

Saskatchewan Comparable Health Indicators Report



Saskatchewan
Health

September 2002

A Message from the Minister of Health

I am pleased to present the *Saskatchewan Comparable Health Indicators Report*, an illustration of our province's commitment to provide regular and comprehensive reporting on health programs and services.

This report was commissioned by Canada's First Ministers in September 2000, in recognition of the importance of evidence-based research in guiding the allocation of resources in the health sector. All provinces and territories have released similar reports as part of this national initiative, and have pledged to provide further data in 2004.

The Action Plan for Saskatchewan Health Care has directed our government to move toward greater accountability. This report reflects that effort, as we strive to offer the best possible health care to the people of Saskatchewan.

John T. Nilson
Minister of Health

A Message from the Deputy Minister of Health

Saskatchewan Health recognizes the value of research in assessing the performance of our health system. While the majority of our health resources are devoted to organizing and delivering services, we must also concentrate on identifying priorities and measuring results.

The *Saskatchewan Comparable Health Indicators Report* represents many hours of work by dedicated Saskatchewan Health staff. It also represents our efforts to ensure that Saskatchewan people receive quality service and value for their health care dollars.

We will continue to work towards those goals, and to use sound research and data as we evaluate and direct our health care system.

Glenda Yeates
Deputy Minister of Health

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EXECUTIVE SUMMARY

Introduction

The Saskatchewan Comparable Health Indicators Report contains sixty-one (61) measures that together tell a story about the health of Saskatchewan residents and selected health services in the province. The report provides a wealth of information which will assist individuals to assess how we are doing in the areas of health status, personal health practices, public health activities, selected diseases and conditions and in the provision of selected health services.

The report is an important first step in public reporting for purposes of accountability and begins to move us away from measuring performance based primarily on input and output measures (e.g. number of physicians and nurses, dollars spent, surgeries performed). This first Comparable Health Indicators Report still contains some input and output measures, since this is the form most of our information collection takes. The current report must therefore be considered a work in progress. Future iterations of the report will build on the current work and move toward an improved performance measurement framework as well as improved measures.

The work was initiated by a September 2000 commitment by First Ministers to provide comprehensive and regular public reporting on health, using jointly-agreed upon comparable indicators of health status, health outcomes and quality of service.

Given the number of mandatory measures and the common reporting requirements this report is very long and technical. The report tells a complex and at times contradictory story. For example, when compared to other jurisdictions and the national average, Saskatchewan rates favourably on some measures and less favourably on others. In other words the Saskatchewan population and Saskatchewan health services fair favourably on some measures and not so well based on others.

Improved reporting on health system performance is one of the key goals in producing this report. The report is very useful in this regard, however, a note of caution is worth adding: due to the complexity of selected measures, the technical nature of the reporting requirements and the sheer volume of the report the benefits of public reporting may be only partially met in the first comparable health indicators report. To make the report more accessible and useable it has been organized around several major themes. In addition, technical specifications, notes on confidence intervals and notes on interpretation have been placed in appendices at the end of the report. As much as possible, the indicators are left to speak for themselves.

The report is organized around five chapters each telling a story about the health of Saskatchewan residents and about selected health services: A Story about Health Status

(Chapter 1); A Story about Personal Health Practices (Chapter 2); A Story about Public Health (Chapter 3); A Story about Select Diseases (Chapter 4); and, A Story about Health Service Provision (Chapter 5).

A Story about Health Status

Health status is often measured from a medical point of view, by assessing pathological conditions or health problems often using administrative information from hospitals and physicians. Health status can also be measured by surveying individuals' perceptions of how they feel about their health. The indicators analyzed in this chapter include both objective measures of ill health and subjective measures of health status. These indicators include:

- Self Reported Health Status
- Life expectancy
- Disability Free Life Expectancy
- Low Birth Weight
- Infant Mortality

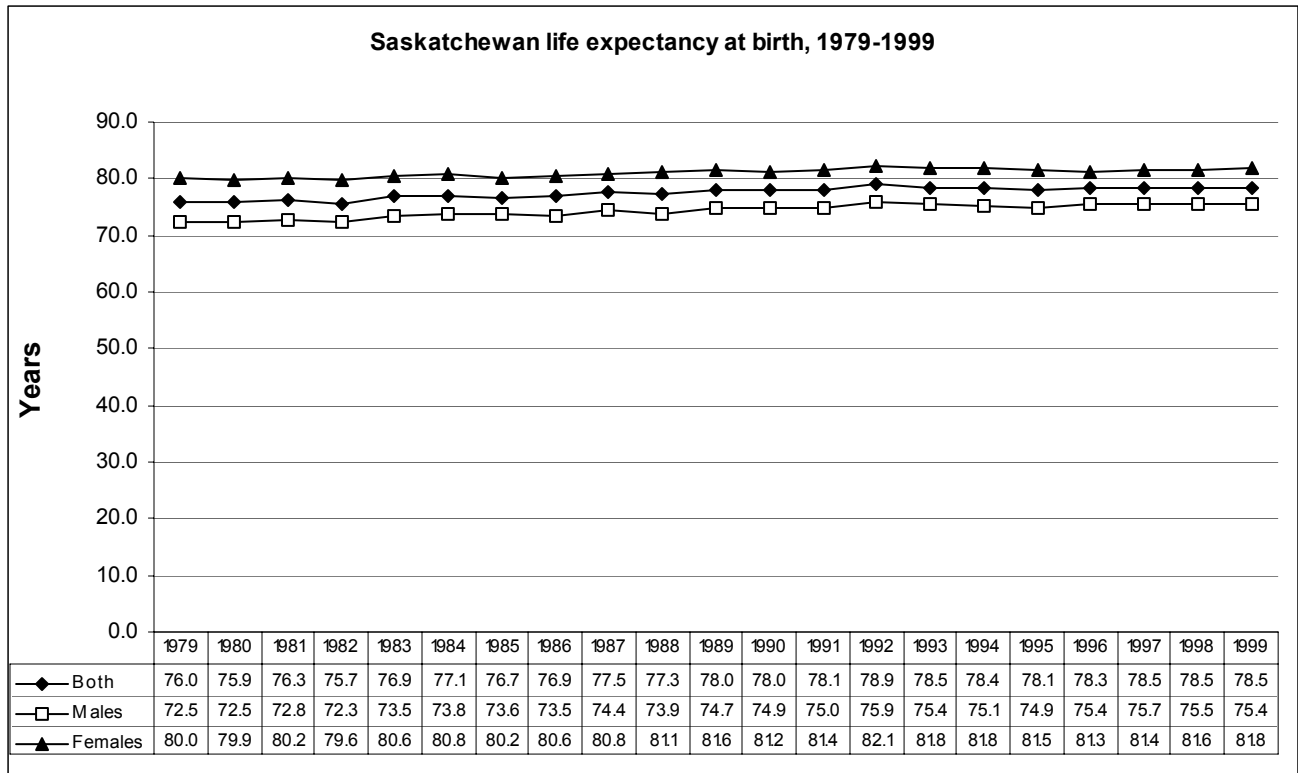
For Saskatchewan these indicators represent good news and bad news. We compare favourably to other provinces in life expectancy and disability free life expectancy. However, we do not fare as well on self-rated health status or infant mortality. A closer review of all of these indicators can be found in the main body of the report. Two indicators, life expectancy and infant mortality, are examined in more detail below.

Life expectancy

Life expectancy is a basic, reliable indicator of the overall health of a population. This widely used measure is an internationally accepted measure of health status and allows for accurate comparisons over time and between jurisdictions.

However, such measures have limitations. While life expectancy at birth and at age 65 are consistent and comparable measures over time, they will not vary much in response to events or health system changes. Furthermore, life expectancy as a global health status measure depends on many circumstances beyond the performance of the health system and the appropriateness of health services. This indicator also tells us little about "quality" of life, such as how disability or limitation of activity affects people's lives.

Between 1979 and 1999 in Saskatchewan, life expectancy at birth, and at age 65, increased. Life expectancy at birth increased 2.5 years to 78.5 years and life expectancy at age 65 increased by 0.6 years to 18.6 years in 1999. In other words a newborn in Saskatchewan can expect to live 78.5 years and a person residing in the province who reaches the age of 65 can expect to live, on average, another 18.6 years to 83.6 years of age.



Source: Statistics Canada, Vital Statistics, Death Database and Demography Division (population estimates).

Women in the province continue to enjoy longer life expectancy than their male counterparts. However, the gap in life expectancy between the sexes continues to narrow. Between 1979 and 1999, life expectancy at birth increased 2.9 years for males to 75.4 years, and 1.8 years for females to 81.8 years. A female born in 1979 could expect to live 7.5 years longer than her male counterpart, while a female born in 1999 will live approximately 6 years longer than males born at the same time. Life expectancy at age 65 for both males and females also increased between 1979 and 1999; however, the gap between the sexes remained unchanged during this time period.

Saskatchewan residents have similar life expectancy to that of most Canadians. However, there is significant regional variation within Saskatchewan, which speaks to the importance of the determinants of health in influencing longevity.

Infant Mortality

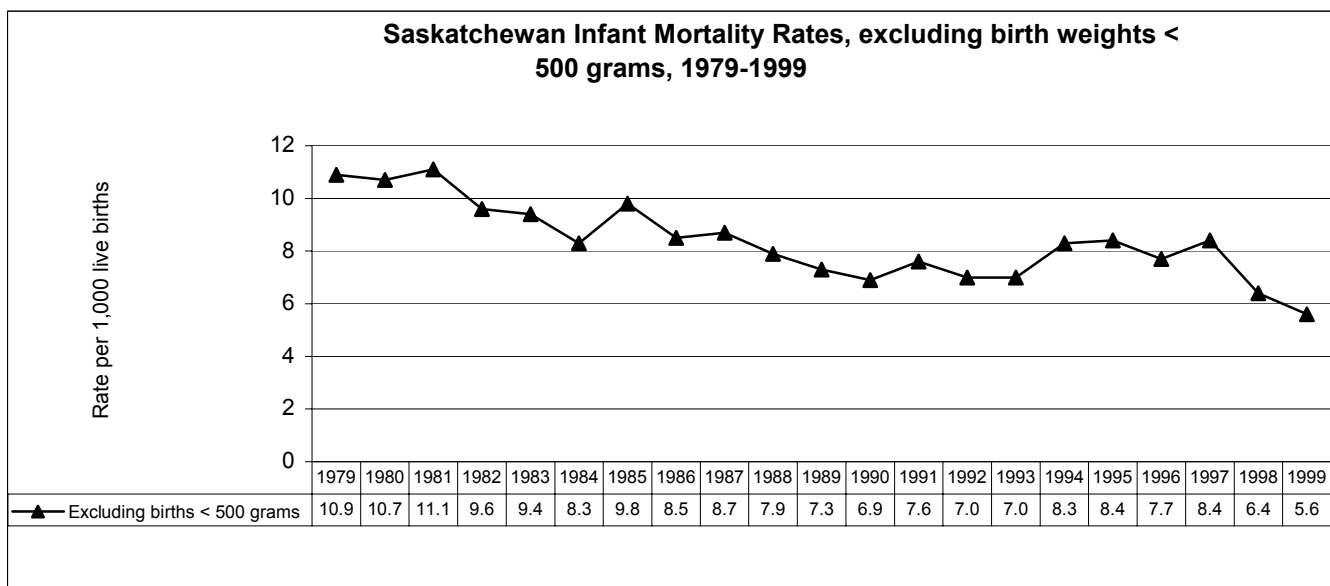
Of all other measures of health status, the infant mortality rate continues to be recognized as one of the most important measures of the health of a nation, its children and pregnant women. However, factors outside of the health system influence infant mortality. As a result this indicator does not necessarily reflect the performance of the health system. It reflects not only the level of mortality, but also the health status and health care of a population. A high infant mortality rate is largely a reflection of deficiencies of physical and socio-economic factors such as nutrition, socio-economic status, education or health care.

The infant mortality rate is also related to maternal factors such as education level, age, and lifestyle habits such as smoking, drug or alcohol abuse.

As a comparable measure, the infant mortality rate is primarily limited by the fact that its definition has changed over time and across provinces, territories and internationally. Advances in medical technology may also bring about further changes in the definition. Infant death rates are also affected by demographic, regional and socio-economic differences unrelated to the health system. These factors can vary significantly not only between provinces, but also between different areas of the same province. However, infant mortality rates can be a useful tool to measure the effectiveness of prenatal and postnatal programs, as well as monitoring the achievement of population health objectives.

In general, the infant mortality rate in Saskatchewan has been declining. The largest reductions in rates were recorded prior to 1992. For example, in 1979 there was a rate of 10.9 deaths per 1,000 live births (excluding birth weights lower than 500grams). In 1999 this had dropped to a rate of 5.6 deaths per 1,000 live births. A recent examination of Saskatchewan infant mortality rates from 1992 to 1997 suggests that more infant deaths occur among male infants (57%) than females, and to mothers who were under 30 years of age at the time of birth (76%). In addition, over half (56%) of infant deaths that occurred to mothers under the age of 20 were reported in the Registered Indian population.

Canada's infant mortality rate has declined dramatically in the last 35 years, as has the rate in Saskatchewan. In 1999 Saskatchewan ranked 9th out of all provinces and territories in terms of its infant mortality rate for infants of all weights.



Source: Statistics Canada Catalogue 84F0210XPB, Births and Deaths and Statistics Canada website.

A Story about Personal Health Practices

There is growing recognition that personal life “choices” are greatly influenced by the socio-economic environment in which people live, learn, and work. Nevertheless, measuring and reporting on indicators associated with healthy lifestyles helps us to understand the overall health of a population and the impact of health promotion activities.

Personal health practices and their outcomes include a wide range of measures. For the purposes of the report the following indicators are analyzed, the first four of which are based on self-reported survey data:

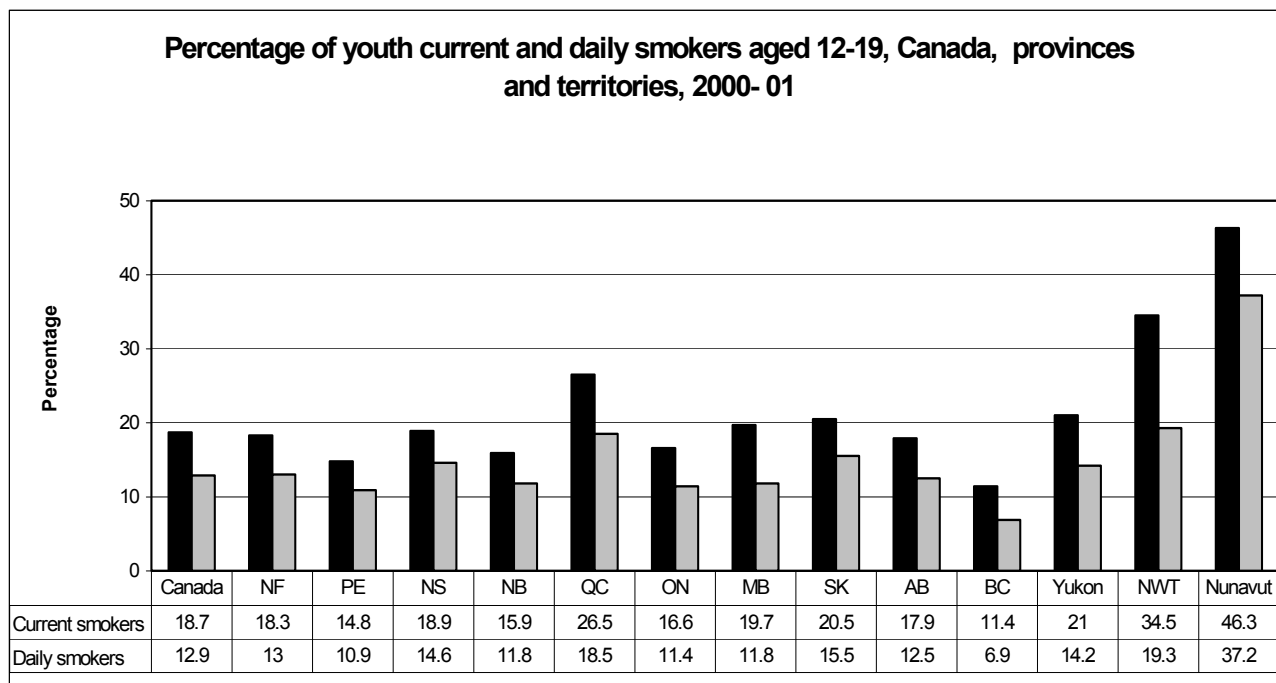
- Physical Activity
- Youth Smoking
- Exposure to Environmental Tobacco Smoke
- Body Weight
- Chlamydia
- HIV
- Potential Years of Life Lost (PYLL) due to Unintentional Injuries
- Potential Years of Life Lost (PYLL) due to Suicide

On most of these indicators Saskatchewan ranks in the middle of the pack among provinces and territories. However, we do not fare as well on smoking indicators or PYLL. A closer review of all of these indicators can be found in the main body of the report. Two indicators, smoking and body weight, are examined below.

Smoking

Smoking contributes to a range of health problems, including chronic lung disease, heart disease, stroke, and cancer of the lungs. The harmful effects of smoking do not end with the smoker, as second-hand smoke (also referred to as environmental tobacco smoke) has harmful effects on non-smokers. As well, research shows that although smoking rates have dropped significantly since 1970 among Canadians aged 15 and over, high rates of smoking still exist among youth, particularly among young women. This highlights the importance of preventing youth from starting to smoke.

The percentage of current youth smokers in Saskatchewan (i.e. those who smoke on a daily or occasional basis) was 20.5 % in 2000-2001 (Canadian Community Health Survey). Despite some fluctuation in this rate, overall the percentage of current teen smokers in the province is comparable to the 1994/95 percentage (20.4%). Saskatchewan ranks 9th out of 13 provinces and territories (i.e., had the fourth highest percentage) in terms of the number of youths who are current smokers. The percentage of teen smokers in the province in 2000-01 is higher than that recorded at the national level (18.7%) in the same time period. The percentage of youth in Saskatchewan who reported they were daily smokers (15.5%) is also above the national average of 12.9%.



Source: Canadian Community Health Survey

Several national and provincial programs have been put in place to try to assess and address youth smoking. For example in 2002 Saskatchewan proclaimed *The Tobacco Control Act*, to control the availability of tobacco in the province. Current studies, for example, have focused on youth smoking looking at specific groups such as adolescent females, aboriginal populations, youth from low socio-economic backgrounds, and children with special needs.

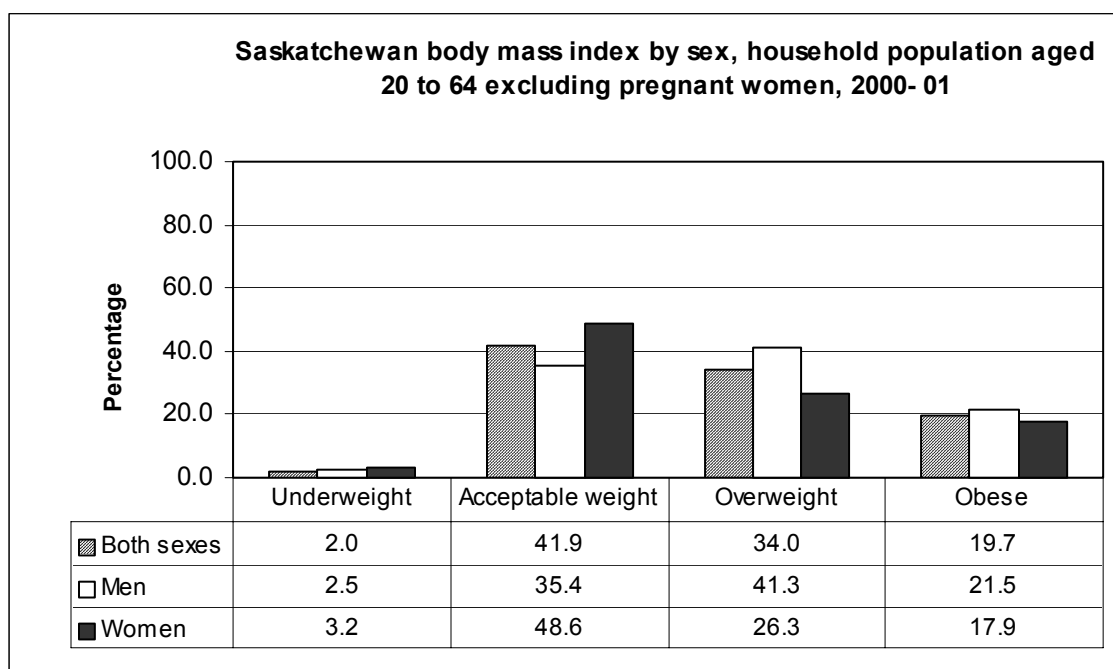
Body Weight

While body weight is not strictly a personal health practice, it is, to a large extent, determined by eating and physical activity practices. As such it remains an important composite measure of health status. Body weights above a healthy weight range, defined using the body mass index (BMI), are linked to several behaviourally modifiable diseases, including cardiovascular disease, diabetes and some forms of cancer. Furthermore, overweight and obese individuals are much more likely to suffer from a wide array of other health problems - asthma, arthritis, back problems, high blood pressure, thyroid problems, activity limitations and repetitive strain injuries.

The prevention of obesity and associated health consequences involves the promotion of healthy behaviours, especially a balanced diet and physical activity. Equally important is establishing an environment conducive to healthy behaviours and to behaviour change. It is one thing to promote physical fitness; it is another to make fitness facilities available and

affordable. Similarly the promotion of a healthy diet is important, however, the availability, cost and culture around food and its preparation are also critical.

The proportion of overweight and obese adults in Saskatchewan increased from 1994 to 1999, before decreasing again in 2001 to around 53.7%. In other words, over half of the population of Saskatchewan aged 20 to 64 years, (excluding pregnant women) could be considered as high risk for contracting a health problem related to their weight. Although this rate is somewhat lower than that recorded in 1998/99 (60.4 %), it is still above the national average for 2000-01 (47.5%). With respect to gender differences, men in the province were more likely than women to be overweight (41.3 per cent versus 26.3 per cent) or obese (21.5 per cent versus 17.9 per cent).



Source: Canadian Community Health Survey – Cycle 1.1, 2000; National Population Health Survey, 1994, 1996, 1998; ISQ

Note: Data for men aged 20 to 64 who are underweight should be interpreted with caution.

The proportion of overweight and obese individuals is high in all provinces and territories. Levels of overweight/obesity in Saskatchewan were 7th lowest among the 13 provinces and territories in 2000-01. Even so, about 63% of Saskatchewan men aged 20 to 64 and 44.2% of women in the province are overweight and obese and are at increased chance of serious health consequences.

The province recognizes the serious nature of obesity in Saskatchewan and has adopted several strategies aimed at promoting healthy behaviours, with a focus on diet. For example, Saskatchewan uses a model of primary care delivery, which is a collaboration between physicians, primary care nurses (nurses working in an expanded role), nurses, and other health professionals. The primary care model encourages proactive outreach and health

promotion/prevention activities and may include broad range of human services. Saskatchewan has also adopted a provincial plan for the control of specific diet-related diseases such as diabetes. Diabetes prevention, care and treatment initiatives are being developed to meet the needs of both First Nations and non-First Nations people, with emphasis on making services culturally sensitive and locally accessible.

A Story about Public Health

Although the major threat of mortality associated with communicable diseases in Canada has changed in recent years, transmissible diseases continue to affect thousands of Canadians each year. Health protection and disease prevention programs are designed to anticipate, avoid and address these and other immediate and imminent threats to health.

Public health surveillance and protection potentially include a wide range of measures, however, for the purposes of the report the following indicators are analyzed:

- Measles
- Haemophilus influenzae b (Hib)
- Invasive Meningococcal
- Tuberculosis
- Influenza Immunization for 65+
- E.Coli

Saskatchewan's results for these indicators are mixed. On Hib and invasive meningococcal rates we have the lowest rates among the provinces and territories able to report. However our incidence of TB may indicate a need for improvement. A closer review of all of these indicators can be found in the main body of the report. Two indicators, measles and Hib are summarized below.

Measles

Measles is a very contagious infection for humans. It is capable of spreading even in populations with virtually 100% vaccination rates. As such elimination remains the key goal of The Pan-American Health Organization; it is also a national goal and objective that has been adopted by all provinces and territories (National Advisory Committee on Immunization, 1996). Two doses of measles vaccine is recommended for protection; the first dose is given at 12 months and the second dose prior to school entry, at either 18 months or 4-6 years of age. In the absence of global eradication, maintaining measles elimination requires ongoing, enhanced surveillance and continued high immunization coverage rates.

Measles occurs in periodic outbreaks, which makes data subject to significant fluctuation and misinterpretation. Nevertheless, reporting rates of new cases of measles provides some indication of the success of measles immunization programs in helping to eliminate measles provincially, nationally, and globally.

Other than periodic outbreaks, the rate of measles has been steadily declining since 1980. In Saskatchewan, measles incidence has generally been lower than that observed nationally in the past twenty years. In fact, in the past ten years, Saskatchewan has not had an outbreak of measles like those that have occurred in other parts of the country. Indeed, no new cases of measles have been reported in Saskatchewan since 1999, and only 33 cases were reported in Saskatchewan between 1995 and 1999.

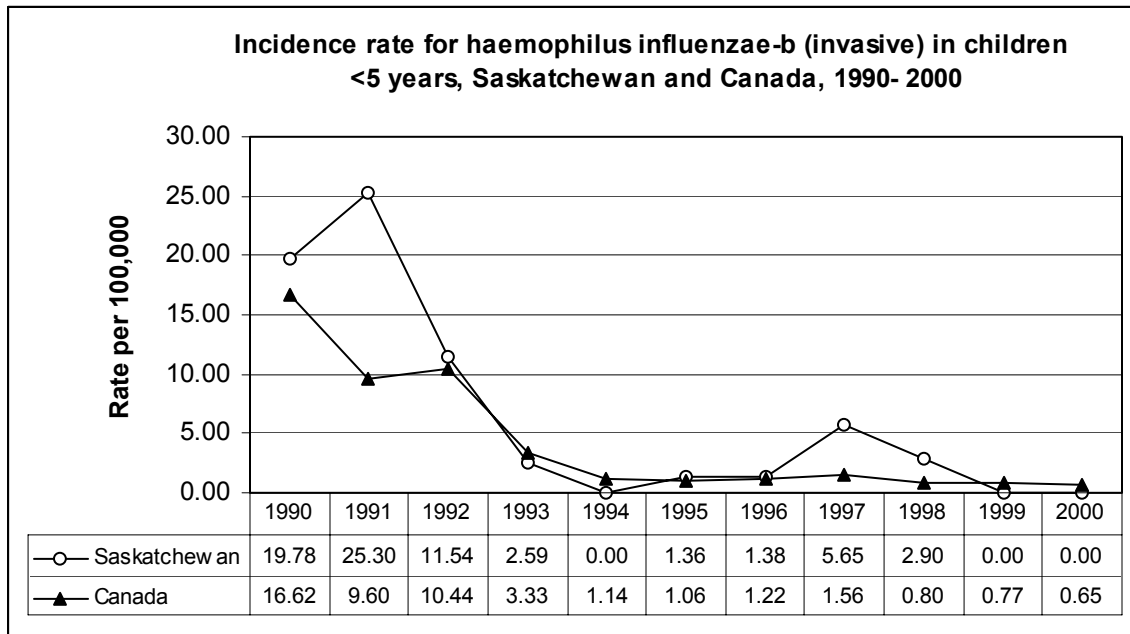
The introduction of nationwide immunization schedules has contributed to the consistently lower rates of measles observed in recent years. Saskatchewan started its secondary immunization scheme in the fall of 1996. In addition to the initial dose, a second dose is administered to all children, prior to their entry to school. Supplementary catch-up programs were also introduced in the province in the same year aimed at grade 6 and 8 students.

Despite this apparent relative success in decreasing the risk of contracting measles at the provincial and national level, surveillance remains extremely important. In the absence of global eradication, maintaining measles elimination requires ongoing, enhanced surveillance and continued high immunization coverage rates.

Haemophilus influenzae b (Hib)

Prior to the introduction of Hib vaccines, Hib was the most common cause of bacterial meningitis and a leading cause of other serious invasive infections in children. Vaccine preventable cases are now rare. Four doses of the vaccine are given in combination with diphtheria, pertussis, tetanus, and polio before the age of 2 years. The continued surveillance of Hib infection rates remains an important indicator of the success of immunization programs designed to eradicate invasive Hib from the population, especially in children less than 5 years.

Incidence rates for Hib in Saskatchewan children younger than five years fluctuated between 1990 and 2000. Overall, provincial trends were similar to those observed at the national level, as seen in the figure below.



Source: Notifiable Disease Reporting and Enhanced Surveillance System & Centre for Communicable Disease, Saskatchewan Health.

Note: Rates for Saskatchewan are calculated from the incidence of Hib in children under 5 that is entered in the province’s Centre for Communicable Diseases database, and not from the data provided by Statistics Canada. Provincial level data is cleaner (greater assurance is provided that the estimates given represent just type B cases and not all haemophilus influenzae), and more complete (covers the data period after which data are sent to Statistics Canada) than the estimates sent to Statistic Canada, and that appear in the provincial comparison data provided online. Data for 2000 are provisional.

Decreases in the incidence of Hib infection occurred during the period in which the conjugate virus program was introduced (1988-1992), with the biggest decline occurring between 1992 and 1993, following the introduction of infant-based Hib vaccination programs province wide. Nationally, infection rates continue to decrease, although inter-provincial rates vary. This indicates that although widespread use of conjugate vaccines has reduced Hib among young children, circulation of the bacteria continues.

With the exception of Saskatchewan (0 cases per 100,000), Hib incidence rates for the Prairie Provinces are higher than the national average in 1999. However, there is no room for complacency. Monitoring the incidence of newly reported cases of invasive Hib disease remains an important indirect indicator of health status.

A Story About Select Diseases

Once a significant cause of morbidity and death in Saskatchewan, the chances of contracting a contagious disease have paled in significance in recent years in contrast to today’s major causes of mortality and morbidity. Cardiovascular disease (including heart attack and stroke)

and cancer have become the major challenges to health and health care in the developed world. Only prostate, breast, lung and colorectal cancer are examined in the report as they represent the four most common cancer sites. Chapter 4 focuses specifically on these select diseases in terms of their incidence, mortality rate, and premature mortality rate (potential years of life lost) in addition to relative survival rates for the selected cancers.

Saskatchewan's indicators show both positive results, and areas that require improvement. For example on five-year age-standardized relative survival for colorectal cancer we rank first among the provinces and territories able to report. However, we rank lower on potential years of life lost from stroke or age-standardized mortality for Acute Myocardial Infarction. A closer review of all of these indicators can be found in the main body of the report. Two indicator areas, prostate and breast cancer are examined in more detail below.

Breast Cancer – Incidence, Potential Years of Life Lost (PYLL), Mortality and Survival

Incidence

Breast cancer is the most frequently diagnosed cancer among Canadian women, and is also one of the leading health problems among women over the age of 50.

Between 1976 and 1997, Saskatchewan's age-standardized breast cancer incidence rate increased by 32 per cent from 76.4 cases per 100,000 females to 100.7 cases. A similar trend was experienced at the national level. Based on 1997 data, Saskatchewan had the fifth lowest age-standardized female breast cancer incidence rate (100.7 cases per 100,000), of 12 jurisdictions for which data was available.

It should be noted that increases in female breast cancer incidence rates may be related to early detection through breast self-examination, as well as increased mammography screening. Increases in breast cancer incidence due to improved screening and detection will eventually disappear as the rate stabilizes.

PYLL

PYLL refers to the number of years of life potentially lost as a result of premature death (i.e., death prior to age 75). PYLL complements incidence and mortality indicators by focusing on mortality among the non-elderly. It reflects the level of success in preventing premature (and therefore presumably postponable) loss of life, with its consequent loss of social and economic productivity.

Saskatchewan's rates of potential years of life lost (PYLL) due to breast cancer per 100,000 females were below the national rates in the 1979- 1999 period. In 1979, for every 100,000 females in Saskatchewan aged 0 to 74, there was a potential loss of 344.3 years of life as a result of premature death due to breast cancer. In 1999, the PYLL rate for breast cancer had declined to 299.7 years of life lost per 100,000 females. This rate was the fourth lowest of all provinces and territories in 1999. Despite some fluctuations, a similar trend also occurred at

the national level. Therefore, although incidence rates have exhibited a rise over time, rates of premature mortality have decreased, highlighting the artifactual nature of incidence rates and the problems in interpretation when measures are used independently of each other.

Mortality

Breast cancer surveillance is further augmented by mortality rates for the disease. Saskatchewan's age-standardized deaths due to breast cancer, showed a general decline from 29 deaths per 100,000 females in 1979 to 21.7 deaths per 100,000 females in 1999 - the third lowest rate in the country in 1999. The national age-standardized breast cancer mortality rate also declined in the 1979-1999 period. However, like the data from Saskatchewan, the national mortality rates in this time frame were marked by fluctuations.

Survival

Saskatchewan had the third highest age-standardized relative survival rate (83%) for female breast cancer in Canada in 1997. In other words, for women aged between 15 and 99 years residing in the province who were diagnosed with breast cancer in 1992, 83 % were still alive 5 years later. Provincial variations in relative survival rates for breast cancer may be explained by the use of mammography for early diagnosis. Longer survival times could mean either that cancer is being diagnosed at an earlier stage, because of effective screening programs or patients with cancer are living longer, possibly due to better treatment. Cancer screening procedures can inflate relative survival rate estimates, by extending the time between diagnosis and death from cancer. However, Canada still has one of the highest relative survival rates for breast cancer.

The usefulness of these indicators can only be truly appreciated when they are examined in conjunction with each other. Although incidence rates for breast cancer have increased in Saskatchewan, and at the national level in recent years, declining rates of mortality and premature mortality and increases in relative survival rates highlight significant improvements in early detection and screening procedures.

Prostate Cancer – Incidence, Potential Years of Life Lost (PYLL), Mortality, Survival

Incidence

Prostate cancer is an excellent example of how the use of several indicators can provide a picture of the effects of a specific disease. Prostate cancer is the most commonly diagnosed cancer among Canadian men, excluding non-melanoma skin cancer, and appears to be on the increase. Furthermore, like other forms of cancer, prostate cancer is related to age, and increases almost exponentially with years of life lived.

Taken alone, incidence rates suggest that there has been a rapid increase in the rate of prostate cancer in all provinces, in recent years. The incidence of prostate cancer on a national and provincial basis has increased from 1976 to 1997. In Saskatchewan 75.1 cases

per 100,000 were reported in 1976 and 111.7 cases by 1997. However, the widespread rise in the use of improved detection techniques (Canadian Cancer Statistics, 2001) is responsible for much of the dramatic increases in prostate cancer incidence. Although there has been some levelling out of incidence rates in recent years (i.e., post 1993) the use of more sensitive screening procedures may account for the relatively high number of newly diagnosed prostate cancer cases reported in Saskatchewan, and the country as a whole. As well, international differences may be partly explained by variations in screening procedures that occur from country to country.

Saskatchewan had the 6th lowest incidence of prostate cancer of all provinces and territories in 1997. Inter-provincial differences could possibly be due to regional variations in screening techniques and the establishment of early detection programs, as well as regional variation in the prevalence of risk factors. Further study is required to determine the role of lifestyle and possible risk factors in development of prostate cancer.

PYLL

Saskatchewan trends in premature mortality have not mirrored the national picture. From 1979 to 1999, the Canadian national average has remained fairly stable, rising from 54.4 years per 100,000 to only 55.6 years. In Saskatchewan, however, larger fluctuations in the PYLL rates for prostate cancer have been observed. These rates have remained consistently higher than the national average. The PYLL rate in 1999 (80.2 years per 100,000) is only slightly lower than that in 1979 (84.6 years per 100,000).

Furthermore, Saskatchewan men appear to have a higher rate of premature mortality from prostate cancer than men in any other province or territory in Canada. Although provincial differences exist in the rates of premature mortality recorded from prostate cancer in men, debate remains as to the exact contribution that early screening and treatment has in reducing the potential years of life lost due to this disease.

Mortality

National and provincial trends are more consistent in the area of age-standardized death rates from prostate cancer. Within Saskatchewan, the mortality rate due to prostate cancer increased between 1979 and 1999 from a low of 26.1 deaths per 100,000 in 1979 to a high of 38.3 deaths per 100,000 in 1999. Furthermore, the death rate from prostate cancer in Saskatchewan remained relatively similar to the national average until the latter part of the time trend. Since 1996 the national mortality rate from prostate cancer has continued to fall, whereas for men living in Saskatchewan, it has continued to rise.

As was found with the premature mortality rate from prostate cancer (PYLL), the death rate for Saskatchewan men was higher than that observed for any other province or territory in 1999. However, debate continues over the effectiveness of screening measures as a means to reduce overall mortality from prostate cancer. Indeed, the mortality rates do not follow the same regional variation pattern as the incidence rates for prostate cancer. Saskatchewan's incidence rate is lower than several other provinces despite its relatively high mortality rate. The fact that there is a narrower range in overall mortality rates from prostate cancer than for

incidence rates further suggests that earlier detection of prostate cancer has less impact on mortality than the early screening procedures in other types of cancer.

Survival

Because prostate cancer usually occurs in older men who often have other health problems, relative survival rates are generally used to produce a standard way of discussing prognosis (outlook for survival). Caution must be used, however, in interpreting relative survival rates due to the possibility of lead-time bias introduced by the advent of PSA testing in the early 1990s.

Saskatchewan's 5 year relative survival rate was 83% in 1997, slightly below the national average of 87%. In other words, 83% of men diagnosed with prostate cancer in 1992 were still alive 5 years after their first diagnosis. At the national level, provinces experience similar relative survival rates. Saskatchewan's rate is the 4th highest out of all 8 provinces for which data is available. Therefore, although mortality rates indicate that more men die in Saskatchewan from prostate cancer than any other province, the time to death in those diagnosed with the disease is not dissimilar to that experienced in other provinces across Canada.

A Story about Health Services

The final chapter of the report examines selected health service indicators. In the body of the report 13 indicators are analyzed. The analysis is organized around 4 categories:

- age-related services (hip and knee replacement rates and home care admissions);
- access to services (wait times and access to 24/7 first contact services);
- readmissions and hospitalizations (pneumonia and AMI readmissions and hospitalizations for ambulatory care sensitive conditions); and
- satisfaction (overall, hospital services, physician services and community based services).

Saskatchewan's indicators show areas of strength, and areas of weakness. On some measures of satisfaction we rank first among the provinces and territories. However on some measures, such as those for knee replacement, Saskatchewan does not rank as high (although for some of these measures there is no benchmark and therefore it is difficult to say whether more is always better). A closer review of all of these indicators can be found in the main body of the report. Two indicators, wait times for coronary arterial bypass graft and patient satisfaction are examined below.

Waits for Coronary Artery Bypass Graft (CABG) Surgery

Until relatively recently, waiting lists in Canada have been non-standardized, poorly organized, and inadequately monitored. As a result, the systematic collection and reporting of wait time data is relatively new, and jurisdictional differences are likely to exist in the definition of specific indicators of waiting times. For example, wait times can be calculated

from when a person first visits a family doctor, when the patient is assessed by a specialist, when test results confirm the need for further treatment, or from some other point. This ultimately hinders comparisons within and between provinces/territories as even when the same measurement criteria are selected, the required data is often not available.

The measurement and reporting of wait times for CABG surgery, like other types of surgery, have not been standardized in Canada, and inter-provincial comparisons of wait time data have not been available. We recognize that reporting on a nationally agreed upon indicator would be a significant step towards gathering accurate and comparable information on wait times for surgery. To this end, Saskatchewan has calculated this indicator for the first time and although limitations exist, work now underway to improve wait list data will strengthen our capability to report on wait time indicators in the future. Comparisons with other wait list reports and other provincial jurisdictions are not recommended unless the same measurement criteria have been used.

Specific limitations also apply. “Months to clear wait list” was not calculated as limitations of the currently available wait list data would make it impossible to meet the specifications, and to obtain results that would be reasonably comparable to other jurisdictions. However, “Median wait for surgery” and “Distribution of wait times” were calculated, using the CIHI Discharge Abstract Database (DAD) to identify the CABG cases performed, and to calculate a wait time based on the most recent previous cardiac catheterization.

Wait times for CABG in Saskatchewan are presented on a quarterly basis. Of the 504 procedures that were carried out in the province in 2000-01, 25.6% occurred in the first quarter, 24.8% in the second quarter, 26.0 % in the third quarter, and 23.6% in the fourth quarter. The median wait time, however, remained the same for the first three quarters of the year (1.43 weeks), rising slightly to 1.57 weeks in the last quarter.

The largest percentage of cases waiting for CABG surgery (between 55% and 59%) were dealt with in 14 days or less, as calculated from the date of the last recorded cardiac catheterization, on or before the surgery date. Very few people (less than 4%) waited 180 days or more to receive their CABG surgery in Saskatchewan. These numbers include both emergency and non-emergency cases.

The size and growth of surgical waiting lists, and the length of time some people are waiting for some non-emergent surgery, is a concern in Saskatchewan, as it is across the country. In August 2001, the Minister of Health appointed an external team to review waitlist initiatives and recommend a strategy to improve access to needed surgical procedures in the Province. The team’s report, which recommended the continuation of some existing initiatives and the adoption of some new initiatives, guided the wait list strategy that is outlined in Saskatchewan’s Action Plan for Saskatchewan Health Care.

Ultimately the goal of the new action plan is to ensure that patients who are waiting for surgery in Saskatchewan receive the care they need within clinically appropriate timeframes and in a fair and equitable manner.

This goal will be achieved through a comprehensive wait list strategy. The first step in implementing the new strategy was the appointment of the Saskatchewan Surgical Care Network (SSCN), an advisory body, to oversee improvements to the surgical system. The SSCN will oversee the key elements of the new strategy now underway, such as to:

- improve wait list data and management of wait lists through the creation of a Saskatchewan Surgical Registry that will track all patients needing surgery in the province;
- improve fairness among patients by developing and implementing standard criteria for assessment of need;
- provide better information to the public through a variety of initiatives, such as the designation by the regional health authorities of key contact people to respond to questions from the public and the development of a patient-centred web site.

There are also elements aimed at improving operational efficiency and enhancing capacity through initiatives such as the provision of surgical wait list funding and the development of human resource strategies.

Patient satisfaction

The report concludes with an examination of subjective assessments of health service operation. The information for this indicator was obtained from a national household survey of the population 15 years of age and older. The results are based on the number of individuals who reported excellent or very good quality of care and who rated themselves as either very satisfied or somewhat satisfied with the quality of care for (a) overall health services, (b) services received in hospital, (c) services received from a family doctor or other physician, and (d) community-based services. The percentages are calculated based on the number of people who received health care services rather than the entire population. In Saskatchewan 80.7% of residents report receiving *some type of health care service* in the previous twelve months, slightly above the national average of 75.6%. This higher rate of care may be due in part to the fact that Saskatchewan's population is older than the national average.

A vast majority of those who received service in Saskatchewan were satisfied with the service and rated the service high quality:

- 85.6% of Saskatchewan residents who received health care services in the previous twelve months rated the quality of health care they obtained as excellent or very good;
- 85.3% of Saskatchewan residents were very or somewhat satisfied with the health care services they received;
- 81.2% of Saskatchewan residents who received hospital services rated the quality of hospital care as excellent or very good;
- 82.9% of Saskatchewan residents were very or somewhat satisfied with the hospital care received;

- 91.2% of Saskatchewan residents rated the quality of family doctor or other physician care as excellent or very good;
- 92.6% of Saskatchewan residents were very or somewhat satisfied with the family doctor or other physician care received;
- 84.8% of Saskatchewan residents rated the quality of community-based health care service as excellent or very good;
- 90.3% of Saskatchewan residents were very or somewhat satisfied with the community-based health care services received.

In general, residents of Saskatchewan appear to be as satisfied with overall health care services, services received in a hospital, services received from a family doctor or other physician, and community based services as residents of other provinces. In addition, Saskatchewan residents appear to rate the quality of these services as highly as do residents of any other province.

Saskatchewan Health is making efforts to improve the quality and effectiveness of health service. Saskatchewan is the only province to have a provincially coordinated approach to tracking and reporting on client concerns.

While patient satisfaction is an important indicator for assessing the quality or effectiveness of health services, it has many limitations. The reasons for an individual's perception of satisfaction or dissatisfaction or quality of service are unknown and could be related to a number of complex and interrelated factors. Patient satisfaction, therefore, remains a subjective measure of health service operation and one that should be used in conjunction with more objective assessments of the quality of health care received at the provincial level. More detailed subjective assessments of satisfaction would also provide further information about which areas to focus on for improvement.

In Conclusion

By examining health status, personal health practices, public health, select diseases, and health services, this report contributes to our knowledge and understanding of health care in the province. Admittedly, many of the measures need further development, and the report is lengthy and complex, due to the complexity of selected measures, the technical nature of the reporting requirements and the sheer volume of the report.

Nevertheless, data presented in this report enhances the province's ability to increase accountability in health care, and rely on comparable indicators in making sound, research-based decisions about the future of the health care system in Saskatchewan.

THIRD PARTY VERIFICATION

Management's Representation

Saskatchewan Health is responsible for the presentation of the information contained in the *Saskatchewan Comparable Health Indicators Report*. This responsibility includes the analysis, presentation and interpretation of the data within the parameters provided by the Performance Indicators Reporting Committee and approved by the Conference of Deputy Ministers of Health.

Saskatchewan Health shares the responsibility with outside agencies for much of the information produced in this Report. Saskatchewan Health provides Vital Statistics information to Statistics Canada and works with Statistics Canada to ensure these data and subsequent analyses are valid. Saskatchewan Health provides disease information to Health Canada. In most circumstances hospital information is provided directly by regional health authorities (RHAs) to the Canadian Institute for Health Information (CIHI). Saskatchewan Health, CIHI and RHAs work together to ensure the data and subsequent analyses are valid.

Criteria used to prepare the report

The health indicators in the Report are presented in accordance with the following criteria, unless otherwise stated in the Report.

1. The health indicators reported meet all performance measurement and reporting requirements of the commitment of the *First Ministers' Meeting Communiqué on Health*. The health indicators comply with the definitions, technical specifications and standards of presentation approved by the Conference of Deputy Ministers (see Appendix A).
2. The health indicators reported adequately reflect the facts, to an appropriate level of accuracy.
3. The health indicators are defined and their significance and limitations are explained. The Report states and properly describes departures from what was approved by the Conference of Deputy Ministers and explains plans for the future resolution of the non-compliance issues.

For each indicator, the report describes any departures from the criteria under the heading of Limitations.

Auditor's Report

First Ministers directed jurisdictions to engage third parties to verify their respective reports. The Provincial Auditor of Saskatchewan was selected as third party verifier for the *Saskatchewan Comparable Health Indicators Report*. The Auditor's Report is also included on page xxx.

Limitations in source data

Most of the health indicators were produced by outside agencies from data collected by Saskatchewan Health, regional health authorities, and Statistics Canada (through two national surveys). The outside agencies are Statistics Canada, Health Canada, and the Canadian Institute for Health Information (CIHI). A list of the indicators by source is attached to this representation.

Maintaining and enhancing the quality of incoming data is essential to the mandates of Statistics Canada, Health Canada, CIHI and Saskatchewan Health to produce high quality health information. These organizations maintain data quality processes to ensure the continued regular improvement of the quality of databases and registries to meet changing and expanding user requirements and expectations. This facilitates the production of relevant and credible data for analyses and reports. Health Canada, Statistics Canada and Saskatchewan Health have similar quality regimes. CIHI's quality processes are provided below as an example.

CIHI's data quality framework, which was implemented in Fiscal 2000/01, provides a common strategy for assessing data quality across CIHI databases and registries.

The Framework is built upon five dimensions of quality:

- accuracy,
- comparability,
- timeliness,
- usability and
- relevance.

CIHI's Discharge Abstract Database (DAD) and Hospital Morbidity Database are used for numerous indicators included in this report. Quality data in these two databases depends on quality coding functions in most hospitals across the country.

CIHI does edit checks to verify and correct codes. CIHI also invests heavily in training of health records professionals to improve the quality of data abstraction for purposes of these databases. In addition health records professionals themselves are highly trained and have checks for example to ensure that the number of abstracts submitted equals the number of discharges. All Saskatchewan acute care facilities submit data directly to CIHI.

CIHI is conducting a three year data quality study in which health records professionals go back to the original source of data and re-abstract patient charts and compares the original data submitted to the DAD. The study will give estimates of discrepancies and will highlight

areas for improvement in coding guidelines and educational material for health records professionals. CIHI has released preliminary year 1 findings from this study. On the national level four CIHI health indicators had fewer than 5% discrepancies: coronary artery bypass graft, caesarean section, vaginal birth after caesarean and total hip replacement. Some indicators had more than 5% discrepancies, for example, ambulatory care sensitive conditions (10.9%), hospitalization due to pneumonia (7.1%) and injury hospitalization.

In some of these cases the proportion of discrepancies are significant and we should expect similar proportions of discrepancies in the CIHI produced data used to calculate the indicators presented in this report. This should be noted when using and interpreting the information presented in this report.

It should be noted that all survey data is adjusted for non-response.

Legislative Auditors' opinions

Legislative auditors have recently audited the control systems established by Statistics Canada, Health Canada, CIHI, and Saskatchewan Health to ensure reliable data.

The Auditor General of Canada has determined that Statistics Canada's controls are adequate to ensure reliable data including the data received from Saskatchewan Health and regional health authorities. Statistics Canada produced most of the indicators in the Report.

The Auditor General of Canada is of the opinion that Health Canada's controls are not adequate. This may compromise data reliability including the reliability of data received from Saskatchewan Health.

The Auditor General of British Columbia is of the opinion that CIHI's controls are not adequate. This may compromise data reliability including the reliability of data received from Saskatchewan regional health authorities.

The Provincial Auditor of Saskatchewan is of the opinion that Saskatchewan Health's controls are not adequate. This may compromise reliability of the data provided to CIHI and Health Canada, and for data Saskatchewan Health used to produce health indicators set out in the Report.

These audit opinions suggest that there may be some uncertainty about the reliability of the indicators produced by CIHI, Health Canada, and Saskatchewan Health. Accordingly, readers should use caution in interpreting these indicators. However, Saskatchewan Health believes that the information on comparable health indicators set out in this Report is useful information for legislators and the public. As noted above, Saskatchewan Health intends to work with regional health authorities and outside agencies to improve the reliability of the health indicators.

List of Indicators by Source

Statistics Canada

1. Life expectancy
2. Disability-free life expectancy
3. Infant mortality
4. Low birth weight
5. Self-reported health (percentage of the population age 12+ who report their health is very good or excellent)
- 6-11. Age standardized mortality for lung, prostate, breast & colorectal cancers, acute myocardial infarction & stroke
- 12-15. Five year age standardized relative survival rates for lung, prostate, breast & colorectal cancers
16. 365-day relative survival rate for acute myocardial infarction*
17. 180-day relative survival rate for stroke*
- 18-21. Incidence rates for lung, prostate, breast & colorectal cancers
- 22-29. Potential years of life lost due to lung, prostate, breast & colorectal cancers, and acute myocardial infarction, stroke, injury, suicide
- 30-33. Patient satisfaction (overall health care services, hospital care, doctor or other physician care, community based health care)
- 34-37. Access to 24/7 first contact health services (difficulty obtaining routine or on-going health services, difficulty obtaining health information or advice, difficulty obtaining immediate health care, percent heaving a regular family doctor)
38. Self-reported exposure to environmental tobacco smoke
39. Percentage current teenage smokers
40. Physical activity
41. Body weight
42. Immunization for influenza for 65+

Health Canada

43. Invasive meningococcal disease incidence rate
44. Measles incidence rate
45. Haemophilus influenza b (invasive) disease incidence rate
46. Prevalence of diabetes*
47. Tuberculosis incidence rate
48. Reported HIV diagnoses
49. Verotoxogenic E. Coli incidence rate
50. Chlamydia incidence rate

CIHI

51. 30-day acute myocardial infarction in-hospital mortality rate
52. 30-day stroke in-hospital mortality rate
53. Total hip replacement rate
54. Total knee replacement rate
55. Risk adjusted acute myocardial infarction re-admission rate

- 56. Risk adjusted pneumonia re-admission rate
- 57. Rate of hospitalization for Ambulatory care sensitive conditions

Saskatchewan Health

- 58. Wait times for cardiac surgery
- 59. Wait times for hip replacement surgery
- 60. Wait times for knee replacement surgery
- 61. Wait times for radiation therapy for breast cancer*
- 62. Wait times for radiation therapy for prostate cancer*
- 63. Reported wait times for specialist physician services
- 64. Reported wait times for diagnostic services
- 65. Reported wait times for surgery
- 66. Admissions to publicly funded home care per capita
- 67. Estimated percentage of population receiving homemaking, nursing or respite services*

* - Indicator not reported by Saskatchewan

Auditor's Report

To the Legislative Assembly of Saskatchewan

I have audited the health indicators presented in pages 1 to 337 of the *Saskatchewan Comparable Health Indicators Report* (the Report) pursuant to the commitment under the *First Ministers' Meeting Communiqué on Health*, dated September 11, 2000. The Conference of Deputy Ministers of Health defined the specific indicators to be regularly reported to Canadians. Reporting on health indicators in accordance with suitable criteria is the responsibility of management. My responsibility is to express an opinion on the health indicators based on my audit. I have not assessed the relevance of the indicators used. My audit work was limited to the information relating to the most recent year. I have not audited the health indicators of other jurisdictions presented in the Report. As well, the Report includes a discussion and analysis for each health indicator in addition to a description of the indicator's definition, technical specifications, results and limitations. My examination of the discussion and analysis was limited to ensuring that the information is not inconsistent with the indicator results.

Except as explained in the following paragraph, I conducted my audit in accordance with the standards for assurance engagements established by The Canadian Institute of Chartered Accountants. Those standards require that I plan and perform an audit to obtain reasonable assurance that the health indicators presented in accordance with the criteria set out on page xxv of the Report are free of significant misstatement. An audit includes examining, on a test basis, evidence supporting the results of the health indicators and the related disclosures in the Report. An audit also includes assessing the suitability of the stated criteria and their disclosure. As well, an audit includes assessing significant judgments made by management, and evaluating the overall presentation of the health indicators.

As described on pages xxvi-xxvii of the Report, the controls established by Saskatchewan Health, Health Canada, and the Canadian Institute for Health Information were not adequate to ensure that the health indicator results those agencies produced for the Report are complete, accurate and adequately disclosed in the Report. These health indicators are listed on pages xxviii-xxix of the Report. I was unable to determine by other auditing procedures whether adjustments might be necessary to make these reported indicators complete, accurate, and adequately disclosed.

In my opinion, except for the indicators described in the preceding paragraph for which I am unable to form an opinion, the health indicators, including the described departures from the stated criteria, present fairly in all significant respects the information required pursuant to the public reporting commitment of the *First Ministers' Meeting Communiqué on Health* in accordance with the stated criteria set out on page xxv of the Report.

Comparative health indicators relating to some provinces and territories and for Canadian government programs have been audited by other auditors while, for other provinces, auditors have been engaged to perform specified auditing procedures. Annex 1 includes an explanation of the differences between these two types of engagements and details regarding

the nature of the engagements performed in each of the jurisdictions. The auditors' findings and observations resulting from engagements in other Canadian jurisdictions are included in the respective governments' health indicators reports and are not reproduced in the Report. All international health indicators are un-audited.

I am encouraged by the work undertaken by Saskatchewan Health to prepare a public report on health indicators. The Report is a continuing work in progress. Management has set out, as departures from the criteria, areas where the health indicators depart from the criteria in the Management's Representation, Appendix A, and Appendix D of the Report and throughout the Report under the heading of Limitations. Management has fairly stated the departures and why they exist. Readers are encouraged to use the Report, but in doing so, to keep in mind management's explanations of the departures.

Regina, Saskatchewan
September 16, 2002

Fred Wendel, CMA, CA
Provincial Auditor

ANNEX 1 - Verification of Comparative Information from Other Jurisdictions

The governments of Canada and the Provinces have adopted different approaches to meet the September 2000 *First Ministers Meeting Communiqué on Health* requirement for “third party verification” for their health indicators reports. Some governments have engaged their auditor to provide audit assurance on their health indicators reports and others have asked for specified auditing procedures to be applied. The paragraphs below outline the major differences between an audit assurance engagement and a specified auditing procedures engagement. For a complete comparison, please refer to The Canadian Institute of Chartered Accountant (CICA) Handbook section 5025 for audit assurance engagements and Handbook section 9100 for specified auditing procedures engagements. I think, for the reasons described in the following paragraphs, that an audit under CICA Handbook section 5025 is the best approach.

In an attest audit engagement, the auditor’s responsibility is to provide assurance to users, in the form of an audit opinion, on a report prepared by management. The auditor determines the nature, extent, timing, appropriateness, and sufficiency of audit procedures, which, in the auditor’s judgment, are necessary to provide audit assurance concerning the subject matter, or the *Comparative Health Indicators Report* in the present context.

In a specified auditing procedures engagement, the auditor’s responsibility is to report the results of applying auditing procedures specified by management on a report prepared by management. As the nature and extent of specified auditing procedures may vary from engagement to engagement, such engagements are difficult to compare. And because the extent of the procedures performed is not sufficient to constitute an audit, the specified procedures reports do not provide audit assurance. The specified procedures report states those procedures actually applied and only the factual results of those procedures, leaving the reader to determine the fairness of the information in the health indicator reports.

The following is a list of jurisdictions that have engaged their auditor to provide audit assurance on their health indicators reports and those that have asked for specified auditing procedures to be applied.

Audit opinion	Specified Auditing Procedures
British Columbia	Alberta
Saskatchewan	Ontario
Manitoba	New Brunswick
Quebec	Prince Edward Island
Nova Scotia	Newfoundland and Labrador
Yukon	
Northwest Territories	
Nunavut	
Canada	

INTRODUCTION

Introduction to the Saskatchewan Health Indicators Report

The Saskatchewan Comparable Health Indicators Report contains sixty-one (61) measures that together tell a story about the health of Saskatchewan residents and selected health services in the province. The report provides a wealth of information which will assist individuals to assess how we are doing in the areas of health status, personal health practices, public health activities, selected diseases and conditions and in the provision of selected health services.

The report is an important first step in public reporting for purposes of accountability and begins to move us away from measuring performance based primarily on input and output measures (e.g. number of physicians and nurses, dollars spent, surgeries performed). This first Comparable Health Indicators Report still contains some input and output measures, as this is the form most of our information collection takes. The current report must therefore be considered a work in progress. Future iterations of the report will build on the current work and move toward an improved performance measurement framework as well as improved measures.

The Saskatchewan Comparable Health Indicators Report is the result of a commitment by First Ministers in September 2000. At that time First Ministers agreed that all provinces and territories would provide comprehensive and regular public reporting. The commitment was made in the context of significant infusion of new federal funds through the Canada Health and Social Transfer. There are several benefits that can be realized through FPT comparable reporting. These include:

- improved accountability to the public;
- improved public understanding of health system performance;
- improved decision making;
- promotion of best practices; and
- enhanced performance of the health system.

There are currently 67 common measures for comparable reporting agreed to by all jurisdictions. Data for all 67 is not available for all provinces and territories, however, all have agreed to report on the measures for which data is available. The Saskatchewan Comparable Health Indicators Report contains 61 of the 67 measures (all measures for which reliable information is available).

Given the number of mandatory measures and the common reporting requirements this report is very long and technical. In addition it tells a complex and at times contradictory story. For example, when compared to other jurisdictions and the national average, Saskatchewan rates favourably on some measures and less favourably on others. Specifically Saskatchewan fares less favourably on the following health indicators:

- Self reported health;
- Infant mortality;
- Current youth smokers;
- Exposure to second hand smoke;
- Rates of chlamydia;
- Potential Years of Life Lost (PYLL) for unintentional injury;
- Mortality rates for acute myocardial infarction (AMI);
- PYLL for stroke;
- Knee replacement rates.

Nevertheless, Saskatchewan rates more favourably on the following health indicators:

- Life expectancy at 65, disability free life expectancy;
- Physically active;
- Incidence of Haemophilus influenzae b (Hib) and invasive meningococcal disease;
- Rates of E. coli;
- Stroke in hospital mortality;
- Rates of breast cancer;
- Survival rates for colorectal cancer;
- Access to 24/7 first contact;
- Readmission rates for AMI.

In other words, the Saskatchewan population and Saskatchewan health services and outcomes fair favourably on some measures and not so favourably on others. Some of the measures point to Saskatchewan strengths and weaknesses that are relatively common knowledge. Further, we have been addressing many of the apparent weaknesses through health promotion campaigns (smoking, diet, physical activity), program development (early childhood development, wait list initiatives) and legislation (smoking). Finally, we also know that current Saskatchewan programs sustain many of our strengths (vaccination programs, breast cancer screening) revealed in this report.

Some of the measures assessed in the report are difficult to interpret. For example rates of hip and knee replacements are difficult to assess. We do not know whether more hip replacements are always better. At the individual level we know that hip and knee replacements reduce pain and suffering. However at the health system level, given all the competing priorities, what is the consequence of putting more and more resources into knee replacements?

The complexity of the story told in this report is intensified by the fact that 14 such reports from other jurisdictions (provinces, territories and the federal government) are also released at the same time.

Improved reporting on health system performance is one of the goals of producing this report. However, many of the measures need further development, and the report is lengthy and complex. Due to the complexity of selected measures, the technical nature of the

reporting requirements and the sheer volume of the report the benefits of public reporting may be only partially met in this first comparable indicators report.

To make the report more accessible and useable for all readers, The Saskatchewan Comparable Health Indicators Report is organized around five chapters each telling a story about the health of Saskatchewan residents and about selected health services:

- Chapter 1: A Story about Health Status
- Chapter 2: A Story about Personal Health Practices
- Chapter 3: A Story about Public Health
- Chapter 4: A Story about Select Diseases
- Chapter 5: A Story about Health Services

Within each chapter a number of indicators that tell a piece of the story are provided. Wherever possible the discussion of each indicator includes rates and trends, distributions by age and sex and provincial and international comparisons. The report presents the information in several forms, including graphs, charts and text. Technical specifications for each indicator, the rationale and relevance of each indicator are provided in appendices at the end of the report.