

Saskatchewan Cancer Control Report

Profiling Trends in Cancer, 1970 - 2001



Saskatchewan Cancer Control Report

Profiling Trends in Cancer, 1970-2001

J. Tonita, R. Alvi, F. Watson, D. Robson

February 2003

Cover photos left to right:

- South Saskatchewan River, Saskatoon
- Field east of Balgonie
- Cypress Hills
- Waskesiu Lake

(photos courtesy J. Tonita)

Recommended citation:

Tonita J, Alvi R, Watson F, Robson D. Saskatchewan Cancer Control Report: Profiling Trends in Cancer, 1970-2001. Department of Program Evaluation and Surveillance, Saskatchewan Cancer Agency, February 2003.

Acknowledgements

We thank the following Saskatchewan Cancer Agency staff for their assistance in the preparation of this report:

- Kevin Garratt..... data extraction
- Mary Johnson..... design and layout
- Glenda Little..... communications
- Dana Van Eyck..... data extraction
- statistics coding staff of the Health Records Departments at the Allan Blair Cancer Centre and the Saskatoon Cancer Centre

We also thank Dr. Erich Kliewer (CancerCare Manitoba), Dr. Anne Leis (University of Saskatchewan) and Mary Gilliland (Saskatchewan Cancer Agency Board member) for reviewing this report and providing comments.

Foreword

The Saskatchewan Cancer Agency is pleased to introduce Saskatchewan's first comprehensive Cancer Control Report. The purpose of this new annual publication is to provide the public, government and health providers with information about the status of cancer in Saskatchewan.

Cancer control represents activities that aim to prevent cancer, cure cancer and to increase survival and improve quality of life for those who are diagnosed with cancer. Cancer control makes use of knowledge gained through research, surveillance and outcome evaluation to develop strategies and actions in the fight against cancer.

Cancer surveillance is the collection, review and analysis of data that describes incidence, prevalence, morbidity, and mortality attributable to cancer. It answers the very basic question: where are we in controlling and managing cancer? In Saskatchewan, legislative authority to conduct cancer surveillance resides with the Saskatchewan Cancer Agency.

The Saskatchewan Cancer Agency is responsible for the provision of cancer treatment, prevention and early detection programs, research, and education services to the people of Saskatchewan. The Agency operates the Allan Blair Cancer Centre (Regina), Saskatoon Cancer Centre, two Cancer Patient Lodges, a Health Research Division, Screening Program for Breast Cancer, and the Prevention Program for Cervical Cancer.

We are very fortunate to have in our province one of the world's most extensive cancer registries, dating back to 1932. This rich source of information allows for effective long-term monitoring of our progress in managing cancer.

You are likely aware of the facts, but they bear repeating: one in three Canadians develop cancer during their lifetime; cancer is deadly – half of those diagnosed will die from the disease; and cancer is primarily a disease of older Canadians, with 70% of new cases and 82% of deaths occurring in those 50 years of age and older.

The Saskatchewan Cancer Agency's surveillance activities provide the necessary evidence to show how well we are doing in minimizing the burden of cancer and what more needs to be done to further reduce its impact on society.

We hope this new report will help increase understanding and awareness of how cancer impacts Saskatchewan residents and where we must focus our efforts in the future.

The Department of Program Evaluation and Surveillance of the Saskatchewan Cancer Agency is to be congratulated on its effort in producing this very important publication.

Bob Allen
Chief Executive Officer

Gary Semenchuck
Board Chair

Table of Contents

	Page
Key Findings	2
Introduction	3
Population.....	5
Cancer in Saskatchewan.....	6
Cancer in Children	13
Trends in Common Cancers	14
Cancer Survival.....	17
Special Topic:	
<i>Historical Changes in Cancer Incidence and Survival</i>	19
Data Sources and Methodology	24
Glossary of Terms	27
Appendices:	
<i>Appendix A – Site Classifications</i>	29
<i>Appendix B – 2001 Statistical Tables</i>	30
References.....	37
Evaluation Form	39
Contact/Ordering Information.....	40

Cancer control represents activities that aim to prevent cancer, cure cancer and to increase survival and improve quality of life for those who are diagnosed with cancer.

Key Findings

- **People alive with cancer:** In 2001, there were 50,313 people alive in Saskatchewan who had been previously diagnosed with a malignant cancer. This number is projected to increase to 64,000 in 2010.
- **Cancer prevalence by regional health authority:** The number of people alive with cancer varies greatly among the regional health authorities, from 11 per 1,000 population in Keewatin Yatthé, to 65 per 1,000 population in Five Hills.
- **Common cancers:** Cancers of the prostate and breast are the most common and account for 30% of cancers in males and females, respectively.
- **Increase in cancer cases:** Over the last 20 years, the number of cancer cases has increased by approximately 40% for males and females. However, the age-adjusted rates have remained fairly stable, only increasing by 12%.
- **Melanoma and lymphoma:** The incidence rates of melanoma and lymphoma have more than doubled since 1970 in males and females.
- **Lung cancer:** Lung cancer remains the leading cause of cancer deaths in both males and females, accounts for the most years of life lost and has extremely poor survival.
- **Prostate cancer:** Age-adjusted incidence of prostate cancer is now two-and-a-half times greater than it was in 1970. Since 1990, prostate cancer incidence has increased 50%.
- **Lung cancer in females:** The number of new cases from lung cancer in females has been steadily rising and is now seven times higher than it was in 1970.
- **Improvements in adult cancer survival:** There have been substantial improvements in five-year survival for some common sites. For example, prostate cancer survival improved from only 10% in 1932-1944 to 83% in 1992-2001, and breast cancer survival improved from 42% to 86% during the same time period.
- **Improvements in pediatric cancer survival:** Survival among pediatric cancer patients is one of the most noteworthy cancer control achievements of the past 30 years. Ten-year survival has increased from under 50% in the 1970s to over 70% in the 1990s.
- **Average years of life lost:** The average years of life lost during the years 1997 to 2001 due to cancer was 16.1 years in females and 12.7 years in males. The average years of life lost varies greatly by site, from 24.7 years for brain and central nervous system cancers in females to 8.8 years for prostate cancer in males.
- **Total years of life lost:** Deaths from cancer during the years 1997 to 2001 resulted in 75,171 years of life lost for males and 78,060 years for females.

Introduction

Cancer is not a single disease, but rather a family of diseases of over 100 different types. Cancer can arise from just about any type of cell in the body, and a given cell type can give rise to different forms of cancer, depending on the location in the body and the type of genetic abnormality involved¹.

Cancer is not a modern disease. Hippocrates introduced the term *cancer* in the 4th century BC. The word is derived from the Greek word *karkinoma* that means *crab*. Hippocrates used this term because he noticed that some breast tumours had extensions like a crab's legs or claws².

A tumour is a growth that can be either benign or malignant (sometimes known as invasive). Cancer is found in two forms: as a malignant solid tumour, or as nonsolid tumour of the circulatory system. Malignant tumours are different from benign tumours in a number of ways. Malignant tumours have the ability to invade surrounding normal tissue, they often grow rapidly, and they can become metastatic, meaning they can spread to other areas of the body. Malignant tumours are often fatal if left untreated. Benign tumours do not invade other tissues. However, they can be serious and in rare cases cause death, depending on where they are located in the body.

In Canada, cancer was the leading cause of death in 1999, with 62,769 deaths, followed by ischemic heart disease in which resulted 42,619 deaths³. In terms of potential years of life lost, cancer ranked first in Canada with

924,000 years lost, compared to about 650,000 for diseases of the heart⁴.

Surveillance of cancer has therefore become an important public health endeavour, given the burden it inflicts on society and our health care system.

Cancer surveillance is a key activity of cancer control⁵. Development of new cancer control programs will be dependent on knowing the current and future status of cancer and the effect it will have on the population. Given that the disease is more common in people over age 50 and that our population is aging, we can expect a continuing increase in the number of new cases and the overall burden of disease on the population for the foreseeable future. Only by close monitoring of cancer trends can we develop new programs aimed at reducing the impact of cancer with the resources we have available.



*Saskatchewan's provincial flower, the western red lily
photo courtesy Government of Saskatchewan*

Introduction

The Saskatchewan Cancer Control Report (SCCR) will be the monitoring tool used to describe the status of cancer in Saskatchewan. We intend to produce the SCCR on an annual basis. This first issue includes cancer information up to the end of 2001, with subsequent issues to include the most current year's data. Future issues of the SCCR will be published in the late fall, resulting in two publications in 2003.

Each SCCR will include a special topic section that will provide more detail about an important or emerging issue in cancer or about a particular cancer site. This issue provides a historical perspective of cancer in our province, describing how cancer has changed over time and helping predict what impact cancer may have on our population in the future.

The SCCR will be useful to a number of audiences. The report should help increase awareness about cancer in Saskatchewan among the general public or others who may have an interest in this disease. As well, it will provide evidence for policy makers and program managers who are involved in developing new cancer control programs. The report will be shared with provincial counterparts and other stakeholders who are engaged in the battle against cancer. Ultimately, the Saskatchewan Cancer Control Report will enable the Agency to both monitor cancer and to evaluate the effects of all cancer control activities in Saskatchewan.

If you want to know your past, look into your present conditions. If you want to know your future, look into your present actions.

Buddhist saying

Population

In 2002, the population of Saskatchewan, defined as the number of residents eligible for health services, was 1,024,827. These people are referred to as the “covered population” (see Glossary). This population has remained fairly stable over the past 10 years at about one million people. The covered population is expected to decline in future years because of decreasing fertility rates, increasing out-migration and indirectly, due to aging.

Saskatchewan’s aging population is due largely to the “baby boomers” (those born between 1945 and 1966). In 1970, over 40% of the Saskatchewan population was under 20 years of age and only 24% (222,442) of the population was 50 years or older (Figure 1). In 2002, the percentage of young people decreased to 28% and the percentage of older people increased to 29%, with now almost equal numbers of those under 20 (291,242) and over 50 (299,708).

The age distribution of Saskatchewan is not consistent in all areas of the province. For example, southern rural areas have a higher number of seniors, whereas northern areas have a higher proportion of children. The urban areas of Regina and Saskatoon have a larger percentage of people in their 20s and 30s.

Population projections for 2011 and 2016 (Figure 2) show that the Saskatchewan population will continue to age, with increasing numbers of people over age 50. In 2011, the population 50 and older is predicted to be 345,024. This number is expected to increase to 360,190 in 2016.

Figure 1: Saskatchewan Population Past and Present

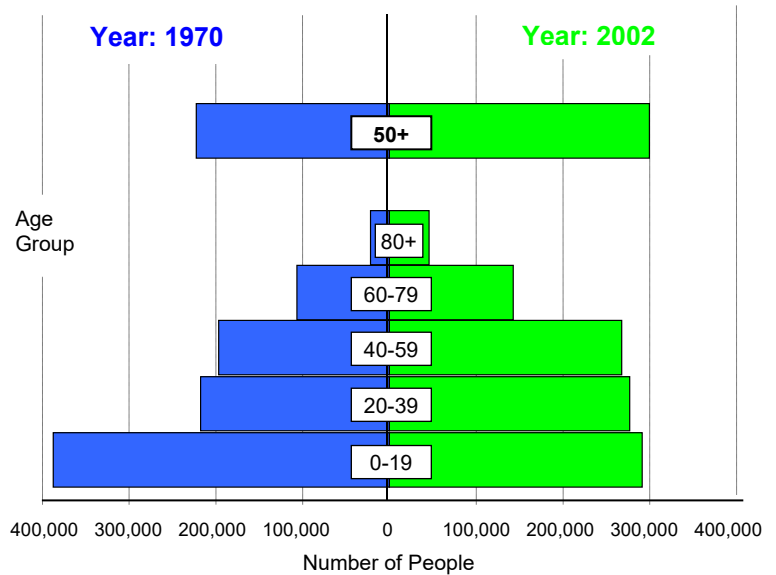
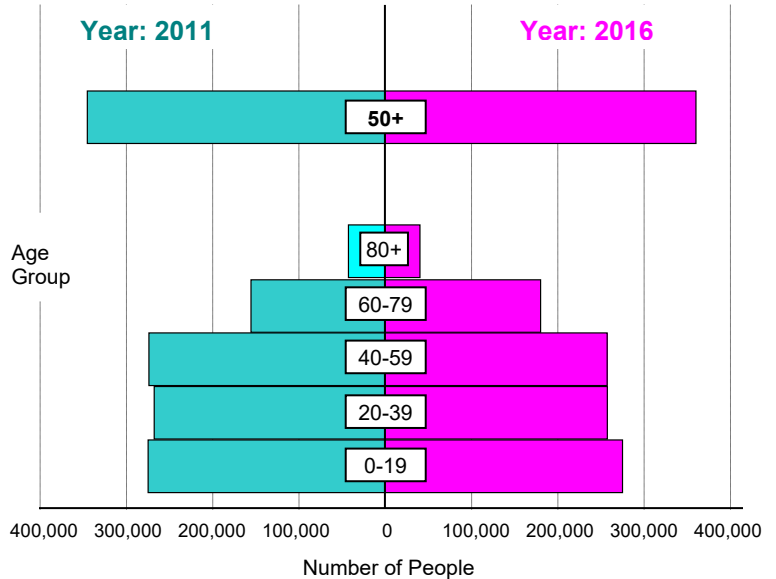


Figure 2: Saskatchewan Population Future



With an increasing percentage of residents 50 and older, the number of people with cancer in Saskatchewan will also increase, further straining cancer services.

Cancer in Saskatchewan

One of the best measures of disease burden is incidence, which can be reported either as the number of new cases in a time period or as a rate for the time period. Incidence provides a measure of the carcinogenic exposures (genetic and environmental) that can be causal or preventive in the population. The strength and occurrence of these exposures will influence the amount of cancer and types that occur⁶. Incidence is also influenced by new diagnostic technologies or screening activity that can increase the number of cases diagnosed in a given time period.

Figure 3 shows the effect of age on the occurrence of invasive cancer in males and females. In younger age groups the risk is very low, but increases dramatically with increasing age. In age groups under 60, cancer risk is higher among females than males, mostly due to breast and genitourinary cancers. After age 60 however, cancer risk is significantly higher in males. The leveling of rates in the oldest age group may be associated with incomplete cancer reporting.

Mortality rates are another measure of cancer burden because they measure the risk of dying at the population level⁶. Mortality rates can also be used for evaluating screening or early detection programs or treatment, and reflect, to some degree, the sum total of all cancer control activities within a population.

Figure 4 shows mortality rates by sex. Mortality from cancer is very rare for the youngest age groups, but like incidence, it

Figure 3: Age-Specific Incidence Rates for Invasive Cancer by Sex, 1997-2001

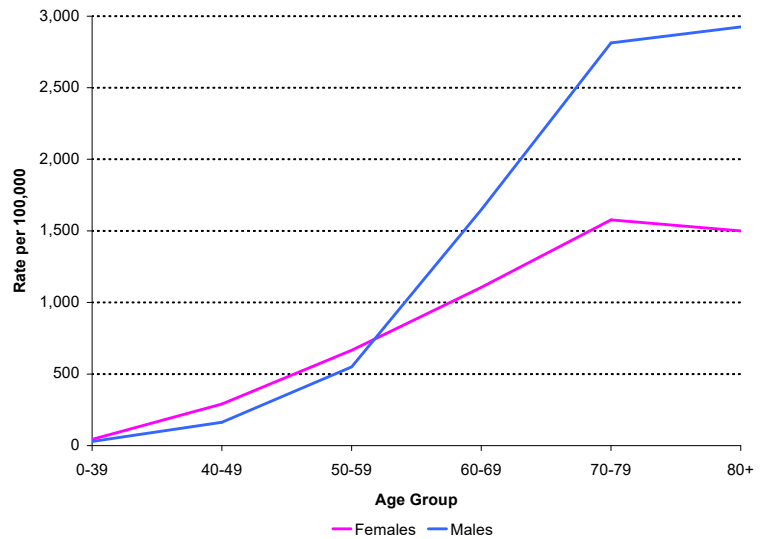
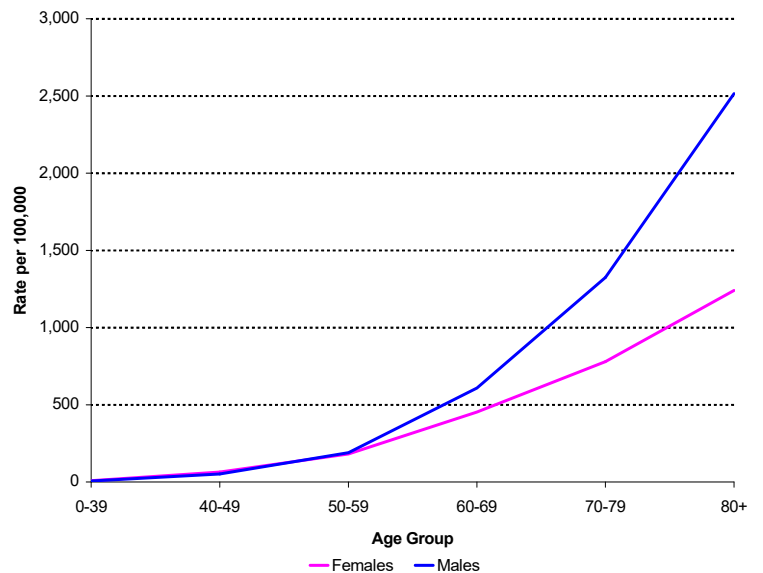


Figure 4: Age-Specific Mortality Rates From Cancer by Sex, 1997-2001



increases with age. Death rates are similar for males and females up to the 50-59 age group, and then become higher in males. Mortality rates continue to increase in the oldest age group, unlike incidence rates, as is shown in Figure 3.

Cancer incidence and mortality data (numbers and rates) for various sites for 2001 are provided in Appendix B. At the time of publication, 2001 data were the most recent available. Appendix A lists the International Classification of Disease for Oncology (ICD-O) codes (third edition) used to define the cancer sites in Appendix B.

Fluctuations in the number of cancers by site occur from year to year, especially for less common types. For this reason, incidence and mortality data are shown for the top sites for the most recent five-year period, 1997-2001.

Figure 5 shows the top invasive cancer sites for males for 1997-2001. The most common was prostate (3,645 cases), representing 30% of all cancers diagnosed in men. Lung (1,745) and colorectal (1,626) cancers combined accounted for another 27.7% of cases. Bladder cancer ranked as the fourth leading cause with 784 cases.

Figure 6 shows, however, that lung cancer was the leading cause of death from cancer in males, with 1,553 deaths (26%). Prostate cancer was second with 1,093 deaths, followed by colorectal cancer with 628 deaths. Although cancer of the pancreas was fourth with 243 deaths, it was a less common site for incidence.

Figure 5: Top Sites for Incidence of Invasive Cancer in Males, 1997-2001

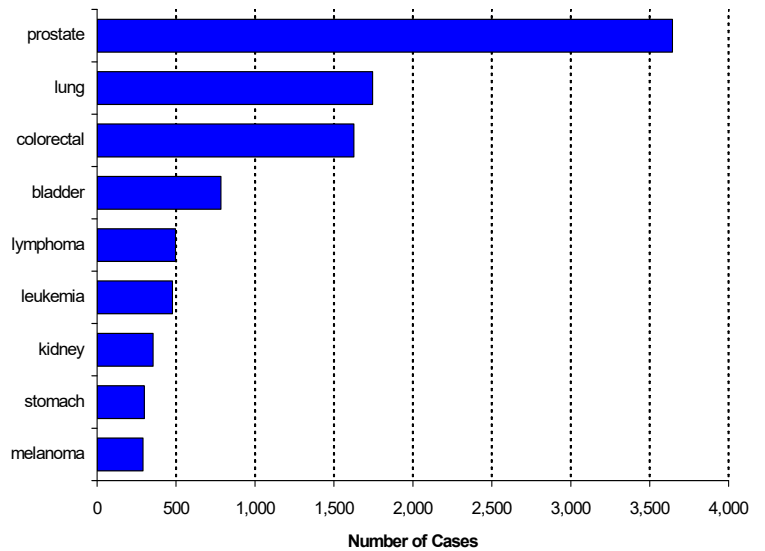


Figure 6: Top Cancer Sites for Mortality in Males, 1997-2001

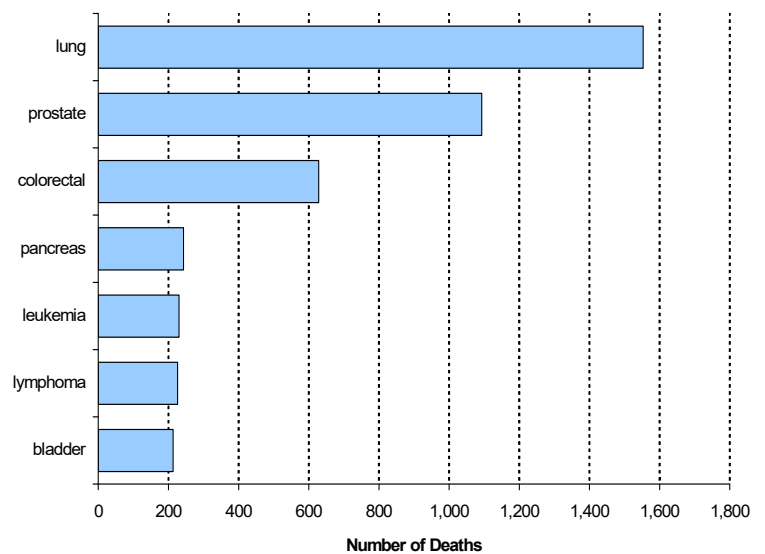


Figure 7 shows breast cancer was the most common malignant cancer (3,156) diagnosed in females, accounting for 30% of cases. Colorectal cancer was second with 1,343 cases for the five-year period, followed closely by lung cancer with 1,161 cases. Women are more prone to cancers of the genitourinary system, with three of their top sites involving bladder, ovarian and uterine cancers.

As shown in Figure 8, lung cancer was the leading cause of death from cancer in women, with 1,006 deaths. There were 766 deaths from breast cancer and 538 from colorectal cancer over the five-year period. As was the case for males, cancer of the pancreas was the fourth leading cause of death of women, though it was not a leader in incidence. Melanoma, however, was a common cancer diagnosed, but not a leading cause of death in either males or females.



Northern Saskatchewan Children's Festival
photo courtesy City of Saskatoon

Figure 7: Top Sites for Incidence of Invasive Cancer in Females, 1997-2001

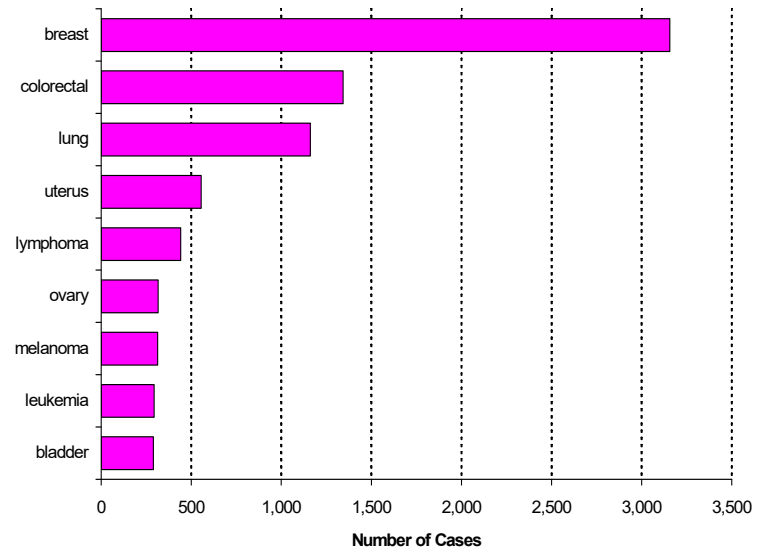
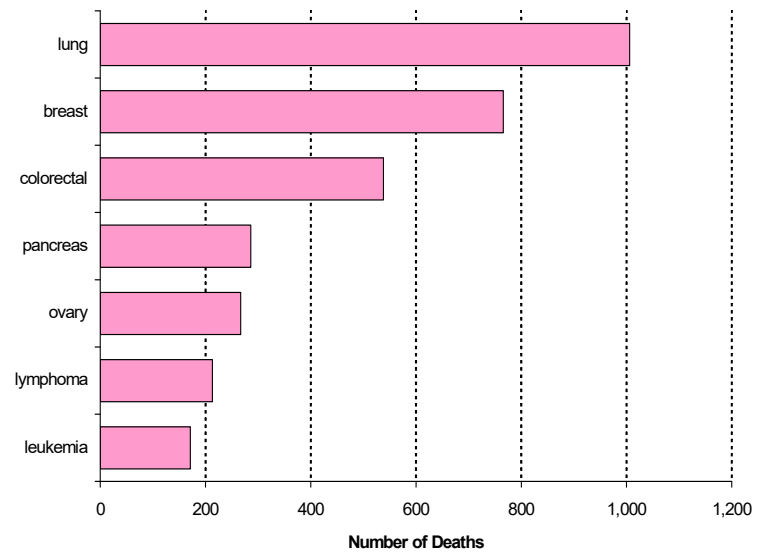


Figure 8: Top Cancer Sites for Mortality in Females, 1997-2001



“Potential years of life lost” (PYLL) measures the number of years of life lost due to disease. While mortality measures the risk of death, PYLL quantifies the impact of deaths from disease. Cancers that cause death in younger people will have a greater impact on PYLL than those that cause death among older people⁶.

Figure 9 shows the total PYLL for males and females by selected sites. In males, lung cancer accounted for almost 20,000 PYLL for the five-year period 1997-2001, while prostate cancer resulted in 9,585 PYLL. Although PYLL from lung cancer was double that of prostate, there were only 42% more deaths from lung cancer than from prostate. Lung cancer deaths are more common in younger men, resulting in greater PYLL. Total PYLL from colorectal cancer is similar to that of prostate cancer.

In females, the pattern of PYLL is different than in males. Lung and breast cancers have total PYLL that are similar, with 16,278 and 13,983, respectively. Deaths from breast cancer occur at similar ages as those from lung cancer. Colorectal cancer ranks third, but with half the PYLL of breast cancer.

Figure 10 shows the average PYLL for males and females by site. Brain and central nervous system (brain/CNS) cancers have the highest average PYLL of the sites shown for both sexes. In males, prostate cancer has a low average PYLL even though it is second for total PYLL. In females, breast and ovarian cancers have high average PYLL.

For the five-year period 1997-2001, there were 22% more cancer deaths in males than females, but females had 78,060 PYLL

Figure 9: Total PYLL for Selected Cancer Sites, 1997-2001

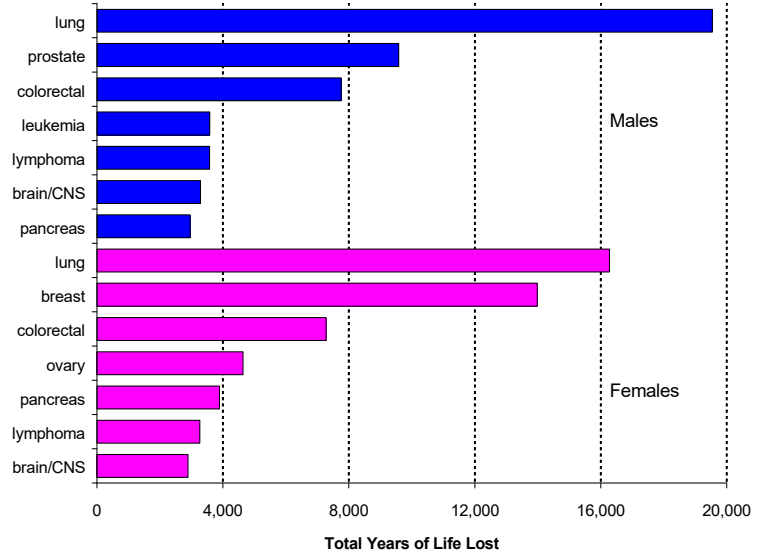
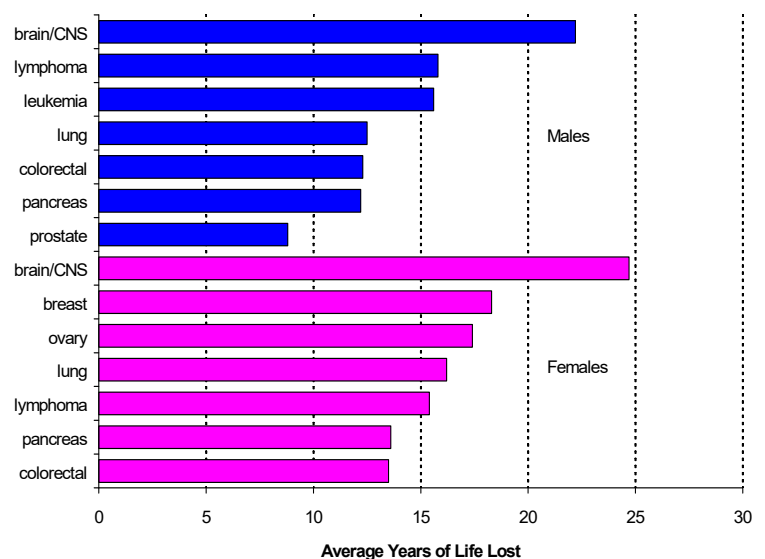


Figure 10: Average PYLL for Selected Cancer Sites, 1997-2001



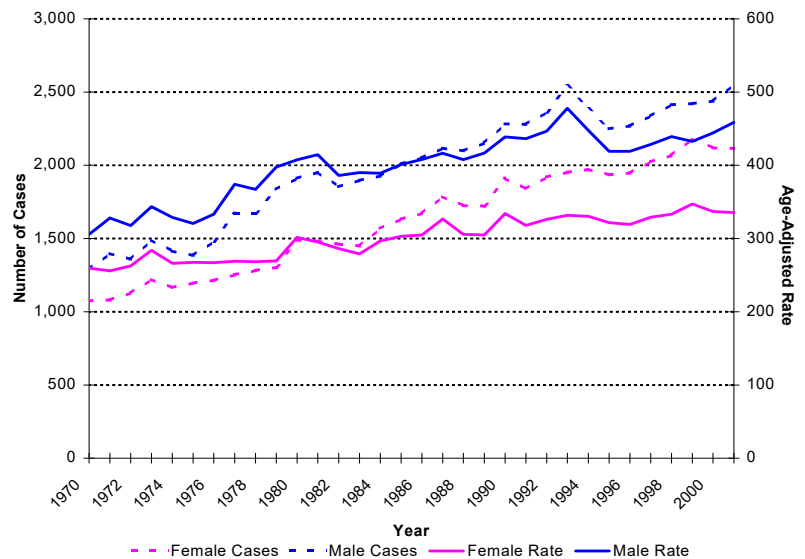
compared to 75,171 for males. On average, females had 16.1 PYLL and males 12.7 PYLL for all cancer deaths. Two factors influence the PYLL: females have longer life expectancies than males, and females die of certain cancers at younger ages, e.g., breast versus prostate.

Figure 11 shows the annual number of new invasive cancers diagnosed (left axis, dashed lines) and the annual age-adjusted rates (right axis, solid lines) since 1970. Adjusted rates control for changes in age distribution over time (see Glossary). In 1970 there were 1,292 and 1,074 cases diagnosed in men and women, respectively. By 2001, the corresponding numbers had doubled to 2,551 and 2,116. For each sex, the average annual percent increase in the number of cases has been about 3%. There is no indication that this pattern will change in the near future.

The trend in the number of new cases in women has been very consistent over the 32-year period. In men, the trend was unstable, particularly during the 1990-1995 period, when a spike in the number of cases occurred. This was due to the introduction of the prostate specific antigen (PSA) test in the province in 1990, which was followed by large increases in the number of prostate cancers detected⁷.

Figure 11 also shows the increase in age-adjusted rates over time. Unlike the increase in the number of cases, the increase in rates has been more modest. In males, the rate increased 46.9% from 305 per 100,000 in 1970 to 448 per 100,000 in 2001, and in females, increased 28.8% from 260 to 335 per 100,000 over the same period. Since 1980, the rates in males and females have increased only 12.5% and 11.3%, respectively. Over the past 22 years, however, the number of cases has increased 42% in females and 33% in males.

Figure 11: Number of Invasive Cancers and Age-Adjusted Cancer Rates, 1970-2001



...the differences between the rates and number of cases result from the population having many more people over age 50...

The reason for this difference is the aging of the Saskatchewan population. Since the total population has remained stable over time, the differences between the rates and number of cases result from the population having many more people over age 50, when cancer is more common.

Figure 12 shows the same information for mortality as shown in Figure 11. The number of deaths has increased since 1970 from 663 to 1,254 in men and from 462 to 946 in females. The age-adjusted rates increased mostly in the 1970s, but have remained very stable over the past 20 years. In men, there are indications that rates have been declining since the late 1980s, but more years of follow-up are required to establish a decreasing trend.

Another indicator of cancer burden is prevalence (see Glossary). Figure 13 indicates the number of people alive as of December 31 of each year who were previously diagnosed with a malignant cancer. The number of people alive has steadily increased over time. This increase is due to two factors: more cases are now being diagnosed (as shown in Figure 11), and survival has improved over time.

There were just over 16,000 people alive in 1970 with a previous cancer, and by 2001 that number had tripled to 50,313. The increase has been slightly higher in females. The prevalence is expected to be about 64,000 people (about 6.4% of population) in 2010.

People living with cancer have special needs that may include initial treatments, short- and long-term follow-up, rehabilitation, psychosocial support, and palliative care. While a positive outcome in itself, the large increase in the number of people alive with cancer increases demands for the unique health services they require.

Figure 12: Number of Deaths from Cancer and Age-Adjusted Mortality Rates, 1970-2001

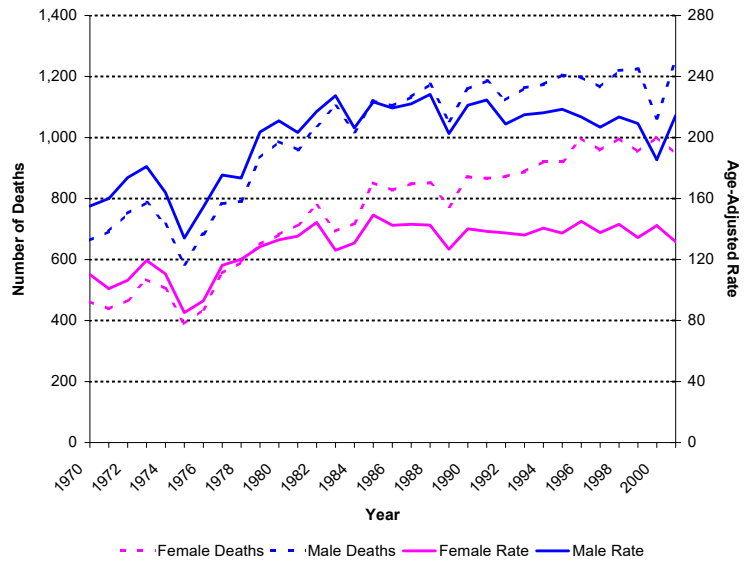
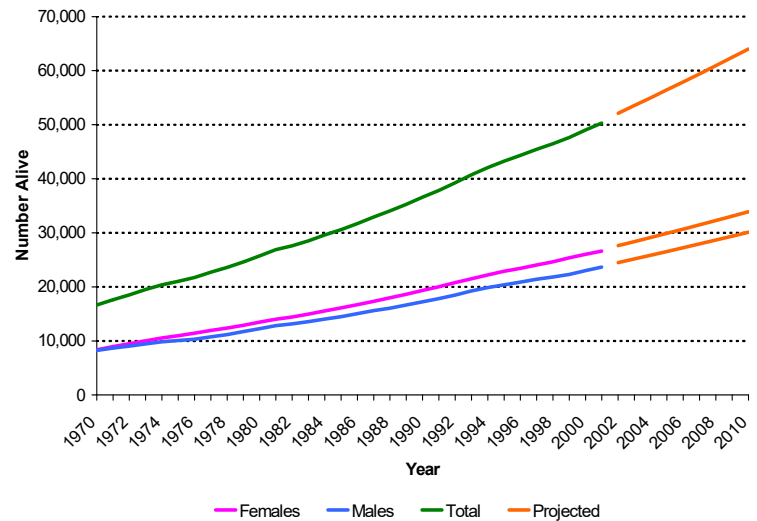


Figure 13: Trends in Invasive Cancer Prevalence as of December 31 of Each Year



Cancer in Saskatchewan

The number of people alive with a previous invasive cancer in 2001 is not uniformly distributed throughout the province (Table 1).

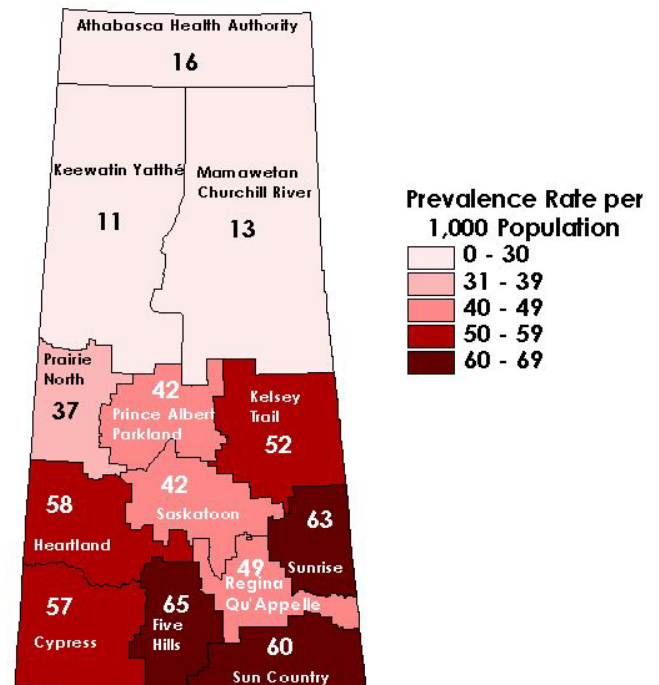
Table 1: Prevalence by Regional Health Authority, 2001

Regional Health Authority	Alive with Cancer in 2001
Sun Country	3,377
Five Hills	3,680
Cypress	2,617
Regina Qu'Appelle	12,194
Sunrise	3,784
Saskatoon	12,099
Heartland	2,698
Kelsey Trail	2,336
Prince Albert Parkland	3,257
Prairie North	2,600
Mamawetan Churchill River	264
Keewatin Yatthé	119
Athabasca Health Authority	37
Unknown	1,251
Saskatchewan	50,313

The province is divided into 13 regional health authorities (RHAs) with varying populations. The Saskatoon and Regina Qu'Appelle RHAs are the most heavily populated and contain half of the prevalent cases. Mamawetan Churchill River, Keewatin Yatthé and the Athabasca Health Authority have the fewest prevalent cases, due to their small populations.

Figure 14 shows a map of the crude prevalence rate for each RHA in 2001. The crude rate indicates the importance of cancer *within* each RHA. In three RHAs, the crude prevalence rate is over 60 per 1,000

Figure 14: Crude Invasive Cancer Prevalence Rate by Health Authority as of December 31, 2001



people (or over 6% of the population). Regina Qu'Appelle and Saskatoon have more people, but their crude rates are mid-range. For the province, the prevalence rate was 5% (50 per 1,000 people).

The crude prevalence rates reflect the age distribution of the RHAs. In northern regions, the crude rates are very low, while in the south they are three to five times higher. The northern regions have more young people than the southern regions. For example, in Mamawetan Churchill River, 13% of the population is 50 years of age or older compared to 40% in Five Hills. For the province, 28.8% of the population was 50 or older in 2001.

Cancer in Children

Cancer is much less common in children (under 20 years of age) than in adults, representing about 1% of all invasive cancers diagnosed between 1997 and 2001. During this five-year period, 226 children aged 0-19 were diagnosed with invasive cancer (14.9 new cases per 100,000 children).

The five most common cancers among children were leukemia, cancers of the brain/CNS, lymphoma, other carcinomas, and soft tissue (Table 2). These five cancer types accounted for 73% of all childhood cancers during 1997-2001. Crude rates are also reported for each of these five cancer sites. Leukemia was most common, with a rate of 3.6 new cases per 100,000 children.

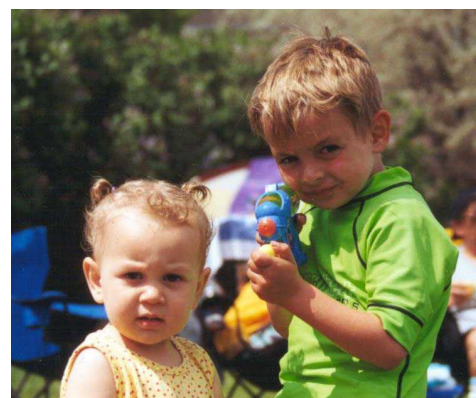
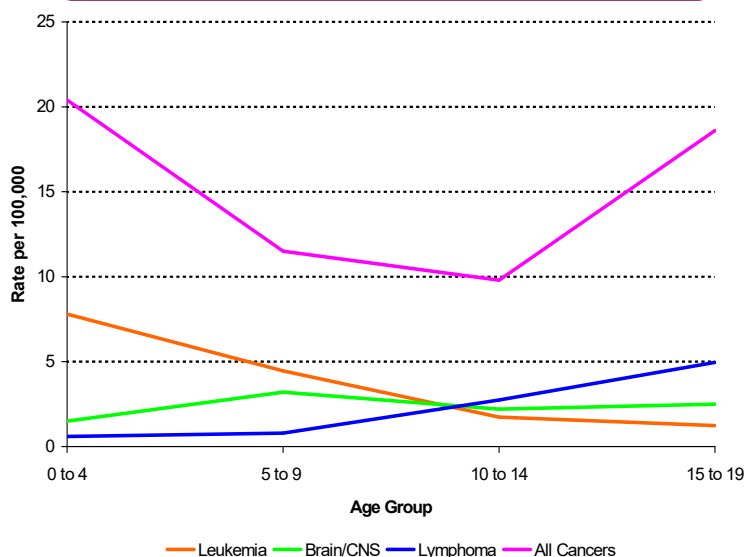
Age-specific incidence rates of all cancers are shown in Figure 15. The highest rates occurred in the youngest and the oldest children (20.4 cases per 100,000 and 18.6 cases per 100,000, respectively). The lowest rate (9.8) was in the 10-14 age group.

The most common cancer within each age group also varied. Leukemia was the most common cancer among children aged 0-4 (7.8 per 100,000). For those 5-9, leukemia and cancer of the brain/CNS were equally common. There were only small differences noted for those 10 to 14 years of age. Lymphoma was the most common cancer in the oldest age group, with a rate of 5.0 per 100,000.

Table 2: Top Invasive Cancers in Children, 1997-2001

Site	No.	Crude Rate
Leukemia	55	3.6
Brain/CNS	36	2.4
Lymphoma	36	2.4
Carcinoma	22	1.4
Soft Tissue	16	1.1
Other	61	4.0
Total	226	14.9

Figure 15: Age-Specific Rates for Childhood Invasive Cancers by Site, 1997-2001



Trends in Common Cancers

INCIDENCE

Trends in the incidence of cancer are largely due to changes in exposures in the population, resulting in either increases or decreases in rates⁶. Rates are also affected by new technology or testing that makes possible an earlier diagnosis of cancer.

In Figure 16, age-adjusted rates for the top three cancers are shown for females. Adjusted rates for breast cancer increased mostly in the 1980s and were generally stable in the 1970s and 1990s. Lung cancer incidence rates are now seven times higher than they were in 1970. Colorectal cancer rates have been very stable over the entire period.

Figure 17 shows the patterns for other selected cancers in females. Cancer of the uterus peaked in the early 1970s but has since declined. Melanoma and lymphoma rates have more than doubled over time. Stomach cancer rates are half of what they were 30 years ago, a pattern of decline that has been occurring for over 50 years⁸.



photo courtesy saskparks.net

Figure 16: Age-Adjusted Incidence Rates for Common Invasive Cancers in Females, 1970-2001

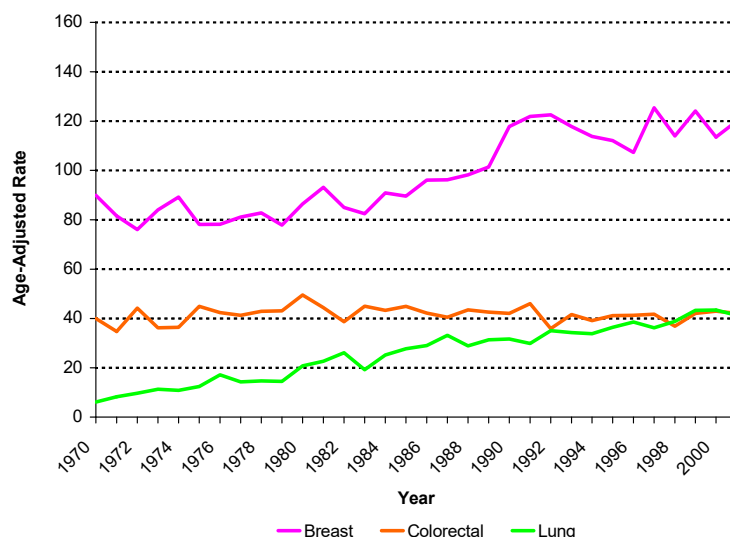
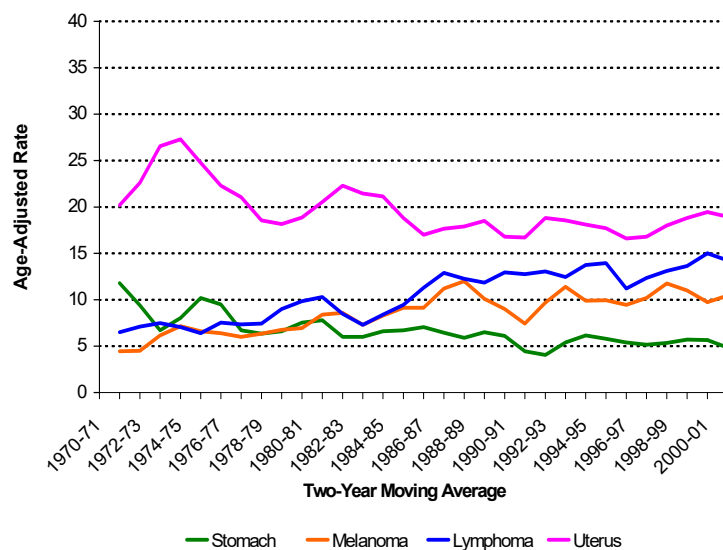


Figure 17: Age-Adjusted Incidence Rates for Selected Invasive Cancers in Females, 1970-2001



Lung cancer incidence rates are now seven times what they were in 1970.

Melanoma and lymphoma (incidence) rates have more than doubled over time.

Trends in Common Cancers

In Figure 18, the three most common male cancers are shown. Dramatic changes occurred in prostate cancer rates, largely due to PSA testing in the 1990s. The drop after 1994 was partially due to provincial guidelines released in early 1995 that recommended against routine screening⁹. The associated increase after 1995 likely reflects a return to previous testing patterns among physicians. The number of PSA tests increased from just over 35,000 in 1995 to over 75,000 in 2001.

As in females, colorectal rates for males have been very stable for at least the past 20 years. Lung cancer patterns are significantly different between the sexes, however. Age-adjusted lung cancer rates may have peaked in the late 1980s and are showing indications of decline, but more years of follow-up will be required to establish a pattern.

Figure 19 shows the pattern for other cancers in males. Lip and stomach cancers have shown large declines in incidence over the years. Fifty years ago, these were two of the top three cancers in men. Conversely, melanoma and lymphoma rates have at least doubled over the 32-year period, suggesting similar etiologies.

Lip and stomach cancers have shown large declines in incidence over the years.

Figure 18: Age-Adjusted Incidence Rates for Common Invasive Cancers in Males, 1970-2001

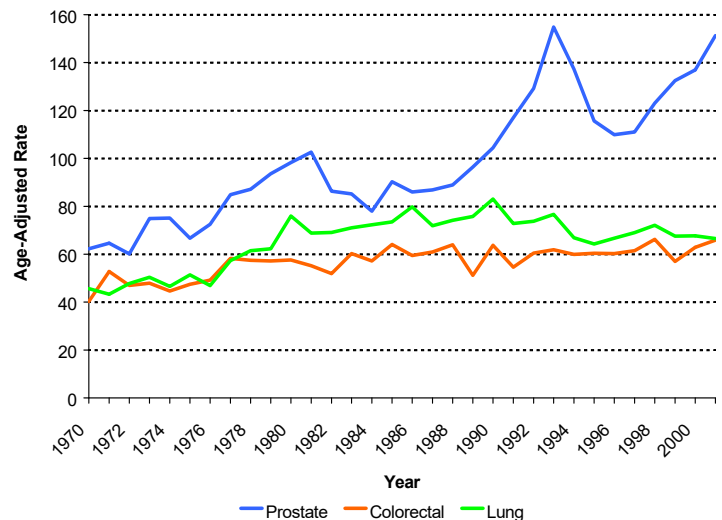
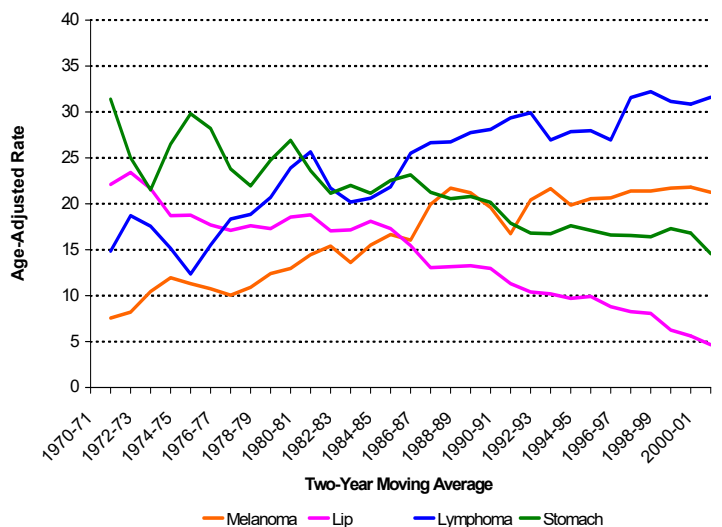


Figure 19: Age-Adjusted Incidence Rates for Selected Invasive Cancers in Males, 1970-2001



Trends in Common Cancers

MORTALITY

Mortality trends for the top three cancers in females and males are shown in Figures 20 and 21. Breast cancer death rates peaked in 1990 and have dropped since (Figure 20). This could be due to a number of factors, including improved treatments, some effect from breast cancer screening, or both. Colorectal cancer mortality rates have also declined since 1985 in females. Unfortunately, declines have been offset by a six-fold increase in the death rate from lung cancer since 1970.

In males, lung cancer mortality increased during the 1970s, then remained stable (Figure 21). There may be a slight indication of decline in the 1997-2001 period. The pattern for colorectal cancer mortality also suggests a modest decreasing trend since 1980. The adjusted death rate from prostate cancer increased during the 1970s, then remained fairly stable to 2001.

Unfortunately, the declines (in breast and colorectal cancer death rates in females) have been offset by a six-fold increase in the death rate from lung cancer since 1970.

Figure 20: Age-Adjusted Mortality Rates for Common Cancer Sites in Females, 1970-2001

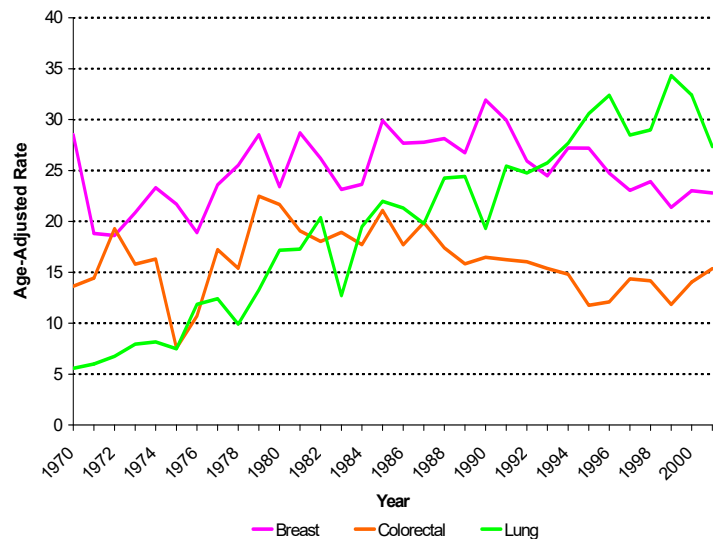
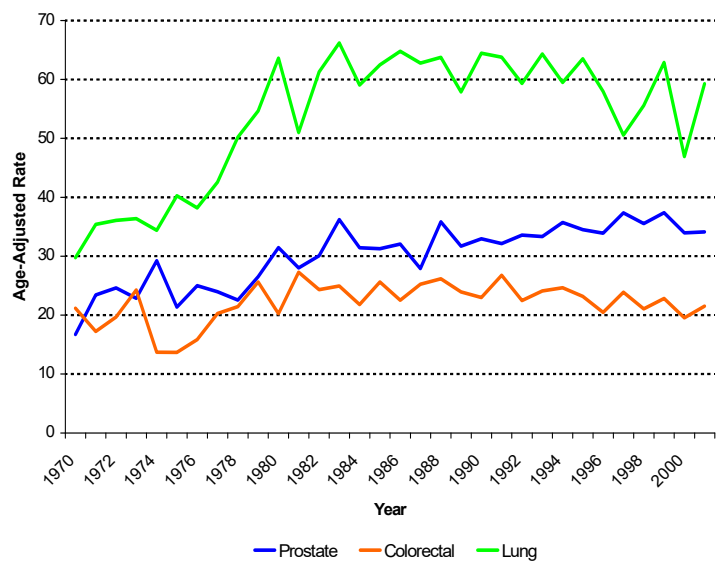


Figure 21: Age-Adjusted Mortality Rates for Common Cancer Sites in Males, 1970-2001



Cancer Survival

Survival rates are very important measures in both clinical settings and for the population overall. They provide a means of evaluating the effectiveness of cancer care, which includes both diagnosis and treatment⁶. Analysis of survival is also an excellent way to monitor the impact of cancer control activities that occur throughout a population. Survival is generally affected by two factors: extent of disease at diagnosis, and changes in treatments over time.

Extent of disease refers to how advanced the cancer is at diagnosis. Extent of disease has three primary levels: organ-confined (cancer is only in the site of origin), local invasion (cancer has spread to surrounding organs or tissues) and metastasis (cancer has spread to distant areas of the body). Extent of disease is influenced by a number of factors. New diagnostic technology may result in earlier diagnosis of cancer. As well, new early detection or screening programs will shift the detection of cancers to those that are organ-confined.

Figure 22 displays the five-year relative survival (see Glossary) pattern for the top three cancers for males diagnosed in the period 1992-2001. Lung, colorectal and prostate cancers have very different survival patterns.

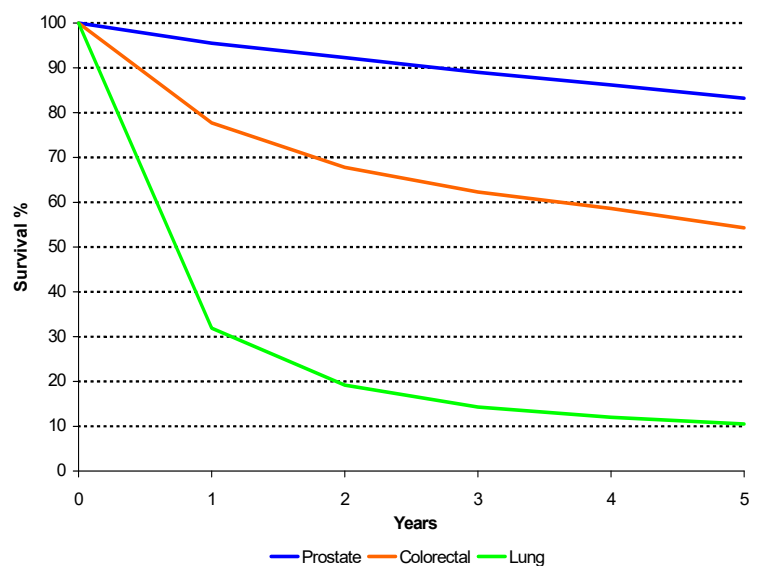
Prostate cancer has a good prognosis, with a five-year relative survival rate of 83.2%. The introduction of the PSA test in 1990 has led to the identification of more cases of early stage (organ-confined) disease.

Colorectal cancer has a fair prognosis, with a five-year relative survival rate of 54.3%. As with many cancers, survival is better for colorectal cancer when detected early¹⁰.

Lung cancer has a very poor prognosis, with a five-year relative survival rate of 10.5%. There is a close association between the number of lung cancer cases detected and lung cancer deaths because survival is so poor. Lung cancer is usually not organ-confined when diagnosed, as indicated by the very poor survival after only one year (31.9%). It continues to have a poor prognosis compared to other cancers.

Survival is generally affected by two factors, extent of disease at diagnosis and changes in treatments over time.

Figure 22: Five-Year Relative Survival for Top Three Invasive Cancers in Males, 1992-2001



Cancer Survival

Figure 23 displays the five-year relative survival patterns for the top three cancers in females. The patterns for lung and colorectal cancers are similar to those in males, with slightly better survival for females.

Cancer of the female breast has a good prognosis, with a five-year relative survival rate of 85.8%. Breast cancer survival is best when patients are diagnosed with early-stage disease. The provincial Screening Program for Breast Cancer, established in 1990, has increased the percentage of organ-confined breast cancers being diagnosed.

Figure 24 shows survival in children for the three most common pediatric cancers. Five-year observed survival (see Glossary) for lymphoma and ALL (acute lymphocytic leukemia) are both very good, at about 85%. Survival for brain/CNS is less favourable, at 65%.



photo courtesy J. Tonita

Observed five-year survivals (in children) for lymphoma and ALL (acute lymphocytic leukemia) are both very good, at about 85%.

Figure 23: Five-Year Relative Survival for Top Three Invasive Cancers in Females, 1992-2001

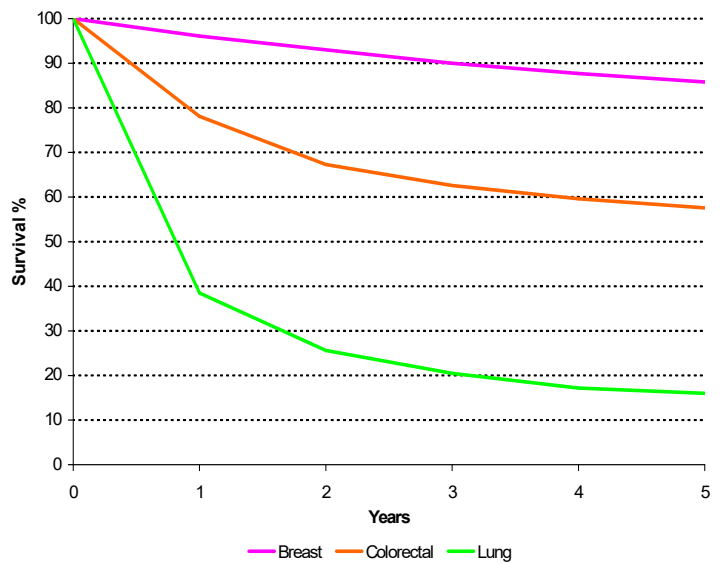
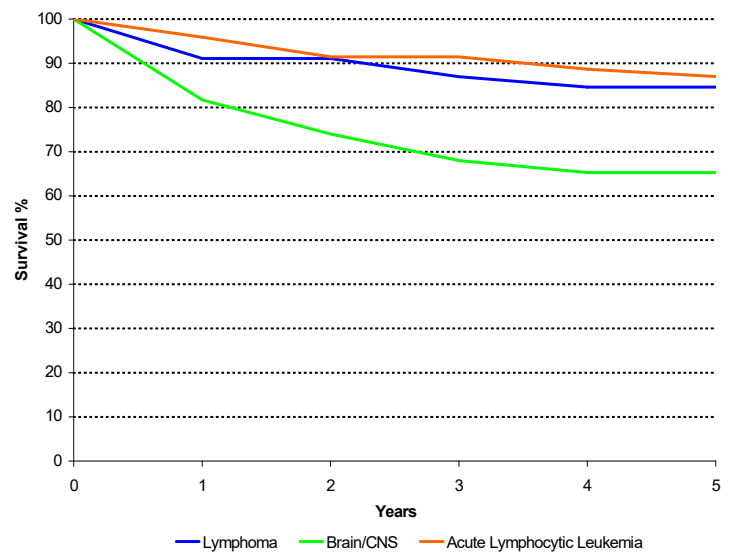


Figure 24: Five-Year Observed Survival for Top Three Invasive Pediatric Cancers, 1992-2001



Historical Changes in Cancer Incidence and Survival

Saskatchewan is fortunate to have a long-running cancer registry that allows for comparisons of incidence and survival over time. Investigating changes in incidence can provide clues about etiology for some cancers because changes in incidence may be related to changes in exposures. Survival changes over time reflect the impact of all cancer control activities that occur in the population. This section provides a look at the incidence of common cancers in males and females from 1950 to 1954 and compares them to the common cancers of today. Changes in survival over time for common cancers in children and adults are also reviewed.

INCIDENCE

Figure 25 shows the common cancers diagnosed in males from 1950-1954 and 1997-2001. Prostate cancer now accounts for 30% of all cases, compared to about 15% from the earlier period. Today there are many more men over age 50, the age group in which the majority of prostate cancers occur.

Historically, cancers of the lip and stomach were much more common in males, ranking a close second and third to cancers of the prostate. Today these cancers, especially lip, are much less common. The biggest change in males has been the emergence of lung and bladder cancers, which parallel the patterns of smoking among men over time. Lymphoma and leukemia are now more commonly diagnosed, while the

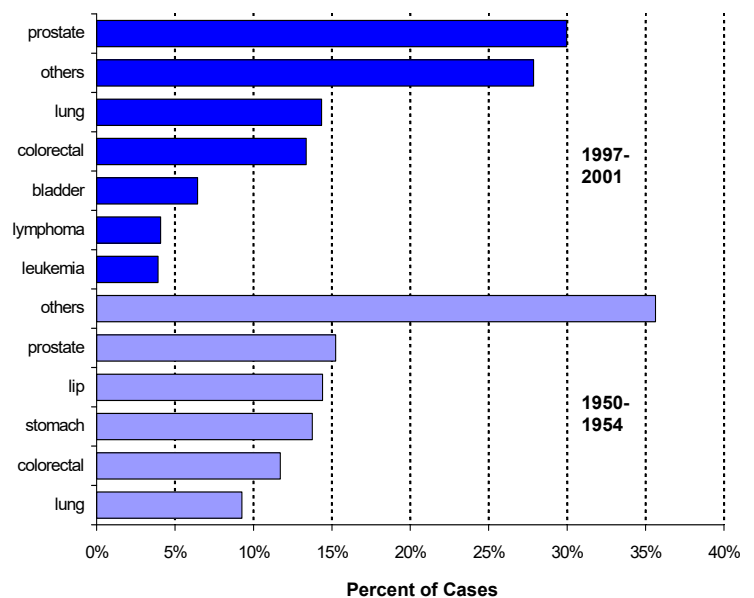


Saskatchewan Legislative Building, circa 1920, Regina
photo courtesy Saskatchewan Archives

In January, 1930, the Minister of Public Health presented to the Legislature a Bill designed to deal with the cancer problem on a province-wide basis.

*Saskatchewan Cancer Commission
Annual Report, 1932¹²*

Figure 25: Percent of Invasive Cancers Diagnosed in Males, 1950-1954 and 1997-2001



Historical Changes

percentage of colorectal cancer has remained stable over time.

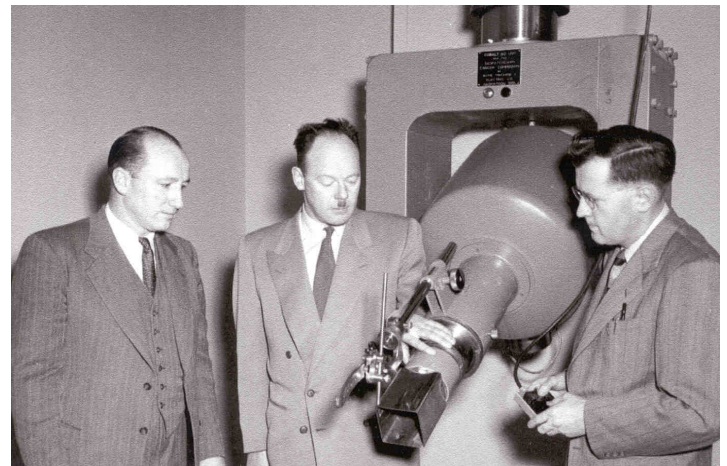
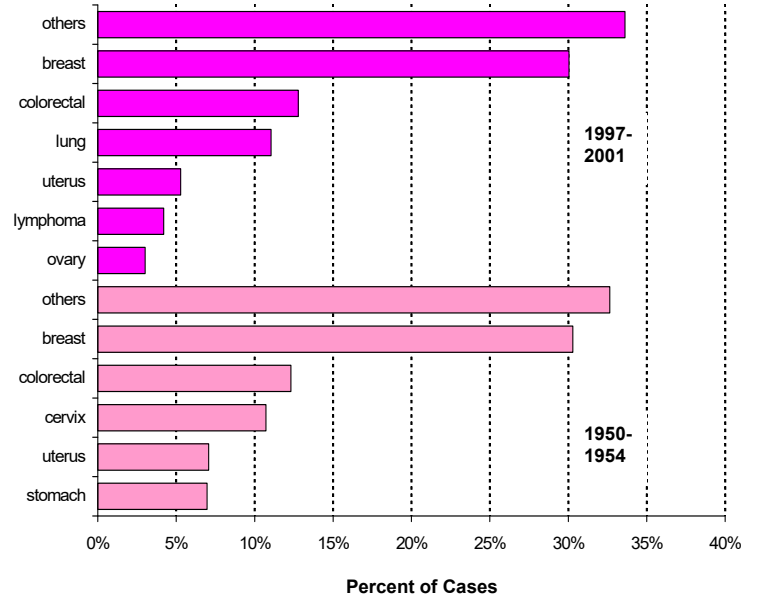
Figure 26 shows common cancers in females for the same time periods. The most common site, breast, has not changed, representing 30% of cases in both time periods. The percent of colorectal cancer among females has remained stable, as it has in males. Lung cancer is now the third most common cancer diagnosed in females, a dramatic change from the 1950s, when it was rarely diagnosed. The change is a result of increased smoking among women over the past 50 years.

Invasive cancer of the cervix is now much less common, largely due to cytological screening efforts during the latter part of the 1900s. Stomach cancers are less frequent now in females, as is the case in males. Although this is a common trend in developed countries, worldwide, stomach cancer ranks second to lung cancer as the most common form diagnosed¹¹. Cancers of the uterus are still common in females, and an increase in lymphoma has also occurred, as it has in males.

Lung cancer is now the third most common cancer diagnosed in females, a dramatic change from the 1950s, when it was rarely diagnosed.

Invasive cancer of the cervix is now much less common, largely due to cytological screening efforts during the latter part of the 1900s.

Figure 26: Percent of Invasive Cancers Diagnosed in Females, 1950-1954 and 1997-2001



T.A. Watson, J.A. MacKay, H.E. Johns with Cobalt 60 Unit, 1951, Saskatoon Cancer Centre
photo courtesy Saskatchewan Cancer Agency

SURVIVAL

Survival comparisons are presented in Figures 27 and 28 for selected sites in males and females. The survival data from the first two periods were not sex-specific, so rates shown include both males and females for sites common to both (lung and rectal; breast was almost entirely female). Survival comparisons for colorectal cancer are not provided because the historical data were grouped in a way that could not be replicated. Therefore, only changes in survival for rectal cancer are shown.

Figure 27 shows the historic five-year relative survival for selected sites in males. Many factors influence changes in survival. For example, old annual reports indicate that most prostate cancers were metastatic at diagnosis in the early years, which is not the case today^{12,13,14,15}. As a result, prostate cancer has shown great improvement in survival, from only 10% in 1932-1944 to 83.2% in 1992-2001. Numerous treatment advances have also improved outcomes for this disease.

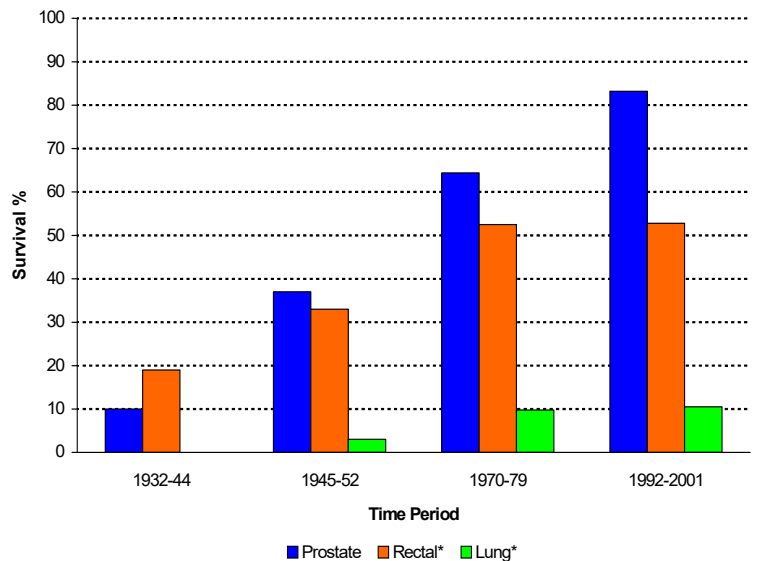
Lung cancer survival remains extremely poor. Some improvement was realized, but the nature of the disease indicates that prevention strategies against smoking offer the best hope for reducing the burden of lung cancer.

In males, five-year relative survival for rectal cancer has increased from about 19% to 52.8% over these time periods.

The majority of cases do not appear in time for curative treatment. Among the causes for this may be cited: economic conditions, the ignorance or negligence of the patients, the difficulty in diagnosis in certain types of cancer, and in some cases a misplaced confidence in the so-called "cancer cures".

*Saskatchewan Cancer Commission
Annual Report, 1932¹²*

Figure 27: Five-Year Relative Survival in Males for Selected Invasive Cancers



*both sexes combined in the two earliest time periods

... prevention strategies against smoking offer the best hope for reducing the burden of lung cancer.

Historical Changes

In females, survival from breast cancer has also shown much improvement (Figure 28). In the 1932-1944 period, the five-year relative survival was 43% and for 1992-2001 it was 85.8%. Like prostate cancer, this survival increase is the result of improvements in diagnostic capabilities, advancements in treatments and early detection strategies.

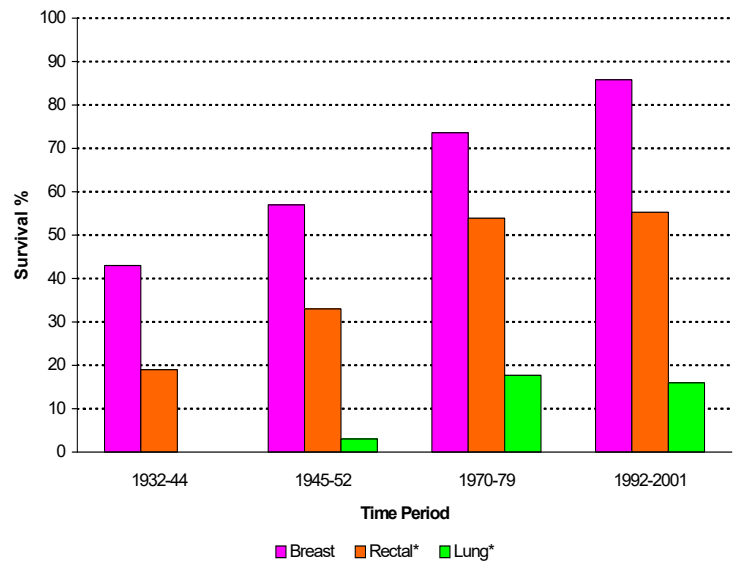
Lung cancer survival is slightly better in females than males, but it remains one of the most lethal cancers. There has been improvement over time in rectal cancer survival in females, from about 19% in 1932-44 to 55.3% in 1992-2001. In general, females have slightly better survival than males for most sites common between the sexes.

Observed 10-year survival among children is shown in Figures 29 and 30. Observed survivals are presented because there would be little difference between observed and relative survival in children. Figure 29 shows that survival has increased in each of the last three decades for all pediatric cancers combined. Most of the improvement occurred within the first three years of diagnosis. The changes in survival over time are also very disease-specific.

Experience indicates that cancer patients require regular periodical supervision in order to detect any recurrences...and to prolong the life of the patient.

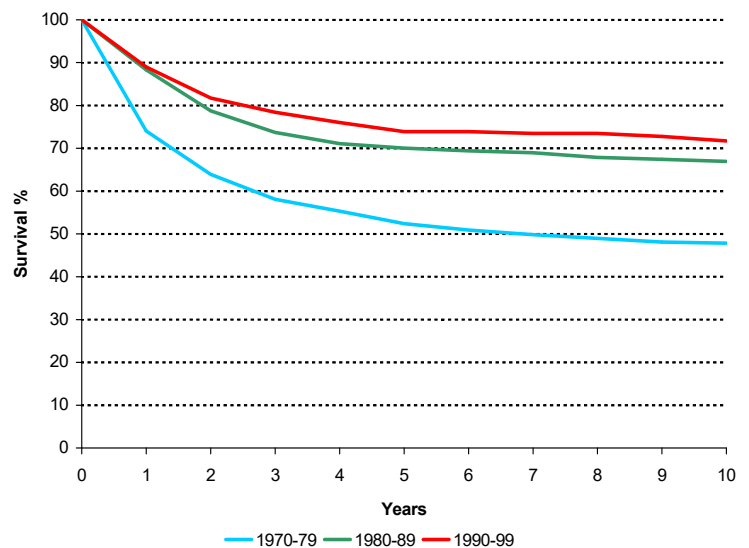
*Saskatchewan Cancer Commission
Annual Report, 1932¹²*

Figure 28: Five-Year Relative Survival in Females for Selected Invasive Cancers



*both sexes combined in the two earliest time periods

Figure 29: Observed Ten-Year Survival of Invasive Pediatric Cancers by Decade



Data Sources and Methodology

CANCER REGISTRY

years for the most common form of leukemia, ALL, has increased for pediatric cases to almost 80% in the most recent time period, from only 34% in the 1970s (Figure 30).

The Saskatchewan cancer registry was established in 1932 and is the oldest cancer registry in Canada. The primary sources of data changed dramatically from just over 50% in the 1970s to 85% for the 1990s. Improvements in the registry for brain/CNS cancers have been modest over time. The registry was maintained on the basis of a locally-developed coding system. From the time of inception until 1977, survival was among pediatric cancer patients is one of the most significant achievements of the past thirty years.

the current system for classifying cases was created to include malignant, in situ, uncertain, and benign/non-cancerous conditions. Non-melanoma skin cancers (NMSC) have also been captured since 19

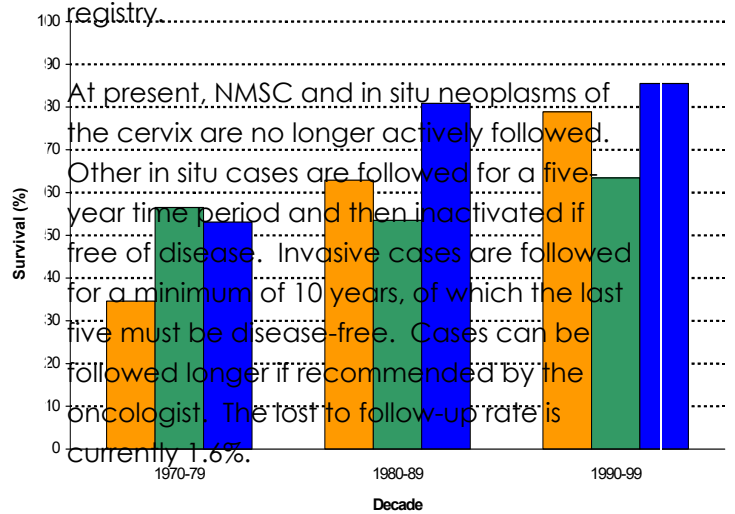


Ac
ins
to
ev
NM
thi
rel
fl

has given the current registry an outstanding legacy of survival information.

In 1977, the Saskatchewan Cancer Agency created a computerized cancer registry. Efforts were made to back-code now-deceased patients diagnosed prior to 1977. This was done on a year-by-year basis, starting with 1976 and working backwards.

Figure 30: One-Year Survival of Selected Pediatric Cancers by Decade



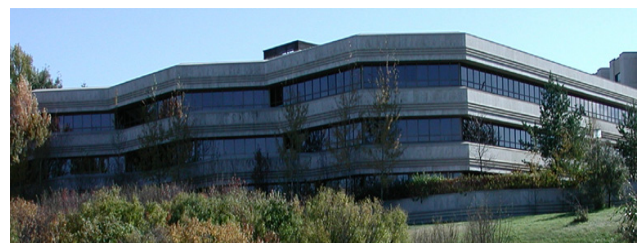
Statistic Acute Lymphocytic Leukemia Brain/CNS Lymphoma

Approximately 8,800 new cases are registered annually. These include neoplasms of all behaviours: benign, uncertain, in situ, and malignant. NMSC are still reg

Of the	
4,700	
2,600	
800	
700	

Improved survival among pediatric cancer patients is one of the most significant cancer control achievements of the past thirty years.

The registry also records annual follow-up information on 30,000 clinic examinations per year and 25,000 physician reports each year.



Saskatoon Cancer Centre
photo courtesy Saskatchewan Cancer Agency

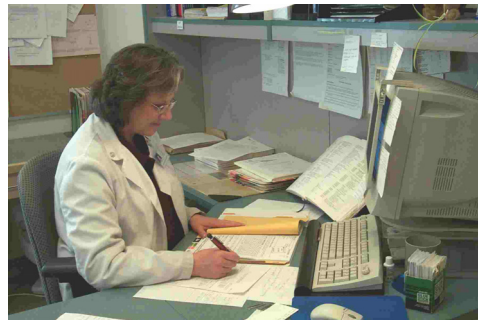
Data Sources and Coding Classifications

Cancer is, by legislation, a reportable disease in Saskatchewan. The primary sources of reporting include cancer centre medical charts, pathology reports, physician reporting, physician billing reports, hospital reports and Saskatchewan Vital Statistics death notifications.

All residents of the province who are diagnosed with cancer are reported to the cancer registry. The registry is responsible for ensuring confidentiality of the data in its care. Provincial legislation (*Local Authority Freedom of Information Act*) and Agency policy govern release of information from the registry. Statistical information, such as that presented in this report, is considered de-identified. Information that is considered identifiable is subject to strict controls, including ethics approvals and patient consent where appropriate.

All cancers in the database are coded according to the ICD-O (third edition). This coding classification allows for the recording of both the topographical site and the histologic classification of the tumour. Causes of death from cancer are coded in the registry using ICD-10 codes. Non-cancer causes of death up to 1999 remain as ICD-9 codes.

Childhood cancers are grouped into sites according to the International Classification for Childhood Cancers (ICCC). This system is based on ICD-O (second edition) codes. Since the cancer registry is currently using



*Coding cancer charts, Allan Blair Cancer Centre
photo courtesy Saskatchewan Cancer Agency*

ICD-O (third edition) codes, ICCC groupings were made by converting back to ICD-O (second edition) as best we could. While all groups may not be precise, deviations should be minor.

Information Recorded

The cancer registry is a patient-oriented database, which means that patient demographics are recorded once but may be associated with more than one case. Patient demographics include sex, date of birth, residence, date and cause of death, and these are used to describe patterns of cancer, including age at diagnosis, geographic incidence and survival.

Cancer case information includes date and method of diagnosis, tumour site and histology, behaviour, grade, stage of disease (where available), summary treatment, treatment centres and disease status. Follow-up information includes date of follow-up, location of follow-up, disease status, and current treatment.

Data quality and edit checks are done through annual reporting programs for the Canadian Cancer Registry and the North American Association of Central Cancer Registries.

METHODS

Data about cancer incidence and mortality were extracted from the cancer registry for the period 1970-2001. Incidence data included age group, sex, year of diagnosis, and site. Mortality data included age group, sex, year of death and cause of death. To calculate incidence and mortality rates, population figures were obtained from the provincial Health Department for the years 1970-2001 by age group, year and sex. In some instances, rates were calculated for time periods, in which case person-years were used for the denominator.

For site-specific survival analysis (breast, prostate, colorectal, lung, and child cancers) additional data were obtained from the registry on an individual record basis for dates of diagnosis, death and last contact. The actuarial method was used to calculate observed survival in children. Observed survival was calculated from the date of diagnosis to the date of death or to December 31, 2001, whichever came first.

Relative survival rates were also calculated. Relative survival is used to correct for changes in the general population life expectancy over time. Each cancer case

was assigned an expected survival based on the Detailed Life Tables for Saskatchewan produced by Statistics Canada after each census. The relative survival rate is the observed survival among people with cancer, divided by the expected survival of a similar group from the general population matched by year, age in single years and sex. Relative survival provides a measure of excess mortality from cancer and is interpreted as the proportion of people alive after five years, assuming the cancer in question was the cause of death¹⁶.

Relative survival rates were calculated for the most recent time period, 1970-2001, using the method as described by Hakulinen¹⁷ for the common cancer sites: prostate, breast, lung, and colorectal. The historical relative survivals were taken from previous reports written by TA Watson^{18,19}.

Prevalence was determined by selecting those who were alive as of December 31 of each year and who previously had been diagnosed at any time with an invasive cancer. The selection was restricted to those who, upon death, were residents of Saskatchewan, or if alive, were residents as of the date of the data extraction from the registry. People who moved out of province at any time would not be included. The registry indicates, however, that few people (less than 5%) move after a diagnosis of invasive cancer.

Glossary of Terms

Age

The age of a person (in completed years) at the time of a particular event.

Age-adjusted

A statistical technique used to remove, as much as possible, the effects of differences in age when comparing two or more populations. It is the number of new cases of cancer or cancer deaths that would have occurred in Saskatchewan if the age distribution of Saskatchewan in a particular time period was the same as the standard population (1991 Canadian population).

Age-specific

The number of cases of a particular event in a given age group.

Behaviour

In cancer, a designation of whether the tumour is malignant, benign, in situ, or uncertain.

Covered Population

The covered population is based on eligibility for health insurance benefits in Saskatchewan. All residents of Saskatchewan are included except members of the Canadian Armed Forces, members of the Royal Canadian Mounted Police, inmates of federal prisons and people not yet meeting the residency requirement.

Crude Rate

A rate that is not adjusted for other factors (such as age).

Etiology

The science dealing with the causes of disease.

Histology

Refers to either the structure of organic tissues or the study of tissues.

International Classification of Disease (ICD)

The guidelines and methods used to code and classify mortality data from death certificates. The tenth version of ICD (ICD-10) is currently being used.

International Classification of Disease – Oncology (ICD-O)

This coding classification allows for the recording of both the topographical site and the histologic classification of the tumour.

Incidence

The number of new cases of a particular event.

Invasive Cancer

The uncontrolled growth of cells resulting in the formation of a malignant tumour that invades underlying tissues.

In-situ Cancer

Confined to the site of origin without invasion of neighbouring tissue.

Malignant

A tumour characterized by uncontrolled growth.

Morphology

The science associated with the structure of animals or plants.

Observed Survival

The proportion of people in a particular group alive at the beginning of a time interval who survive to the end of the interval.

Potential Years of Life Lost (PYLL)

A measure of the loss to society from premature death. PYLL is the total number of years of life lost obtained by multiplying, for each age group, the number of deaths by the life expectancy of survivors.

Prevalence

The number of people alive and who have been previously diagnosed with a particular disease.

Rate

An expression of the frequency of a particular event during a specified time period and in a defined population.

Relative Survival

The probability of living beyond a specified number of years, after being diagnosed with a particular disease, relative to that of members of the general population during the same time period who have the same characteristics, such as age, gender and province of residence.

Surveillance

The systematic collection, collation, analysis of data, and the timely dissemination to those who need to know so that action can be taken.

Topography

A special description of an anatomic region or a specific part.

ANNUAL REPORT CATEGORIES AND LABELS

Site	ICDO-T (Topography)	ICDO-M (Morphology)	Behaviour
Lip	C000-C009		3
Oral Cavity	C019-C069		
Head and Neck	C079-C148		3
Esophagus	C150-C159		3
Stomach	C160-C169		3
Small Intestine	C170-C179		3
Colon	C180-C189		3
Rectum	C199-C218		3
Liver	C220		3
Gallbladder and Biliary Tract	C221-C249		3
Pancreas	C250-C259		3
Digestive Tract	C260-C269		3
Respiratory System	C300-C319, C379, C380-C399		
Larynx	C320-C329		3
Trachea, Bronchus and Lung	C339-C349		3
Bone and Connective tissue	C400-C419, C490-C499		3
Malignant Melanoma	C440-C449	8720-8790	3
Skin	C440-C449	Not 8720-8790	3
Breast	C500-C509		3
Female Genital Organs	C510-C519, C529, C570-C589		3
Cervix	C530-C539		3
Uterus	C540-C559		3
Ovary	C569		3
Male Genital Organs	C600-609, C620-C639		3
Prostate	C619		3
Kidney	C649		3
Other Urinary Tract	C659, C669, C680-C689		3
Bladder	C670-C679		2,3*
Brain and Central Nervous System	C700-C709, C710-C729		0,1,3**
Thyroid	C739		3
Other Endocrine Glands	C740-C759		0,1,3***
Lymphoma		9670-9729; 9590-9596	3
Hodgkin's lymphoma		9650-9667	3
Multiple Myeloma		9730-9739	3
Leukemia		9800-9949	3
Other Primaries	C470-C488, C690-C699, C760-C779, any other		3
Other Primaries Hematologic/ Myeloproliferative etc		9950-9989 9740-9769	3
Primary Unknown	C809		3
Cervix in situ	C53		2
Other in situ	Not C670-C679		2

* Bladder cancers include in-situ neoplasms beginning with cases diagnosed in 2002.

** Brain and Central Nervous System includes benign and uncertain neoplasms beginning with cases diagnosed in 2002.

*** Pediatric cancers (age <21) include behaviours 0 and 1 beginning with cases diagnosed in 2002 for cancers involving the endocrine glands (C751-C753)

Appendix B

INCIDENCE – AGE SPECIFIC NUMBERS (FEMALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	5
Oral Cavity	0	0	0	0	0	3	0	0	0	6	2	2	3	1	2	19
Head & Neck	0	1	0	0	1	0	1	0	3	0	3	0	2	0	3	14
Esophagus	0	0	0	0	0	0	0	0	2	3	1	2	1	3	1	13
Stomach	0	0	0	0	0	0	0	1	1	3	2	4	3	5	12	31
Colon	0	0	0	0	0	3	6	7	8	12	18	20	29	46	68	217
Rectum	0	0	0	0	0	1	3	1	2	2	5	8	8	10	18	58
Liver	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	1	0	1	0	2	3	13	20
Pancreas	0	0	0	0	0	1	0	2	1	1	4	3	5	11	17	45
Digestive Tract	0	0	0	0	0	0	0	1	1	1	0	0	0	1	5	9
Larynx	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	4
Trachea, Bronchus & Lung	0	0	0	0	0	1	0	11	10	34	33	39	37	35	30	230
Respiratory System	1	0	0	0	0	1	0	0	1	1	0	0	0	2	2	8
Bone & Connective Tissue	0	0	0	0	1	0	2	2	2	3	3	2	1	0	4	20
Malignant Melanoma of Skin	0	0	3	4	2	2	8	6	4	7	5	1	4	6	13	65
Breast	0	0	0	1	10	12	48	57	56	69	74	73	70	73	99	642
Cervix: Invasive	0	0	1	3	5	4	1	9	2	6	2	1	2	2	3	41
Uterus	0	0	0	0	0	1	3	7	16	11	25	12	10	15	7	107
Ovary	0	0	2	1	1	1	1	5	7	7	4	4	5	4	5	47
Female Genital Organs	0	0	0	0	0	0	0	0	0	1	3	1	0	3	3	11
Kidney	2	0	0	0	0	0	1	1	11	4	2	4	11	5	8	49
Bladder	0	0	0	0	0	0	0	3	0	6	2	6	11	7	15	50
Other Urinary Tract	0	0	0	0	0	0	0	0	1	2	0	2	2	1	2	10
Brain & Central Nervous System	3	2	1	0	3	2	3	1	2	3	1	4	1	7	4	37
Thyroid	0	0	0	3	3	5	4	10	9	3	5	4	1	3	5	55
Other Endocrine Glands	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Lymphoma	1	0	1	0	0	1	6	1	7	6	8	8	11	14	26	90
Hodgkin's Disease	1	1	3	2	2	2	0	2	1	0	1	1	1	1	0	18
Multiple Myeloma	0	0	0	0	0	0	0	1	2	0	2	3	5	6	2	21
Leukemia	2	2	1	0	0	3	3	0	2	3	5	3	13	9	18	64
Primary Unknown	0	0	1	0	2	0	2	1	2	4	8	9	7	11	25	72
Other Primaries	0	0	0	0	0	0	0	2	1	1	3	6	5	9	14	41
Total	11	6	13	14	30	43	92	131	157	200	223	222	253	294	427	2116
Non-Melanoma Skin	1	2	0	0	2	8	23	55	52	52	64	82	127	145	359	972
Cervix: In Situ	0	8	68	69	50	45	29	13	4	3	2	0	1	1	0	293
Other: In Situ	0	0	0	0	0	7	8	13	14	18	20	31	38	33	80	262

Appendix B

INCIDENCE – AGE SPECIFIC NUMBERS (MALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0	0	0	0	0	0	0	0	0	2	0	2	5	1	6	16
Oral Cavity	0	0	0	0	0	0	0	1	1	1	2	0	3	0	0	8
Head & Neck	0	0	0	0	0	0	1	4	4	2	5	4	6	5	4	35
Esophagus	0	0	0	0	0	0	1	0	1	1	4	1	2	6	10	26
Stomach	0	0	0	0	0	1	2	2	2	1	4	6	9	10	14	51
Colon	0	0	0	0	1	3	3	4	11	9	29	33	40	43	46	222
Rectum	0	0	0	0	0	0	3	1	7	8	10	19	30	24	20	122
Liver	0	0	0	0	0	0	1	1	1	1	3	1	2	1	2	13
Gall Bladder & Biliary Tract	0	0	0	0	0	1	0	1	1	1	0	4	2	4	2	16
Pancreas	0	0	0	0	0	0	1	2	1	2	7	6	12	13	10	54
Digestive Tract	0	0	0	0	0	1	0	0	0	0	0	2	2	4	1	10
Larynx	0	0	0	0	0	0	0	3	1	3	4	7	3	4	7	32
Trachea, Bronchus & Lung	0	1	0	0	1	1	1	12	15	26	42	56	57	53	67	332
Respiratory System	0	0	0	0	0	0	1	0	0	3	2	4	2	0	5	17
Bone & Connective Tissue	0	0	1	0	1	1	2	2	0	3	0	3	1	1	4	19
Malignant Melanoma of Skin	0	0	0	0	0	1	2	5	5	6	9	6	9	5	7	55
Breast	0	0	0	0	0	0	1	1	0	0	0	2	1	2	1	8
Prostate	0	0	0	0	0	0	1	13	30	51	94	161	177	155	158	840
Male Genital Organs	0	4	3	5	1	5	3	2	3	1	1	2	2	4	3	39
Kidney	2	0	0	0	0	1	4	8	6	3	5	12	13	11	7	72
Bladder	0	0	0	0	2	0	2	3	11	8	20	25	20	29	38	158
Other Urinary Tract	0	0	0	0	0	0	1	1	2	1	0	0	0	1	0	6
Brain & Central Nervous System	0	0	1	0	2	1	0	3	3	6	2	3	1	2	4	28
Thyroid	0	0	1	0	1	2	3	4	0	3	1	0	1	1	0	17
Other Endocrine Glands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lymphoma	3	0	1	2	1	2	2	7	16	6	11	10	18	21	18	118
Hodgkin's Disease	0	1	2	2	1	3	0	2	0	1	1	0	1	0	1	15
Multiple Myeloma	0	0	0	1	0	0	0	1	3	2	4	2	5	7	7	32
Leukemia	3	1	0	0	2	1	6	3	5	3	11	15	19	9	10	88
Primary Unknown	0	0	0	0	0	1	3	2	2	5	2	3	16	11	20	65
Other Primaries	0	1	1	2	1	1	0	1	1	5	2	5	2	6	9	37
Total	8	8	10	12	14	26	44	89	132	164	275	394	461	433	481	2551
Non-Melanoma Skin	0	0	3	7	4	16	39	40	89	89	112	173	209	235	446	1462
Other: In Situ	0	0	0	0	0	1	7	4	14	10	21	25	36	36	62	216

Appendix B

INCIDENCE – AGE SPECIFIC RATES PER 100,000 (FEMALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	5.8	10.6	1.0
Oral Cavity	0.0	0.0	0.0	0.0	0.0	7.8	0	0.0	0.0	26.2	9.9	10.5	16.0	5.8	7.0	3.7
Head & Neck	0.0	2.5	0.0	0.0	3.2	0.0	2.5	0.0	10.0	0.0	14.8	0.0	10.7	0.0	10.6	2.7
Esophagus	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	6.7	13.1	4.9	10.5	5.3	17.3	3.5	2.5
Stomach	0.0	0.0	0.0	0.0	0.0	0	0	2.8	3.3	13.1	9.9	21.0	16.0	28.9	42.2	6.0
Colon	0.0	0.0	0.0	0.0	0.0	7.8	15	19.4	26.6	52.4	89.0	105.0	154.4	265.8	239.2	42.1
Rectum	0.0	0.0	0.0	0.0	0.0	2.6	7.5	2.8	6.7	8.7	24.7	42.0	42.6	57.8	63.3	11.3
Liver	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	4.9	0.0	5.3	0.0	0.0	0.4
Gall Bladder & Biliary Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	4.9	0.0	10.7	17.3	45.7	3.9
Pancreas	0.0	0.0	0.0	0.0	0.0	2.6	0	5.5	3.3	4.4	19.8	15.8	26.6	63.6	59.8	8.7
Digestive Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	3.3	4.4	0.0	0.0	0.0	5.8	17.6	1.7
Larynx	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	6.7	4.4	0.0	0.0	5.3	0.0	0.0	0.8
Trachea, Bronchus & Lung	0.0	0.0	0.0	0.0	0.0	2.6	0.0	30.5	33.3	148.5	163.2	204.8	197.0	202.3	105.5	44.6
Respiratory System	1.0	0.0	0.0	0.0	0.0	2.6	0	0.0	3.3	4.4	0.0	0.0	0.0	11.6	7.0	1.6
Bone & Connective Tissue	0.0	0.0	0.0	0.0	3.2	0.0	5.0	5.5	6.7	13.1	14.8	10.5	5.3	0.0	14.1	3.9
Malignant Melanoma of Skin	0.0	0.0	8.3	12.6	6.3	5.2	20	16.6	13.3	30.6	24.7	5.3	21.3	34.7	45.7	12.6
Breast	0.0	0.0	0.0	3.1	31.6	31.3	120.2	157.9	186.3	301.3	365.9	383.3	372.7	421.8	348.3	124.6
Cervix: Invasive	0.0	0.0	2.8	9.4	15.8	10.4	2.5	24.9	6.7	26.2	9.9	5.3	10.7	11.6	10.6	8.0
Uterus	0.0	0.0	0.0	0.0	0.0	2.6	7.5	19.4	53.2	48.0	123.6	63.0	53.3	86.0	24.6	20.8
Ovary	0.0	0.0	5.5	3.1	3.2	2.6	2.5	13.8	23.3	30.6	19.8	21.0	26.6	23.1	17.6	9.1
Female Genital Organs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	14.8	5.3	0.0	17.3	10.6	2.1
Kidney	1.9	0.0	0.0	0.0	0.0	0.0	2.5	2.8	36.6	17.5	9.9	21.0	58.6	28.9	28.1	9.5
Bladder	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	26.2	9.9	31.5	58.6	40.5	52.8	9.7
Other Urinary Tract	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	3.3	8.7	0.0	10.5	10.7	5.8	7.0	1.9
Brain & Central Nervous System	2.9	5.0	2.8	0	9.5	5.2	7.5	2.8	6.7	13.1	4.9	21.0	5.3	40.5	14.1	7.2
Thyroid	0.0	0.0	0.0	9.4	9.5	13.0	10	27.7	29.9	13.1	24.7	21.0	5.3	17.3	17.6	10.7
Other Endocrine Glands	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Lymphoma	1.0	0.0	2.8	0.0	0.0	2.6	15	2.8	23.3	26.2	39.6	42.0	58.6	80.9	91.5	17.5
Hodgkin's Disease	1.0	2.5	8.3	6.3	6.3	5.2	0.0	5.5	3.3	0.0	4.9	5.3	5.3	5.8	0.0	3.5
Multiple Myeloma	0.0	0.0	0.0	0.0	0.0	0.0	0	2.8	6.7	0.0	9.9	15.8	26.6	34.7	7.0	4.1
Leukemia	1.9	5.0	2.8	0.0	0.0	7.8	7.5	0.0	6.7	13.1	24.7	15.8	69.2	52.0	63.3	12.4
Primary Unknown	0.0	0.0	2.8	0.0	6.3	0.0	5	2.8	6.7	17.5	39.6	47.3	37.3	63.6	88.0	14.0
Other Primaries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	3.3	4.4	14.8	31.5	26.6	52.0	49.3	8.0
Total	10.7	15.0	36.1	43.9	94.9	111.9	230.2	362.9	522.5	873.6	1102.4	1166.0	1347.2	1698.5	1502.2	410.7

Appendix B

INCIDENCE – AGE SPECIFIC RATES PER 100,000 (MALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0	11.0	30.0	7.4	37.1	3.1
Oral Cavity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	3.3	4.3	10.2	0.0	18.0	0.0	0.0	1.6
Head & Neck	0.0	0.0	0.0	0.0	0.0	0.0	2.5	10.6	13.0	8.6	25.5	22.0	36.0	37.2	24.7	6.9
Esophagus	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	3.3	4.3	20.4	5.5	12.0	44.7	61.8	5.1
Stomach	0.0	0.0	0.0	0.0	0.0	2.6	4.9	5.3	6.5	4.3	20.4	33.0	54.0	74.4	86.5	10.0
Colon	0.0	0.0	0.0	0.0	3.1	7.9	7.4	10.6	35.7	38.7	148.1	181.4	240.0	320.1	284.3	43.6
Rectum	0.0	0.0	0.0	0.0	0.0	0.0	7.4	2.7	22.7	34.4	51.1	104.4	180.0	178.7	123.6	23.9
Liver	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.7	3.3	4.3	15.3	5.5	12.0	7.4	12.4	2.6
Gall Bladder & Biliary Tract	0.0	0.0	0.0	0.0	0.0	2.6	0.0	2.7	3.3	4.3	0.0	22.0	12.0	29.8	12.4	3.1
Pancreas	0.0	0.0	0.0	0.0	0.0	0.0	2.5	5.3	3.3	8.6	35.7	33.0	72.0	96.8	61.8	10.6
Digestive Tract	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	11.0	2.0	29.8	6.2	2.0
Larynx	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	3.3	12.9	20.4	38.5	18.0	29.8	43.3	6.3
Trachea, Bronchus & Lung	0.0	2.4	0.0	0.0	3.1	2.6	2.5	31.9	48.7	111.8	214.4	307.8	342.0	394.5	414.1	65.1
Respiratory System	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	12.9	10.2	22.0	12.0	0.0	30.9	3.3
Bone & Connective Tissue	0.0	0.0	2.6	0.0	3.1	2.6	4.9	5.3	0.0	12.9	0.0	16.5	6.0	7.4	24.7	3.7
Malignant Melanoma of Skin	0.0	0.0	0.0	0.0	2.6	0.0	4.9	13.3	16.2	25.8	46.0	33.0	54.0	37.2	43.3	10.8
Breast	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.7	0.0	0.0	0.0	11.0	6.0	14.9	6.2	1.6
Prostate	0.0	0.0	0.0	0.0	0.0	0.0	2.5	34.5	97.4	219.2	479.9	885.0	1062.1	1153.8	976.6	164.8
Male Genital Organs	0.0	9.6	7.8	15.0	3.1	13.1	7.4	5.3	9.7	4.3	5.1	11.0	12.0	29.8	18.5	7.7
Kidney	1.8	0.0	0.0	0.0	0.0	2.6	9.8	21.3	19.5	12.9	25.5	66.0	78.0	81.9	43.3	14.1
Bladder	0.0	0.0	0.0	0.0	6.3	0.0	4.9	8.0	35.7	34.4	102.1	137.4	120.0	215.9	234.9	31.0
Other Urinary Tract	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.7	6.5	4.3	0.0	0.0	0.0	7.4	0.0	1.2
Brain & Central Nervous System	0.0	0.0	2.6	0.0	6.3	2.6	0.0	8.0	9.7	25.8	10.2	16.5	6.0	14.9	24.7	5.5
Thyroid	0.0	0.0	2.6	0.0	3.1	5.3	7.4	10.6	0.0	12.9	5.1	0.0	6.0	7.4	0.0	3.3
Other Endocrine Glands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lymphoma	2.7	0.0	2.6	6.0	3.1	5.3	4.9	18.6	51.9	25.8	56.2	55.0	108.0	156.3	111.3	23.2
Hodgkin's Disease	0.0	2.4	5.2	6.0	3.1	7.9	0.0	5.3	0.0	4.3	5.1	0.0	6.0	0.0	6.2	2.9
Multiple Myeloma	0.0	0.0	0.0	3.0	0.0	0.0	0.0	2.7	9.7	8.6	20.4	11.0	30.0	52.1	43.3	6.3
Leukemia	2.7	2.4	0.0	0.0	6.3	2.6	14.8	8.0	16.2	12.9	56.2	82.5	114.0	67.0	61.8	17.3
Primary Unknown	0.0	0.0	0.0	0.0	0.0	2.6	7.4	5.3	6.5	21.5	10.2	16.5	96.0	81.9	123.6	12.8
Other Primaries	0.0	2.4	2.6	6.0	3.1	2.6	0.0	2.7	3.3	21.5	10.2	27.5	12.0	44.7	55.6	7.3
Total	7.2	19.2	26.0	36.0	46.3	65.5	108.6	236.8	428.7	705.1	1403.9	2166.0	2756.1	3223.2	2973.1	500.6

Appendix B

MORTALITY – AGE SPECIFIC NUMBERS (FEMALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Oral Cavity	0	0	0	0	0	0	0	0	0	0	0	2	1	0	4	7
Head & Neck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Esophagus	0	0	0	0	0	0	0	0	0	2	0	0	3	3	1	9
Stomach	0	0	0	0	0	0	0	0	1	1	1	3	3	5	14	28
Colon	0	0	0	0	0	0	0	2	1	6	3	10	12	17	42	93
Rectum	0	0	0	0	0	1	1	0	0	1	3	0	3	6	12	27
Liver	0	0	0	0	0	0	0	0	0	0	1	4	0	3	4	12
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	0	1	1	0	1	6	10	19
Pancreas	0	0	0	0	0	1	0	0	0	3	5	2	5	8	26	50
Digestive Tract	0	0	0	0	0	0	1	0	1	0	1	1	4	2	9	19
Larynx	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	3
Trachea, Bronchus & Lung	0	0	0	0	0	1	0	3	2	18	18	34	25	37	42	180
Respiratory System	0	0	0	0	0	0	0	0	0	0	1	1	0	1	2	5
Bone & Connective Tissue	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	5
Malignant Melanoma of Skin	0	0	0	0	0	0	0	0	1	2	0	1	2	0	3	9
Breast	0	0	0	0	0	3	8	10	12	9	11	20	13	24	46	156
Cervix: Invasive	0	0	0	0	1	0	1	1	0	5	0	1	0	1	6	16
Uterus	0	0	0	0	0	0	0	0	0	1	0	2	1	3	1	8
Ovary	0	0	0	1	0	2	0	2	6	6	1	3	9	6	17	53
Female Genital Organs	0	0	0	0	0	0	0	2	0	1	0	1	0	1	0	5
Kidney	0	0	0	0	0	0	0	0	0	3	1	0	3	0	5	12
Bladder	0	0	0	0	0	0	0	0	1	0	0	0	0	0	7	8
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Brain & Central Nervous System	1	0	0	0	0	0	1	2	1	2	4	5	1	5	4	26
Thyroid	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4
Other Endocrine Glands	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Lymphoma	1	1	0	0	0	0	1	0	0	0	5	3	3	7	15	36
Hodgkin's Disease	0	0	1	0	2	0	0	0	1	0	0	0	2	0	1	7
Multiple Myeloma	0	0	0	0	0	0	0	0	0	0	0	1	2	2	9	14
Leukemia	1	0	0	0	0	1	0	1	0	2	0	1	7	4	19	36
Primary Unknown	0	0	1	0	1	1	2	1	3	5	9	9	9	7	33	81
Other Primaries	0	0	0	0	0	0	0	0	0	0	1	2	1	0	7	11
Total	3	1	2	1	4	11	15	24	31	69	66	107	111	150	350	945

Appendix B

MORTALITY – AGE SPECIFIC NUMBERS (MALE) – 2001

SITE	Age Group														All Ages	
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79		80+
Lip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Oral Cavity	0	0	0	0	0	0	0	1	2	0	0	1	2	0	2	8
Head & Neck	0	0	0	0	0	0	0	0	2	0	2	2	0	2	2	10
Esophagus	0	0	0	0	0	0	1	0	0	2	9	1	6	5	7	31
Stomach	0	0	0	0	0	1	0	1	4	1	3	4	8	4	24	50
Colon	0	0	0	0	2	1	1	1	5	2	11	8	11	7	35	84
Rectum	0	0	0	0	0	0	0	0	1	4	4	6	5	8	11	39
Liver	0	0	0	0	0	0	2	2	0	3	2	3	3	3	5	23
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	0	1	0	2	1	1	4	9
Pancreas	0	0	0	0	0	0	1	1	1	1	7	4	8	8	15	46
Digestive Tract	0	0	0	0	0	0	0	0	0	0	0	1	4	2	13	20
Larynx	0	0	0	0	0	0	0	0	0	1	2	0	3	0	2	8
Trachea, Bronchus & Lung	0	0	0	0	0	0	0	5	6	19	38	48	64	60	97	337
Respiratory System	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	5
Bone & Connective Tissue	0	1	1	0	1	0	1	0	3	1	0	0	1	1	1	11
Malignant Melanoma of Skin	0	0	0	0	0	0	0	3	1	1	2	1	1	2	5	16
Breast	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Prostate	0	0	0	0	0	0	0	0	0	2	7	9	18	44	135	215
Male Genital Organs	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
Kidney	0	0	0	0	1	0	0	2	1	1	6	5	5	8	7	36
Bladder	0	0	0	0	0	0	0	1	1	1	1	2	8	5	21	40
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Brain & Central Nervous System	0	0	0	0	0	0	2	1	5	3	3	2	1	1	2	20
Thyroid	0	0	0	0	0	0	0	0	0	0	2	1	0	0	2	5
Other Endocrine Glands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lymphoma	0	0	1	0	0	0	0	3	5	3	5	4	9	6	12	48
Hodgkin's Disease	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	4
Multiple Myeloma	0	0	0	0	0	0	0	1	1	2	1	1	5	3	6	20
Leukemia	3	0	0	0	1	0	1	0	2	2	3	7	4	7	19	49
Primary Unknown	0	0	0	0	0	0	1	1	1	6	5	7	18	17	46	102
Other Primaries	0	0	0	0	0	0	1	0	0	1	1	1	2	3	4	13
Total	3	1	2	0	5	2	11	23	41	59	116	123	189	198	481	1254

Appendix B

MORTALITY – AGE SPECIFIC RATES PER 100,000 (FEMALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.4
Oral Cavity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	5.3	0.0	14.1	1.4
Head & Neck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.4
Esophagus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.0	0.0	16.0	17.3	3.5	1.7
Stomach	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	4.4	4.9	15.8	16.0	28.9	49.2	5.4
Colon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	3.3	26.2	14.8	52.5	63.9	98.2	147.7	18.1
Rectum	0.0	0.0	0.0	0.0	0.0	2.6	2.5	0.0	0.0	4.4	14.8	0.0	16.0	34.7	42.2	5.2
Liver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	21.0	0.0	17.3	14.1	2.3
Gall Bladder & Biliary Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	4.9	0.0	5.3	34.7	35.2	3.7
Pancreas	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	13.1	24.7	10.5	26.6	46.2	91.5	9.7
Digestive Tract	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	3.3	0.0	4.9	5.3	21.3	11.6	31.7	3.7
Larynx	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	5.3	0.0	0.0	3.5	0.6
Trachea, Bronchus & Lung	0.0	0.0	0.0	0.0	0.0	2.6	0.0	8.3	6.7	78.6	89.0	178.5	133.1	213.8	147.7	34.9
Respiratory System	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	5.3	0.0	5.8	7.0	1.0
Bone & Connective Tissue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	11.6	7.0	1.0
Malignant Melanoma of Skin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	8.7	0.0	5.3	10.6	0.0	10.6	1.7
Breast	0.0	0.0	0.0	0.0	0.0	7.8	20.0	27.7	39.9	39.3	54.4	105.0	69.2	138.7	161.8	30.3
Cervix: Invasive	0.0	0.0	0.0	0.0	3.2	0.0	2.5	2.8	0.0	21.8	0.0	5.3	0.0	5.8	21.1	3.1
Uterus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	10.5	5.3	17.3	3.5	1.6
Ovary	0.0	0.0	0.0	3.1	0.0	5.2	0.0	5.5	20.0	26.2	4.9	15.8	47.9	34.7	59.8	10.3
Female Genital Organs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	4.4	0.0	5.3	0.0	5.8	0.0	1.0
Kidney	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	4.9	0.0	16.0	0.0	17.6	2.3
Bladder	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	24.6	1.6
Other Urinary Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.2
Brain & Central Nervous System	1.0	0.0	0.0	0.0	0.0	0.0	2.5	5.5	3.3	8.7	19.8	26.3	5.3	28.9	14.1	5.0
Thyroid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	10.6	0.8
Other Endocrine Glands	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Lymphoma	1.0	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	24.7	15.8	16.0	40.4	52.8	7.0
Hodgkin's Disease	0.0	0.0	2.7	0.0	6.3	0.0	0.0	0.0	3.3	0.0	0.0	0.0	10.6	0.0	3.5	1.4
Multiple Myeloma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	10.6	11.6	31.7	2.7
Leukemia	1.0	0.0	0.0	0.0	0.0	2.6	0.0	2.8	0.0	8.7	0.0	5.3	37.3	23.1	66.8	7.0
Primary Unknown	0.0	0.0	2.7	0.0	3.2	2.6	5.0	2.8	10.0	21.8	44.5	47.3	47.9	40.4	116.1	15.7
Other Primaries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	10.5	5.3	0.0	24.6	2.1
Total	2.9	2.5	5.5	3.1	12.7	28.7	37.6	66.5	103.1	301.3	326.3	561.8	591.0	866.7	1231.2	183.5

Appendix B

MORTALITY – AGE SPECIFIC RATES PER 100,000 (MALE) – 2001

SITE	Age Group															All Ages
	0-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-59	55-59	60-64	65-69	70-74	75-79	80+	
Lip	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.2
Oral Cavity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	6.5	0.0	0.0	5.5	12.0	0.0	12.4	1.6
Head & Neck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	10.2	11.0	0.0	14.9	12.4	2.0
Esophagus	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	8.6	45.9	5.5	36.0	37.2	43.3	6.1
Stomach	0.0	0.0	0.0	0.0	0.0	2.6	0.0	2.7	13.0	4.3	15.3	22.0	48.0	29.8	148.3	9.8
Colon	0.0	0.0	0.0	0.0	6.3	2.6	2.5	2.7	16.2	8.6	56.2	44.0	66.0	52.1	216.3	16.5
Rectum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	17.2	20.4	33.0	30.0	59.6	68.0	7.7
Liver	0.0	0.0	0.0	0.0	0.0	0.0	4.9	5.3	0.0	12.9	10.2	16.5	18.0	22.3	30.9	4.5
Gall Bladder & Biliary Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	11.0	6.0	7.4	24.7	1.8
Pancreas	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.7	3.2	4.3	35.7	22.0	48.0	59.6	92.7	9.0
Digestive Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	24.0	14.9	80.4	3.9
Larynx	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	10.2	0.0	18.0	0.0	12.4	1.6
Trachea, Bronchus & Lung	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	19.5	81.7	194.0	263.8	384.0	446.6	599.6	66.1
Respiratory System	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	5.1	11.0	0.0	0.0	6.2	1.0
Bone & Connective Tissue	0.0	2.4	2.6	0.0	3.1	0.0	2.5	0.0	9.7	4.3	0.0	0.0	6.0	7.4	6.2	2.2
Malignant Melanoma of Skin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	3.2	4.3	10.2	5.5	6.0	14.9	30.9	3.1
Breast	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.2
Prostate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	35.7	49.5	108.0	327.5	834.5	42.2
Male Genital Organs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	6.0	0.0	0.0	0.4
Kidney	0.0	0.0	0.0	0.0	3.1	0.0	0.0	5.3	3.2	4.3	30.6	27.5	30.0	59.6	43.3	7.1
Bladder	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	3.2	4.3	5.1	11.0	48.0	37.2	129.8	7.8
Other Urinary Tract	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.2
Brain & Central Nervous System	0.0	0.0	0.0	0.0	0.0	0.0	4.9	2.7	16.2	12.9	15.3	11.0	6.0	7.4	12.4	3.9
Thyroid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	5.5	0.0	0.0	12.4	1.0
Other Endocrine Glands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lymphoma	0.0	0.0	2.6	0.0	0.0	0.0	0.0	8.0	16.2	12.9	25.5	22.0	54.0	44.7	74.2	9.4
Hodgkin's Disease	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	6.0	7.4	6.2	0.8
Multiple Myeloma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	3.2	8.6	5.1	5.5	30.0	22.3	37.1	3.9
Leukemia	2.7	0.0	0.0	0.0	3.1	0.0	2.5	0.0	6.5	8.6	15.3	38.5	24.0	52.1	117.4	9.6
Primary Unknown	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.7	3.2	25.8	25.5	38.5	108.0	126.5	284.3	20.0
Other Primaries	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	4.3	5.1	5.5	12.0	22.3	24.7	2.6
Total	2.7	2.4	5.2	0.0	15.6	5.2	27.0	61.1	133.1	253.6	592.2	676.0	1134.0	1473.9	2973.2	246.2

References

1. Ecseedy J, Hunter D. The Origin of Cancer. In: Adami HO, Hunter D, Trichopoulos D (eds). Textbook of Cancer Epidemiology. New York, Oxford University Press, 2002:29-53.
2. dos Santos Silva I. Cancer Epidemiology: Principles and Methods. World Health Organization International Agency for Research on Cancer. Lyon, France, 1999
3. Mortality - Summary List of Causes, 1999 Shelf Tables. Statistics Canada, Catalogue 84F0209XPB. Health Statistics Division, October 2002.
4. National Cancer Institute of Canada: Canadian Cancer Statistics 2002. Toronto, Canada, 2002.
5. Canadian Strategy for Cancer Control: Priorities for Action, January 2002. Available at www.cancercontrol.org
6. Lagiou P, Adami HO. Burden of Cancer. In: Adami HO, Hunter D, Trichopoulos D (eds). Textbook of Cancer Epidemiology. New York, Oxford University Press, 2002:3-28.
7. Skarsgard D, Tonita J. Prostate cancer in Saskatchewan Canada, before and during the PSA era. Cancer Causes and Control 2000;11:79-88.
8. Nomura A. Stomach Cancer. In: Schottenfeld D, Fraumeni JF (eds). Cancer Epidemiology and Prevention. New York, Oxford University Press, 1996:707-724.
9. Health Services Utilization and Research Commission. The PSA Test in Early Detection of Prostate Cancer Final Report February 1995. Saskatoon, Canada: Health Services Utilization and Research Commission, 1995.
10. Roncucci L, Fante R, Losi L, et al. Survival for colon and rectal cancer in a population-based cancer registry. Eur-J-Cancer. 1996 Feb; 32A(2): 295-302
11. Nyren O, Adami HO. Stomach Cancer. In: Adami HO, Hunter D, Trichopoulos D (eds). Textbook of Cancer Epidemiology. New York, Oxford University Press, 2002:162-187.
12. Government of the Province of Saskatchewan. Annual Report of the Saskatchewan Cancer Commission 1932. Regina Saskatchewan; 1934.
13. Government of the Province of Saskatchewan. Annual Report of the Saskatchewan Cancer Commission 1933. Regina Saskatchewan; 1935.
14. Government of the Province of Saskatchewan. Annual Report of the Saskatchewan Cancer Commission 1934. Regina Saskatchewan; 1935.
15. Government of the Province of Saskatchewan. Annual Report of the Saskatchewan Cancer Commission 1935. Regina Saskatchewan; 1937.
16. Voutilanen ET, Dickman PW, Hakulinen T. SURV2: Relative Survival Analysis Program Version 2.01β. Finnish Cancer Registry, Helsinki, and Cancer Epidemiology Unit, Karolinska Institutet, Stockholm Sweden, 1998.
17. Hakulinen T. Cancer survival corrected for heterogeneity in patient withdrawal. Biometrics 1982;38:933-942.
18. Watson TA. Results of Treatment of Cancer in Saskatchewan 1945-52. Saskatchewan Cancer Commission, Regina, Saskatchewan, 1958.
19. Watson TA. Results of Treatment of Cancer in Saskatchewan 1932-44. Saskatchewan Cancer Commission, Regina, Saskatchewan, 1951.



Evaluation Form

WE VALUE YOUR COMMENTS ABOUT THIS REPORT AND WELCOME ANY SUGGESTIONS YOU MAY HAVE FOR FUTURE ISSUES.

(See reverse side for mailing address/fax number. Evaluation is also available online at www.scf.sk.ca.)

Please tell us about yourself. Check the appropriate boxes:

- | | | | |
|-----------------------------------|--------------------------|--------------------------------|--------------------------|
| Physician | <input type="checkbox"/> | Cancer patient/survivor | <input type="checkbox"/> |
| Department of Health (Sask) | <input type="checkbox"/> | Cancer researcher | <input type="checkbox"/> |
| Other health professional | <input type="checkbox"/> | Cancer volunteer | <input type="checkbox"/> |
| University professor | <input type="checkbox"/> | Other cancer affiliation | <input type="checkbox"/> |
| Student | <input type="checkbox"/> | | |
| Other | <input type="checkbox"/> | | |

How would you rate this report? Check the appropriate boxes:

	High	Medium	Low
Organization/Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What information would you like to see in future issues?

Other comments:

Contact/Ordering Information

To order additional copies of the Saskatchewan Cancer Control Report please contact:

Department of Program Evaluation & Surveillance
Saskatchewan Cancer Agency
c/o Allan Blair Cancer Centre
4101 Dewdney Avenue
Regina, Saskatchewan
Canada S4T 7T1

or fax: 306-766-2179

or e-mail: SCCR@scf.sk.ca

The report and evaluation form are also available on the Saskatchewan Cancer Agency website at www.scf.sk.ca.

