

# Chapter 1

## Highlights and Implications for Prevention

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This report uses the Ottawa Charter for Health Promotion definition of health as follows: “*A resource for everyday life and a positive concept that emphasizes social and personal resources as well as physical capacity*”. The Ottawa Charter<sup>1</sup> addresses pre requisites for health — peace, shelter, education, food, income, a stable ecosystem, social justice and equity. The pre-requisites are also known as the health determinants. Evans et al.<sup>2</sup> demonstrate how health is related to these physical and social determinants, as well as to biological and behavioural factors. Whereas the health care system usually treats disease and disability, the Charter’s more holistic approach is used throughout this report.

### Challenges to Achieving Health and Well-Being

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The health status report identifies challenges to current and future health of Ontario residents resulting from changes in the pre-requisites of health. As discussed by the Ottawa Charter<sup>1</sup>, Evans<sup>2</sup> and others<sup>3,4,5,6</sup>, health is dependent upon the determinants of peace, shelter, education, food, income, a stable ecosystem, social justice and equity.<sup>1</sup> In terms of education and income, many indicators clearly show a relationship between perceived health status and level of education and income.

As examples, a higher proportion of people with higher education and higher incomes reported their health to be excellent or very good. Thirty percent of low-income persons reported smoking on a regular basis, versus 21% of those in middle or high-income groups. Similarly, more low-income people reported being physically inactive. The literature does show that the rates of tuberculosis and other health events are associated with poor income and lower education level.<sup>7,8</sup>

The increasing poverty rate as reported in the 1996 Census, compared to the 1991 Census, raises the possibility that gains in health status over time may not be sustained. Currently, Ontario has a life expectancy equal to that of all Canada and enjoys comparable rates of disease and disability. Looking into the future, one becomes particularly concerned for children and single parent families, notably those led by women. The finding that 20% of children in Ontario in 1996 lived in poverty means that these children may not get the strong base on which to build a healthy future. The proportion of single parent families rose to 14% in 1996, of which over 80% were headed by females. As low-income children and their parents age, the rates of disease may increase and overall health status may decrease.

The physical environment must also be considered. While the report cannot provide, in such limited space, a thorough review of the environmental risks to health, it selected a few sample indicators, such as air quality. The report outlines how environmental factors are of increasing concern. Health is dependent on having clean air, water, and soil. The increasing number of hours, in which air quality was rated as “moderate to poor”, raises the risk of adverse health for asthmatics and those with breathing problems.

The implications are that the health status of Ontario residents may be compromised if the social and physical environment is not maintained or improved. It will become increasingly important for health care agencies in the provision of services, to consider health within the social and physical conditions in which all residents live.

## The Aging Population

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The picture of the health status report reveals a population that is aging. The baby boom generation is now past age 30, more people are in the 40 and over age group, and there are more seniors. Many health indicators reflect this aging process. The birth rate is declining as the numbers of women of reproductive age drop. While many in the baby boom generation have delayed having babies to an increasingly older age, they now appear to have reached the limit, and the overall number of births has begun to decline. This is occurring in spite of stable age-specific fertility rates (i.e. women in a particular age group between 15 and 44 have the same probability of having a baby, but the number of women in the age group of peak fertility has declined and will continue to do so). It is simply a change which resulted from the aging population.

The number of persons with chronic diseases (such as cancer and heart disease) and falls is increasing. The increase is occurring despite stable age-adjusted incidence rates. Again, the explanation lies in the demographics. Since chronic conditions increase with age and more people are now in the older age groups, the overall number of new cases is rising and will continue to rise.

Public concerns about the availability of services for cancer treatment, heart surgery, nursing home beds, and home care, are all symptoms of the demographic pressure and will continue to increase. Given the long incubation period for chronic diseases, delays in making decisions on prevention will mean that the only option left will be to provide the more high-cost disease treatment services. The means of addressing these public concerns requires balancing the availability of treatment services, with prevention efforts to reduce rates of disease.

## Diversity within Ontario

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The health status report also shows that Ontario has a diverse population with varying health status. In terms of the population, the greatest difference in many of the health indicators (e.g. income, ethnicity, immigration, and language) exists between Toronto Region, Central East Region and the other regions of the province. Toronto is the only region that is entirely composed of an urban environment. Urban and rural differences in exposures and health practices exist. Hence, some of the difference between Toronto and the other regions may reflect the urban-rural differences.

The impact of immigration and growing ethnic diversity within Ontario is substantial. In 1996, over 25% of Ontario residents, compared to 17% for all Canada,<sup>9</sup> reported themselves as immigrants and 5% reported having immigrated within the last five years. The impact of immigration implies the need to accommodate different languages, health customs, and health practices. Both curative and preventive health services must address the special needs of immigrants, especially those who have recently arrived. For example, when immigrants come from areas where tuberculosis is endemic, adequate programs are needed to manage these conditions.

While all areas in Ontario have the same major causes of mortality, the rates do show geographical variation. For example, heart disease was the leading cause of death in all regions, but in the North Region, the age-standardized death rates were 51% higher. Because of these higher rates of mortality,

life expectancy in the North was lower than that of all Ontario. The North Region also had higher rates of smoking and obesity, and lower rates of physical activity. These are known risk factors for heart disease, so the need for prevention is particularly high.

In contrast, Toronto had the highest rates of communicable diseases accounting for over half of the 1995 reported cases of tuberculosis, gonorrhoea and AIDS. The cause can be linked to many factors including income, housing, and demographic patterns. Rates of enteric diseases were also higher in Toronto, compared to the northern areas.

## Implications for Prevention

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The leading causes of death in Ontario are heart disease, stroke, lung cancer, chronic lung disease, breast cancer for women, prostate cancer for men, colon cancer, diabetes and motor vehicle injuries. Evidence exists that prevention efforts can reduce most of these rates.<sup>6,10,11</sup> As mentioned in the previous section on diversity, the rates of heart disease as well as the risk factors for this disease, were highest in the North Region. This congruency speaks to the need to target preventive programs to specific conditions such as smoking, obesity, lack of physical activity, alcohol use and high-risk activities for injuries. Interventions aimed at reducing the rate of risk factors (e.g. smoking) will reduce the rates of many diseases, such as heart disease, lung cancer, chronic lung disease and many other forms of cancer.

Prevention is usually classified into three main types. Primary prevention seeks to prevent the onset of the illness. Examples include strategies to reduce smoking so as to prevent lung cancer and heart disease. Other examples are the provision of a healthy diet and the promotion of physical activity. Secondary prevention detects disease early to increase effectiveness of the treatment interventions. Examples include mammographic screening for breast cancer or skin testing for tuberculosis. Finally, tertiary prevention provides treatment services with the goal to prevent disability and death. An overall plan to improve the health status must include all three forms of prevention. With limited resources, decision-makers must weigh the relative merits of providing treatment services against those of preventing disease. The balance of services directed at primary, secondary and tertiary prevention needs to be discussed and incorporated into health services planning.

The concepts of prevention must be integrated with the concepts of social and physical environment, diversity and aging. Due to the long incubation period for many diseases, it is important to enhance preventive services as well as treatment services. The diversity of the population must also be considered since preventive programs will need to be adapted if all residents are to have an equal opportunity to receive such services. Consideration must also be given to social and physical environmental needs. An example would be the need to provide adequate nutrition to a hungry person before discussing healthy eating to reduce risk of heart disease or cancer. All factors interact and cannot be addressed in an isolated fashion.

*The Mandatory Health Programs and Services Guidelines*<sup>1</sup> outline four main elements for the provision of preventive programs by public health. These are: a demonstrated need for the services, the possibility for public health to make a significant impact, the appropriateness for public health to address these issues, and the capacity to address the issue adequately. The Guidelines can be modified for application to other agencies and programs. Thus, preventive programs should target a specific need, use proven interventions, work collaboratively with other agencies, and be adequately resourced. Through such measures, the health of Ontario residents will improve.

## Conclusion

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Are Ontarians healthy? In comparison to the rest of Canada, the health of Ontario residents is roughly the same as that of other Canadians in terms of life expectancy<sup>13</sup> and other measures.<sup>14</sup> Mortality rates are similar to those of Canada, as are the rates of smoking and other risk factors. In terms of international comparisons, rates of disease are more difficult to compare. Using life expectancy as an example, Ontario residents have a very long life expectancy. It is not the highest in the world, but compared to most other developed countries, it is excellent.

“Can the health status of Ontario residents be improved?” The answer is yes. As shown in the previous parts of this chapter, there is an urgent need for decisions on the relative importance and extent of preventive services. These services are needed to reduce the rates of the leading causes of death and disability. Services aimed at addressing the underlying social and environmental conditions of Ontario are also required. The decisions on the nature and amount of these services will vary by region. For example, a major emphasis should be placed on chronic diseases in the North Region while enhanced control of communicable diseases and improvements in the social environment are required in the Toronto Region. These decisions must consider the diverse population including the needs of special populations in each area. Decisions must be made soon if the impacts of the aging population are to be minimized over the next decades.

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## References

1. World Health Organization, Health and Welfare Canada, and Canadian Public Health Association. (1986). *Ottawa Charter for Health Promotion*. Ottawa: CPHA.
2. Evans R, Barer M, Marmor T. (1994). *Why Are Some People Healthy And Others Not*. Aldine de Gruyer, New York.
3. Poland B. et al. (1998). Wealth, Equity and Health Care: A critique of a “population health” perspective on the determinants of health. *Social Science and Medicine*. 46: (6); Pg. 785-798.
4. Premier’s Council on Health, Well-Being and Justice. (1992). *Nurturing Health: A Framework for the Determinants of Health*. Queen’s Printer for Ontario.
5. Report of the Panel on the Health Goals for Ontario. (August 1987). *Health for all Ontario*.
6. CP Shah. (1998). *Public Health and Preventive Medicine in Canada*. 4<sup>th</sup> edition. University of Toronto Press, 1998.
7. Comstock GW, O’Brien RJ. (1991). Tuberculosis in *Bacterial Infections in Humans*, Evans AS, Brachman (ed.), Second Edition, Plenum Medical Book Company, New York.
8. Syme, SL. (1992). Social Determinants of Disease in *Maxcy-Rosenau-Last: Public Health & Preventive Medicine* Last JM, Wallace RB (ed.) Appleton & Lange, Connecticut.
9. Statistics Canada. (1997). 1996 Census: Immigration and Citizenship in *The Daily*. <http://www.statcan.ca:80/Daily/English/971104/d971104.htm>.
10. Puska, P. (1984). Community Based Prevention of Cardiovascular Disease: The North Karelia Project in *Behavioural Health, A Handbook of Health Enhancement and Disease Prevention*. Matarazzo J et al (ed), John Wiley & Sons, New York.
11. Blackburn H. et al. (1984). The Minnesota Heart Health Program: A Research and Demonstration Project in Cardiovascular Disease Prevention in *Behavioural Health, A Handbook of Health Enhancement and Disease Prevention*. Matarazzo J. et al. (ed), John Wiley & Sons, New York.
12. Statistics Canada. (1997). *Life Expectancy at Birth*.
13. Statistics Canada. (1997). <http://www.statcan.ca:80/Daily/English/971104/d971104.htm>.
14. Statistics Canada. (1999). *Health Status page*. <http://www.statcan.ca/english/Pgdb/People/health.htm#sta>

# *Chapter 2*

## **Methodology**

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### **Selection and Definition of Indicators**

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There has been substantial work in creating health indicators, and many publications exist on this topic.<sup>1,2,3,4,5,6</sup> Extensive work towards measuring health indicators in the United States has been done as part of the Healthy People 2000 project.<sup>7</sup> Despite these efforts, there remains an absence of many positive indicators of health. Hence most indicators used in this report are based on death, illness or disability.

The selection of indicators for this report was initially based on the 1997 Mandatory Health Programs and Services Guidelines<sup>8</sup> for Public Health. This document is produced by the Public Health Branch of the Ontario Ministry of Health under the Health Protection and Promotion Act.<sup>9</sup> In order to provide a more general overview of the health status of Ontario residents, additional indicators were added by respective participating agencies that had expertise in these areas.

Within the above listed publications on health indicators, there is remarkable consistency with the overall description of the indicators but variability in the exact method used in their calculation. Such variation limits the comparability across geographic areas when slightly different methods to calculate these indicators are used. The Association of Public Health Epidemiologists of Ontario (APHEO) created a working group whose main objective was to create a detailed specification of each indicator. This working group, called the Provincial Health Indicators Working Group (PHIWG), worked collaboratively with the authors of this report. Where possible, the methods recommended by the PHIWG<sup>10</sup> have been incorporated in this report. In this way, this report can provide reference values for health units who wish to calculate the same indicators for their own geographic area.

### **Sources of Data**

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Table 2-1 provides an overview of the data sources used in this report. The main data sources were the birth and death files, data from Canadian census files, the 1996/97 Ontario Health Survey, hospitalization data, and data on cancer incidence. Other data sources were accessed and these will be stated in each chapter as appropriate.

Readers of this report should be aware that the authors used a population health approach to measure health and address issues from the preventive health perspective. The report focuses on the health of populations, and any direct inference to a specific person or clinical situation should not be made. All data are presented in accordance with the confidentiality requirements of each data source. In all cases, the files used in preparing this report either contained aggregated data or ones for which all personal identifiers had been removed.

## Overall Limitations

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A few overall limitations are applicable to the entire report. These are listed below:

- Because of limitations of space, the indicator list cannot be comprehensive. A trade-off had to be made between the level of detail on each topic and the need to present information on a broad range of indicators in order to provide an overview of health. It is hoped that an appropriate balance has been achieved. Readers may need to consult other documents if more detail is required on any particular topic.
- In order to present overall trends, detailed statistical tables for each region were not included. These will be produced in a separate report to be published as a separate document.
- Consistent data were only available until 1996. Data for years since 1996 were inconsistently available. In order to provide reliable comparisons, 1996 was the last year chosen for inclusion in this report.
- Whenever possible, geographic coding from the different data sources was brought to the common unit, the public health units within Ontario. For most data sources, this meant aggregating Census Sub-Divisions to public health units. For others, the Ontario Municipal Codes were converted to the 1998 version and then aggregated to public health units. In all cases, the boundaries of the health units were standardized to maintain accuracy of the rates. Some minor discrepancies with health unit boundaries may occur in specific areas, but this will not affect the accuracy of rate calculations since the same geographic conversion methods were applied to all databases. Table 2-2 shows the distribution of public health units by region.
- Complete data on deaths, births and stillbirths were available on Ontario residents for 1986 through 1992. For the years 1993 through 1995, data were only available on Ontario residents who were either born (for birth file) or died (for mortality file) in Ontario. This has implications for the North and East Region since some residents will have received health care in the adjoining province. For the years 1993, 1994 and 1995, events which occurred outside of Ontario were not recorded in this report. While this creates a systematic bias, comparisons of rates prior to 1992, including this bias, with similar rates excluding this bias, revealed that the differences were small.
- The opinions and stated inferences on the data represent the views of the authors and are not those of the Ontario Ministry of Health and Long-Term Care or any of the member agencies.

## Choice of Comparisons

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- For this report, comparisons over time were made between 1981 through 1996. In some situations, data on previous years were not available and thus the trend analyses had to be restricted. Since the Ministry of Health and Long-Term Care has moved to having seven health regions, these seven regions were used in the analysis. Regional boundaries were obtained from the Ontario Ministry of Health as of September, 1998. Regional analyses were mainly done for the most recent year of complete data (usually 1996) or the last five years (1992 to 1996 inclusive) when numbers of events made the rates unstable. Figure 2-1 shows the 7 health planning areas within Ontario.
- No sub-regional analysis is presented. The data sets were coded to the Public Health Unit level and these data will be incorporated into the public health information system called “HELPS”.
- Where possible, comparison between Ontario and all of Canada will be made. Readers should be aware that Ontario is the most populous province in Canada and thus, it is a potentially biased comparison. In many cases, the slight differences in calculation of rates or use of different years’ data did not allow for such comparisons to occur.

## Calculations of Rates

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- Adjusted Census Canada Population data were used for the calculation of all rates. For the years from 1992 to 1996, Census Canada estimates based on the 1991 adjusted population data were used.
- ASMR's refer to Age-Standardized Mortality Rates. These rates have been directly standardized to the 1991 Census Canada Population. ASMR's are used to remove the effect of different age effects. Since mortality and many other health conditions are affected by age, it is important to remove any effect from different age distributions when making comparisons across two or more regions.

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## References

1. Canadian Institute for Health Information. (1995). *Health Status Indicators: Definitions and Interpretations*. Canadian Institute for Health Information, Ottawa, Ontario.
2. Public Health Surveillance. (1992). Edited by W. Halperin and E. Baker. Van Nostrand Reinhold, New York.
3. Istre, G. (1992). Disease Surveillance at the state and local level in *Public Health Surveillance* Halperin W, Baker EL (ed.), Van Nostrand Reinhold, New York.
4. Sauvageau Y et al. (1992). *User's Guide to 40 Community Health Indicators*, Ministry of Supply and Services Canada, Ottawa.
5. Peron Y, Strohmenger C. (1985). *Demographic and Health Indicators: Presentation and Interpretation*. Statistics Canada. Ottawa.
6. Model Standards Project Work Group. (1985). *Model Standards: A Guide for Community Preventive Health Services*. 2<sup>nd</sup> edition. American Public Health Association, Washington, D.C.
7. U.S. Department of Health and Human Services. (1996). *Healthy People 2000 Review, 1995-96*. National Centre for Health Statistics, Hyattville, Maryland.
8. Ontario Ministry of Health. (1997) *Mandatory Health Programs and Services Guidelines*.
9. Ontario Ministry of Health. (1981). Health Protection and Promotion Act.
10. Association of Public Health Epidemiologists of Ontario. (1999). <http://www/cchip.org/apheo/>

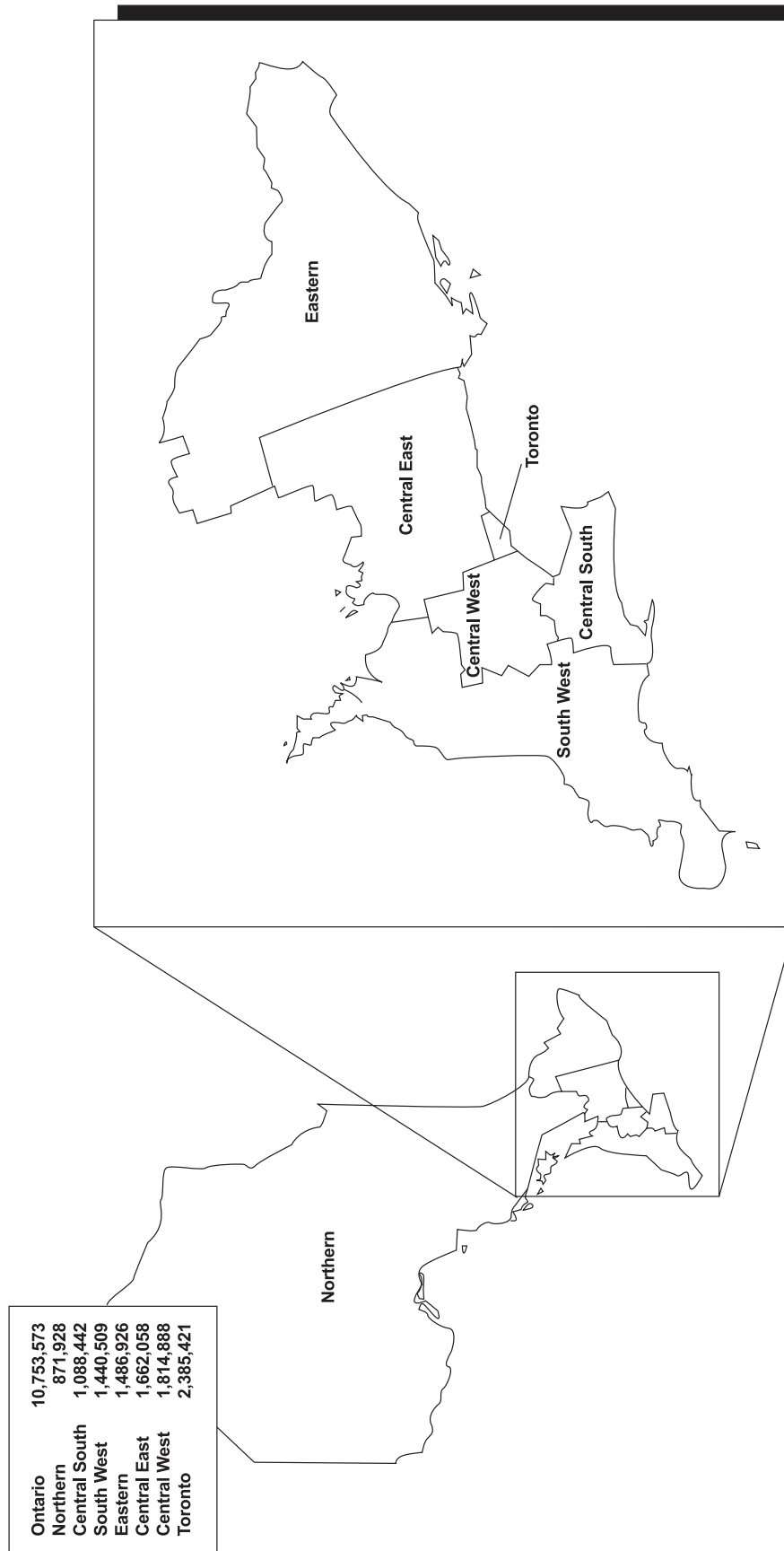
Table 2-1 — Overview of Data Sources Used in this Report

Database	Source	Years Available	Comments
Census data for populations	Census Canada	1976, 1981, 1986, 1991, 1996	Where possible, adjusted populations (which include estimates for undercounts and non-resident populations) were used.
Intercensal Estimates	Census Canada	1980–1985	Aggregations to regions were based on Census Division codes.
Intercensal Estimates	Census Canada	1986–1996	Aggregations to regions were based on Census Sub-Division codes and were based on 1991 adjusted population.
Mortality	Ontario Ministry of Health	1981–1995	Data are available for all deaths to Ontario residents for 1981 to 1993. After 1993, deaths are only available for those that occurred in Ontario to Ontario residents.
Stillbirths	Ontario Ministry of Health	1981–1996	Data for 1991 and 1992 are excluded due to low numbers and lack of data on geographic region (2 years only).
Live births	Ontario Ministry of Health	1981–1996	Data are available for all births to Ontario residents for 1981 to 1993. After 1993, births are only available for births in Ontario to Ontario mothers. Birth weight data was corrected for 1993 and 1994.
Abortions	Ontario Ministry of Health	1986–1991 and 1993–1995	Data on abortions performed in hospitals only are available for 1986 to 1991. In 1991 and 1992 some data on abortions done in free-standing clinics is also available. More complete data from clinics and hospitals is available after 1994.
Canadian Institute for Health Information (hospitalization data)	Institute for Clinical Evaluative Sciences (ICES)	1981–1996	Data for 1981 are available for 9 months only and thus will not be included. All data were converted from a fiscal to calendar year so it is consistent with other analyses.
Ontario Health Survey, 1996/97	Ontario Ministry of Health	1996/97	The “sharing file” was used. It contains 38,000 records for those who agreed that Statistics Canada could share the data with Ontario.
Workplace injuries and disease that were compensated	Ontario Workers Safety Insurance Board	1986–1996	Annual reports with the appended statistical tables were obtained and analyzed.

Table 2-2 — Health Units by 7 Health Planning Regions

Health Planning Region	Public Health Unit
Central East	Regional Municipality of Durham Health Department Haliburton-Kawartha, Pine Ridge District Health Unit Peterborough County-City Health Unit Simcoe County District Health Unit York Regional Health Services Department
Central South	Brant County Health Unit The Regional Municipality of Haldimand-Norfolk Health Department Region of Hamilton-Wentworth Social Services and Public Health Services Division Regional Niagara Public Health Department
Central West	Halton Regional Health Department Regional Municipality of Peel, Health Department Regional Municipality of Waterloo, Community Health Department Wellington-Dufferin-Guelph Health Unit
East	Eastern Ontario Health Unit Hastings-Prince Edward Counties Health Unit Kingston, Frontenac and Lennox and Addington Health Unit Leeds, Grenville, and Lanark District Health Unit Region of Ottawa-Carleton Health Department Renfrew County and District Health Unit
North	Algoma Health Unit Muskoka-Parry Sound Health Unit North Bay and District Health Unit Northwestern Health Unit Porcupine Health Unit Sudbury and District Health Unit Timiskaming Health Unit Thunder Bay District Health Unit
South West	Bruce, Grey, Owen Sound Health Unit Elgin-St. Thomas Health Unit Huron County Health Unit Chatham-Kent Health Unit Lambton Health Unit Middlesex-London Health Unit Oxford County Health Unit Perth District Health Unit Windsor-Essex County Health Unit
Toronto	Toronto Public Health

Figure 2-1 — Population of Ontario, 1996 — Seven Public Health Planning Regions



Source: 1996 Census, Statistics Canada