and Behaviours in Teenaged Girls: A School-Based Study," *Canadian Medical Association Journal*, 2001, 165(5):547-52.
- 174 Child Trends Data Bank, 2006.
- 175 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.
- 176 Jones, et al., "Disordered Eating and Behaviours."
- 177 C. Currie, C. Roberts, A. Morgan, R. Smith, W. Settertobulte, O. Samdal, and V.B. Rasmussen (Eds.), "Young People's Health in Context, International Report from the Health Behaviour in School-aged Children (HBSC), 2001/2002 Survey," WHO Policy Series: Health Policy for Children and Adolescents, Issue 4, 2004, Fig. 3.29, www.who.dk/Document/e82923.pdf.
- 178 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.
- 179 This is to be interpreted with caution. In a number of cases the deaths may not be registered as homicides, but unintentional injuries.
- 180 Currie, et al., "Young People's Health in Context."
- 181 Ibid.
- 182 W. Craig, "Bullying and Fighting," in William Boyce, *Young People in Canada: Their Health and Well Being*, Health Canada, 2004.
- 183 NEA Today, *Easing the Strain of Students' Stress*, Departments: Health, Washington, DC: National Education Association, September 1999, www.nea.org/neatoday/9909/health.html; NEA, *National Bullying Awareness Campaign*, 2003, www.nea.org/schoolsafety/bullying.html.
- 184 NEA, *National Bullying Awareness Campaign*; R. Banks, *Bullying in Schools* (ERIC Report No. EDO-PS-97-170), Champaign: University of Illinois, 1997.
- 185 Currie, et al., "Young People's Health in Context," 133.
- 186 Mexico does not participate in this study and does not have any national level data on bullying.
- 187 Wisconsin Clearinghouse for Prevention Resources, "Bullying: What We Know," accessed online at <http://wch.uhs.wisc.edu/docs/PDF-Pubs/bullying-fact-sheet-WCH.pdf>, on Feb. 28, 2007.
- 188 Health Canada, *Bullying in Canada*, http://ww4.psepc-sppcc.gc.ca/en/library/publications/fact_sheets/bullying/index.html#2, retrieved June 15, 2006.
- 189 National Center for Education Statistics, *Indicators for School Crime and Safety: 2004*, accessed online at <http://nces.ed.gov/pubs2005/2005002.pdf>, on July 11, 2006.
- 190 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.

- 191 Canadian Council on Social Development calculations using Statistics Canada's National Longitudinal Survey of Children and Youth, 2000.
- 192 E. Peled, P.G. Jaffe, and J.L. Edleson (Eds.), *Ending the Cycle of Violence: Community Responses to Children of Battered Women*, Thousand Oaks, CA: Sage Publications, 1995.
- 193 D.A. Wolfe, C. Wekerle, D. Reitzel, and R. Gough, "Strategies to Address Violence in the Lives of High Risk Youth," in E. Peled, P.G. Jaffe, and J.L. Edleson (Eds.), *Ending the Cycle of Violence: Community Responses to Children of Battered Women*, Thousand Oaks, CA: Sage Publications, 1995.
- 194 S.A. Graham-Bermann and Julie Seng, "Violence Exposure and Traumatic Stress Symptoms as Additional Predictors of Health Problems in High-Risk Children," *Journal of Pediatrics*, 2005, 146(3):309-10.
- 195 L.S. Carter, L.A. Weithorn, and R.E. Behrman, "Domestic Violence and Children: Analysis and Recommendations," *The Future of Children*, Winter 1999, 9(3):4-20.
- 196 U.S. Department of Justice, *Violence by Intimates: Analysis of Data on Crimes by Current or Former Spouses, Boyfriends, and Girlfriends*, March 1998.
- 197 Caring Unlimited, "Domestic Violence Facts", accessed online at www.caring-unlimited.org/DV-facts.html on July 6, 2006.
- 198 Villatoro, et al., *Consumo de Drogas, Alcohol y Tabaco en Estudiantes del Distrito Federal*.
- 199 Canadian Council on Social Development calculations using the National Longitudinal Survey of Children and Youth, 1994, 1996, and 2000.
- 200 President's Task Force on Environmental Health Risks and Safety Risks to Children 2000b, cited in Commission for Environmental Cooperation, *Children's Health and the Environment in North America: A First Report on Available Indicators and Measures*, Montreal: CEC, 2006.
- 201 Commission for Environmental Cooperation, *Making the Environment Healthier for Our Kids: An Overview of Environmental Challenges to the Health of North America's Children*, Montreal: CEC, April 2002, 26.
- 202 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 203 Woodruff, et al., *America's Children and the Environment*.
- 204 Ibid.
- 205 Environmental Protection Agency, *America's Children and the Environment*.
- 206 Ibid.
- 207 Canadian Council on Social Development calculations using data from the National Longitudinal Survey of Children and Youth, 1994, 1996, 1998, 2000.
- 208 Canada reports on the percentage of children who have been diagnosed with asthma by their physician. This information is provided through the National Longitudinal Survey of Children and Youth, which poses questions to parents on the health of their children.
- 209 Canadian Council on Social Development calculations using the National Longitudinal Survey of Children and Youth, 2000.
- 210 Statistics Canada, CANSIM 104-0001 (NPHS and CCHS).
- 211 In Mexico, we have information on the rate of asthma among children under age 14 (measured by the number of new cases per 10,000 children) and the leading causes of hospitalization.
- 212 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 213 Ibid.
- 214 Ibid.
- 215 Woodruff, et al., *America's Children and the Environment*.
- 216 Canadian Council on Social Development, *The Progress of Canada's Children*.
- 217 A. Di Rado, "USC Study Links Smoggy Air to Lung Damage in Children," *University of Southern California News*, September 17, 2004, <http://uscnews.usc.edu/hscweekly/detail.php?recordnum=10555>.
- 218 J. Gauderman, et al., "The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age," *The New England Journal of Medicine*, September 9, 2004, Vol. 351, No.11:1057-1067.

- 219 Ground-level ozone is formed when two common air pollutants, nitrogen oxides (NO_x) and volatile organic compounds (VOCs) react with each other. It is formed when sunlight heats up the air pollutants in urban areas usually during the heat of summer.
- 220 Airborne particles, or particulate matter, are solid or liquid particles. Fine particulate matter (PM_{2.5}) are the smallest particles (their diameters are 2.5 micrometers or less) and pose the greatest risk to human health because they can penetrate deep into the lungs. Fine particulate matter is an important component of smog. Fine particulate matter comes from burning fuels for transportation, industry, and residential heating.
- 221 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 222 Ibid.
- 223 Ibid.
- 224 Woodruff, et al., *America's Children and the Environment*.
- 225 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 226 Ibid.
- 227 The United States monitors cotinine levels in blood—cotinine is a breakdown product of nicotine and is a marker for recent exposure to ETS.
- 228 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 229 Biomass fuel is renewable fuel derived from a living organism or the byproduct of a living organism. Biomass fuels include wood, dung, methane gas, and grain alcohol.
- 230 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 231 Ibid.
- 232 Environmental Protection Agency, *America's Children and the Environment*.
- 233 Ibid.
- 234 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 235 Ibid.
- 236 Blood lead levels at or greater than 10 µg/dL.
- 237 Environmental Protection Agency, *America's Children and the Environment*.
- 238 Woodruff, et al., *America's Children and the Environment*.
- 239 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 240 B. Weiss and P.J. Landrigan, "The Developing Brain and the Environment: An Introduction," *Environmental Health Perspectives* 108, 2000, Suppl. 3:373–4.
- 241 P. Grandjean and P.J. Landrigan, *Developmental Neurotoxicity of Industrial Chemicals*, The Lancet.com, published online November 8, 2006, DOI:10.1016/S0140-6736(06)69665-7.
- 242 Ibid.
- 243 Woodruff, et al., *America's Children and the Environment*, 82.
- 244 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 245 Ibid.
- 246 Ibid.
- 247 National Aboriginal Health Organization, *Backgrounder: First Nations Water Quality*, 2005.
- 248 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 249 Woodruff, et al., *America's Children and the Environment*.
- 250 Commission for Environmental Cooperation, *Children's Health and the Environment*.
- 251 Ibid.

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