

FOREWORD

We are very pleased to introduce the Saskatchewan Cancer Agency's second Cancer Control Report. Our first report, published in 2003, was a very comprehensive report on the historical trends of cancer in Saskatchewan and was very well received provincially and nationally.

This report, which is the outcome of the Saskatchewan Cancer Agency's surveillance activities, identifies where we are in controlling and managing cancer in Saskatchewan. The Agency's responsibility to conduct cancer surveillance activities is becoming increasingly important as the burden of cancer continues to grow.

Every Cancer Control Report will have a special topic or theme. This report focuses on cancer in Regional Health Authorities (RHAs). Cancer data and trends are reported for each RHA, which will give regional managers better insight into how cancer is affecting communities within their jurisdictions. This report will assist the Saskatchewan Cancer Agency, working with its RHA partners, to assess community needs and to plan and deliver programs that best meet those needs.

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 also have a responsibility to ensure the public is properly informed on cancer control issues. We hope the Cancer Control Report is seen as an effective method of communicating and educating the public on how cancer impacts Saskatchewan residents.

The Saskatchewan Cancer Agency is extremely fortunate to have a number of staff who are very skilled at producing an extensive, high caliber report such as this. We extend our congratulations and sincere appreciation to the Program Evaluation & Surveillance Department and other staff who contributed to the production of this quality publication.

Bob Allen
Chief Executive Officer

Gary Semenchuck
Board Chair



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KEY FINDINGS

Provincial

- The number of new cancers in females increased 47.7% from 1983 to 2002, while the overall age-adjusted incidence rate increased only 20%.
- The number of new cancers in males increased 20% from 1983 to 2002, a much smaller increase than seen in females, while the overall age-adjusted incidence rate increased only 13%.
- The number of cancer deaths in females increased 39%, from 693 in 1983 to 965 in 2002, mostly due to increases in lung cancer deaths. If the lung cancer mortality rate in females had stayed the same since 1983, their overall cancer mortality rate in 2002 would have been 17% lower.
- The number of cancer deaths in males increased slightly from 1,100 in 1983 to 1,250 in 2002; the age-adjusted mortality rate remained very stable over that time period. Lung cancer mortality has been showing signs of decline in males since 1996.
- In 2001 and 2002, the age-adjusted incidence of prostate cancer returned to the peak levels observed in 1993, while lung cancer age-adjusted incidence dropped about 25% (from a high of 80 per 100,000 in 1990 to a low of 59 per 100,000 in 2002).
- The age-adjusted incidence of breast cancer in females has remained stable since 1990, but the age-adjusted incidence of lung cancer has doubled from about 20 per 100,000 in 1983 to 40 per 100,000 in 2002.
- As of December 31, 2002, there were 13,613 people alive who had been diagnosed with an invasive cancer in the previous five years; this five-year prevalence is expected to increase to 15,900 people by 2010.
- In 1983, 25.7% of the population was over age 50 and by 2002, this percentage grew to 29.9%. This aging trend is expected to continue until at least 2021.

Regional Health Authorities (RHAs)

- Prostate cancer incidence had the greatest variation of all cancer sites in the province, with nine out of 13 RHAs having significantly more or fewer cases than expected. Three RHAs (Sunrise, Five Hills, and Cypress) had more cases than expected and six (Sun Country, Saskatoon, Prairie North, Kelsey Trail, Mamawetan Churchill River, and Athabasca) had fewer cases than expected. This is likely due to regional variation in the use of the PSA test for the early detection of this cancer.
- The number of lung cancer cases in the Regina Qu'Appelle RHA was higher than expected for both males (+12.9%) and females (+16.9%). There were also more cases of lung cancer than expected in Mamawetan Churchill River, Keewatin Yatthé, and Athabasca regions among both males and females; not all of the differences were statistically significant.
- Five out of 13 RHAs had more (Sun Country, Five Hills, and Kelsey Trail) or less (Cypress, Mamawetan Churchill River) colorectal cancer in males than expected, which suggests differences in colorectal cancer screening practices in those areas.
- The numbers of female breast cancer cases were no different than expected in all RHAs except Sunrise, where there were 11% fewer cases than expected for the five-year period 1998-2002.
- In Sun Country, there were more cases of colorectal cancer than expected in both males (+26%) and females (+23%) for the five-year period 1998-2002.
- The crude 5- and 10-year prevalence was highest in the Sunrise RHA (19.1 and 29.1 per 1,000, respectively) and the Five Hills RHA (17.8 and 27.2 per 1,000, respectively) compared to the 5- and 10-year provincial prevalence of 13.5 and 21.1 per 1,000, respectively. The northern regions had prevalence rates 65% lower than the provincial rates.



INTRODUCTION

In February 2003, the Saskatchewan Cancer Agency (SCA) released its first annual publication of the Saskatchewan Cancer Control Report (SCCR), which highlighted the current and historical burden of cancer in Saskatchewan¹. The first publication made use of our renowned Saskatchewan Cancer Registry, showing changes that have occurred in cancer incidence, mortality, and survival as far back as 1932.

As was the case in our first report, this and subsequent publications of the SCCR will feature a special topic section. This year's report highlights the regional variation in cancer incidence, mortality, and prevalence in the province. Saskatchewan has 13 Regional Health Authorities (RHAs), each with a mandate to provide health services. This report provides information about cancer for each of these regions.

Some key indicators and cancer sites will be regularly reported in each SCCR. This will allow for comparisons and establish provincial trends over time. We will also report on age-adjusted incidence and mortality rates for all invasive cancers combined and for the most common cancer sites. As well, the detailed site-, age-, and sex-specific cancer information for the most recent year is reported in Appendices A and B. This year's SCCR contains complete information for all new cancer cases and deaths for the year 2002.

In our first report we included information dating back to 1970 to establish trends. In this and subsequent reports, trends will be based on the most recent 20-year period. This report contains cancer information up to the year 2002; therefore, trends are based on data from 1983-2002.

We trust the information in the SCCR will be useful to a wide audience. This publication should be particularly useful to the provincial RHAs, which require the information for their needs assessments and for their program and service planning.



Saskatchewan's provincial flower—the western red lily



CANCER TRENDS IN SASKATCHEWAN

Incidence, Mortality, and Prevalence

Figure 1 shows the annual number of new invasive cancers diagnosed and the annual age-adjusted rates since 1983. In 1983 there were 1,897 cases diagnosed in males and 1,449 in females. By 2002, the corresponding numbers had increased to 2,441 and 2,140. The average annual percent increase in number of cases for males has been about 1.4% over the 20-year period. The increase in females has been 2.4% for the same period.

The trend in the number of new cases in females has been smooth over the 20-year period. However, the average annual percent increase is almost double that in males (2.4% vs. 1.4%). This difference is due to the large increase in the number of lung cancers diagnosed in females over this time period (shown later). In males, a peak in the total number of cases occurred in 1993, which corresponded to a peak in the number of prostate cancers diagnosed in that year as well. The introduction of the prostate specific antigen (PSA) test in 1990 resulted in many more prostate cancer diagnoses in subsequent years².

Figure 1 also shows the increase in the age-adjusted rates for the period 1983-2002. Adjusted rates control for changes in age distribution over time (see Glossary). Unlike the increase in the number of cases, the increase in rates has been more modest. In females, the number of cases increased 47.7% but the rates increased 20% while in males, the number of cases increased 28% but the rates increased only 13%.

Figure 1: Number of Invasive Cancers and Age-Adjusted Incidence Rates, 1983-2002

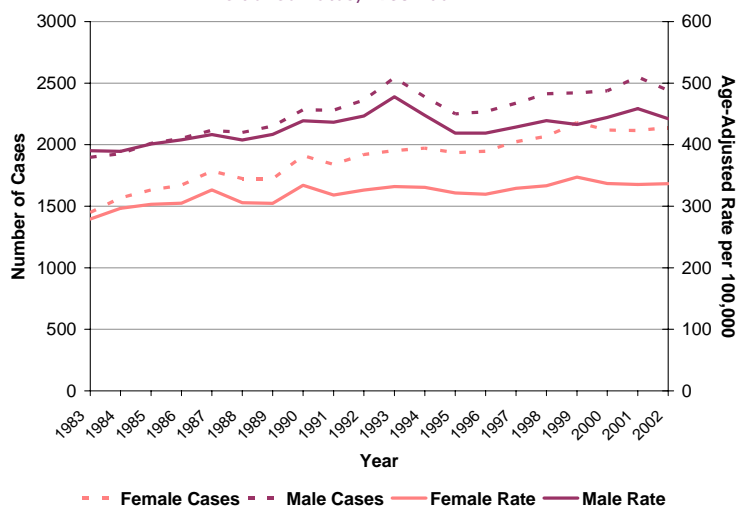
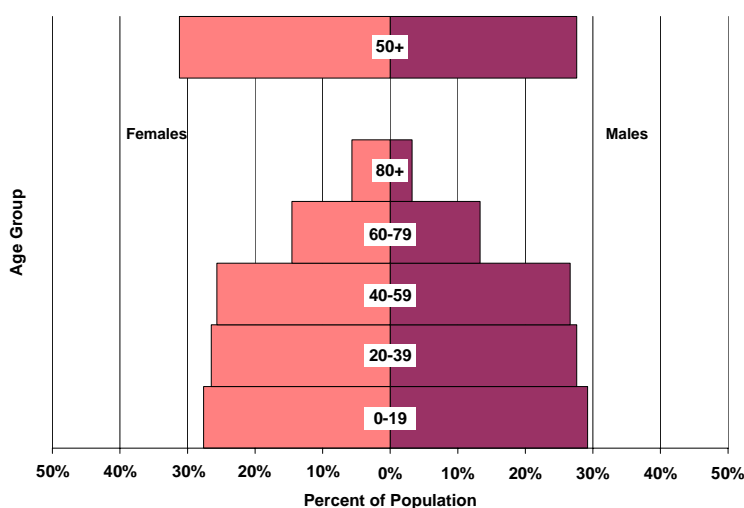


Figure 2: Population of Saskatchewan by Age and Sex, 2002



The reason for the difference is the aging of the population over time. Cancer is most common in people over age 50. The population in that age group has increased over this 20-year period.

Figure 2 shows the population distribution of Saskatchewan in 2002. In the 50-plus age group there were 299,708 people,



CANCER TRENDS IN SASKATCHEWAN

accounting for 29.2% of the total population (30.9% in females and 27.6% in males). In 1983, there were 260,874 people in that age group and they accounted for 25.7% of the total population (26.9% in females and 24.5% in males). Although the increase in the number of people over age 50 is gradual over time, an increase of only one percent in this group represents about 10,000 more people. As well, the current aging trend is expected to continue at least until the year 2021³.

Figure 3 shows the number of deaths from cancer and the age-adjusted mortality rates for the province by sex. The number of deaths remained fairly stable in males over the 20-year period. In 2002, there were 1,250 deaths attributed to cancer in males, up slightly from 1,100 in 1983. Similarly, the age-adjusted mortality rates were stable for the 20-year period. The situation is different in females, in which the number of deaths increased 39%, from 693 deaths in 1983 to 965 in 2002. Most of this increase was due to the increase in lung cancer deaths (shown later). If lung cancer had remained at 1983 levels in females, their age-adjusted mortality rate would have decreased over the 20-year period and would have been about 17% lower in 2002.

Figure 4 shows the trend in 5- and 10-year prevalence of cancer in Saskatchewan. The numbers shown represent the people alive as of December 31 of each year who were diagnosed with a malignant cancer in the previous 5 or 10 years. Both lines are projected to the year 2010.

In 1983, the five-year prevalence was about 8,600 people; by 2002 it had grown 58% to

Figure 3: Number of Deaths from Cancer and Age-Adjusted Mortality Rates, 1983-2002

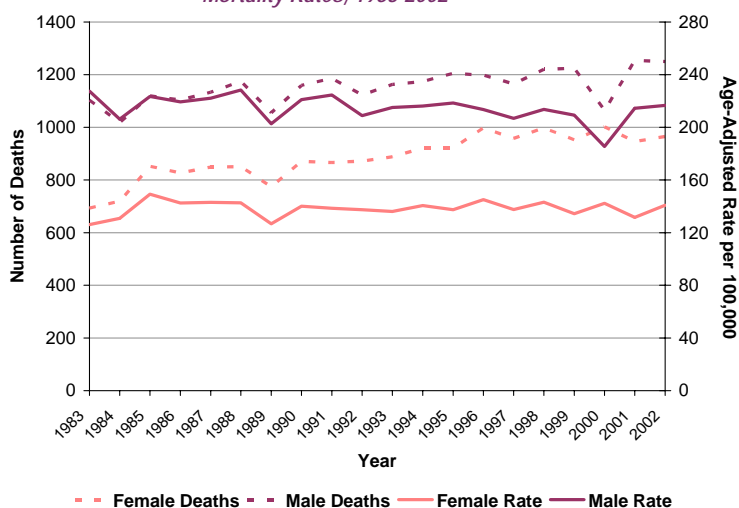
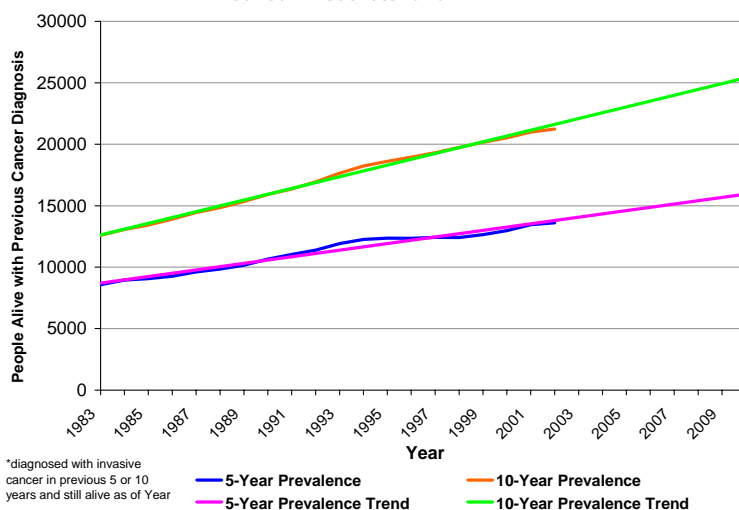


Figure 4: Trends in 5- and 10-Year Prevalence* of Invasive Cancer in Saskatchewan



*diagnosed with invasive cancer in previous 5 or 10 years and still alive as of Year

13,613. By 2010, the five-year prevalence is projected to be about 15,900 people. In 1983, there were 12,593 people alive who had been diagnosed with cancer in the previous 10 years; this number increased 68% to 21,239 by 2002. By 2010, the projected 10-year prevalence is expected to be about 25,400.



CANCER TRENDS IN SASKATCHEWAN

People with cancer have significant needs. During the five years after they are diagnosed, their use of health care is substantial. Services they require may include treatment, rehabilitation, psychosocial support, and palliative care. Five years after diagnosis, disease-free patients still require regular follow-up to detect, as early as possible, any recurrences.

Incidence Rates of Common Cancers

Figure 5 shows the incidence trend for the top three cancers in males. The patterns for prostate, colorectal, and lung cancer are quite different. The most common cancer, prostate, has shown dramatic changes in incidence over time, largely because of the introduction of PSA testing in Saskatchewan in 1990². After the peak incidence in 1993, age-adjusted rates dropped to previous trend levels, then rose again sharply starting in 1997.

Lung cancer rates in males have been fairly stable, decreasing gradually over time. The age-adjusted rate was highest in 1990 at 80 per 100,000, but by 2002 had decreased to 59 per 100,000. Colorectal cancer incidence was very stable over the same 20-year period.

Figure 6 shows the trend in age-adjusted incidence for other common cancers in males. Stomach cancer rates have dropped by about 30% over the 20-year period. This continues a decreasing trend that began in the 1950s. Bladder cancer rates have been slowly declining since peak rates in the early 1990s. The drop in 2002 is due to a change in coding, which resulted in a

Figure 5: Age-Adjusted Incidence Rates for Common Invasive Cancers in Males, 1983-2002

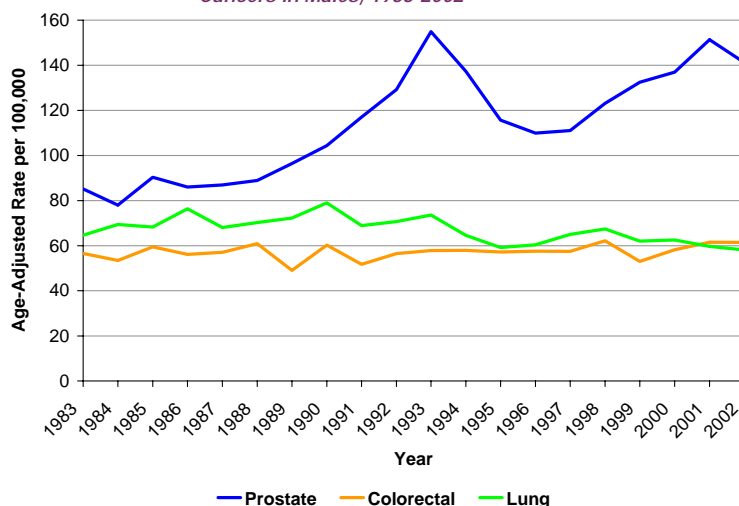
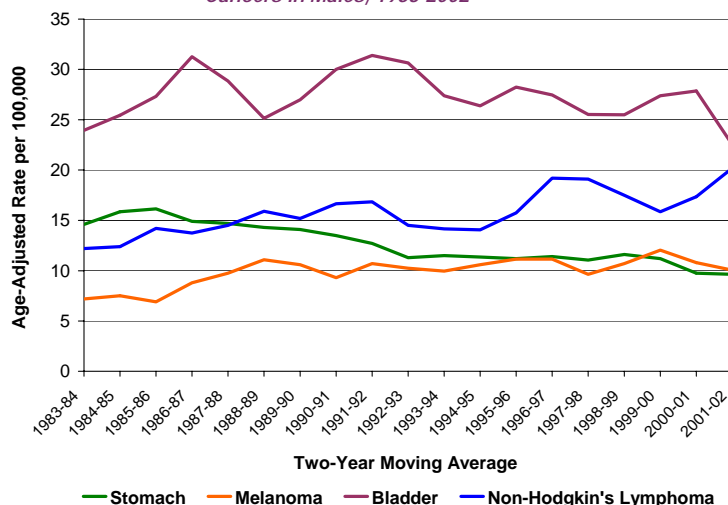


Figure 6: Age-Adjusted Incidence Rates for Selected Invasive Cancers in Males, 1983-2002



Lung cancer rates in males have been fairly stable, decreasing gradually over time. The age-adjusted rate was highest in 1990 at 80 per 100,000, but by 2002 had decreased to 59 per 100,000.



CANCER TRENDS IN SASKATCHEWAN

reduction in the number of invasive cases. Melanoma rates have been stable since the late 1980s, while non-Hodgkin's lymphoma rates increased from below 15 per 100,000 prior to 1987 to about 20 per 100,000 in 2001 and 2002.

Figure 7 shows the incidence trend for the top three cancers in females. In 1983, the age-adjusted rate of breast cancer was about 80 per 100,000; by 1990, this figure increased about 30% to 110 per 100,000. Since 1990, the rates have remained stable between 100 and 110 per 100,000. Lung cancer, however, increased substantially. The age-adjusted rates doubled from about 20 per 100,000 to 40 per 100,000 over the 20-year period. The lung cancer rate is now similar to the colorectal rate, which has been very stable over time.

Figure 8 shows trends in age-adjusted rates for other common cancers in females. Uterine cancer rates fluctuated between 20 per 100,000 and 15 per 100,000 over the 20-year period. Rates of non-Hodgkin's lymphoma in females rose similar to those in males, from a low of 8 per 100,000 in 1983 to as high as 15 per 100,000 in 2000. Melanoma rates hovered around 10 per 100,000 and stomach cancer rates have remained around 5 per 100,000 since 1983.

Figure 7: Age-Adjusted Incidence Rates for Common Invasive Cancers in Females, 1983-2002

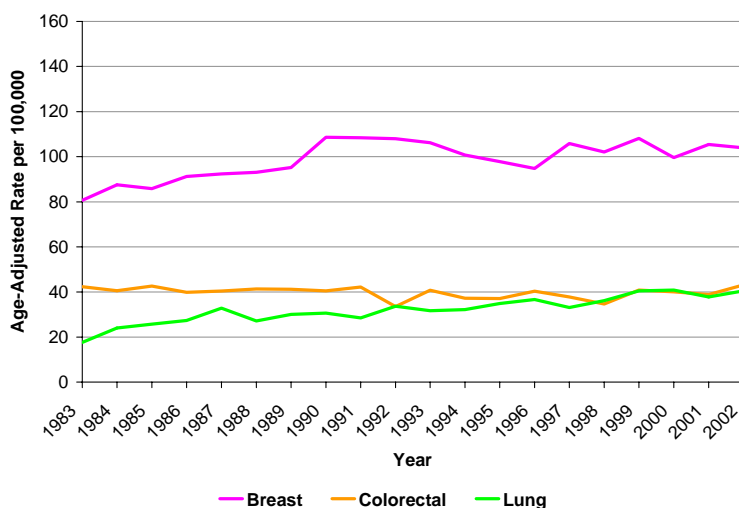
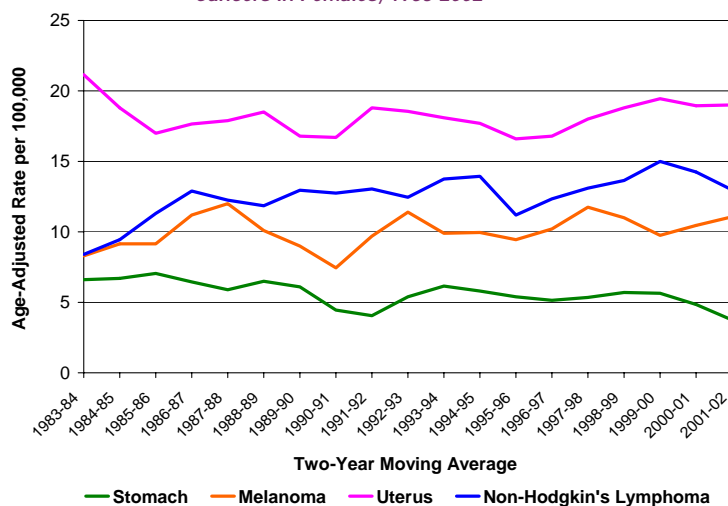


Figure 8: Age-Adjusted Incidence Rates for Selected Invasive Cancers in Females, 1983-2002



Lung cancer [in females], however, increased substantially. The age-adjusted rates doubled from about 20 per 100,000 to 40 per 100,000 over the 20-year period.



CANCER TRENDS IN SASKATCHEWAN

Mortality Rates of Common Cancers

Figure 9 shows the age-adjusted mortality rates for common cancers in females. The greatest increase was lung cancer deaths, which increased from 12.7 per 100,000 in 1983 to 34 per 100,000 in 2002. Breast cancer mortality rose as high as 32 per 100,000 in 1990 but declined to 25 per 100,000 in 2002. Colorectal cancer mortality also dropped from 20 per 100,000 in the early 1980s to under 15 per 100,000 in 2002. If not for the 268% increase in lung cancer mortality in females, their overall cancer mortality rate would have declined by 5.2% since 1983, instead of increasing by 11.7%.

Figure 10 shows the age-adjusted mortality rates for common cancers in males. Lung cancer, the most common cancer cause of death, has been showing signs of decline since 1995. Lung cancer mortality rates were consistently over 60 per 100,000, but in the late 1990s were as low as 50 per 100,000. Colorectal cancer mortality has been fairly stable and rates did not decline as they did in females. Prostate cancer mortality rates were stable over the 20-year period at about 35 per 100,000.

Figure 9: Age-Adjusted Mortality Rates for Common Cancer Sites in Females, 1983-2002

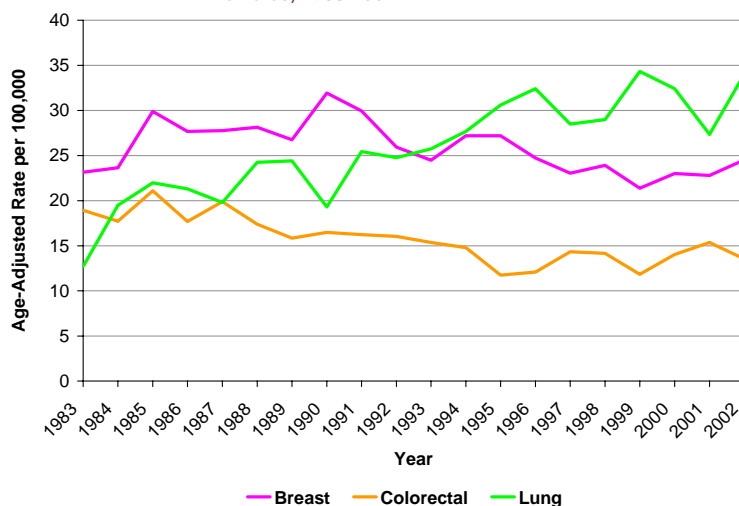
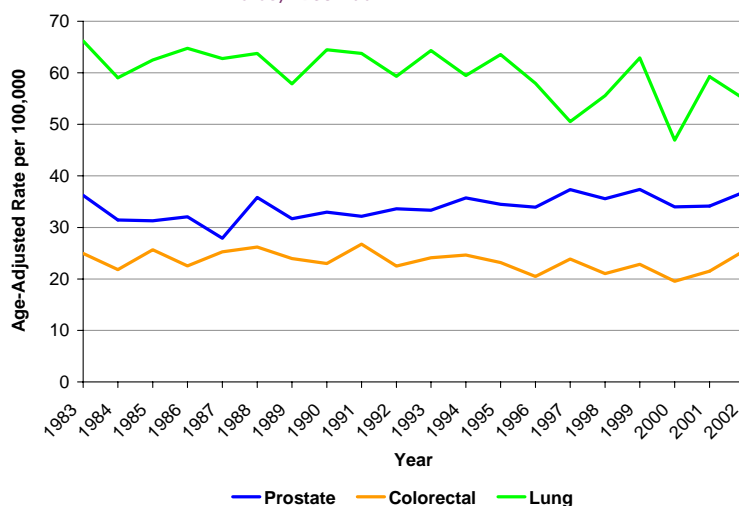


Figure 10: Age-Adjusted Mortality Rates for Common Cancer Sites in Males, 1983-2002



If not for the 268% increase in lung cancer mortality in females, their overall cancer mortality rate would have declined by 5.2% since 1983, instead of increasing by 11.7%.



In this section, age-adjusted rates are provided by cancer site and sex for each Regional Health Authority for the five-year period, 1998-2002. Age-adjustment allows for comparisons between RHAs that may have different age structures. Rates for each RHA can also be compared to the overall age-adjusted rate for the province for both males and females.

The top cancer sites were mapped to highlight those RHAs where the observed number of cancers was more or less than expected, based on a standardized incidence ratio. P values are shown to indicate those RHAs that had a statistically different number of cancers than expected.

What is a Standardized Incidence Ratio?

The Standardized Incidence Ratio (SIR) compares the observed number of cancer cases to the number that would be expected (see Methods) if each RHA had the same age- and sex-specific cancer rates (for each cancer site) as the provincial rates. The observed and expected numbers of cases can be non-integers (see Methods). The SIR is reported as a percentage. For example, to calculate the female lung cancer SIR for the Regina Qu'Appelle RHA, the expected number of cases for that region was calculated based on the provincial age-specific rates of lung cancer in females from 1998-2002. These provincial rates were multiplied into the female population of that RHA for 1998-2002, which produced the expected number of lung cancers for females in the

region. In this example, 282.1 cases of female lung cancer would be expected for the Regina Qu'Appelle region if the RHA had the same incidence rates as the province. The observed number of female lung cancer cases for the Regina Qu'Appelle RHA for the same time period was 329.7. The observed number of cases was divided by the expected number and multiplied by 100% to obtain the SIR as shown:

$$\text{SIR (female lung cancer in Regina Qu'Appelle)} \\ = 329.7 / 282.1 \times 100\% = 116.9\%$$

In this example, the Regina Qu'Appelle RHA had 16.9% more cases than would be expected if their female lung cancer incidence rates were the same as the province overall.

What is a p value?

A p value is a probability. It represents the chance that an observation as extreme or more extreme than the one observed would have occurred under the null hypothesis. The null hypothesis is simply an assumption that there is no difference between one variable and another. In the female lung cancer example, the p value represents the chance of observing the 16.9% difference in female lung cancer cases in Regina Qu'Appelle RHA, assuming the lung cancer incidence rates were the same as the province. In this case, the p value was calculated (see Methods) and found to be 0.0023 or 0.23%. This means there was a 0.23% chance (or about one in 400) of having an SIR of 116.9% in that region if the incidence rates were the same for both



Regina Qu'Appelle and the province. P values under 0.05 or 5% (a one in 20 chance) indicates a finding is statistically significant; thus the example suggests there was a real difference in the rates between the province and the region. For this report, p values under 0.05 are considered statistically significant.

The p value depends on a number of factors, one of which is size of the groups being compared. Therefore, there may be RHAs where the SIRs are high or low but the p value is not significant. This is usually because, due to small population sizes, the SIR is based on a small number of observed and expected cases.

Colour-coded maps are included to illustrate whether the observed number of cases was statistically less than expected, more than expected, or no different than expected. Maps shown include cases for the five-year period 1998-2002. We selected cancer sites that as of 2002 were the most common in Saskatchewan males and females.

Why does an RHA have More or Fewer Cancer Cases than Expected?

There are three main reasons an RHA would have more or fewer observed than expected cases based on the provincial rates:

1. First, a difference could occur if the region had more (or less) exposure to some factor that may increase (or decrease) the risk of cancer. An example would be smoking, where

higher or lower lung cancer rates would result if the smoking patterns in the RHA populations varied considerably from the overall smoking habits of the provincial population. In this case, the assumption that the RHA and province had similar rates would be false.

2. Second, the screening and/or early detection practices of physicians likely vary between RHAs. This could affect the incidence in cancer sites where there are procedures for early detection of cancer — specifically breast, prostate, and colorectal. For example, if physicians in one region use PSA tests (for prostate cancer detection) more (or less) than the overall PSA use in the province, then more (or fewer) prostate cancers than expected may be detected in that region.
3. Finally, differences in cancer rates may occur by chance alone. We have selected a common p value (0.05) as our cutoff for statistical significance. A p value lower than 0.05 means that it is more unlikely that the difference between the observed number of cases and the expected number happened by chance alone if the rates in the RHA and the province were in fact the same. But chance cannot be entirely ruled out as the reason for a statistically significant finding in the SIRs.

REGIONAL VARIATION IN CANCER

Age-Adjusted Incidence Rates in Females

Table 1 shows the age-adjusted incidence rates for the top cancer sites (invasive only) in females for the time period 1998-2002. Rates are shown for each RHA and are ranked according to the top sites for the province (Sask column). Breast cancer had the highest age-adjusted incidence rate among females at 103.9 per 100,000. Rates in the RHAs ranged from a low of 32.3 per 100,000 in Athabasca to a high of 115.0 per 100,000 in Mamawetan Churchill River. Besides Athabasca, most other RHAs had breast cancer rates that were similar to the provincial age-adjusted rate of 103.9 per 100,000. Provincially, colorectal and lung cancer age-adjusted rates were similar

(39.6 and 39.3 per 100,000, respectively) but 60% lower than the rate for breast cancer. In the three northern RHAs (Mamawetan Churchill River, Keewatin Yatthé, and Athabasca) the age-adjusted lung cancer rates were much higher than the colorectal cancer rates and higher than the provincial lung cancer rate. Cancer of the uterus and non-Hodgkin's lymphoma round out the top five cancer sites in females.

Standardized incidence ratios (SIRs) and p values are shown in Figures 11-15 for the top five female sites. The maps highlight RHAs where the number of cancers observed was higher than expected, lower than expected, or no different than expected.

Table 1: Age-Adjusted Incidence Rates in Females by Cancer Site and Regional Health Authority, 1998-2002

SITE	Sask	Sun Country	Five Hills	Cypress	Regina Qu'Appelle	Sunrise	Saskatoon	Heartland	Kelsey Trail	Prince Albert Parkland	Prairie North	Mamawetan Churchill River	Keewatin Yatthé	Athabasca
Breast	103.9	101.2	108.4	103.6	108.3	92.1	106.9	102.0	98.9	104.5	93.3	115.0	104.8	32.3
Colorectal	39.6	49.8	37.2	35.2	39.5	44.8	39.4	40.7	32.9	40.4	38.8	20.3	41.6	0.0
Lung	39.3	39.5	45.0	40.2	45.9	37.1	34.6	34.6	33.9	37.7	37.5	55.1	88.7	66.9
Uterus	19.1	21.0	21.3	16.9	15.8	22.7	18.7	22.6	21.3	22.2	21.8	8.3	4.3	32.3
Non-Hodgkin's Lymphoma	13.8	11.9	15.1	15.2	14.0	13.2	14.6	9.5	20.2	14.9	8.9	9.9	0.0	0.0
Melanoma	10.9	15.0	13.0	9.8	10.4	11.1	11.0	8.1	5.6	14.6	11.4	7.5	10.6	0.0
Ovary	10.0	14.3	10.7	9.6	9.4	7.9	10.7	10.7	8.6	10.1	8.2	9.9	14.9	0.0
Primary Unknown	9.6	8.4	10.4	9.9	7.1	4.5	10.2	10.2	17.2	15.1	8.4	12.8	19.2	79.7
Leukemia	9.6	7.6	14.8	8.1	9.9	10.5	9.5	6.7	8.8	8.5	10.2	4.5	9.8	0.0
Cervix	8.9	12.2	10.0	5.1	8.7	12.4	6.7	6.3	11.3	11.8	11.8	12.4	20.6	23.3
Thyroid	8.9	6.6	7.4	7.3	8.9	12.4	9.3	8.4	13.3	6.6	9.2	2.5	9.7	0.0
Kidney	7.5	7.3	8.4	3.7	7.2	11.0	6.8	7.4	5.2	8.7	7.8	14.2	10.3	19.5
All Other Sites	57.9	57.8	61.5	48.4	59.7	59.0	60.7	57.9	51.2	52.3	58.1	26.8	85.4	23.3
Overall Age-Adjusted Rate	339.0	352.5	363.3	312.8	344.7	338.5	339.0	325.0	328.3	347.1	325.3	299.2	420.1	277.2



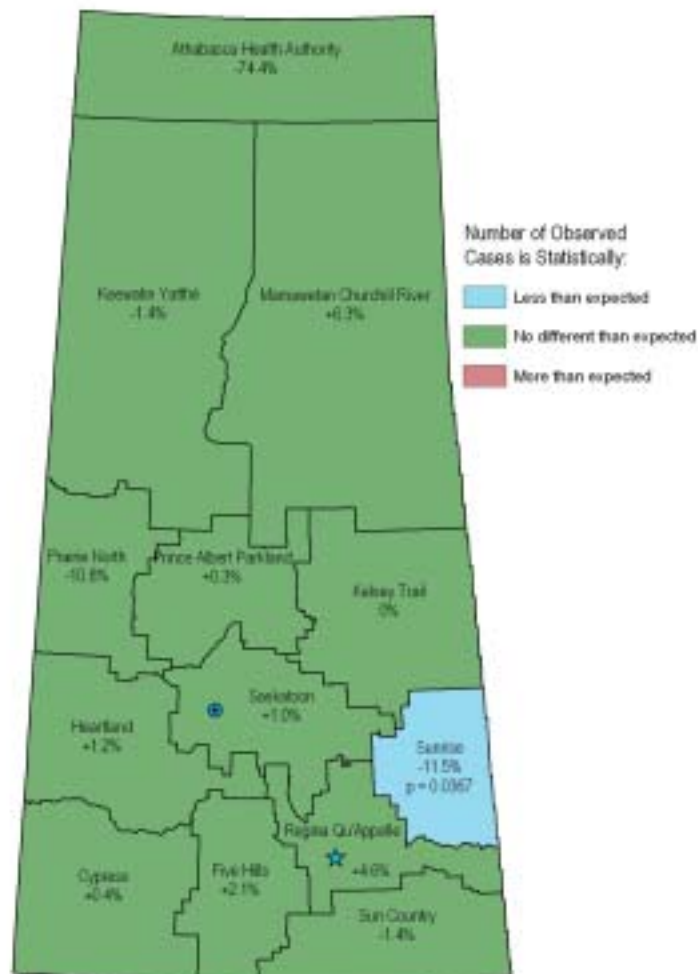
REGIONAL VARIATION IN CANCER

Standardized Incidence Ratios in Females

Figure 11 shows the SIRs for breast cancer in females. Sunrise RHA had fewer cases than expected (215 observed versus 243 expected), which was statistically significant ($p=0.037$). The observed number of cases

in the Athabasca RHA was 74% lower than expected; however, due to the very small population, there were only 3.9 expected cases and so the difference was not statistically significant. The numbers of observed cases in all other RHAs were very similar to the expected numbers.

Figure 11: Standardized Incidence Ratios for Female Breast Cancer, 1998-2002

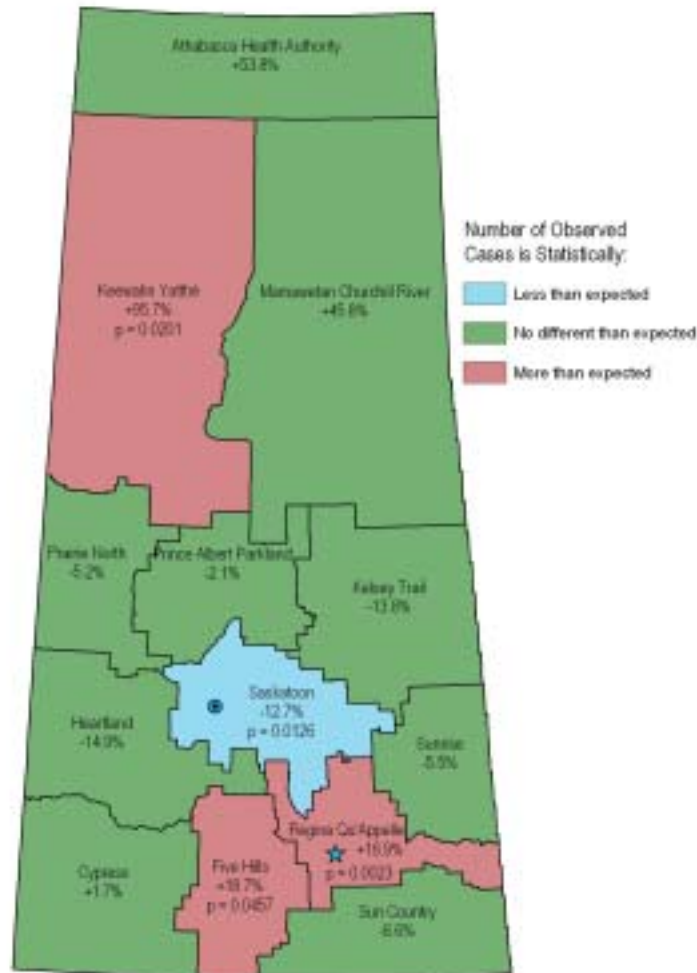


REGIONAL VARIATION IN CANCER

Figure 12 shows the SIRs for lung cancer in females. Regina Qu'Appelle and Five Hills had 16.9% (329.7 observed versus 282.1 expected) and 18.7% (96.3 observed versus 81.1 expected) more cases than expected, respectively. In the Saskatoon RHA, there were 12.7% fewer cases ($p=0.0126$) than expected (273.4 observed versus 313.0 expected). Keewatin Yatthé had twice as many cases (9) as expected (4.6). The two other northern RHAs had high SIRs but because of small population size, were not statistically significant. Presumably, differences in SIRs for lung cancer across regions are related to differences in smoking patterns in those populations.

had twice as many cases (9) as expected (4.6). The two other northern RHAs had high SIRs but because of small population size, were not statistically significant. Presumably, differences in SIRs for lung cancer across regions are related to differences in smoking patterns in those populations.

Figure 12: Standardized Incidence Ratios for Female Lung Cancer, 1998-2002

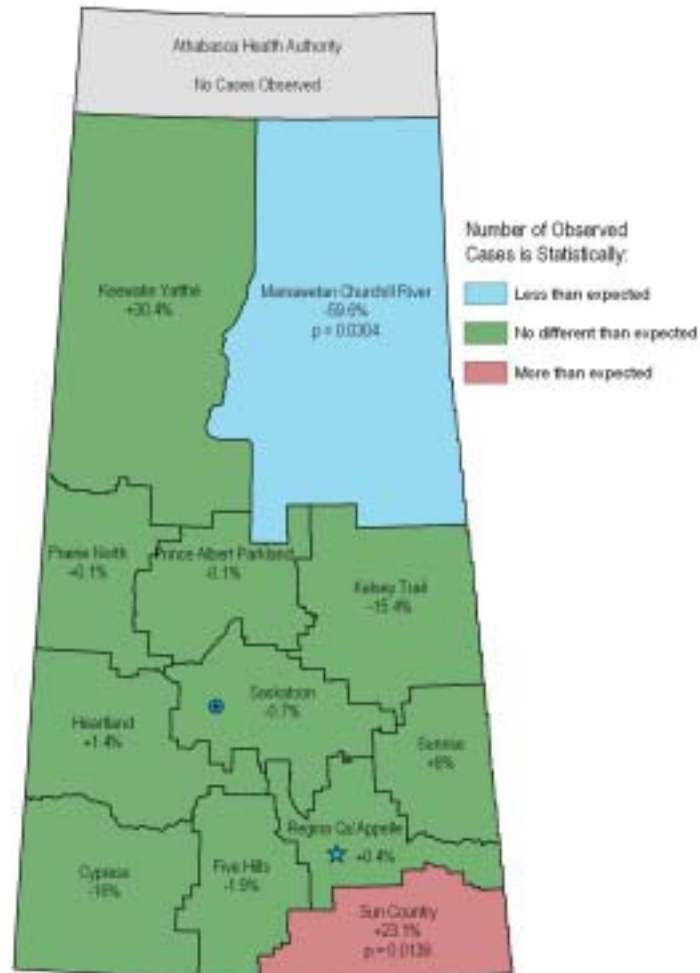


REGIONAL VARIATION IN CANCER

Figure 13 shows the SIRs for colorectal cancer in females. Sun Country had 23.1% more cases than expected ($p=0.0139$). There were 91.1 expected cases of colorectal cancer but 112.1 observed. Mamawetan Churchill River had 60% fewer cases than expected, with four observed

cases out of 9.9 expected, which was significant ($p = 0.030$). All other regions observed numbers of cases that were no different than expected. There were no cases observed in the Athabasca Health Authority.

Figure 13: Standardized Incidence Ratios for Female Colorectal Cancer, 1998-2002

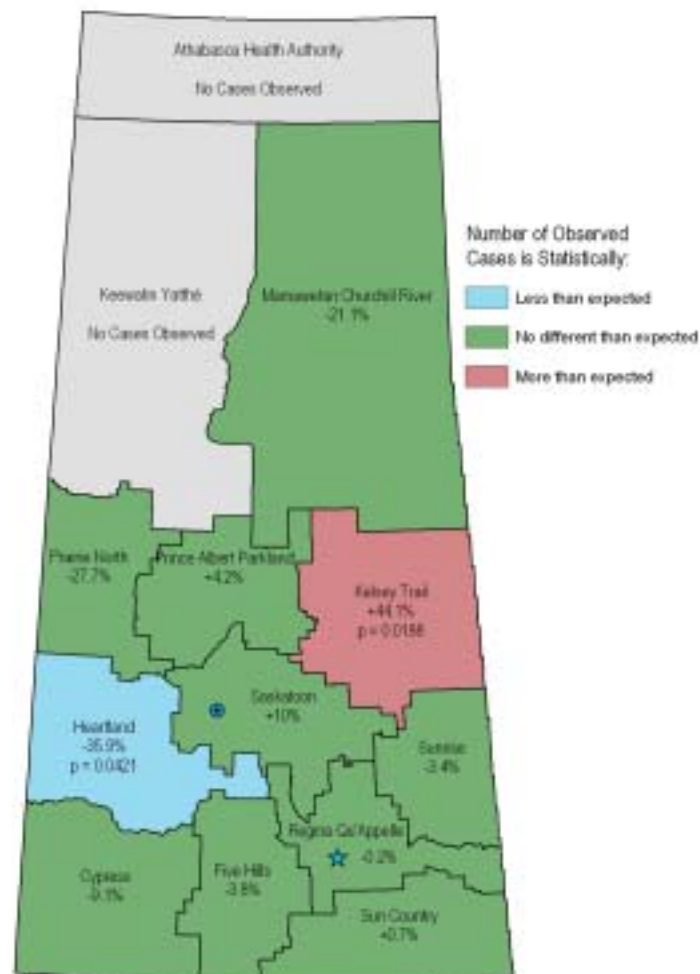


REGIONAL VARIATION IN CANCER

Figure 14 shows the SIRs for non-Hodgkin's lymphoma (NHL) in females. Kelsey Trail RHA had 44% more cases than expected ($p=0.0188$) based on 32 observed cases and 24.9 expected cases. Heartland RHA

had 36% fewer cases than expected ($p=0.0421$), with 14.8 observed cases compared to 23.1 expected. The observed NHL cases for all other RHAs were statistically no different than expected.

Figure 14: Standardized Incidence Ratios for Female Non-Hodgkin's Lymphoma, 1998-2002

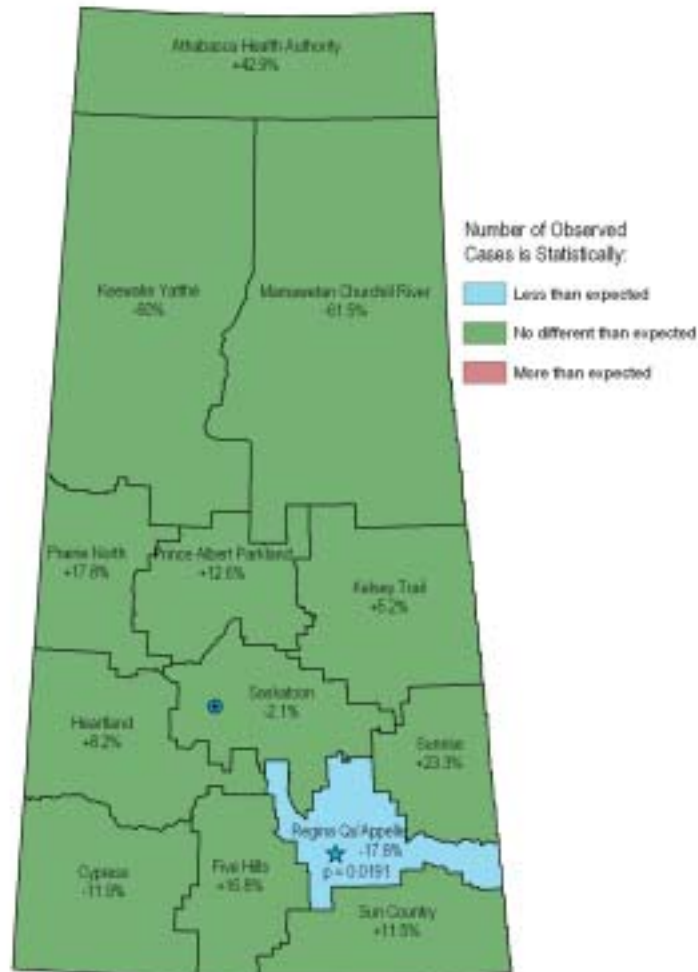


REGIONAL VARIATION IN CANCER

Figure 15 shows the SIRs for cancer of the uterus. Only one RHA, Regina Qu'Appelle, had a statistically significant difference in the number of cases observed ($p=0.0191$), with 17.8% fewer cases (111.1) than

expected (135.2). For all other RHAs, the differences between the observed number of cases and the expected number of cases of uterine cancer were not statistically significant.

Figure 15: Standardized Incidence Ratios for Uterus Cancer, 1998-2002



REGIONAL VARIATION IN CANCER

Age-Adjusted Incidence Rates in Males

Table 2 shows the age-adjusted incidence rates for the top cancer sites (invasive only) in males for the time period 1998-2002.

Prostate cancer rates ranged from a high of 176.2 per 100,000 in Cypress RHA to a low of 25.4 per 100,000 in Athabasca. Prostate cancer showed the greatest variability in rates among all sites (male or female).

Lung and colorectal cancers had the second and third highest rates (62.1 and 59.0 per 100,000, respectively). Rates of colorectal cancer were higher than rates of lung cancer in Sun Country, Five Hills, Saskatoon, and Kelsey Trail. In the three northern regions, and to a lesser extent in

Regina Qu'Appelle, the age-adjusted lung cancer rates were much higher than corresponding rates for colorectal cancer and were higher than the provincial lung cancer rate of 62.1 per 100,000.

Bladder cancer ranked fourth provincially among males, but in 2002 international changes in coding for this disease occurred, which will result in a reduced ranking in subsequent years (see note in Appendix A). Provincially, non-Hodgkin's lymphoma and leukemia rates among males were similar, with some variation in the rates among the RHAs. Figures 16-20 show SIRs and p values for the top cancer sites in males.

Table 2: Age-Adjusted Incidence Rates in Males by Cancer Site and Regional Health Authority, 1998-2002

SITE	Sask	Sun Country	Five Hills	Cypress	Regina Qu'Appelle	Sunrise	Saskatoon	Heartland	Kelsey Trail	Prince Albert Parkland	Prairie North	Mamawetan Churchill River	Keewatin Yatthé	Athabasca
Prostate	136.8	117.1	168.1	176.2	144.1	175.4	119.0	147.9	107.7	134.4	114.4	57.6	91.9	25.4
Lung	62.1	59.1	65.6	51.1	70.3	58.0	57.9	55.4	68.1	63.9	60.1	121.5	75.3	94.5
Colorectal	59.0	76.0	74.5	43.0	56.2	54.7	59.2	53.9	72.8	52.0	60.5	29.0	55.4	15.9
Bladder	24.9	21.1	27.1	19.3	20.7	18.7	29.0	24.0	30.1	30.2	31.3	16.6	18.3	0.0
Non-Hodgkin's Lymphoma	18.0	21.9	15.8	14.4	20.5	18.9	19.9	15.7	12.6	12.9	15.9	15.3	20.7	0.0
Leukemia	17.1	14.1	10.7	17.1	21.3	15.5	18.1	15.9	15.1	19.3	12.1	9.3	0.0	0.0
Kidney	13.5	12.5	14.0	9.7	14.9	16.2	12.1	14.6	14.2	13.3	12.7	5.2	32.5	0.0
Melanoma	10.7	11.2	15.8	6.5	12.3	7.1	10.9	12.0	8.1	9.3	10.6	6.3	5.3	15.9
Stomach	10.5	8.4	11.9	14.0	11.9	9.4	10.5	5.9	6.2	12.8	9.0	17.5	0.0	0.0
Primary Unknown	9.5	8.5	8.7	10.1	7.8	6.2	12.0	8.6	8.7	10.8	9.6	11.4	20.2	0.0
Pancreas	8.8	8.1	8.7	2.5	9.3	11.3	10.0	9.4	11.7	6.7	6.5	4.2	6.4	0.0
All Other Sites	71.6	87.5	81.4	60.5	79.7	64.6	68.7	68.0	66.1	65.1	60.3	53.9	56.9	111.0
Overall Age-Adjusted Rate	442.5	445.6	502.3	424.4	469.1	455.9	427.1	431.3	421.2	430.7	402.9	347.7	382.8	262.7



REGIONAL VARIATION IN CANCER

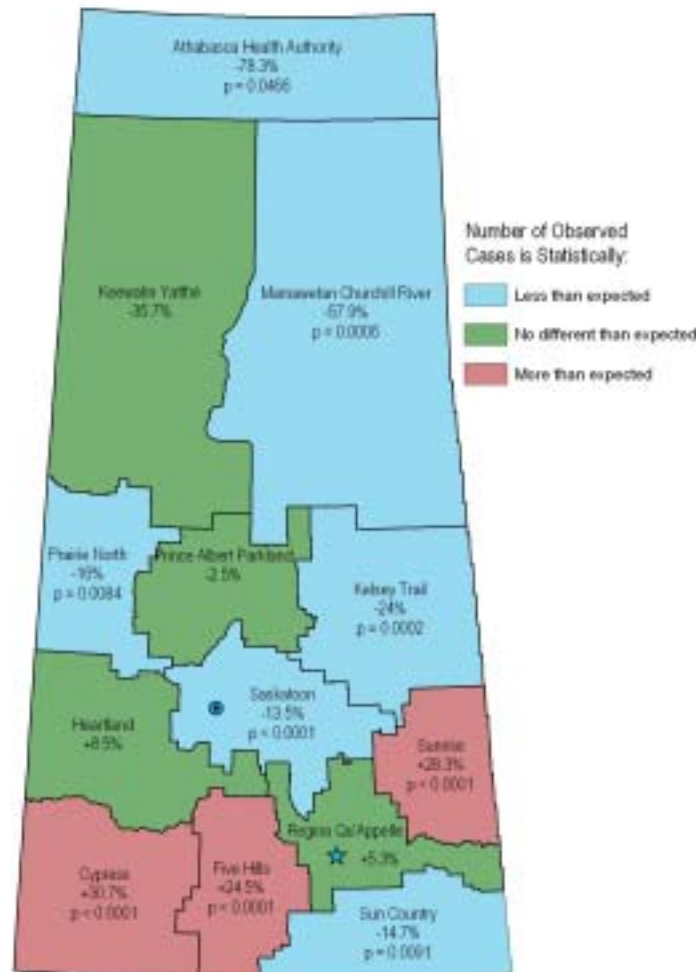
Standardized Incidence Ratios in Males

Figure 16 shows the SIRs for prostate cancer. Unlike breast cancer in females, where only one region's rate was statistically different, 9 out of 13 RHAs had prostate cancer SIRs that were statistically very different. Three RHAs had statistically higher SIRs: Sunrise, Five Hills, and Cypress RHAs had 28.3%, 24.5%, and 30.7% more observed cases than expected, respectively. Six RHAs (Sun Country, Saskatoon, Prairie North, Kelsey Trail, Mamawetan Churchill River, and Athabasca)

had fewer cases than expected.

Prostate cancer had greater variation in SIRs of any cancer site. This is likely due to differences among the RHAs in use of PSA tests for early detection. Currently there is no organized approach to early detection of prostate cancer in Saskatchewan, unlike breast cancer where a provincial mammography screening program is in place.

Figure 16: Standardized Incidence Ratios for Prostate Cancer, 1998-2002

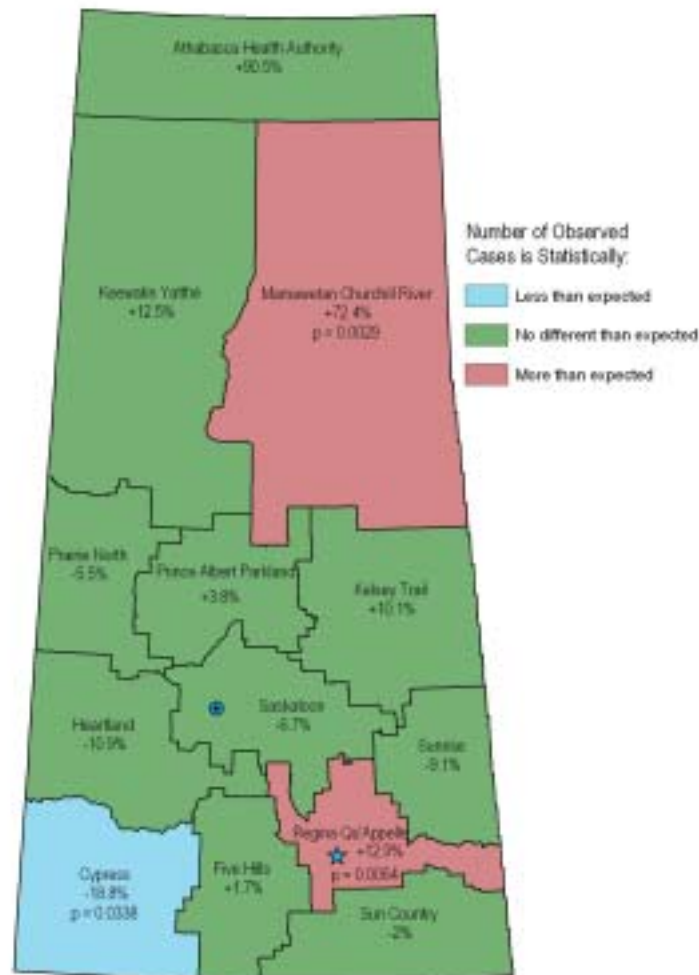


REGIONAL VARIATION IN CANCER

Figure 17 shows the lung cancer SIRs in males. Two RHAs had a higher than expected number of cases: Regina Qu'Appelle and Mamawetan Churchill River had 12.9% and 72.4% more cases than expected, respectively. In the Regina Qu'Appelle RHA, there were 423 observed cases but 374.8 expected ($p=0.0064$); in Mamawetan Churchill River, there were 25

observed cases and 14.5 expected ($p=0.0029$). Cypress RHA had 18.8% fewer cases (77) than expected (94.8), a statistically significant difference ($p=0.033$). Regina Qu'Appelle RHA had high SIRs for both males and females, which was also the case in the northern RHAs; however, not all the differences in the latter were statistically significant.

Figure 17: Standardized Incidence Ratios for Male Lung Cancer, 1998-2002

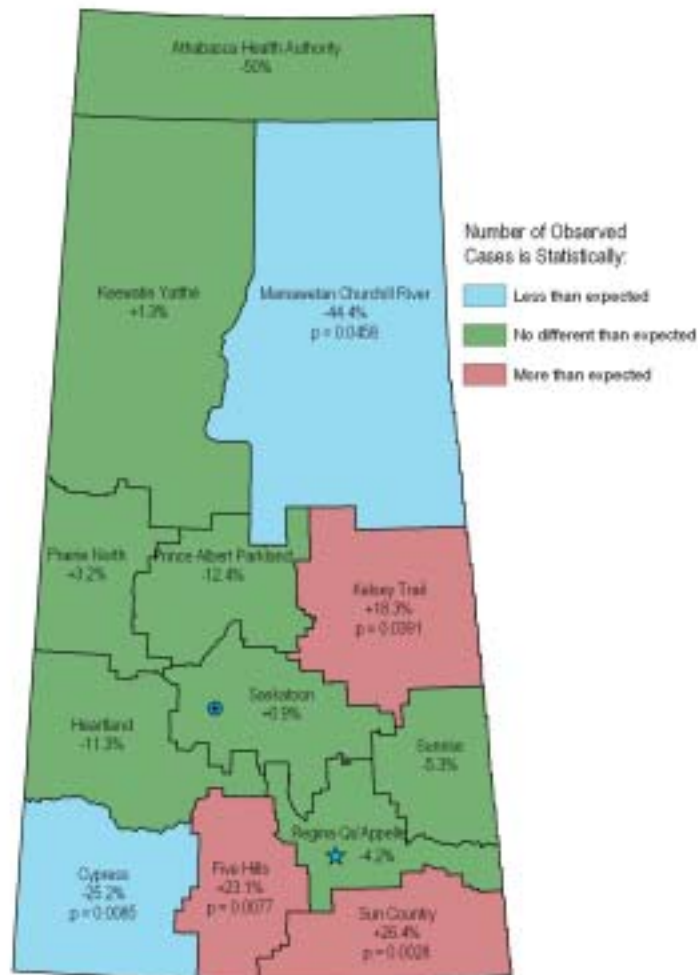


REGIONAL VARIATION IN CANCER

Figure 18 shows the SIRs for colorectal cancer in males. Five out of 13 RHAs had significant differences in SIRs. As was the case for females, Sun Country had a higher SIR for males. There were 26.4% more cases observed than expected (139.5 versus 110.4) and this difference was

significant ($p=0.0028$). Five Hills and Kelsey Trail had 23.1% and 18.3% more cases than expected, respectively. Two RHAs, Cypress and Mamawetan Churchill River, had statistically fewer cases than expected.

Figure 18: Standardized Incidence Ratios for Male Colorectal Cancer, 1998-2002

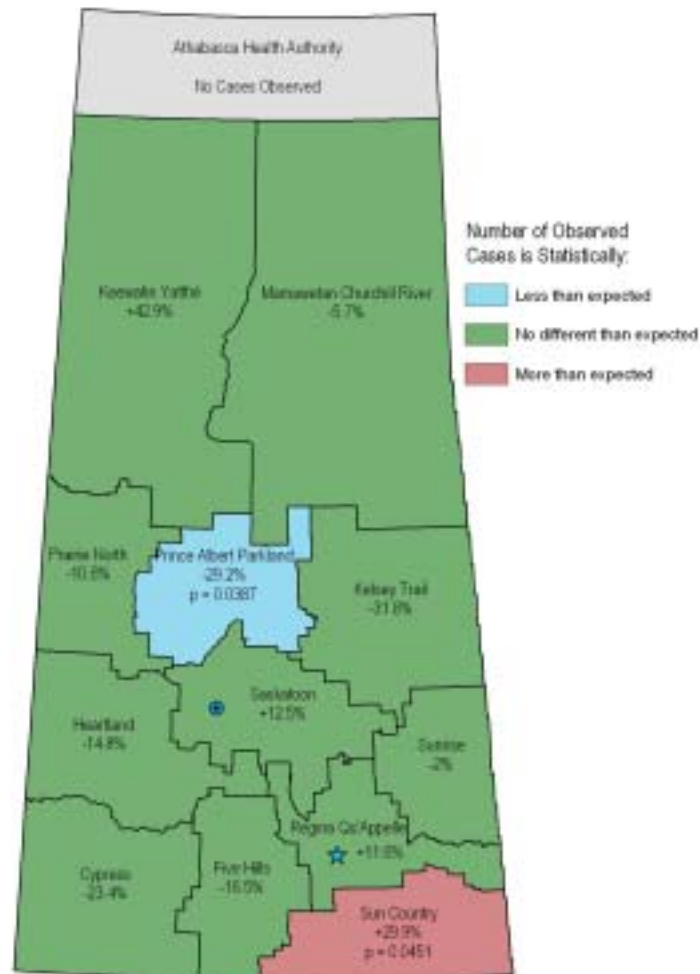


REGIONAL VARIATION IN CANCER

Figure 19 shows the SIRs for non-Hodgkin's lymphoma in males. The observed number of cases (41.7) in Sun Country was 29.9% higher than expected (32.1). Prince Albert Parkland RHA had fewer observed cases

(26) than expected (36.7), which was also statistically significant ($p=0.0387$). All other RHAs had observed numbers of cases that were no different than expected.

Figure 19: Standardized Incidence Ratios for Male Non-Hodgkin's Lymphoma, 1998-2002

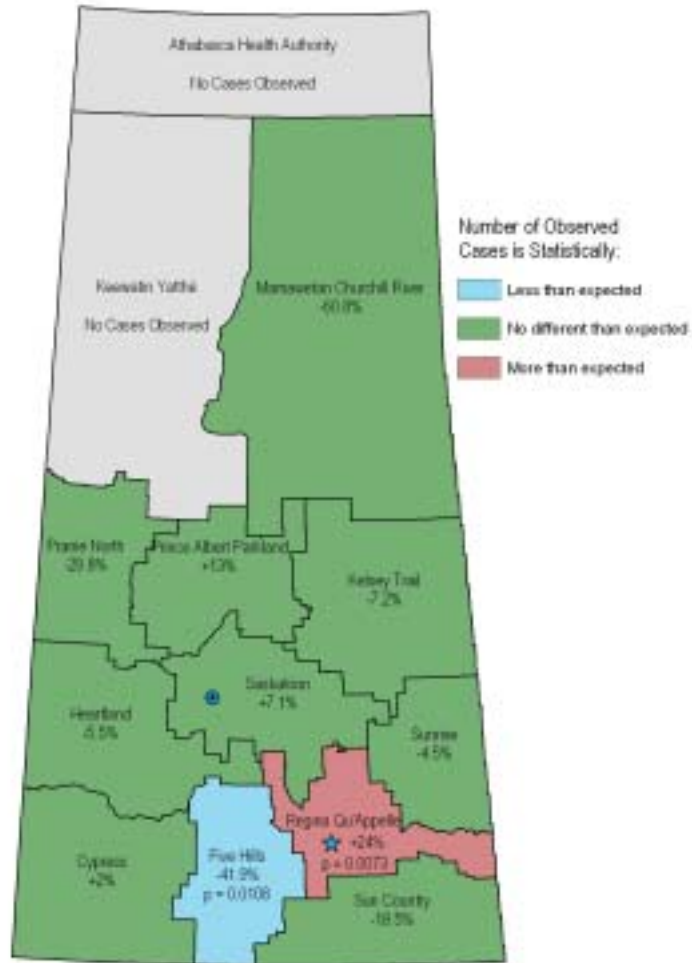


REGIONAL VARIATION IN CANCER

Figure 20 shows the SIRs for leukemia in males. Two regions had observed numbers of cases that were different than expected. Five Hills observed (17.5 cases) 41% fewer cases than expected (30.1), while Regina

Qu'Appelle had 24% more cases (128.1) than expected (103.3). All other RHAs had SIRs that were statistically no different than expected.

Figure 20: Standardized Incidence Ratios for Male Leukemia Cancer, 1998-2002



REGIONAL VARIATION IN CANCER

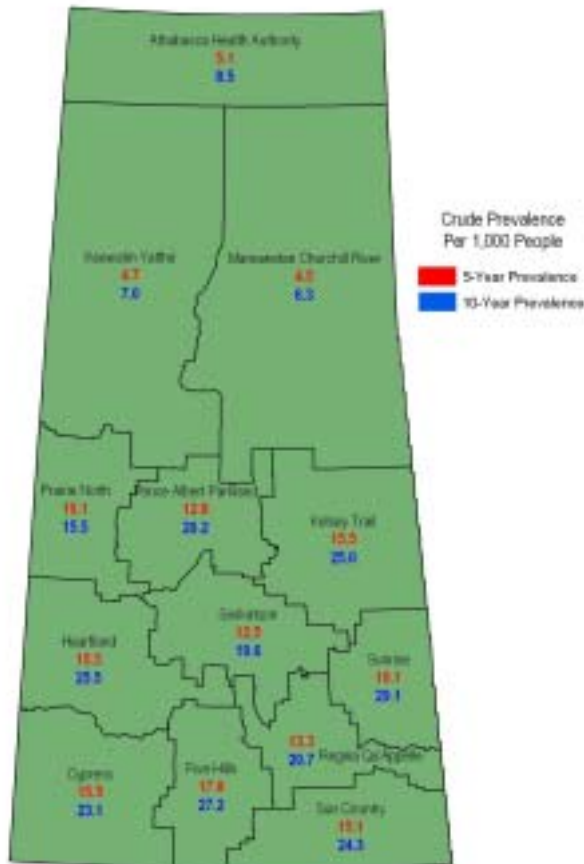
Prevalence

Figure 21 shows the 5- (red) and 10-year (blue) prevalence of invasive cancer for each RHA. The crude prevalence is the number of people alive (per 1,000 in the population) as of December 31, 2002, who were diagnosed with an invasive cancer in the previous 5 or 10 years. Generally, RHAs with older populations will have higher prevalence and younger regions lower prevalence since cancer is very age dependent.

The 5- and 10-year crude prevalence for Saskatchewan was 13.5 per 1,000 and 21.1

per 1,000, respectively. The five-year prevalence in the Sunrise RHA was 19.1 per 1,000, the highest among RHAs. Five Hills was second, with a prevalence of 17.8 per 1,000, while Kelsey Trail, Heartland, and Cypress each had a prevalence of 15.5 per 1,000. Sunrise also had the highest 10-year prevalence at 29.1 per 1,000 compared to the provincial prevalence of 21.1 per 1,000. Five Hills had the second highest prevalence at 27.2 per 1,000, followed by Heartland (25.5 per 1,000), Kelsey Trail (25.0 per 1,000), and Sun Country (24.3 per 1,000). The three northern RHAs had, on average, 65% lower prevalence than the province.

Figure 21: Five- and 10-Year Prevalence of Invasive Cancer by RHA, 2002



This section provides information about cancer for each RHA. The information provided has been grouped into four- (for trends) or five-year periods (for case counts) to avoid very small numbers that would result from using only one year of data. Still, some RHAs have small populations and some cancers are rare, resulting in small counts. For this reason, the three northern regions were combined into one region called North. In the tables provided, an asterisk (*) is shown for counts of less than five but greater than zero to preserve confidentiality.

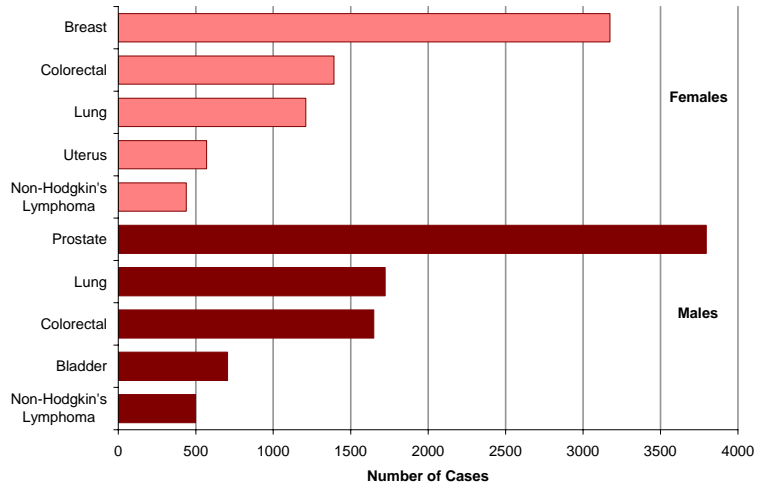
Trends covering 20 years are shown for the most common cancers and provincial trends are provided for comparison. Two bar charts highlight the top sites for incidence and mortality for each RHA. To assist with comparisons between RHAs and the province, the top incidence and mortality sites for the province are shown in Figures 22 and 23 for the same five-year period (1998-2002).

Figure 22 shows the top invasive cancer incidence sites for males and females in Saskatchewan. Breast cancer in females and prostate cancer in males were both over twice as common as the second leading cancers, colorectal cancer in females and lung cancer in males.

Figure 23 shows that for both males and females, lung cancer was the most common cause of cancer death. Breast cancer in females and prostate cancer in males were the second most common, followed by colorectal cancer. Cancer of the pancreas

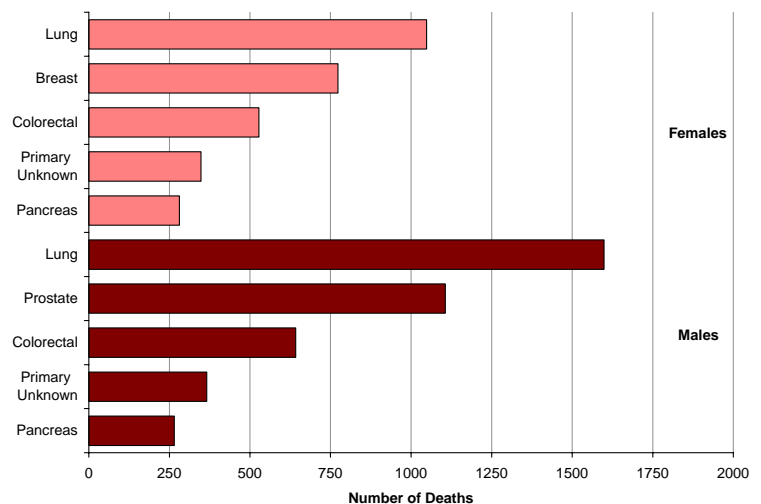
was the fifth most common cause of death in both sexes because of its very lethal nature.

Figure 22: Top Five Invasive Cancer Sites in Saskatchewan by Sex, 1998-2002



Breast cancer in females and prostate cancer in males were both over twice as common as the second leading cancers

Figure 23: Top Five Cancer Causes of Death in Saskatchewan by Sex, 1998-2002



RHA: SUN COUNTRY

Situated in the southeast corner of the province, the Sun Country RHA serves communities such as Estevan and Weyburn.

The total population of Sun Country in 2002 was 55,811. The population pyramid in Figure 24 shows the distribution of the population of Sun Country by age group and sex.

In Sun Country, 35% of females and 31% of males were over age 50 in 2002. Overall, 32.9% of the population was over 50. This was somewhat higher than in the province, where 29.2% of the population was over age 50 in 2002 (30.9% in females and 27.6% in males).

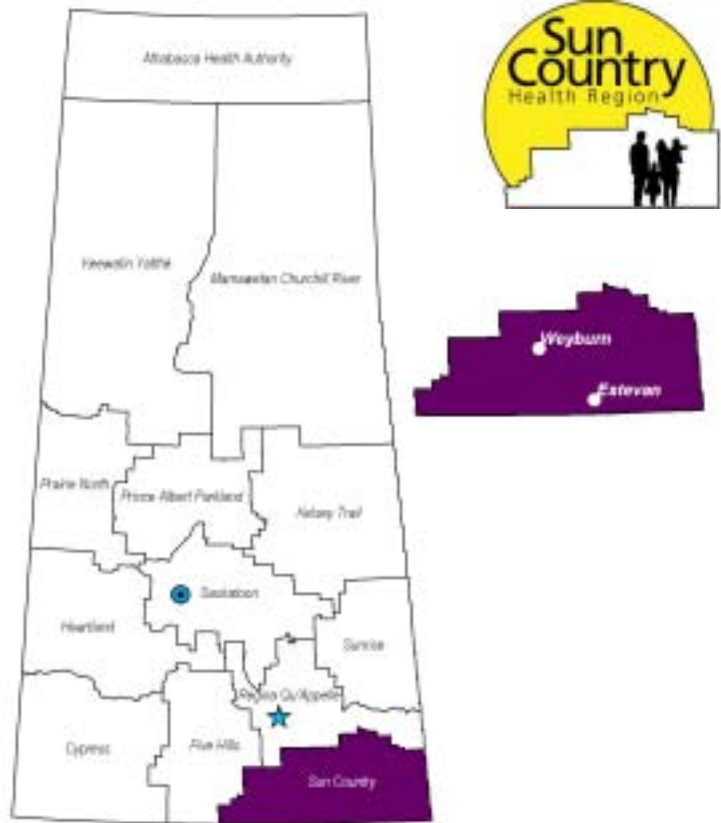
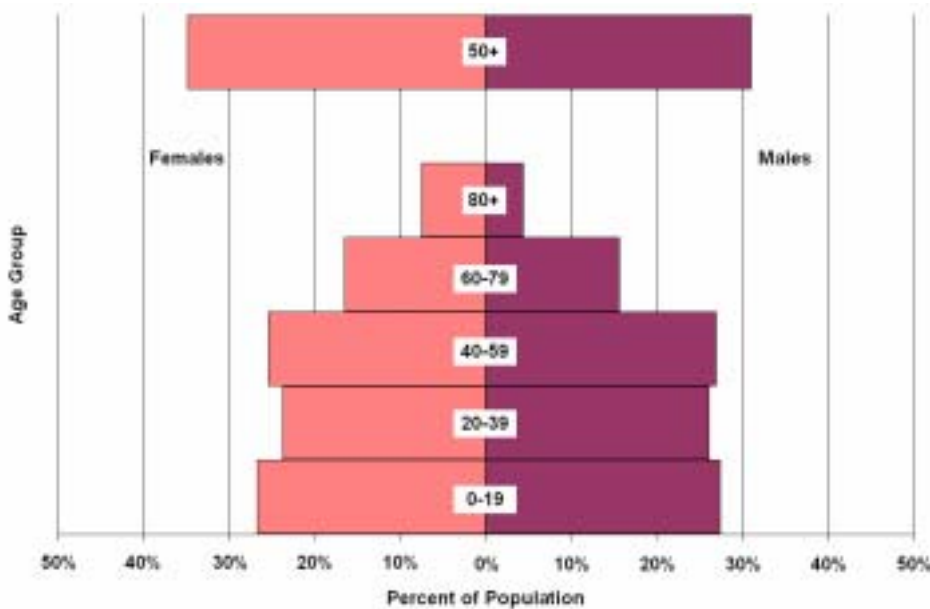


Figure 24: Population of Sun Country by Age and Sex, 2002



Cancer Incidence

Table 3 shows the cancers diagnosed in residents of Sun Country for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one

year. There were 1,529 cases of invasive cancer diagnosed. Colorectal cancer in males and females was the most common (251 cases), followed by 218 cases of prostate cancer in males, and 192 breast cancer cases in females. In total, there were 185 cases of lung cancer over the five-

Table 3: Cancer in Sun Country Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	0	*	*	14.2	5	23.7	47.9
Bone & Connective Tissue	*	*	*	*	*	*	8.6
Brain & Central Nervous System	*	*	*	5.7	7	*	24.7
Breast	31	0	65.6	*	95.4	*	195.9
Cervix Invasive	9	0	5	0	*	0	16
Colon	5	5	26.2	33.5	52.4	49.8	171.8
Digestive Tract	0	0	*	0	*	*	6.9
Esophagus	0	*	0	*	*	*	9.7
Female Genital Organs	*	0	5	0	6.9	0	13.9
Gall Bladder & Biliary Tract	0	0	*	*	*	*	8.2
Head & Neck	*	*	*	8.9	*	7	22.9
Hodgkin's Disease	0	*	*	0	0	*	6
Kidney	*	5	7	6.9	6	9.9	35.7
Larynx	*	0	0	5	*	8.5	16.5
Leukemia	*	*	5.4	7.2	6.2	14.5	38.2
Lip	0	*	0	10	0	10.5	21.5
Liver	0	*	*	*	*	*	7.6
Non-Hodgkin's Lymphoma	*	6	7	7	19.8	28.7	69.5
Male Genital Organs	0	*	0	*	0	*	11
Melanoma of Skin	15	*	*	6	5	13	44.6
Multiple Myeloma	0	0	*	*	*	11.6	15.8
Oral Cavity	0	0	0	*	*	*	8.7
Other Endocrine Glands	*	0	0	0	0	0	*
Other Primaries	*	*	6	*	15.9	17.5	44.4
Other Urinary Tract	0	0	0	*	*	*	6.7
Ovary	*	0	10.4	0	12	0	26.4
Pancreas	0	0	*	*	7.8	13.5	28.3
Primary Unknown	*	0	*	*	12.7	13	36.1
Prostate	0	*	0	78.7	0	137.5	218.1
Rectum	5	*	6	19.4	17.7	29.1	80.1
Respiratory System	*	*	0	*	0	*	7
Stomach	0	*	*	*	15	8.8	32.6
Thyroid	5	7.9	*	5	*	0	24
Trachea, Bronchus & Lung	*	*	36.2	33.1	33.2	77.7	185.5
Uterus	5	0	16	0	17.8	0	38.8
Total	102	56.8	225.4	276.2	366.2	502.9	1529.3
Cervix In Situ	116.2	0	5	0	0	0	121.2
Non-Melanoma Skin	44.9	25	98.4	192.7	250.2	375.4	986.5
Other In Situ	17	5	31	36	60.5	51.4	200.8



year period. Sun Country and Kelsey Trail were the only RHAs where colorectal cancer was the leading cancer, but provincially it ranked third.

Figure 25 shows the top five invasive cancer sites by sex for Sun Country. In females, the most common was breast (192 cases), accounting for 27.8% of all cancers. Colorectal (112) and lung cancers (71) were next most common, together accounting for 26.6% of cases. Rounding out the top five were cancer of the uterus (39) and non-Hodgkin's lymphoma (28).

The most common invasive cancer among males was prostate (218 cases), accounting for 26.5% of all cancers. Together, colorectal (140) and lung cancers (114) accounted for 30.8% of cases. These were followed by non-Hodgkin's lymphoma and bladder cancer with 42 and 39 cases, respectively.

Figure 26 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Sun Country and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Sun Country gradually increased from 88.7 per 100,000 to 119.5 per 100,000 over the 20-year period. The provincial trend was similar, but had an increase in 1999-2002. Colorectal cancer rates remained fairly constant from 1983-1986 to 1995-1998 then increased in the last four-year period. Provincially, the colorectal cancer rate has remained fairly stable over the 20-year period. Lung cancer rates in Sun Country were increasing until

Figure 25: Top Five Invasive Cancer Sites in Sun Country by Sex, 1998-2002

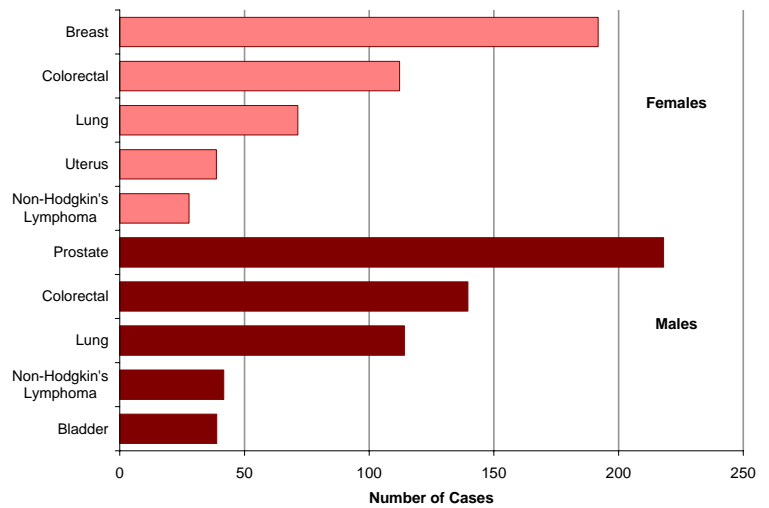
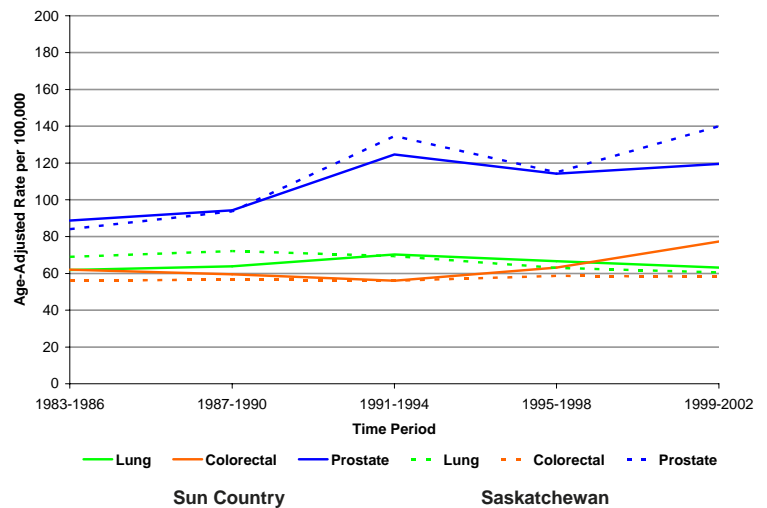


Figure 26: Trends in Incidence Rates for Common Cancer Sites in Males



Sun Country and Kelsey Trail were the only RHAs where colorectal cancer was the leading cancer, but provincially it ranked third.



1991-1994 and have declined since. This is similar to the pattern observed provincially.

Figure 27 shows the age-adjusted incidence for females. Breast cancer rates in Sun Country gradually increased from 89.5 per 100,000 to 103.9 per 100,000 over the 20-year period. This was similar to the provincial trend. Colorectal cancer rates increased for the last two time periods in Sun Country, while the rates remained very stable in the province. Lung cancer rates increased among Sun Country females, with the rate doubling from 1983-1986 to 1999-2002. The rate also doubled provincially.

Cancer Mortality

Figure 28 shows the number of cancer deaths in Sun Country among males and females for the period 1998 to 2002. There were 418 cancer deaths in males and 331 deaths in females.

The most common cancer death among females was breast (54), accounting for 16.4% of cancer deaths. This was followed closely by lung (52), which caused 15.7% of all cancer deaths. Colorectal cancer (40), primary unknown (26), and cancer of the ovary (21) were the remaining sites in the top five.

The most common cancer death among males, by far, was lung cancer (115), accounting for 27.4% of all cancer deaths. Prostate (68), colorectal (53), primary unknown (27), and leukemia (18) round out the top five sites.

Figure 27: Trends in Incidence Rates for Common Cancer Sites in Females

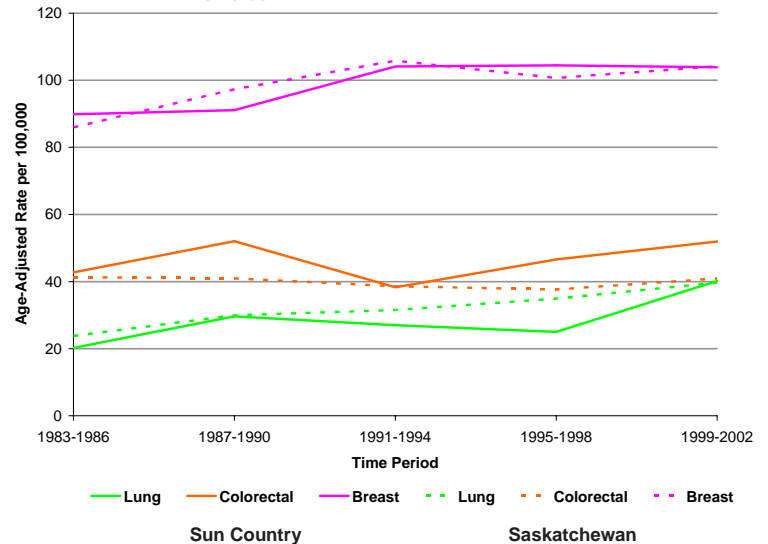
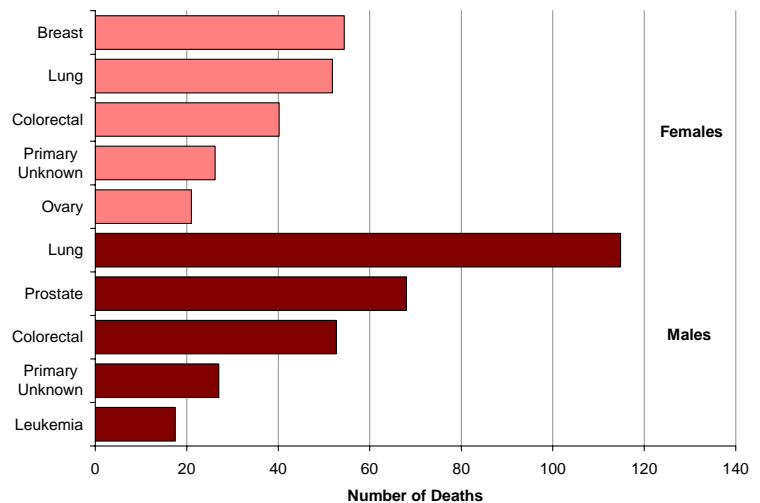


Figure 28: Top Five Cancer Causes of Death in Sun Country by Sex, 1998-2002



Mortality Rates

Figure 29 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for Sun Country and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer increased from 50.1 per 100,000 to 61.3 per 100,000 over the 20-year period. This pattern is opposite of the provincial trend, which saw lung cancer mortality rates decrease over the same years. Prostate cancer mortality rates have been following the provincial trend from 1983 to 2002. Colorectal cancer mortality rates in Sun Country declined from 1983-1986 to 1995-1998, then increased in 1999-2002. Rates for the province remained stable over the 20-year period.

Figure 30 shows the age-adjusted mortality rates for females. Breast cancer mortality rates in Sun Country have fluctuated, with an overall increase from 23.2 per 100,000 to 26.2 per 100,000. The provincial trend has gradually decreased. Lung cancer mortality rates more than doubled over the 20-year period in Sun Country. The trend for the province was similar. Colorectal cancer mortality rates among Sun Country females, was lower than provincial rates, until this last time period, 1999-2002, when a large increase occurred.

Figure 29: Trends in Mortality Rates for Common Cancer Sites in Males

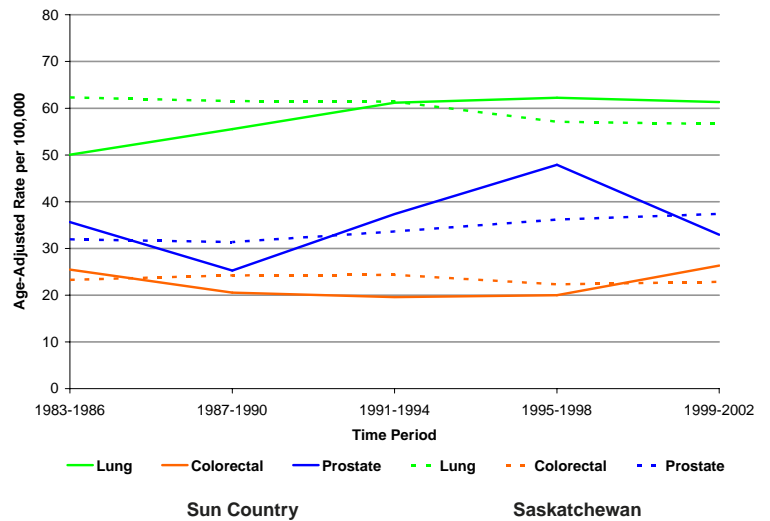
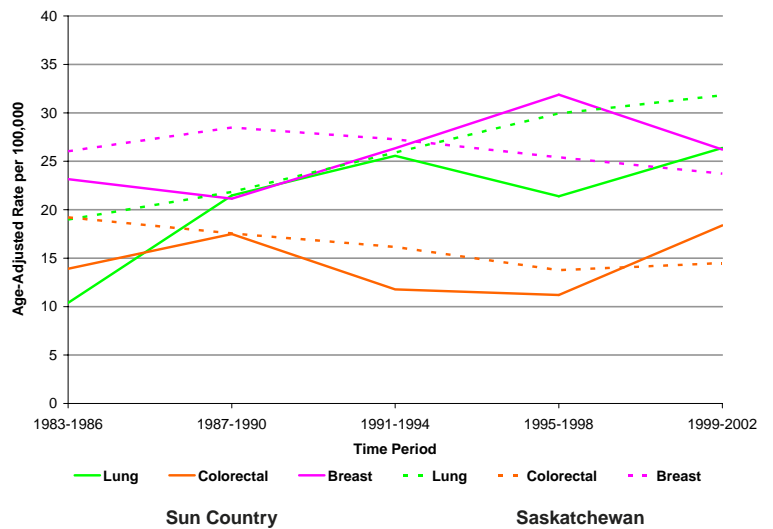


Figure 30: Trends in Mortality Rates for Common Cancer Sites in Females



RHA: FIVE HILLS

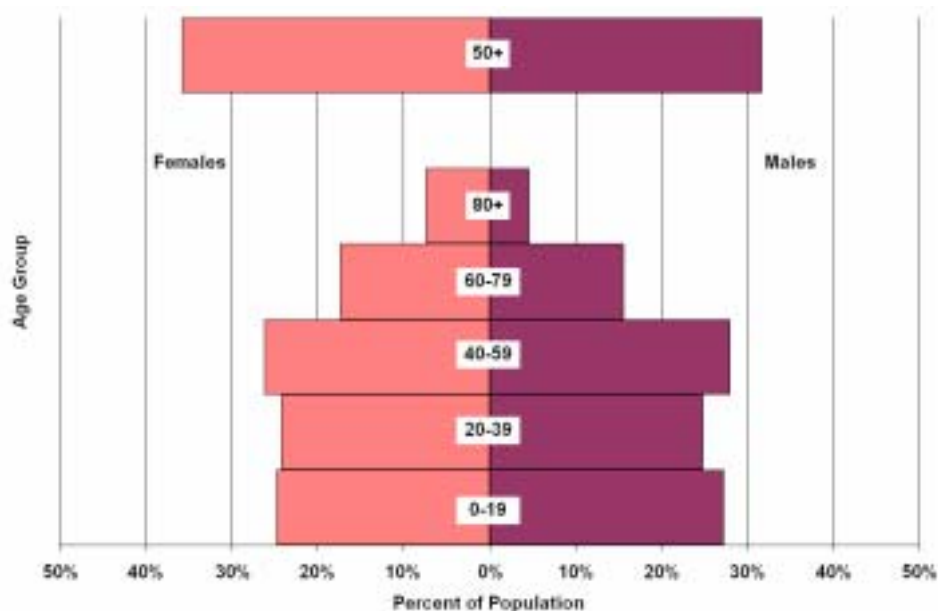
Situated in the south-central area of the province, the Five Hills RHA serves communities such as Moose Jaw, Assiniboia, and Gravelbourg. The total population of Five Hills in 2002 was 56,420.

The population pyramid in Figure 31 shows the distribution of the population of Five Hills by age group and sex.

In Five Hills, 36% of females and 32% of males were over age 50 in 2002. Overall, 33.7% of the population was over age 50. This was somewhat higher than in the province, where 29.2% of the population was over age 50 in 2002 (30.9% in females and 27.6% in males).



Figure 31: Population of Five Hills by Age and Sex, 2002



Cancer Incidence

Table 4 shows the cancers diagnosed in residents of Five Hills for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one year. In Five Hills, there were 1,677

invasive cancers diagnosed over the five-year period, the fourth highest number among regions. Prostate cancer was, by far, the most common with 322 cases. In males and females, colorectal cancer (230 cases) and lung cancer (215 cases) were third and fourth most common, respectively. There were 209 cases of

Table 4: Cancer in Five Hills Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	*	*	*	14.3	6	38.7	63.9
Bone & Connective Tissue	*	*	*	*	*	*	10
Brain & Central Nervous System	5	*	8	*	*	7	26
Breast	34.8	*	87.5	0	86.8	0	210
Cervix Invasive	8	0	*	0	*	0	14.3
Colon	6	5.5	13.7	21.3	51.3	50.6	148.4
Digestive Tract	0	0	*	*	*	5	12.3
Esophagus	0	0	*	*	*	9	16
Female Genital Organs	*	0	5	0	*	0	7
Gall Bladder & Biliary Tract	0	0	0	*	*	*	7.7
Head & Neck	*	*	*	*	0	*	9
Hodgkin's Disease	*	*	*	0	*	0	9
Kidney	*	*	*	9	13	14	46
Larynx	0	*	0	*	*	5	14.3
Leukemia	5	*	8.2	8	15.7	5	46.3
Lip	0	0	*	6.5	*	9.3	17.8
Liver	0	*	*	*	0	*	9.5
Non-Hodgkin's Lymphoma	5	7.3	13	11	10	8.5	54.8
Male Genital Organs	0	9	0	0	0	*	11
Melanoma of Skin	5	5	10.7	13	7	8.5	49.2
Multiple Myeloma	0	0	*	*	5	5.3	15
Oral Cavity	0	0	*	*	*	*	11
Other Primaries	*	5	7	6.7	19.5	12.8	52
Other Urinary Tract	0	0	0	0	*	*	*
Ovary	5	0	5.7	0	9	0	19.7
Pancreas	*	*	*	8	18	6	38
Primary Unknown	0	*	7.5	*	19	10	42.2
Prostate	0	*	0	107.8	0	209.7	322
Rectum	*	*	6	24.7	15	30.9	81.5
Respiratory System	*	0	*	*	*	*	6
Stomach	0	*	0	6	5	17	29
Thyroid	*	*	7	*	*	0	18
Trachea, Bronchus & Lung	*	*	36.7	49.3	56.7	65	215.2
Uterus	*	0	17.5	0	21	0	43
Total	102.3	76.5	261.5	320.1	381.2	535.2	1676.5
Cervix In Situ	34	0	*	0	*	0	39
Non-Melanoma Skin	52	50	70.9	172.4	259	419.5	1023.7
Other In Situ	16	*	41.5	36	62.2	60.3	219



female breast cancer during the five-year period.

Figure 32 shows the top five invasive cancer sites by sex for Five Hills. The most common among females was breast (209 cases), accounting for 28.3% of all cancers. Lung (96) and colorectal cancers (94) were next most common, together accounting for 25.8% of cases. These were followed by cancer of the uterus (43) and leukemia (29).

The most common invasive cancer among males was prostate (322 cases), accounting for 34.9% of all cancers. Together, colorectal (136) and lung cancers (119) accounted for 27.6% of cases. These were followed by bladder cancer and non-Hodgkin's lymphoma, with 55 and 27 cases, respectively.

Figure 33 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Five Hills and dashed lines are the provincial rates. Over the 20-year period, the age-adjusted prostate cancer rate in Five Hills increased from 111.3 per 100,000 to 188.8 per 100,000. The rates in Five Hills have been much higher than the provincial rates. Colorectal cancer rates increased slightly, from 56.3 per 100,000 in 1983-1986 to 69.8 per 100,000 in 1999-2002. Provincially, the rate remained fairly stable over the same 20 years. Lung cancer rates in Five Hills declined since the 1983-1986 period. This is similar to the pattern observed provincially.

Figure 32: Top Five Invasive Cancer Sites in Five Hills by Sex, 1998-2002

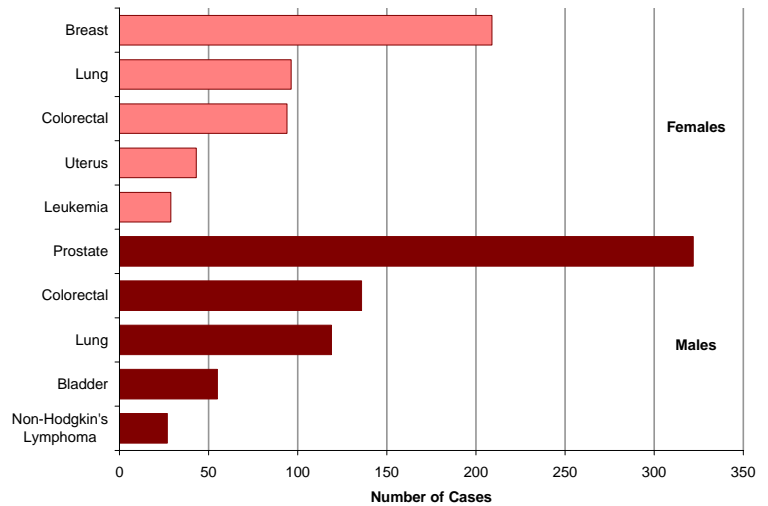
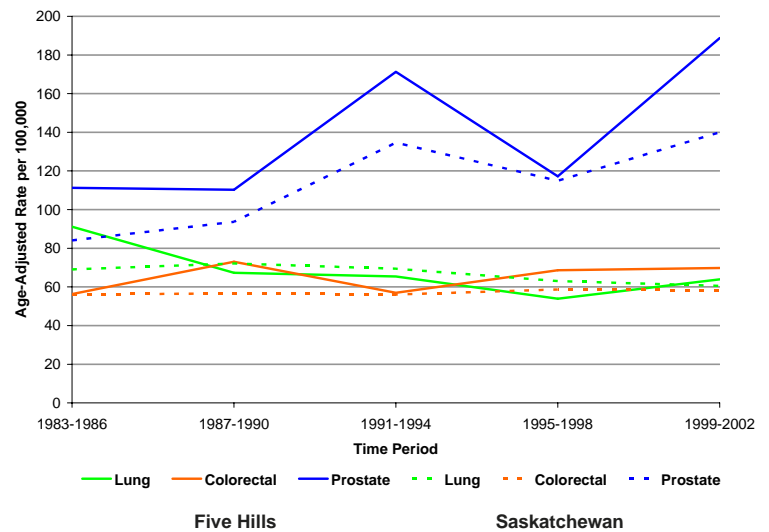


Figure 33: Trends in Incidence Rates for Common Cancer Sites in Males



The most common invasive cancer among males was prostate (322 cases), accounting for 34.9% of all cancers.

Figure 34 shows the age-adjusted incidence for females. Breast cancer rates in Five Hills increased from 76.5 per 100,000 to 105.4 per 100,000 over the 20-year period. This was very similar to the trend provincially. Colorectal cancer rates were stable for the 20-year period in Five Hills, similar to the provincial rates. Lung cancer rates increased among Five Hills females, with the rate more than doubling from 1983-1986 to 1999-2002. This increasing trend was also similar to provincial trends.

Cancer Mortality

Figure 35 shows the number of cancer deaths in Five Hills among males and females for the period 1998 to 2002. There were 448 cancer deaths in males and 344 deaths in females.

The most common cancer death among females was lung (86), accounting for 25.5% of cancer deaths, followed by breast (43), which caused 12.6% of cancer deaths. Primary unknown (35), colorectal cancer (32), and non-Hodgkin's lymphoma (21) were the remaining sites in the top five.

The most common cancer death among males was lung (113), accounting for 25.2% of all cancer deaths. Prostate (86), colorectal (44), primary unknown (32), and cancer of the bladder (21) round out the top five sites.

Figure 34: Trends in Incidence Rates for Common Cancer Sites in Females

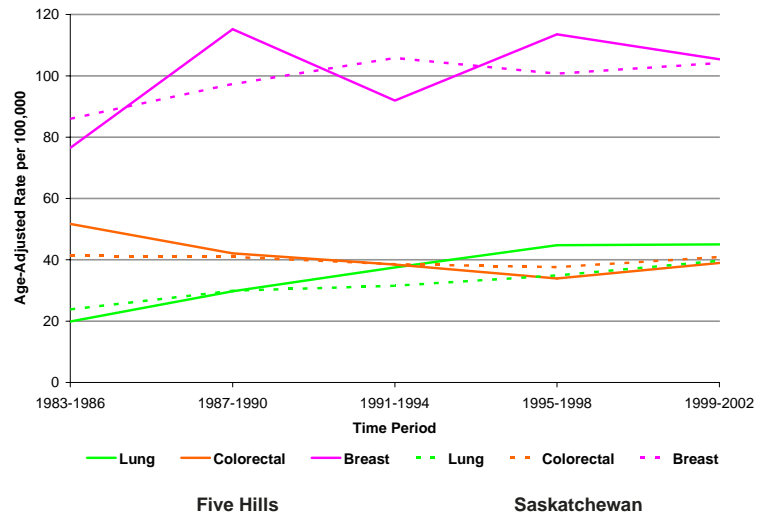
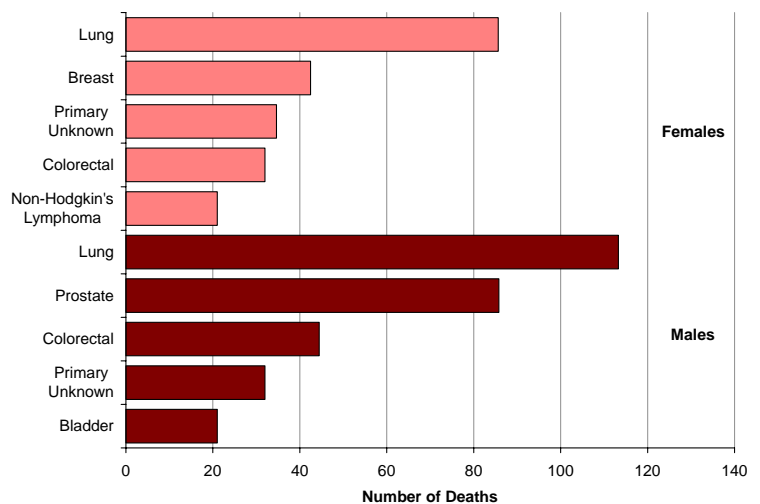


Figure 35: Top Five Cancer Causes of Death in Five Hills by Sex, 1998-2002



Mortality Rates

Figure 36 shows the age-adjusted mortality rates of the top three invasive cancers in males. Solid lines are the mortality rates for Five Hills and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer decreased from 77.6 per 100,000 to 59.6 per 100,000 over the 20-year period. This was similar to the provincial trend. Prostate cancer mortality rates have been following the provincial trend over time. Colorectal cancer mortality rates in Five Hills have been stable from 1983 to 2002, which was also similar to the pattern observed provincially.

Figure 37 shows the age-adjusted mortality rates for females. Lung cancer mortality rates in Five Hills more than doubled from 16.8 per 100,000 to 37.3 per 100,000 over the 20-year period. Breast cancer mortality rates have decreased since 1991-1994 in Five Hills, similar to the provincial rates. Mortality from colorectal cancer in females decreased more than the provincial trend. In 1983-86, the colorectal cancer mortality rate in Five Hills was about 50% higher than the provincial rate, but decreased over time, and in 1999-2002 was about 33% lower than the provincial rate.

Figure 36: Trends in Mortality Rates for Common Cancer Sites in Males

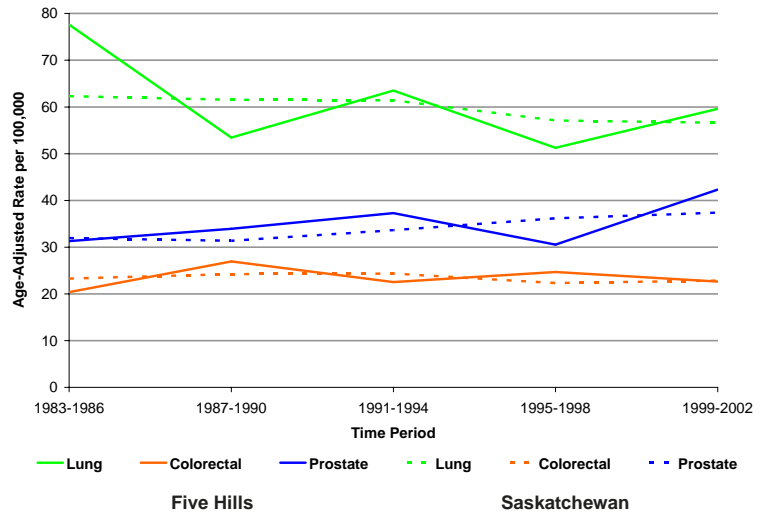
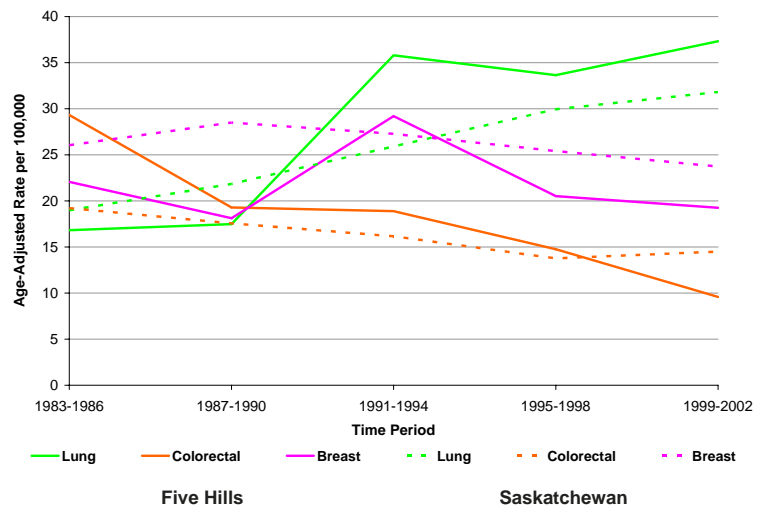


Figure 37: Trends in Mortality Rates for Common Cancer Sites in Females



Mortality from colorectal cancer in females decreased more than the provincial trend.

RHA: CYPRESS

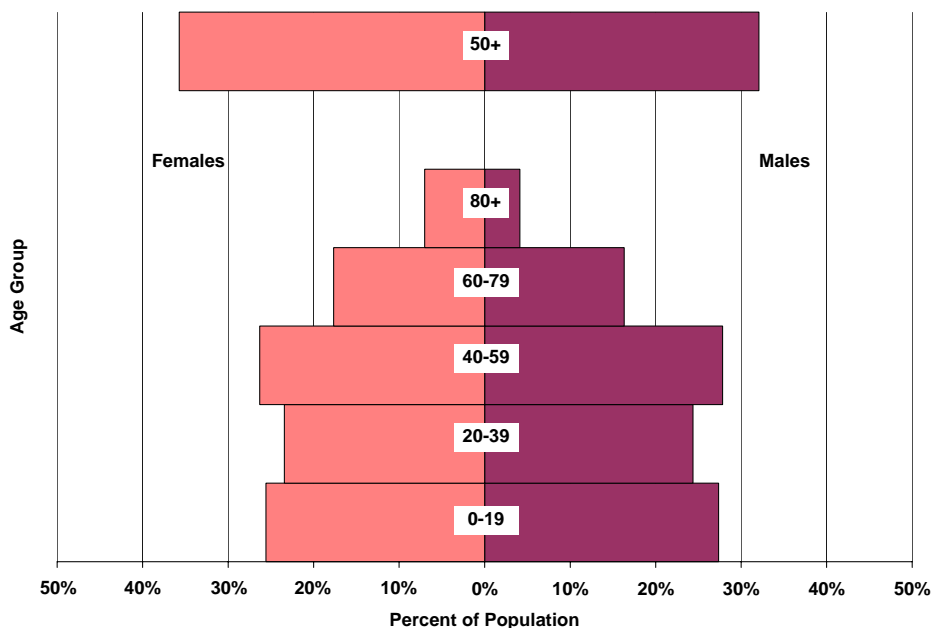
Situated in the southwest corner of the province, the Cypress RHA serves communities such as Swift Current, Maple Creek, and Shaunavon.

The total population of Cypress in 2002 was 45,287. The population pyramid in Figure 38 shows the distribution of the population of Cypress by age group and sex. The population distribution is similar between males and females.

In Cypress, 35.7% of females and 32% of males were over age 50 in 2002. Overall, 33.9% of the population was over age 50 compared to 29.2% for the province (30.9% in females and 27.6% in males).



Figure 38: Population of Cypress by Age and Sex, 2002



Cancer Incidence

Table 5 shows the cancers diagnosed in residents of Cypress for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one year. In Cypress, there were 1,151 invasive cancers

diagnosed from 1998-2002. Prostate cancer was, by far, the most common, with 274 cases, followed by breast cancer in females with 163 cases. In males and females, lung and colorectal cancers were the third (143) and fourth (130) most common, respectively.

Table 5: Cancer in Cypress Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	0	0	*	11	6	19	40
Bone & Connective Tissue	0	*	*	*	0	0	6
Brain & Central Nervous System	*	5	5	*	*	*	16
Breast	31	0	59	0	73	*	165
Cervix Invasive	*	0	*	0	*	0	6
Colon	*	*	14	13	24	28	82
Digestive Tract	0	0	*	0	0	*	*
Esophagus	0	0	0	*	*	*	9
Female Genital Organs	0	0	*	0	*	0	*
Gall Bladder & Biliary Tract	0	*	0	0	*	*	6
Head & Neck	0	0	*	*	0	*	*
Hodgkin's Disease	*	*	*	*	0	0	7
Kidney	0	*	*	8	*	*	19
Larynx	0	0	*	5	*	*	12
Leukemia	*	*	*	11	11	10	38.5
Lip	0	0	0	0	*	6	8
Liver	0	*	0	*	0	*	8
Non-Hodgkin's Lymphoma	*	*	11	5	6	13	41
Male Genital Organs	0	5	0	*	0	*	7
Melanoma of Skin	6	*	*	*	5	*	22
Multiple Myeloma	*	0	*	*	5	*	16
Oral Cavity	*	0	*	*	*	*	11
Other Primaries	*	0	*	*	11	11	33
Other Urinary Tract	0	0	0	*	0	*	*
Ovary	*	0	5	0	6	0	15
Pancreas	0	0	*	*	*	*	11
Primary Unknown	*	0	8	6	*	10	29
Prostate	0	*	0	95.5	0	174.5	274.5
Rectum	*	*	7	9	12	15	48
Respiratory System	0	0	*	*	*	0	*
Stomach	0	*	*	12	*	7	25
Thyroid	5	0	*	*	*	*	12
Trachea, Bronchus & Lung	*	*	30	29	33	47	143
Uterus	*	0	12	0	13	0	26
Total	72	36.5	195.5	234.5	237	375.5	1151
Cervix In Situ	19	0	*	0	0	0	22
Non-Melanoma Skin	20	23	70	100	200	255	668
Other In Situ	6	0	13	15	14	20	68

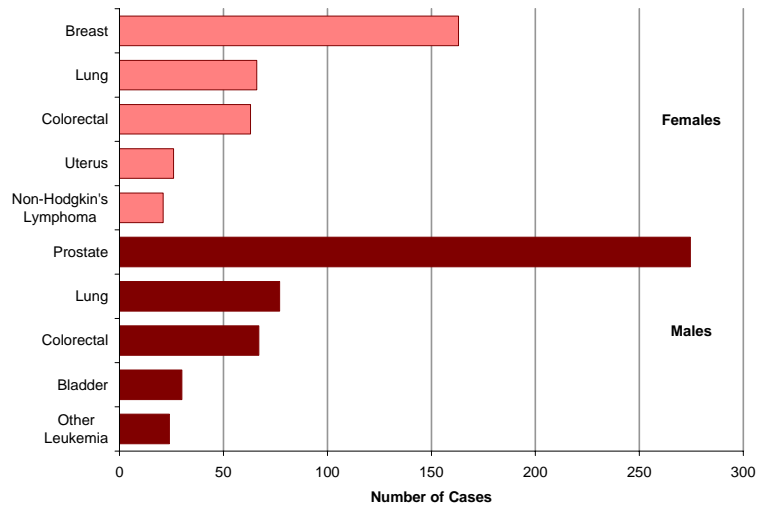


Figure 39 shows the top five invasive cancer sites by sex for Cypress. The most common in females was breast (163 cases), accounting for 32.8% of all cancers. Lung (66) and colorectal cancers (63) were next most common, together accounting for 26% of cases. These were followed by cancer of the uterus (26) and non-Hodgkin's lymphoma (21).

The most common invasive cancer among males was prostate (275 cases), accounting for a large 43% of all cancers. Together, lung (77) and colorectal cancers (67) accounted for 22.6% of cases. These were followed by bladder cancer and leukemia, with 30 and 24 cases, respectively.

Figure 40 shows the age-adjusted incidence rates of the top three invasive cancers for males. Solid lines are the incidence rates for Cypress and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Cypress doubled from 91.3 per 100,000 to 182.2 per 100,000 over the 20-year period. This increase has been greater than the provincial increase. Colorectal and lung cancer rates were lower than provincial rates, which were stable over time. Lung cancer rates in Cypress declined, consistent with the pattern observed for the whole province.

Figure 39: Top Five Invasive Cancer Sites in Cypress by Sex, 1998-2002



The most common invasive cancer among males was prostate (275 cases), accounting for a large 43% of all cancers.

Figure 40: Trends in Incidence Rates for Common Cancer Sites in Males

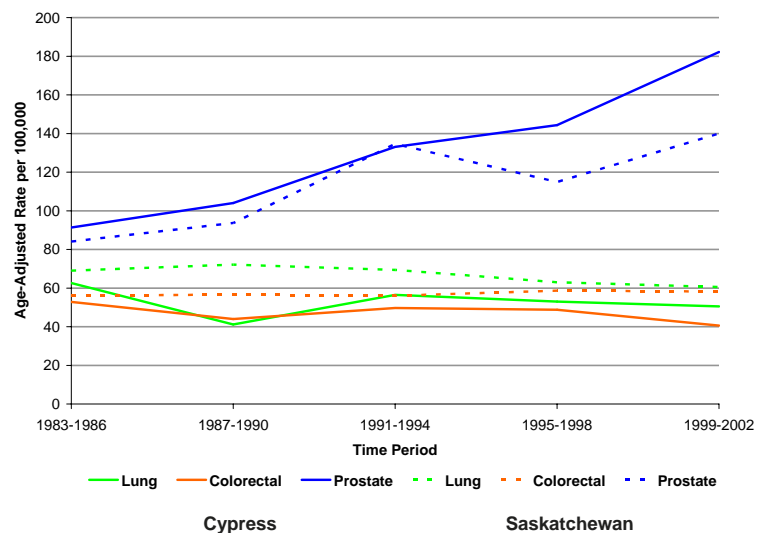


Figure 41 shows the age-adjusted incidence for females. Breast cancer rates in Cypress gradually increased from 91.7 per 100,000 to 101.9 per 100,000 over the 20-year period. This was almost identical to the trend for the province. Colorectal cancer rates were stable for the 20-year period in Cypress, similar to the province. Lung cancer rates increased among Cypress females, with the rate more than doubling from 1983-1986 to 1999-2002. This was also similar to the provincial trend.

Cancer Mortality

Figure 42 shows the number of cancer deaths in Cypress among males and females for the period 1998 to 2002. There were 312 cancer deaths in males and 244 deaths in females.

The most common cancer death among females was lung (62), accounting for 25.4% of cancer deaths. This was followed by breast (40), which caused 16.4% of all cancer deaths. Colorectal cancer (38), primary unknown (16), and cancer of the ovary (12) were the remaining sites in the top five.

The most common cancer death among males was lung (79), accounting for 25.3% of cancer deaths in Cypress. Prostate (60), colorectal (45), primary unknown (24), and cancer of the bladder (12) round out the top five sites.

Figure 41: Trends in Incidence Rates for Common Cancer Sites in Females

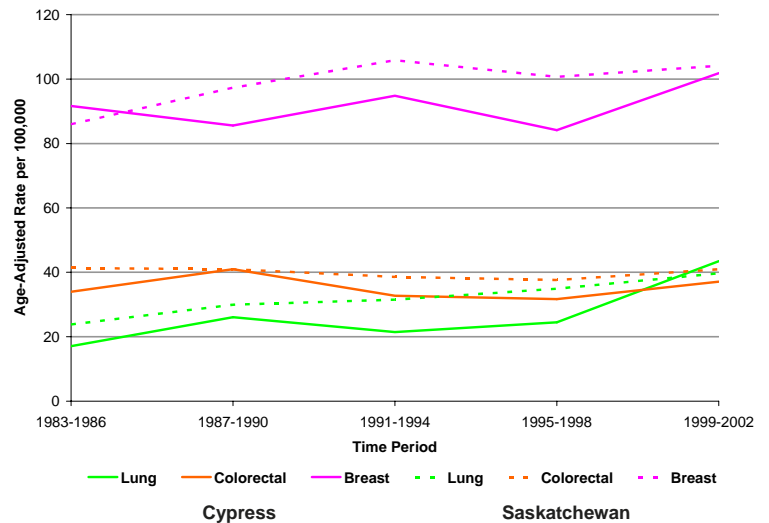
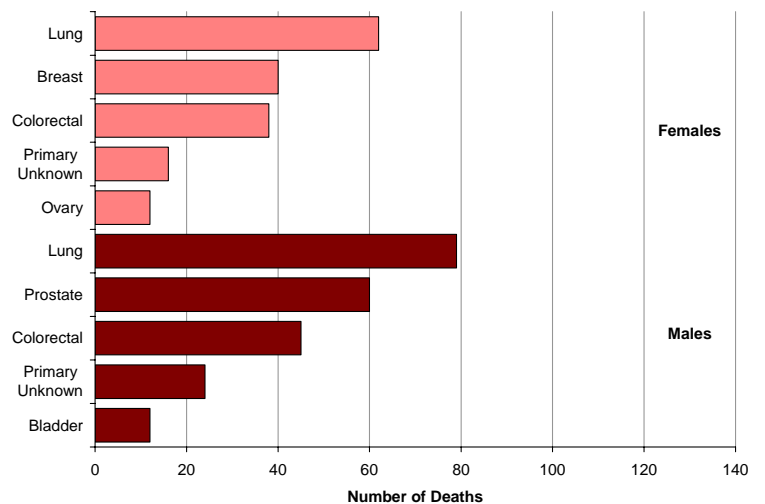


Figure 42: Top Five Cancer Causes of Death in Cypress by Sex, 1998-2002



Mortality Rates

Figure 43 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for Cypress and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer decreased from 59.1 per 100,000 in 1983-1986 to 51.6 per 100,000 in 1999-2002. Lung cancer mortality was lower in Cypress compared to provincial rates. Prostate cancer mortality rates have been following the provincial trend over time. Colorectal cancer mortality rates in Cypress increased, while the provincial rates were stable.

Figure 44 shows the age-adjusted mortality rates for females. Lung cancer mortality rates in Cypress doubled from 18.1 per 100,000 to 36.6 per 100,000 over the 20-year period. This was very similar to the provincial trend. Breast cancer mortality rates have been declining since 1987-1990 in Cypress, similar to provincial rates. Colorectal cancer mortality rates in Cypress females seem to be decreasing, as they are provincially.

Figure 43: Trends in Mortality Rates for Common Cancer Sites in Males

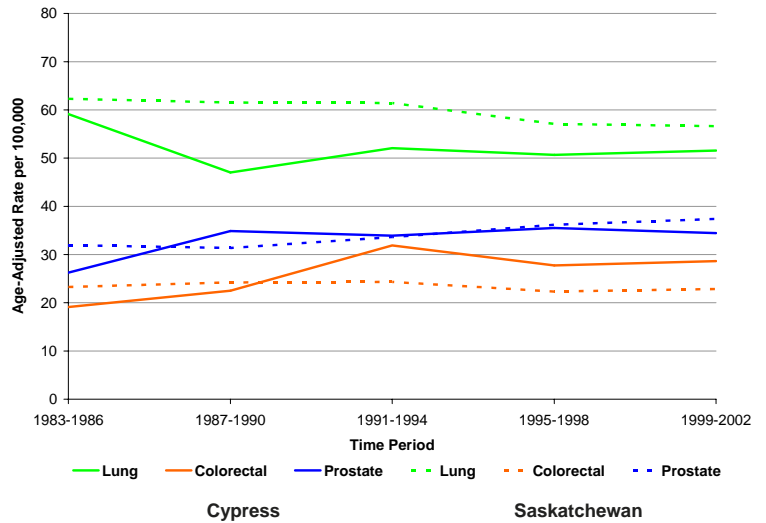
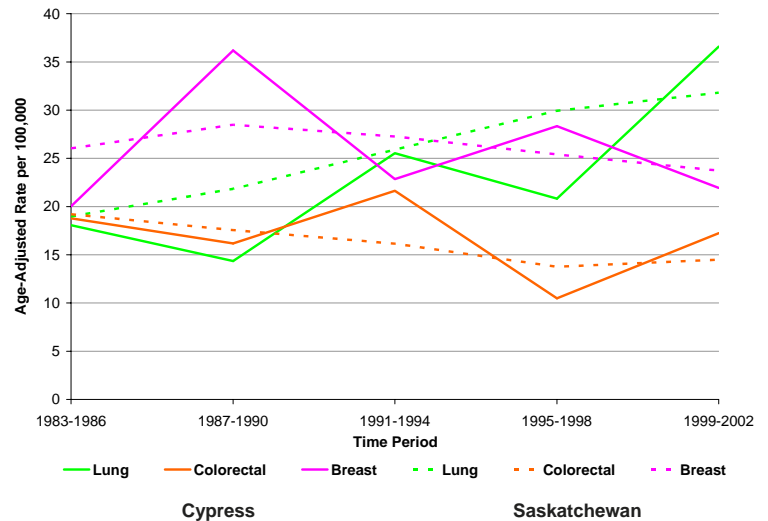


Figure 44: Trends in Mortality Rates for Common Cancer Sites in Females



Lung cancer mortality [in males] was lower in Cypress compared to provincial rates.



RHA: REGINA QU'APPELLE

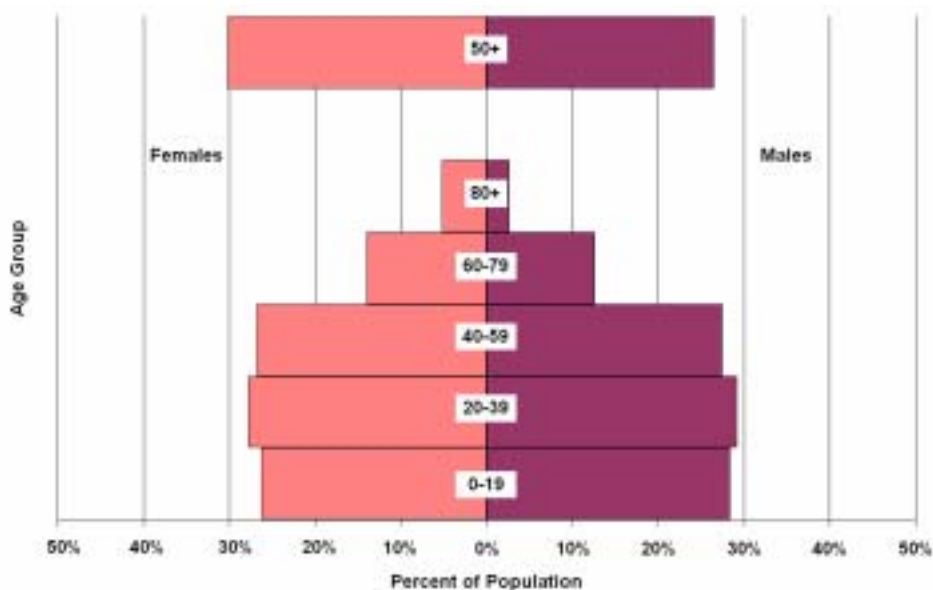
The Regina Qu'Appelle RHA serves the provincial capital of Regina and communities such as Moosomin and Fort Qu'Appelle.

The total population of Regina Qu'Appelle in 2002 was 246,478. The population pyramid in Figure 45 shows the distribution of the population of Regina Qu'Appelle by age group and sex.

In Regina Qu'Appelle, 30.2% of females and 26.4% of males were over age 50 in 2002. Overall, 28.3% of the population was over age 50, compared to 29.2% for the province (30.9% in females and 27.6% in males).



Figure 45: Population of Regina Qu'Appelle by Age and Sex, 2002



Cancer Incidence

Table 6 shows the cancers diagnosed in residents of Regina Qu'Appelle for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one

year. In Regina Qu'Appelle, there were 5,463 invasive cancers diagnosed over the five-year period, second only to the Saskatoon RHA. Prostate cancer was most common with 863 cases, followed by breast cancer in females with 790 cases. In males and females, lung and colorectal cancers

Table 6: Cancer in Regina Qu'Appelle Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	5	5	11	45.6	26	74.9	167.5
Bone & Connective Tissue	9	14.3	*	7	*	6	44.5
Brain & Central Nervous System	13	19	15	12.4	5	13	77.4
Breast	152.8	0	335.1	*	301.9	*	792.7
Cervix Invasive	28.5	0	15.4	0	8.8	0	52.6
Colon	10	22.3	70.5	87.4	152.1	115.1	457.1
Digestive Tract	*	0	*	*	9	11.3	27
Esophagus	*	*	8	13.4	9	20	54.4
Female Genital Organs	*	0	5	0	12.2	0	19.2
Gall Bladder & Biliary Tract	0	*	9	7	18.4	6.7	42
Head & Neck	*	6	5.9	16.2	5	10	45.1
Hodgkin's Disease	10	10	*	5	7	*	36.9
Kidney	5	11	15	45.3	34	34.1	144.3
Larynx	0	0	6	15.6	*	10.6	34.2
Leukemia	14	26.5	21.5	54.9	39.4	46.7	202.9
Lip	*	*	0	*	5	16.3	31.1
Liver	0	*	*	12.3	7	6.5	30
Non-Hodgkin's Lymphoma	11	28.9	44	44.5	47.3	51.4	227
Male Genital Organs	0	30	0	5	0	7	42
Melanoma of Skin	28	13.9	24	38	21	25.6	150.5
Multiple Myeloma	*	7	5.2	9	20.2	21.4	65.8
Oral Cavity	0	*	7.5	16.2	13	7	46.7
Other Endocrine Glands	0	*	0	*	0	0	*
Other Primaries	10	14.4	28.2	43.4	65.7	44.9	206.5
Other Urinary Tract	*	*	0	*	*	13	21.4
Ovary	11	0	31	0	27	0	69
Pancreas	*	*	14	25	35.7	30.5	109.5
Primary Unknown	7	6	19.5	19.9	30.4	23	105.7
Prostate	0	11	0	352.9	0	499.8	863.7
Rectum	12	10.7	35.9	49	41.2	59.8	208.5
Respiratory System	*	*	*	6	*	7	20
Stomach	5	*	16	30.2	34	39.3	127.5
Thyroid	32.9	8.2	17.2	7	8.7	*	74.9
Trachea, Bronchus & Lung	12.9	18	160	170.8	156.8	234.3	752.6
Uterus	11.5	0	62.1	0	37.5	0	111.1
Total	403.9	285.2	996.7	1151	1187.9	1438.5	5462.9
Cervix In Situ	656.7	0	27	0	*	0	686.7
Non-Melanoma Skin	166.2	175	401.4	689.2	747.9	1090.7	3270.2
Other In Situ	36	24	106.7	99	166.3	162.9	594.8



were the third (752) and fourth (665) most common, respectively.

Figure 46 shows the top five invasive cancer sites by sex for Regina Qu'Appelle. The most common among females was breast (790 cases), accounting for 30.8% of all cancers. Lung (330) and colorectal cancers (322) were next most common, together accounting for 25.4% of cases. These were followed by cancer of the uterus (111) and non-Hodgkin's lymphoma (102).

The most common invasive cancer among males was prostate (864 cases), accounting for 30.4% of all cancers. Together, lung (423) and colorectal cancers (344) accounted for 27% of cases. These were followed by leukemia and bladder cancer with 128 and 125 cases, respectively.

Figure 47 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Regina Qu'Appelle and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Regina Qu'Appelle increased from 80.7 per 100,000 to 143.6 per 100,000 over the 20-year period. This pattern was identical to the provincial trend. Colorectal cancer rates in Regina Qu'Appelle decreased slightly over the 20-year period. The rates for the province remained very stable over the same time period. Lung cancer rates in Regina Qu'Appelle have declined since 1987-1990, but were higher than provincial rates.

Figure 46: Top Five Invasive Cancer Sites in Regina Qu'Appelle by Sex, 1998-2002

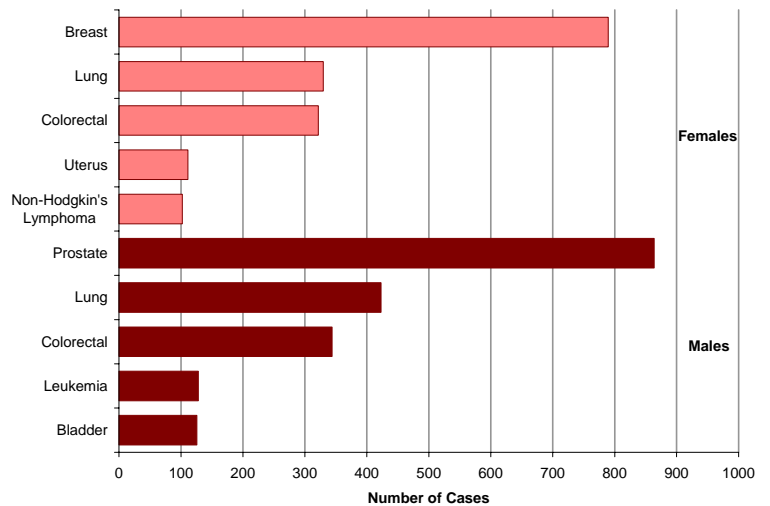


Figure 47: Trends in Incidence Rates for Common Cancer Sites in Males

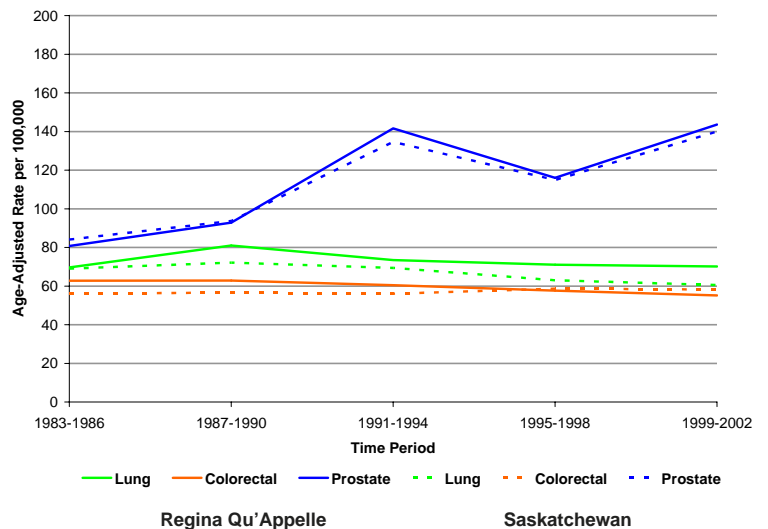


Figure 48 shows the age-adjusted incidence for females. Breast cancer incidence rates in Regina Qu'Appelle have gradually increased from 88.1 per 100,000 in 1983-1986 to 105.5 per 100,000 in 1999-2002. This was similar to the provincial trend. Colorectal cancer rates remained stable over the 20-year period for Regina Qu'Appelle, while lung cancer rates increased from 1983-1986 to 1999-2002. These trends are similar to provincial trends as well.

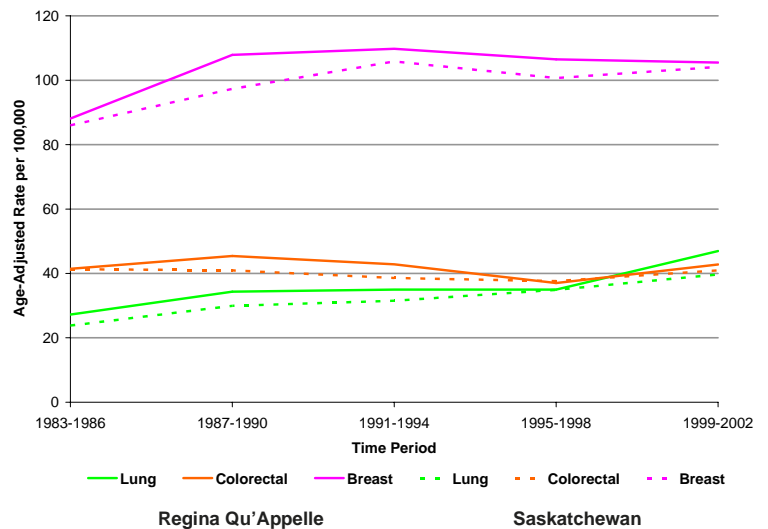
Cancer Mortality

Figure 49 shows the number of cancer deaths in Regina Qu'Appelle among males and females for the period 1998 to 2002. There were 1,338 cancer deaths in males and 1,146 deaths in females.

The most common cancer death among females was lung (256), accounting for 22.4% of cancer deaths. This was followed by breast (201), which caused 17.6% of all cancer deaths. Colorectal cancer (108), primary unknown (69), and cancer of the pancreas (67) were the remaining sites in the top five.

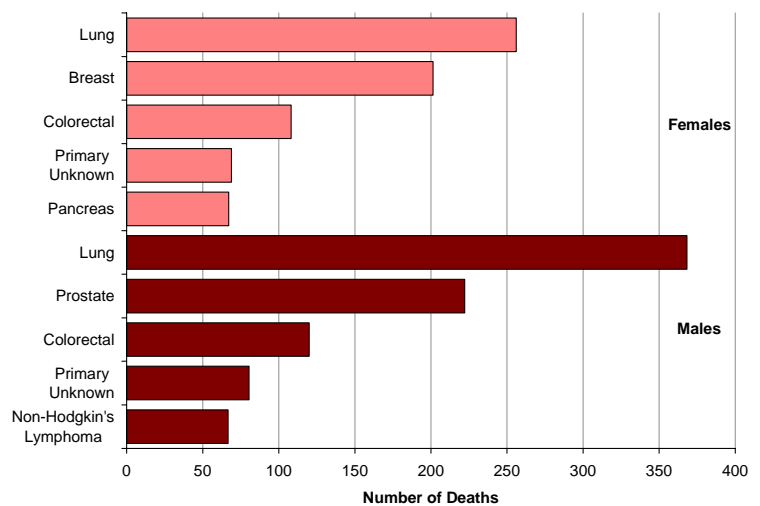
The most common cancer death among males was lung (368), accounting for 27.5% of all cancer deaths in Regina Qu'Appelle. Prostate (222), colorectal (120), primary unknown (80), and non-Hodgkin's lymphoma (67) round out the top five sites.

Figure 48: Trends in Incidence Rates for Common Cancer Sites in Females



There were 1,338 cancer deaths in males and 1,146 deaths in females.

Figure 49: Top Five Cancer Causes of Death in Regina Qu'Appelle by Sex, 1998-2002



Mortality Rates

Figure 50 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for Regina Qu'Appelle and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer remained quite stable, ranging from 63.2 per 100,000 to 62.2 per 100,000 over the 20-year period. The provincial rates, however, have decreased over that time. Prostate cancer mortality rates increased very slightly in Regina Qu'Appelle, which was similar to the provincial trend. Colorectal cancer mortality rates in Regina Qu'Appelle were stable and may be declining since 1991-1994. The same provincial rates have been stable over time.

Figure 51 shows age-adjusted mortality rates in females. Lung cancer mortality rates in Regina Qu'Appelle increased from 20.9 per 100,000 to 33.6 per 100,000 over the 20-year period. Rates were higher in Regina Qu'Appelle than in the province. Breast cancer mortality rates remained fairly stable with a slightly decreasing trend over the 20-year period for Regina Qu'Appelle. Provincially, the rates decreased from 1983-1986 to 1999-2002. Colorectal cancer mortality rates decreased among Regina Qu'Appelle females, which was very similar to the provincial trend.

Figure 50: Trends in Mortality Rates for Common Cancer Sites in Males

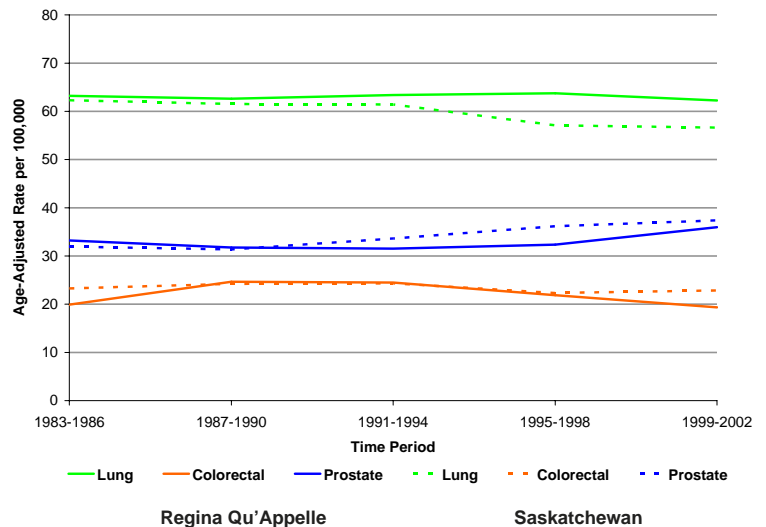
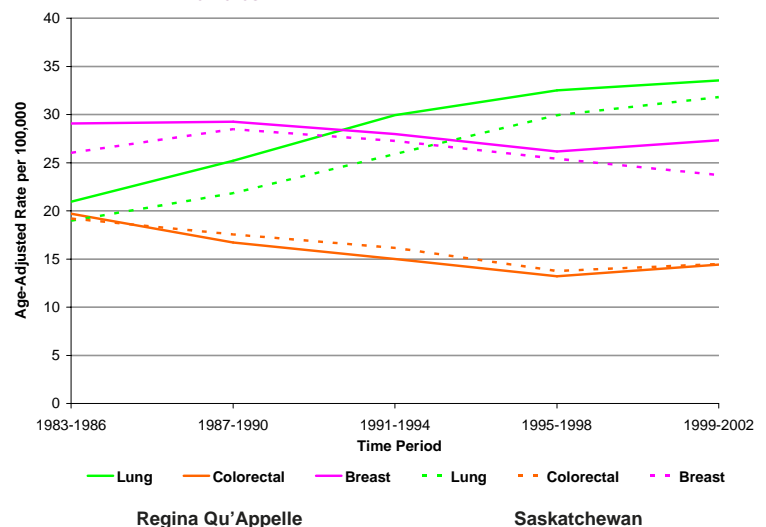


Figure 51: Trends in Mortality Rates for Common Cancer Sites in Females



RHA: SUNRISE

Situated in the southeast-central part of the province, the Sunrise RHA serves communities such as Yorkton and Melville.

The total population of Sunrise in 2002 was 59,536. The population pyramid in Figure 52 shows the distribution of the population of Sunrise by age group and sex.

In Sunrise, 41.1% of females and 37.1% of males were over age 50 in 2002. Overall, 39.1% of the population was over age 50, much higher than the 29.2% for the province (30.9% in females and 27.6% in males).

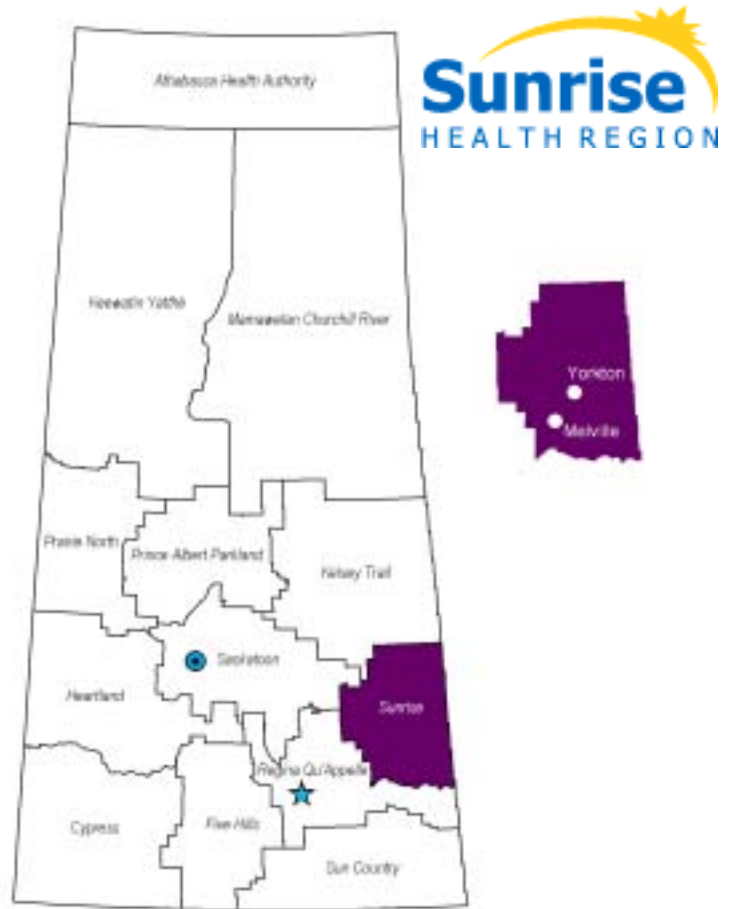
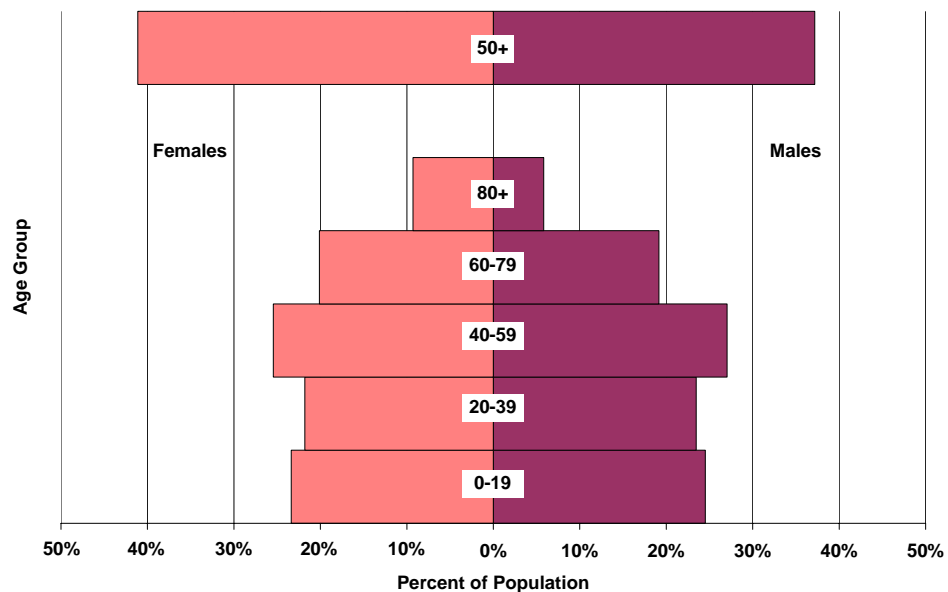


Figure 52: Population of Sunrise by Age and Sex, 2002



Cancer Incidence

Table 7 shows the cancers diagnosed in residents of Sunrise for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would

result from reporting on only one year. In Sunrise, there were 1,920 invasive cancers diagnosed over the five-year period, ranking third in the province. Prostate cancer was, by far, the most common with 431 cases. In males and females, colorectal

Table 7: Cancer in Sunrise Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	*	*	6	14	11	31.7	65.7
Bone & Connective Tissue	0	*	*	*	*	*	9
Brain & Central Nervous System	*	5	*	6	*	7	27
Breast	40.6	0	76.5	0	97.3	*	216.3
Cervix Invasive	11	0	*	0	*	0	14.7
Colon	6	6	23	24	68.3	53.2	180.4
Digestive Tract	*	0	*	*	*	*	10
Esophagus	0	0	*	10	*	9	24
Female Genital Organs	*	0	*	0	5	0	7
Gall Bladder & Biliary Tract	0	0	*	*	8	*	12
Head & Neck	0	*	*	*	*	*	11
Hodgkin's Disease	*	*	0	*	0	0	*
Kidney	*	*	9	17.6	21	16	66.6
Larynx	0	*	0	*	0	7	13
Leukemia	*	*	12.7	10	6	23	57.7
Lip	0	*	*	*	0	7	10.7
Liver	0	0	0	*	0	*	*
Non-Hodgkin's Lymphoma	*	7	10	13	19	19	72
Male Genital Organs	0	5	0	*	0	*	9
Melanoma of Skin	*	*	9	5	11	6	38
Multiple Myeloma	0	0	*	*	7	5	18
Oral Cavity	0	0	*	*	*	*	10
Other Primaries	*	0	9	10.7	23	14	59.7
Other Urinary Tract	0	0	0	0	*	*	7
Ovary	*	0	7	0	10	0	19.6
Pancreas	0	*	5	10	14.7	15.6	46.2
Primary Unknown	*	*	*	*	10	11	32
Prostate	0	*	0	146	0	283.3	431.2
Rectum	*	*	8	13	21	35.6	81.8
Respiratory System	*	*	*	*	*	*	11.6
Stomach	0	0	6	*	10	23.6	42.6
Thyroid	8	0	9	*	*	*	25
Trachea, Bronchus & Lung	0	*	45.3	53.7	48.3	81.8	230.9
Uterus	5	0	23.7	0	26	0	54.7
Total	97.6	50.9	290.6	365.7	440.4	675.4	1920.4
Cervix In Situ	77	0	*	0	0	0	81
Non-Melanoma Skin	26	27	78	101.7	227.7	292.8	753
Other In Situ	7	7	27.6	21.6	49.6	59.1	171.7

cancer (262 cases) was second and lung cancer was third with 231 cases. Female breast cancer was fourth most common with 214 cases.

Figure 53 shows the top five invasive cancer sites by sex for Sunrise. The most common among females was breast (214 cases), accounting for 26.2% of all cancers diagnosed. Colorectal (127) and lung cancers (93) were next most common, together accounting for 27% of cases. These were followed by cancer of the uterus (55) and non-Hodgkin's lymphoma (33).

The most common invasive cancer among males was prostate (431 cases), accounting for a large 39.8% of all cancers. Together, lung (137) and colorectal cancers (135) accounted for 25.1% of cases. These were followed by bladder cancer and non-Hodgkin's lymphoma with 48 and 39 cases, respectively.

Figure 54 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Sunrise and dashed lines are the provincial rates. The age-adjusted prostate cancer rates in Sunrise have increased markedly from 73.4 per 100,000 to 193.5 per 100,000 over the 20-year period. The increase in 1999-2002 was much greater than the increase that occurred provincially. Colorectal cancer rates remained fairly stable from 1983 to 1998, then increased in the last four-year period. Lung cancer rates in Sunrise declined and are lower than provincial rates.

Figure 53: Top Five Invasive Cancer Sites in Sunrise by Sex, 1998-2002

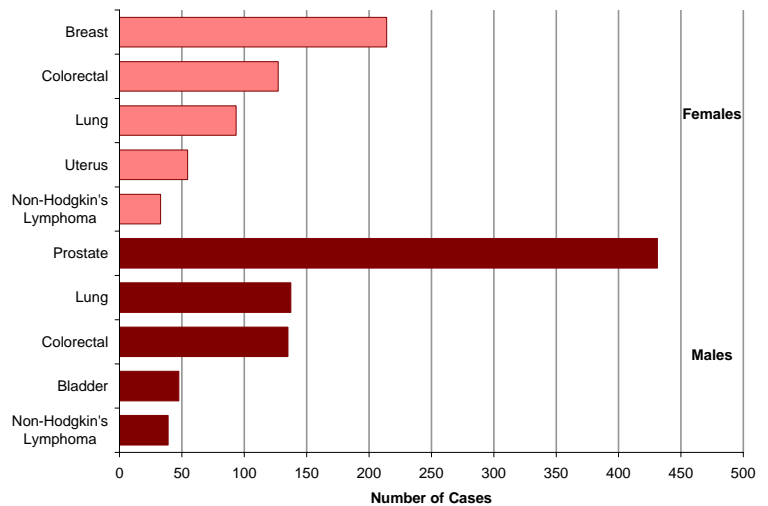
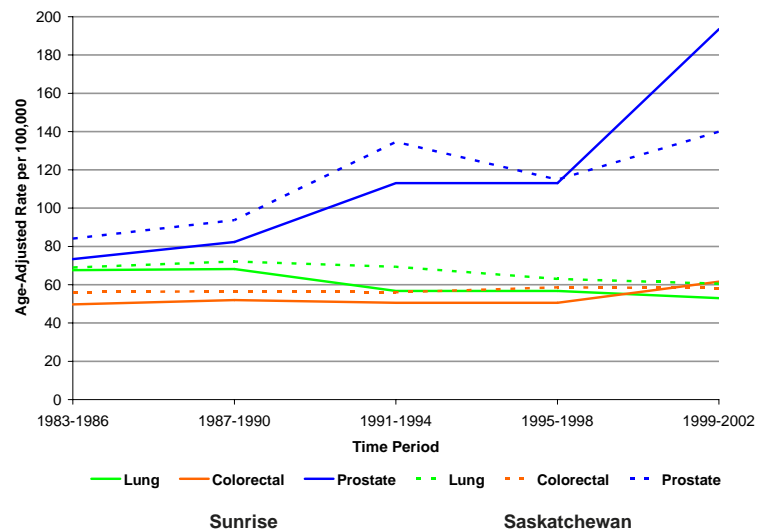


Figure 54: Trends in Incidence Rates for Common Cancer Sites in Males



The age-adjusted prostate cancer rates in Sunrise have increased markedly from 73.4 per 100,000 to 193.5 per 100,000 over the 20-year period.



Figure 55 shows the female age-adjusted incidence rates. Breast cancer incidence rates in Sunrise have gradually increased from 79.7 per 100,000 in 1983-1986 to 94.1 per 100,000 in 1999-2002. Breast cancer rates in Sunrise were lower than the provincial rates. Colorectal cancer rates were similar to provincial rates over the 20-year period. Lung cancer rates among Sunrise females almost doubled from 1983-1986 to 1999-2002, similar to the provincial increase.

Cancer Mortality

Figure 56 shows the number of cancer deaths in Sunrise among males and females for the period 1998 to 2002. There were 539 cancer deaths in males and 368 deaths in females.

The most common cancer death among females was lung (68), accounting for 18.5% of cancer deaths. This was followed by colorectal (54), which caused 14.6% of all cancer deaths. Breast cancer (46), primary unknown (29), and cancer of the pancreas (25) were the remaining sites in the top five.

The most common cancer death among males was lung (123), accounting for 22.8% of all cancer deaths in Sunrise. Prostate (106), colorectal (61), cancer of the pancreas (30), and primary unknown (29) round out the top five sites.

Figure 55: Trends in Incidence Rates for Common Cancer Sites in Females

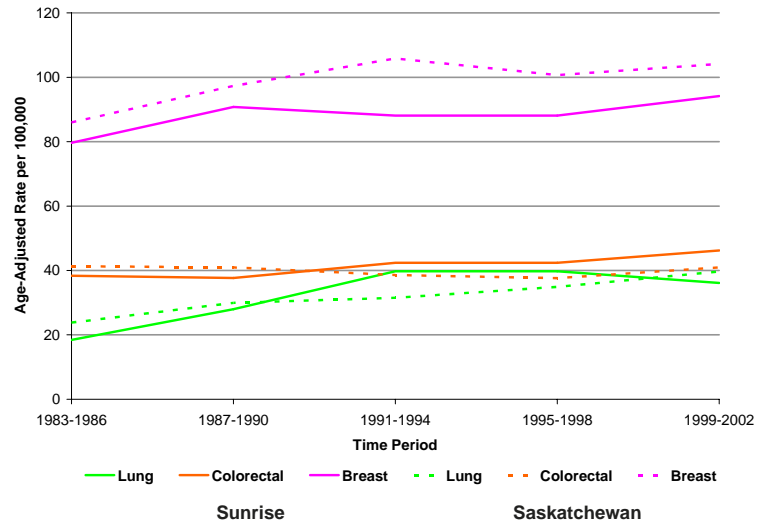
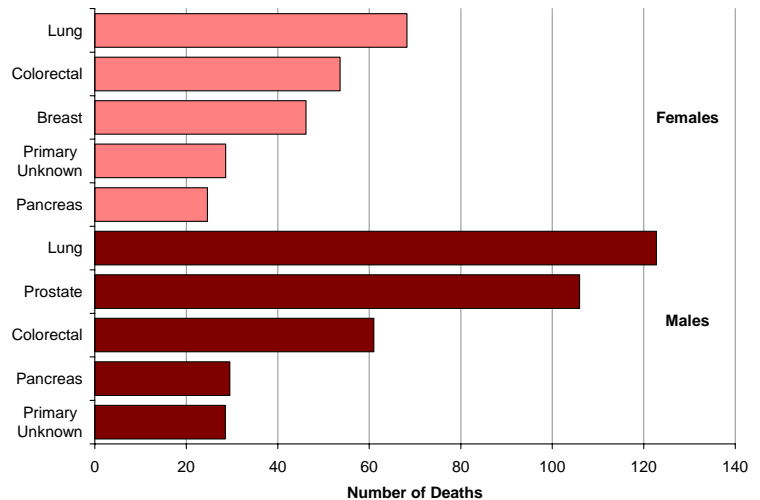


Figure 56: Top Five Cancer Causes of Death in Sunrise by Sex, 1998-2002



Mortality Rates

Figure 57 shows the age-adjusted mortality rates of the top three invasive cancers in males for the 20-year period. Solid lines are the mortality rates for Sunrise and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer decreased from 62.7 per 100,000 to 49.3 per 100,000 over the 20-year period. This decrease was greater than the provincial decrease. Prostate cancer mortality rates rose over the past four time periods, similar to the provincial trends. Colorectal cancer mortality rates in Sunrise were stable and this was similar to the provincial trend.

Figure 58 shows the age-adjusted mortality rates in females. Lung cancer mortality rates in Sunrise increased over the 20-year period from 18 per 100,000 to 27.7 per 100,000, but were lower than provincial rates. Breast cancer mortality rates decreased in Sunrise in the 1999-2002 period and were much lower than the provincial rate. Colorectal cancer mortality rates were fairly stable among Sunrise females, while the provincial trend had decreased.

Figure 57: Trends in Mortality Rates for Common Cancer Sites in Males

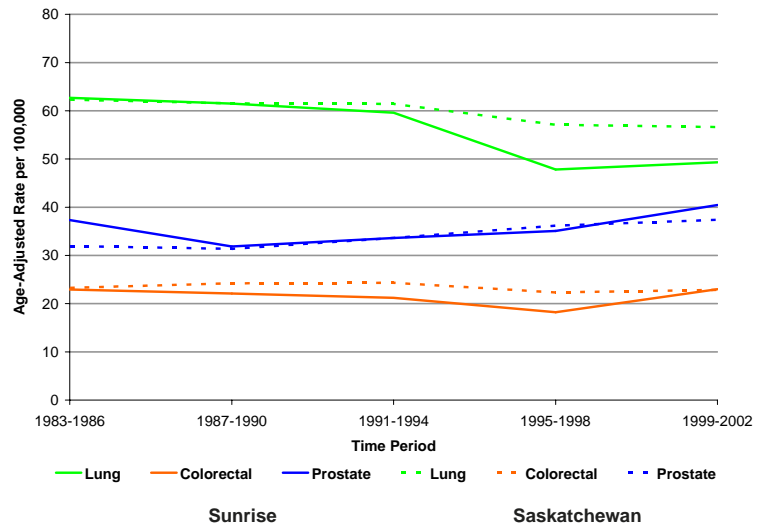
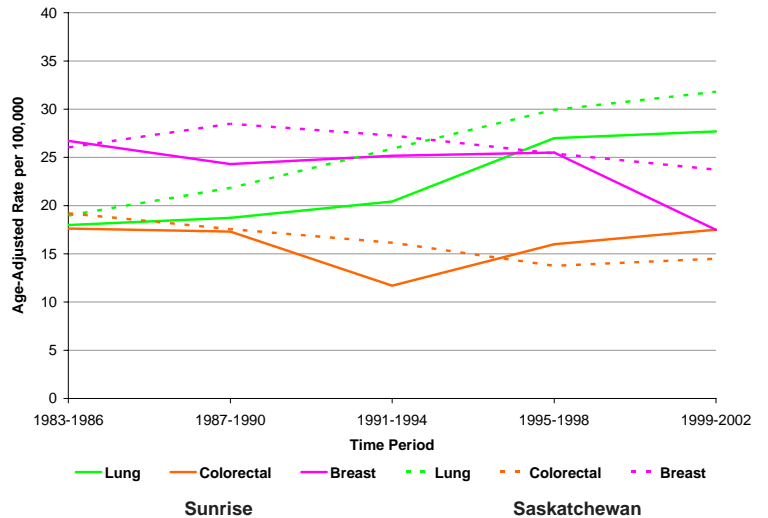


Figure 58: Trends in Mortality Rates for Common Cancer Sites in Females



The age-adjusted mortality rate for lung cancer [in males] decreased from 62.7 per 100,000 to 49.3 per 100,000 over the 20-year period.



RHA: SASKATOON

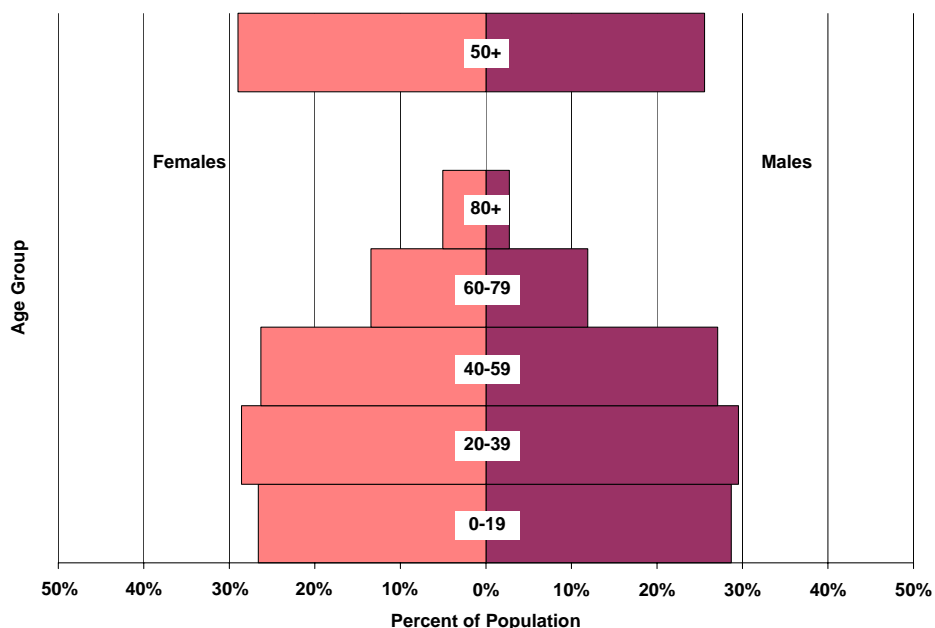
The Saskatoon RHA serves the province's largest city, Saskatoon, as well as communities such as Humboldt, Wadena, and Wynyard.

The total population of the Saskatoon RHA in 2002 was 287,437. The population pyramid in Figure 59 shows the distribution of the population of Saskatoon by age group and sex.

In Saskatoon, 29% of females and 25.6% of males were over age 50 in 2002, as shown by the top bar. Overall, 27.3% of the population was over 50. Saskatoon is slightly younger than the province, where 29.2% of the population was over age 50 in 2002 (30.9% in females and 27.6% in males).



Figure 59: Population of Saskatoon by Age and Sex, 2002



Cancer Incidence

Table 8 shows the cancers diagnosed in residents of Saskatoon RHA for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one

year. The Saskatoon RHA had 5,792 invasive cases over the five years, highest among all RHAs. This was the only region where female breast cancer was the leading cancer with 851 cases. Prostate cancer was second most common with 801 cases. In males and females, colorectal and lung

Table 8: Cancer in Saskatoon Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	*	11	30.7	68.9	47	120.3	281.8
Bone & Connective Tissue	9	14	9	9.5	9	11	61.5
Brain & Central Nervous System	13	23	17	15	10	10	88
Breast	179.5	*	373.4	*	298.2	5	860.1
Cervix Invasive	31.5	0	12	0	6	0	49.5
Colon	16	13.3	65.2	81.2	172.5	154.4	502.6
Digestive Tract	*	*	*	*	*	8.6	19.6
Esophagus	0	*	6	12	10	12	42
Female Genital Organs	7	0	8	0	8	0	23
Gall Bladder & Biliary Tract	0	*	*	5	13.7	8.5	30.2
Head & Neck	*	9	7.2	12	8	11	50.8
Hodgkin's Disease	20	15	0	*	*	*	39.2
Kidney	13	13	19	39	23	33.2	140.1
Larynx	0	*	5	20.2	5	17	51.2
Leukemia	19	23	20	49.9	41.9	52.9	206.5
Lip	0	0	*	6	*	14	25
Liver	*	*	*	5	*	7	20
Non-Hodgkin's Lymphoma	17	25.9	43.3	59.5	67	57.5	270.1
Male Genital Organs	0	55.7	0	6	0	*	64.7
Melanoma of Skin	35	17	26	33	27.7	26	164.6
Multiple Myeloma	0	*	12.9	13	17.5	12.5	56.8
Oral Cavity	*	5	10.5	8.2	13	6	45.7
Other Endocrine Glands	*	0	*	*	0	*	7
Other Primaries	8	6	28.9	25	37.5	36.1	141.3
Other Urinary Tract	0	*	*	0	6	*	15
Ovary	13.7	0	36	0	38.3	0	88
Pancreas	5.7	5	19	20	50.2	45	144.8
Primary Unknown	7	9	27.9	22.4	60	52.5	178.7
Prostate	0	15	0	357.5	0	428.5	801
Rectum	*	10.2	42.2	72	56.2	79.6	264
Respiratory System	*	*	6	10.2	*	10	32.2
Stomach	*	*	13	33	36	36.2	125.2
Thyroid	39.8	12	17	8	10	*	90.8
Trachea, Bronchus & Lung	15.2	15	127.3	167.5	131.2	209.7	665.7
Uterus	12	0	84	0	51	0	147
Total	486.9	321	1079.8	1166.2	1263.3	1475.1	5792.2
Cervix In Situ	444.7	0	21	0	6	0	471.7
Non-Melanoma Skin	170	168	343.1	557.8	766.1	956.8	2961.7
Other In Situ	62	18	125.6	58.9	133.3	123.7	521.3



cancer were the third (766 cases) and fourth (666 cases) most common, respectively.

Figure 60 shows the top five invasive cancer sites by sex for Saskatoon. The most common among females was breast (851 cases), accounting for 30.4% of all cancers diagnosed. Colorectal (356) and lung (273) were next most common, together accounting for 22.4% of cases. These were followed by cancer of the uterus (147) and non-Hodgkin's lymphoma (127).

The most common invasive cancer among males was prostate (801 cases), accounting for 27.3% of cancers. Together, colorectal (411) and lung cancers (392) accounted for 27.3% of cases. These were followed by bladder cancer and non-Hodgkin's lymphoma with 200 and 143 cases, respectively.

Figure 61 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Saskatoon and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Saskatoon increased from 86.5 per 100,000 to 120.2 per 100,000 over the 20-year period. This increase was less than the provincial increase. Colorectal cancer rates were very stable, as they were in the province. Lung cancer rates in Saskatoon declined since the 1987-1990 period, as they did in the province.

Figure 60: Top Five Invasive Cancer Sites in Saskatoon by Sex, 1998-2002

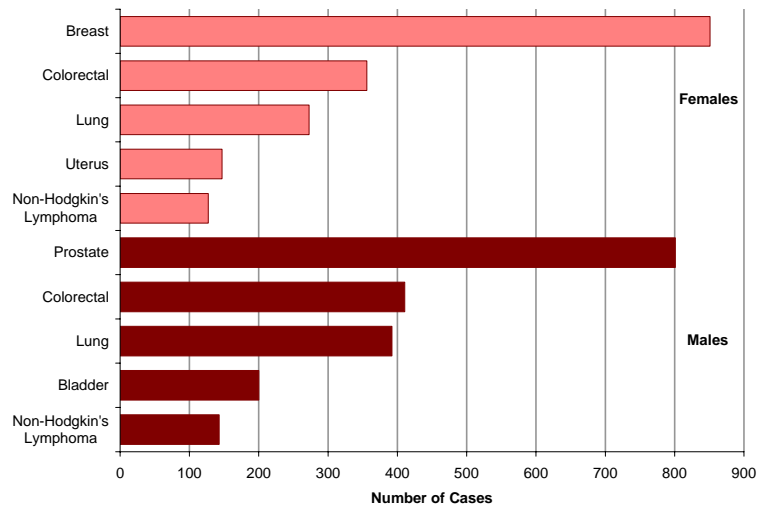
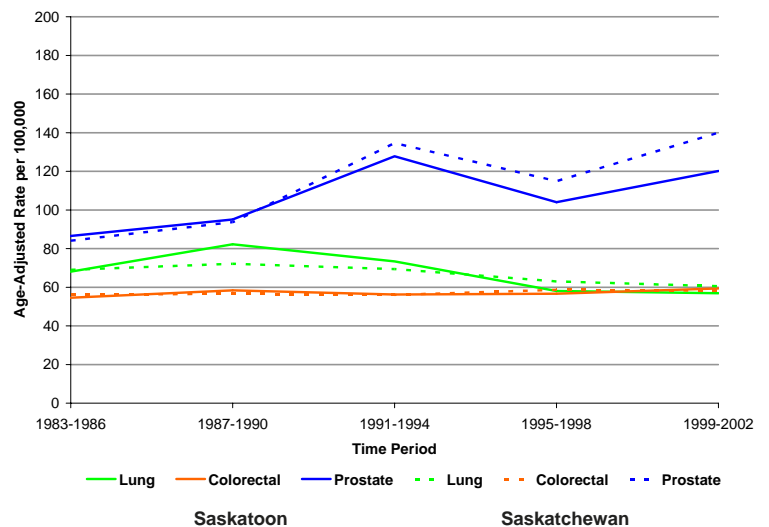


Figure 61: Trends in Incidence Rates for Common Cancer Sites in Males



The most common among females was breast (851 cases), accounting for 30.4% of all cancers diagnosed.

Figure 62 shows the age-adjusted incidence rate in females. Breast cancer incidence rates in Saskatoon gradually increased from 89.6 per 100,000 in 1983-1986 to 109.2 per 100,000 in 1999-2002, which was almost identical to the provincial trend. Colorectal cancer rates were fairly stable in Saskatoon, similar to the provincial rates. Lung cancer rates increased among Saskatoon females but the increase was less than what occurred provincially, where rates doubled.

Cancer Mortality

Figure 63 shows the number of cancer deaths in Saskatoon among males and females for the period 1998 to 2002. There were 1,416 cancer deaths in males and 1,258 deaths in females.

The most common cancer death among females was lung (243), accounting for 19.3% of cancer deaths. This was followed closely by breast (201), which caused 16% of all cancer deaths. Colorectal cancer (125), primary unknown (90), and cancer of the pancreas (85) were the remaining sites in the top five.

The most common cancer death among males was lung (356), accounting for 25.1% of all cancer deaths in Saskatoon. Prostate (257), colorectal (147), primary unknown (85), and cancer of the pancreas (71) round out the top five sites.

Figure 62: Trends in Incidence Rates for Common Cancer Sites in Females

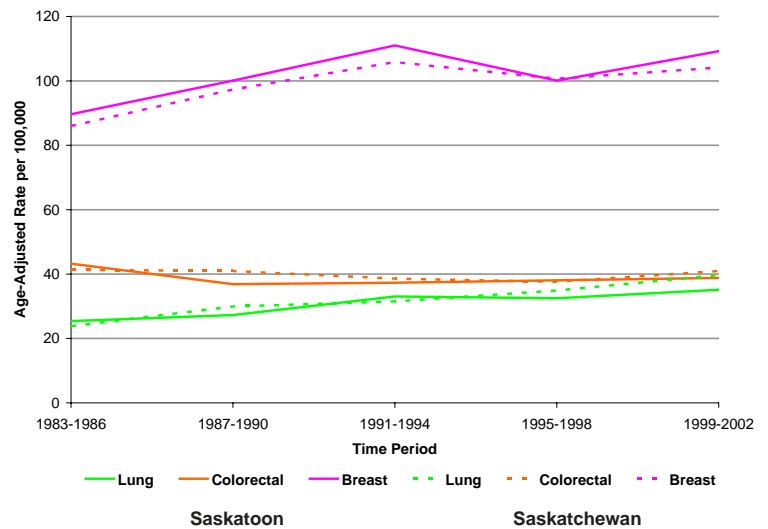
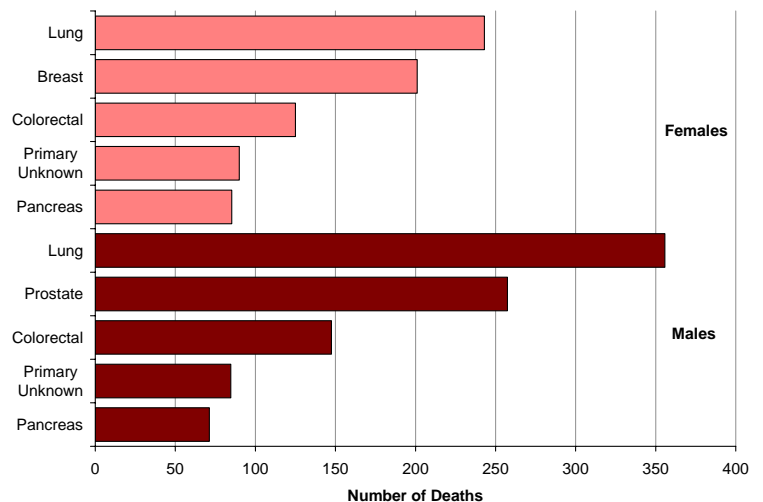


Figure 63: Top Five Cancer Causes of Death in Saskatoon by Sex, 1998-2002



There were 1,416 cancer deaths in males and 1,258 deaths in females.



Mortality Rates

Figure 64 shows the age-adjusted mortality rates of the top three invasive cancers in males. Solid lines are the mortality rates for Saskatoon and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer decreased from 62.7 per 100,000 to 51.5 per 100,000 over the 20-year period. That decrease was greater than the provincial decrease. Prostate cancer mortality rates rose from 1983-1986 to 1995-1998. The rates for the province were similar over the 20-year period. Colorectal cancer mortality rates in Saskatoon were stable and seem to be declining since 1987-1990. Provincial rates were stable over the whole time period.

Figure 65 shows mortality rates among females. Lung cancer mortality rates increased in Saskatoon from 18.4 per 100,000 to 27.7 per 100,000 over the 20-year period. This was similar to the trend for the whole province, but Saskatoon rates tend to be lower. Breast cancer mortality rates have decreased slightly over the 20 years for Saskatoon, which was similar to the trend for the province. Colorectal cancer mortality rates decreased among Saskatoon females, similar to the provincial trend.

Figure 64: Trends in Mortality Rates for Common Cancer Sites in Males

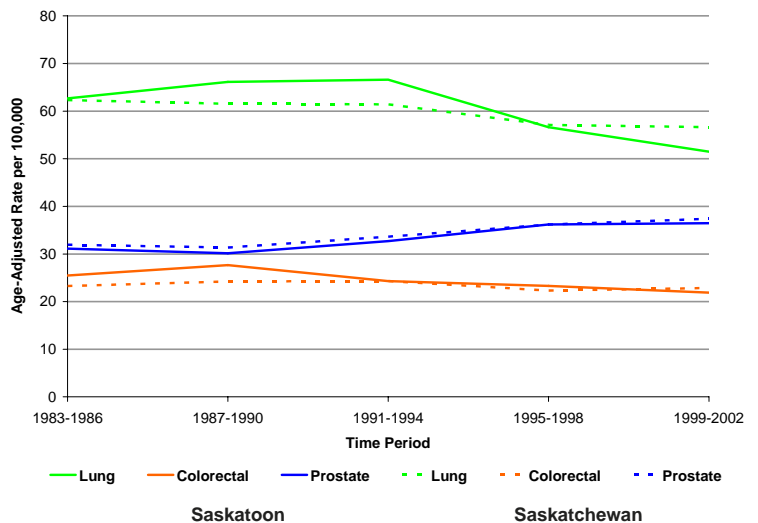
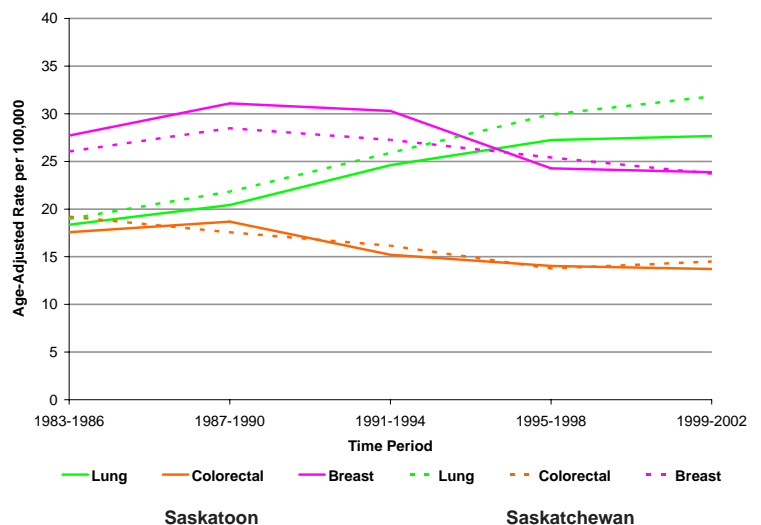


Figure 65: Trends in Mortality Rates for Common Cancer Sites in Females



Lung cancer mortality rates [for females] increased in Saskatoon from 18.4 per 100,000 to 27.7 per 100,000 over the 20-year period.

RHA: HEARTLAND

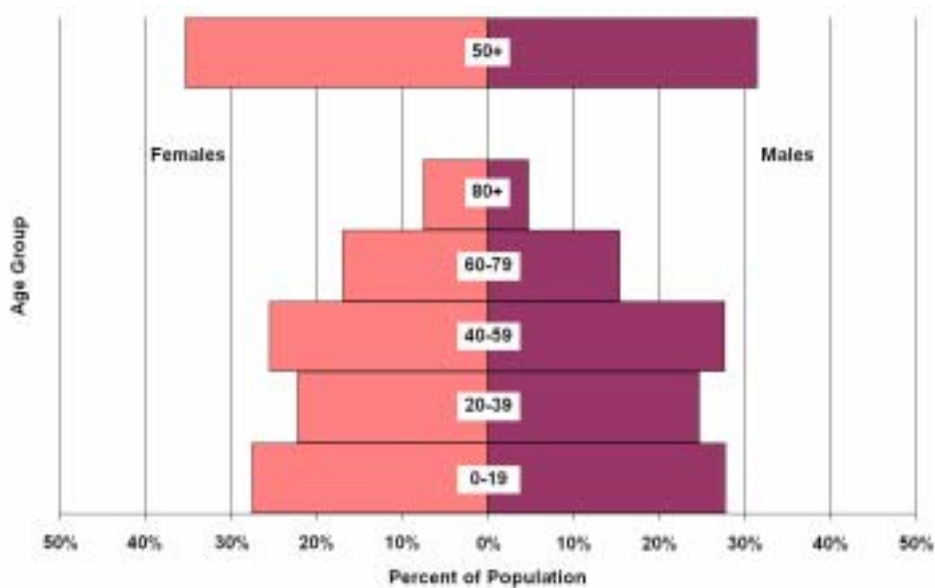
Situated in the southwest-central area of the province the Heartland RHA serves communities such as Rosetown, Kindersley, and Biggar.

The total population of Heartland in 2002 was 46,127. The population pyramid in Figure 66 shows the distribution of the population of Heartland by age group and sex.

In Heartland, 35.5% of females and 31.4% of males were over age 50 in 2002. Overall, 33.3% of the population was over age 50. This is somewhat higher than in the province, where overall 29.2% of the population was over age 50 in 2002 (30.9% in females and 27.6% in males).



Figure 66: Population of Heartland by Age and Sex, 2002



Cancer Incidence

Table 9 shows the cancers diagnosed in residents of Heartland for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one year. In Heartland, there were 1,212

invasive cancers diagnosed over the five-year period. Prostate cancer was, by far, the most common with 236 cases, followed by female breast cancer with 164 cases. In males and females, colorectal cancer was third with 160 cases and lung cancer was fourth with 142 cases.

Table 9: Cancer in Heartland Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	0	*	*	14	11	21	51
Bone & Connective Tissue	*	*	*	*	0	0	8
Brain & Central Nervous System	*	*	*	5	*	*	19
Breast	23	0	61.5	0	79.9	*	166.3
Cervix Invasive	*	0	*	0	*	0	8
Colon	*	*	19	20	40	28	112
Digestive Tract	0	*	*	0	*	*	6
Esophagus	*	0	*	6	*	*	11
Female Genital Organs	0	0	*	0	*	0	*
Gall Bladder & Biliary Tract	0	0	*	0	*	*	6.1
Head & Neck	0	*	*	*	0	*	12
Hodgkin's Disease	5	*	*	0	0	*	12
Kidney	*	*	*	10	8	8	34
Larynx	0	0	0	0	*	*	*
Leukemia	0	*	*	7	11	13	37
Lip	0	0	0	*	5	6	12
Liver	*	0	0	0	0	0	*
Non-Hodgkin's Lymphoma	*	5	5.8	11	7	7	37.8
Male Genital Organs	0	*	0	*	0	0	8
Melanoma of Skin	*	*	*	*	*	8	27
Multiple Myeloma	0	0	*	*	*	*	12
Oral Cavity	0	*	*	*	*	*	7
Other Primaries	*	0	8	8	11	11	40
Other Urinary Tract	*	0	0	*	*	*	5
Ovary	*	0	5	0	11.5	0	18.5
Pancreas	*	0	*	5	9	10	25.1
Primary Unknown	*	0	5	*	13	10	33
Prostate	0	*	0	86.8	0	146.7	236.5
Rectum	*	*	*	12	10	18.9	47.9
Respiratory System	0	*	*	*	*	*	5
Stomach	0	*	*	*	*	5	16
Thyroid	5	*	*	*	*	*	17
Trachea, Bronchus & Lung	*	*	22.8	35	29	50.8	142.5
Uterus	7	0	14	0	10.5	0	31.5
Total	67.1	53	186	249.8	286.9	369.2	1211.9
Cervix In Situ	49	0	*	0	*	0	51
Non-Melanoma Skin	28	34	63.9	90.7	205.7	318	740.2
Other In Situ	9	0	23	18	51.6	31	132.6



Figure 67 shows the top five invasive sites by sex for Heartland. The most common cancer in females was breast (164 cases), accounting for 30.7% of all cancers. Colorectal (77) and lung cancers (55) were next, together accounting for 24.6% of cases. These were followed by cancer of the uterus (31) and primary unknown (19).

The most common invasive cancer among males was prostate (236 cases), accounting for 35.6% of all cancers. Together, lung (88) and colorectal cancer (83) accounted for 25.6% of cases. These were followed by bladder cancer and leukemia with 38 and 24 cases, respectively.

Figure 68 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Heartland and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Heartland increased from 74.8 per 100,000 in 1983-1986 to 151.4 per 100,000 in 1999-2002, slightly more than the provincial increase. Colorectal cancer rates were similar to provincial rates over time. Lung cancer rates in Heartland have declined, similar to the decrease observed provincially.

Figure 67: Top Five Invasive Cancer Sites in Heartland by Sex, 1998-2002

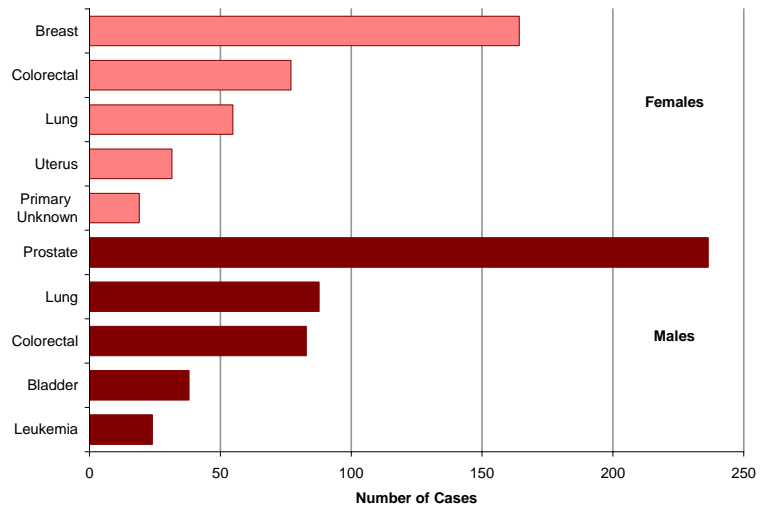
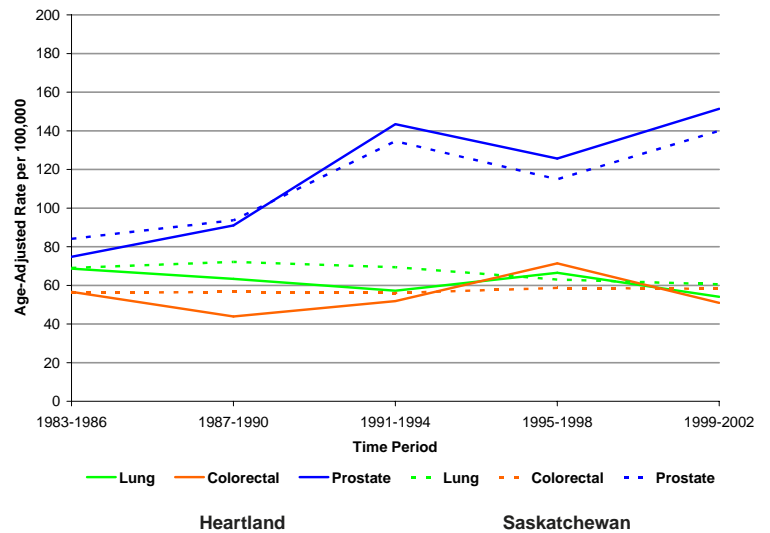


Figure 68: Trends in Incidence Rates for Common Cancer Sites in Males



The age-adjusted prostate cancer rate in Heartland increased from 74.8 per 100,000 in 1983-1986 to 151.4 per 100,000 in 1999-2002, slightly more than the provincial increase.



Figure 69 shows the age-adjusted incidence rates in females. Breast cancer incidence in Heartland gradually increased from 88.2 per 100,000 to 105 per 100,000 over the 20-year period. The provincial increase was almost identical. Colorectal cancer incidence was stable in Heartland and in the province as well. Lung cancer incidence increased from 1983-1986 to 1995-1998 in Heartland females, but declined in the 1999-2002 period. Provincially, female lung cancer rates doubled over this 20-year period.

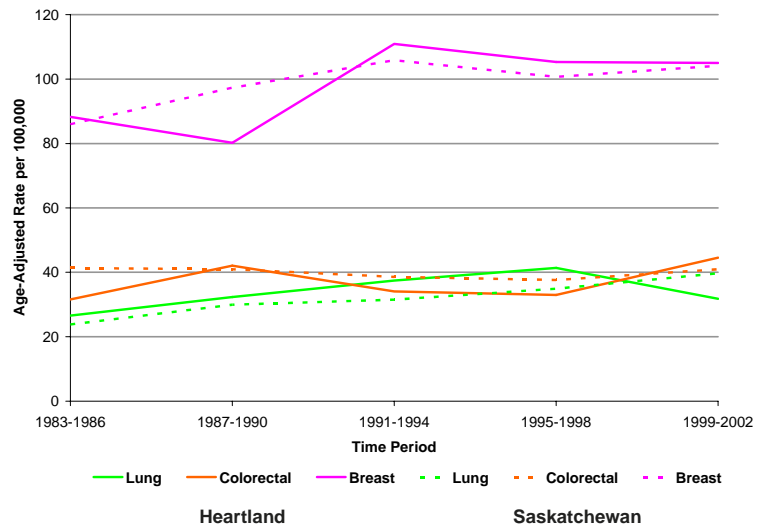
Cancer Mortality

Figure 70 shows the number of cancer deaths in Heartland among males and females for the period 1998 to 2002. There were 325 cancer deaths in males and 256 deaths in females.

The most common cancer death among females was lung (51), accounting for 19.8% of cancer deaths. This was followed closely by breast (47), which caused 18.3% of all cancer deaths. Colorectal cancer (25), ovarian cancer (17), and primary unknown (15) were the remaining sites in the top five.

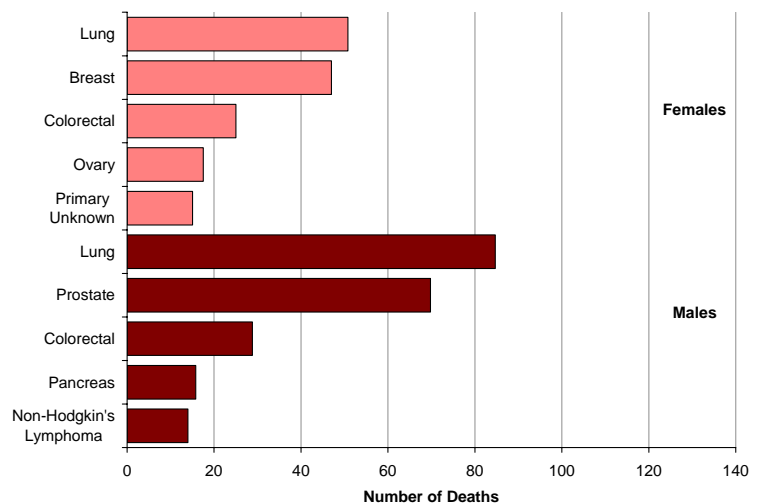
The most common cancer death among males was lung (85), accounting for 26% of all cancer deaths in Heartland. Prostate (70), colorectal (29), pancreas (16), and non-Hodgkin's lymphoma (14) round out the top five sites.

Figure 69: Trends in Incidence Rates for Common Cancer Sites in Females



There were 325 cancer deaths in males and 256 deaths in females.

Figure 70: Top Five Cancer Causes of Death in Heartland by Sex, 1998-2002



Mortality Rates

Figure 71 shows the age-adjusted mortality rates of the top three invasive cancers in males. Solid lines are the mortality rates for Heartland and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer decreased from 59.7 per 100,000 to 51.9 per 100,000 over the 20-year period. Rates in the province tended to be higher. Prostate cancer mortality rates declined from 1983-1986 to 1991-1994, followed by an increase in 1995-1998, and then a decline in the last period. The rates for the province increased slightly over the 20-year period. Colorectal cancer mortality rates in Heartland were stable and were lower than provincial rates, which were very stable over the time period.

Figure 72 shows the mortality rates among females. Lung cancer mortality rates in Heartland have increased over the 20-year period from 20.4 per 100,000 to 26.1 per 100,000, with a large increase in the 1995-1998 time period. Provincially, the lung cancer mortality rates have been continually increasing. Breast cancer mortality rates have been higher in Heartland than in the province since 1987-1990. Colorectal cancer mortality rates decreased among Heartland females, as they did provincially.

Figure 71: Trends in Mortality Rates for Common Cancer Sites in Males

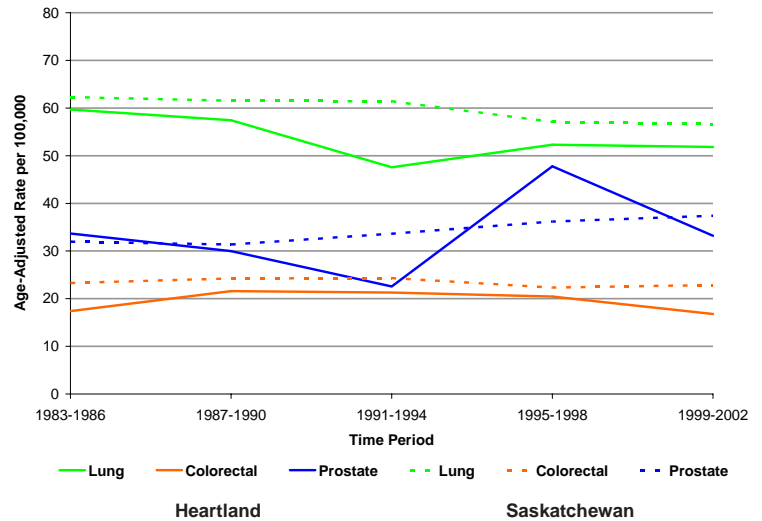
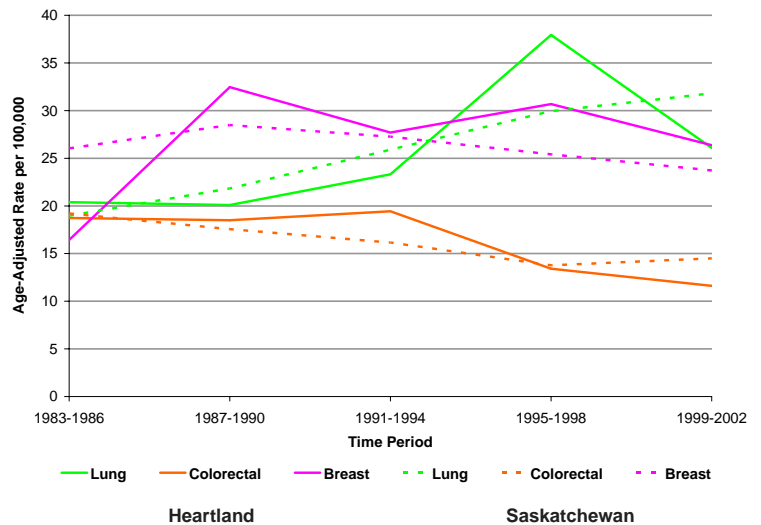


Figure 72: Trends in Mortality Rates for Common Cancer Sites in Females



RHA: KELSEY TRAIL

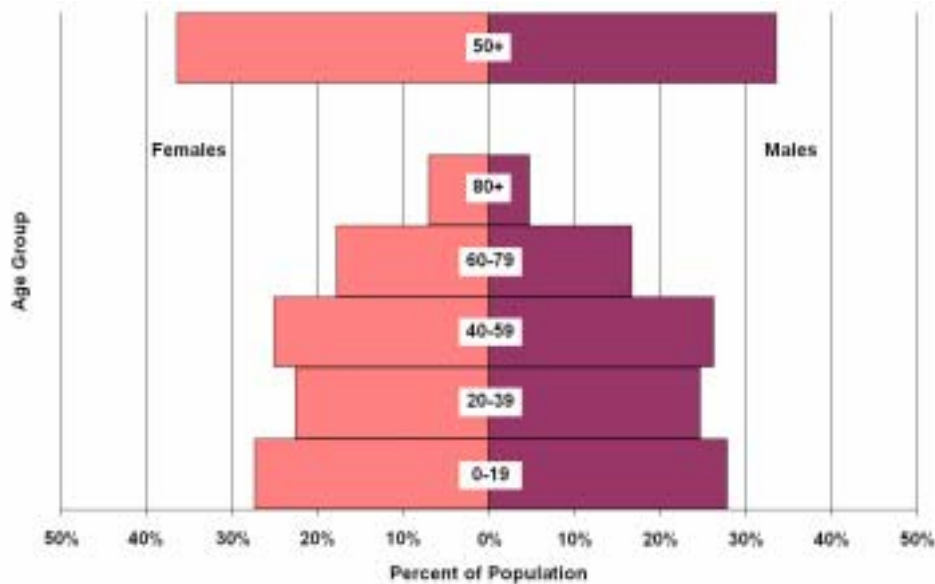
Situated in the east-central area of the province, the Kelsey Trail RHA serves communities such as Melfort, Nipawin, and Tisdale. The total population of Kelsey Trail in 2002 was 44,374.

The population pyramid in Figure 73 shows the distribution of the population of Kelsey Trail by age group and sex.

In Kelsey Trail, 36.5% of females and 33.5% of males were over age 50 in 2002. Overall, 35% of the population was over age 50, compared to only 29.2% for the province (30.9% in females and 27.6% in males).



Figure 73: Population of Kelsey Trail by Age and Sex, 2002



Cancer Incidence

Table 10 shows the cancers diagnosed in residents of Kelsey Trail for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one

year. In Kelsey Trail, there were 1,174 invasive cancers diagnosed over the five-year period. This was the only other health region besides Sun Country where colorectal cancer was the most common, with 170 cases. Prostate cancer was second with 163 cases. There were 160

Table 10: Cancer in Kelsey Trail Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	*	*	8	15.2	10	32.2	70.4
Bone & Connective Tissue	*	0	0	0	*	*	6
Brain & Central Nervous System	5	*	*	*	*	*	19
Breast	20.5	0	61.6	0	75.4	*	158.4
Cervix Invasive	6	0	*	0	*	0	11
Colon	*	*	10	28.2	27	30.9	101.1
Digestive Tract	*	0	0	0	0	*	*
Esophagus	0	*	0	*	*	7	13
Female Genital Organs	0	0	*	0	*	0	*
Gall Bladder & Biliary Tract	0	0	0	*	*	*	8
Head & Neck	*	0	0	*	*	5	10
Hodgkin's Disease	*	*	0	*	*	*	10
Kidney	*	*	*	9.5	*	9	28.5
Larynx	0	0	*	*	0	*	7
Leukemia	*	*	*	10.2	7	12	36.2
Lip	0	*	0	0	0	6.5	7.5
Liver	0	0	0	*	0	*	5
Non-Hodgkin's Lymphoma	*	*	14	7	15	7	50
Male Genital Organs	0	*	0	0	0	*	*
Melanoma of Skin	*	*	*	5	6	5	21
Multiple Myeloma	0	*	*	6	5	6	19
Oral Cavity	*	*	0	*	*	*	5
Other Primaries	0	*	*	10	11	10.2	36.2
Other Urinary Tract	0	0	*	*	*	*	5
Ovary	*	0	5	0	6	0	13.5
Pancreas	*	*	*	9	5.2	7.5	26.7
Primary Unknown	0	*	15.2	*	13	10	42.2
Prostate	0	*	0	72	0	89.8	163.8
Rectum	*	*	6	23	14	20.9	68.9
Respiratory System	*	0	0	*	0	0	*
Stomach	0	0	0	*	*	10.7	14.7
Thyroid	7	*	5	0	*	*	16
Trachea, Bronchus & Lung	*	*	21.5	38.2	28	66	160.6
Uterus	*	0	22.2	0	7	0	30.2
Total	70.5	42	194.4	251.3	252.5	363.3	1173.8
Cervix In Situ	40	0	*	0	0	0	43
Non-Melanoma Skin	16	17	51	79	137.2	183.9	484.1
Other In Situ	*	*	16.5	14.7	32.5	26.1	92.7



cases of lung cancer in males and females and 157 cases of female breast cancer rounding out the top four sites.

Figure 74 shows the top five invasive cancer sites by sex for Kelsey Trail. The most common cancer among females was breast (157 cases), accounting for 30.8% of all cancers. Colorectal (60) and lung cancer (53) were next most common, together accounting for 22.2% of cases. These were followed by non-Hodgkin's lymphoma (32) and cancer of the uterus (30).

The most common invasive cancer among males was prostate (164 cases), accounting for 25.4% of cancers. Colorectal (110) and lung cancers (106) combined accounted for 33.6% of cases. These were followed by bladder cancer and leukemia with 49 and 23 cases, respectively.

Figure 75 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Kelsey Trail and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Kelsey Trail increased from 65.7 per 100,000 in 1983-1986 to 107.5 per 100,000 in 1999-2002. This trend was similar to the province, although in 1999-2002, the provincial rate had increased. Colorectal cancer rates increased slightly in Kelsey Trail and tend to be higher than the provincial rates. Lung cancer rates in Kelsey Trail declined, similar to the decrease that occurred provincially in males.

Figure 74: Top Five Invasive Cancer Sites in Kelsey Trail by Sex, 1998-2002

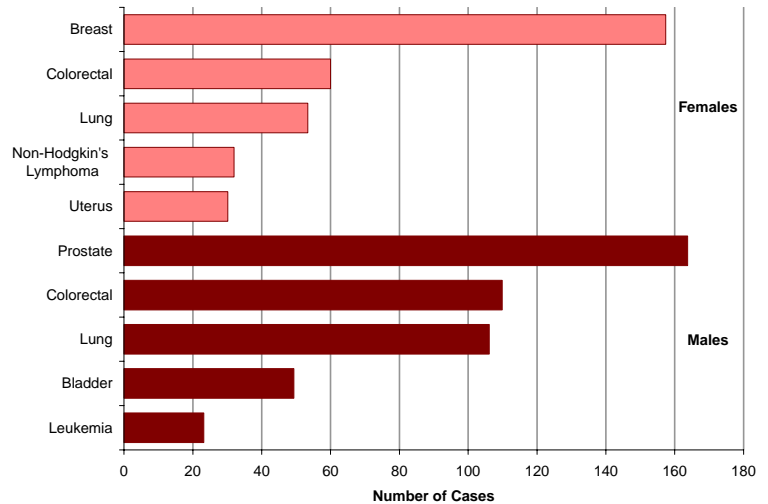
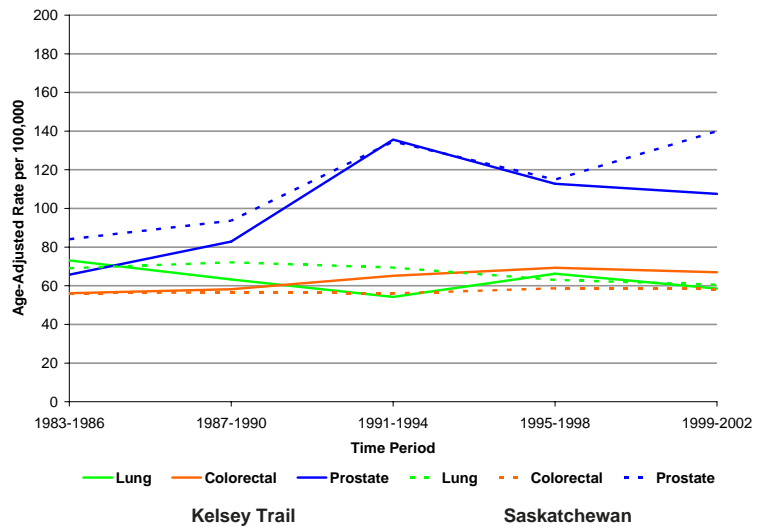


Figure 75: Trends in Incidence Rates for Common Cancer Sites in Males



The most common cancer among females was breast (157 cases), accounting for 30.8% of all cancers.

Figure 76 shows the age-adjusted incidence rates among females. Breast cancer incidence rates in Kelsey Trail gradually increased over the 20-year period from 90 per 100,000 to 95.4 per 100,000, with the highest rate observed in the 1991-1994 time period. This was similar to the trend provincially. Colorectal cancer rates decreased slightly over the 20-year period for Kelsey Trail, while the provincial rates have remained very stable. Lung cancer rates increased among Kelsey Trail females. The rates doubled provincially over the same time period.

Cancer Mortality

Figure 77 shows the number of cancer deaths in Kelsey Trail among males and females for the period 1998 to 2002. There were 348 cancer deaths in males and 214 deaths in females.

The most common cancer death among females was lung (51), accounting for 23.8% of cancer deaths. This was followed by breast (35), which caused 16.3% of all cancer deaths. Colorectal cancer (21), primary unknown (19), and non-Hodgkin's lymphoma (13) were the remaining sites in the top five.

The most common cancer death among males was, by far, lung (97), accounting for 27.7% of all cancer deaths in Kelsey Trail. Prostate (69), colorectal (47), primary unknown (21), and cancer of the pancreas (18) round out the top five sites.

Figure 76: Trends in Incidence Rates for Common Cancer Sites in Females

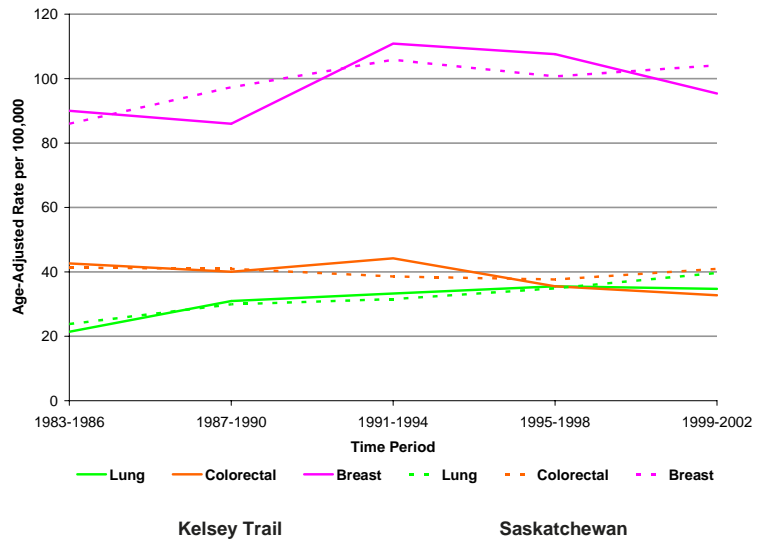
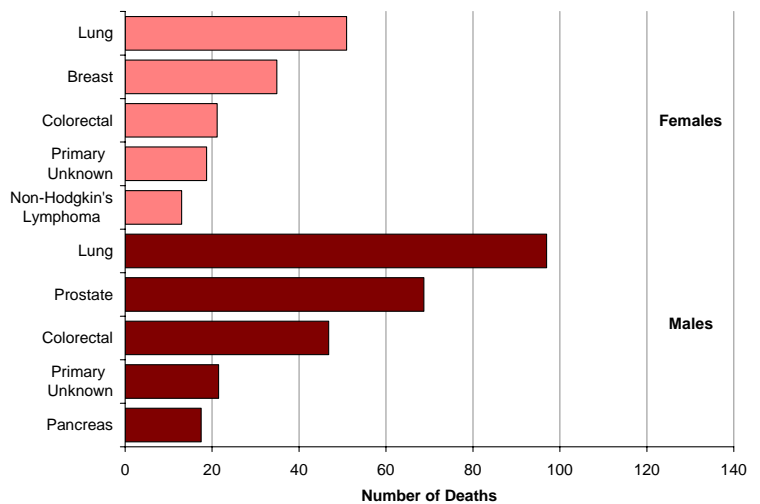


Figure 77: Top Five Cancer Causes of Death in Kelsey Trail by Sex, 1998-2002



Mortality Rates

Figure 78 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for Kelsey Trail and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer in Kelsey Trail decreased from 65.4 per 100,000 in 1983-1986 to 57.5 per 100,000 in 1999-2002. Prostate cancer mortality rates increased over the 20-year period, with the largest increase in the 1999-2002 period. The rates also increased over the same time period in the province. Colorectal cancer mortality rates in Kelsey Trail fluctuated over time between 33.6 per 100,000 and 21.6 per 100,000. Rates in the province have remained stable over the 20-year period.

Figure 79 shows the mortality rates among females. Lung cancer mortality rates in Kelsey Trail almost doubled from 18.7 per 100,000 to 34.3 per 100,000 over the 20-year period. This was very similar to the provincial trend. The breast cancer mortality rates declined over the 20-year period for Kelsey Trail. Colorectal cancer mortality rates have dropped since 1991-1994 in Kelsey Trail females. Provincially, there has been a gradual decline in female colorectal cancer mortality over the 20-year period.

Figure 78: Trends in Mortality Rates for Common Cancer Sites in Males

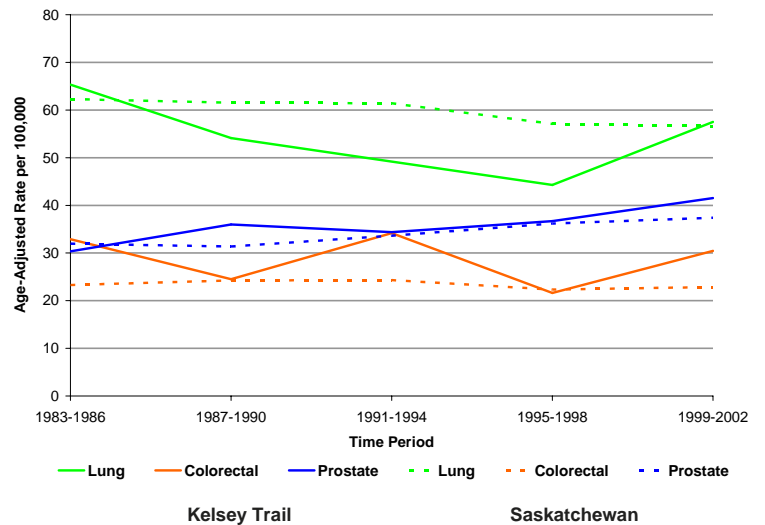
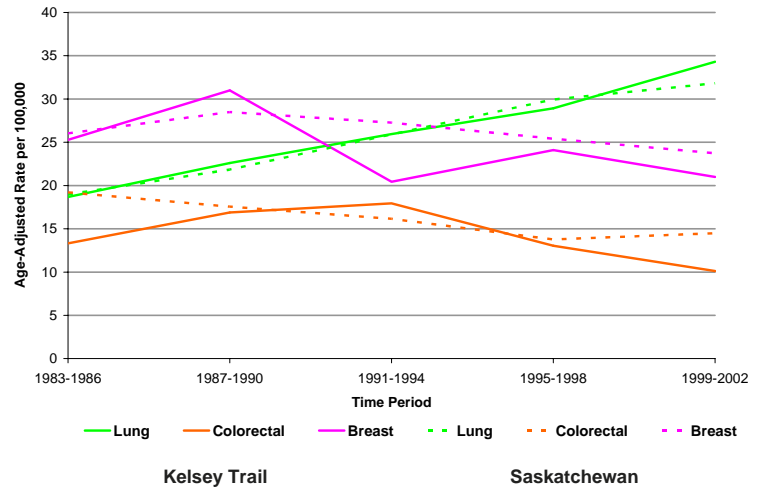


Figure 79: Trends in Mortality Rates for Common Cancer Sites in Females



RHA: PRINCE ALBERT PARKLAND

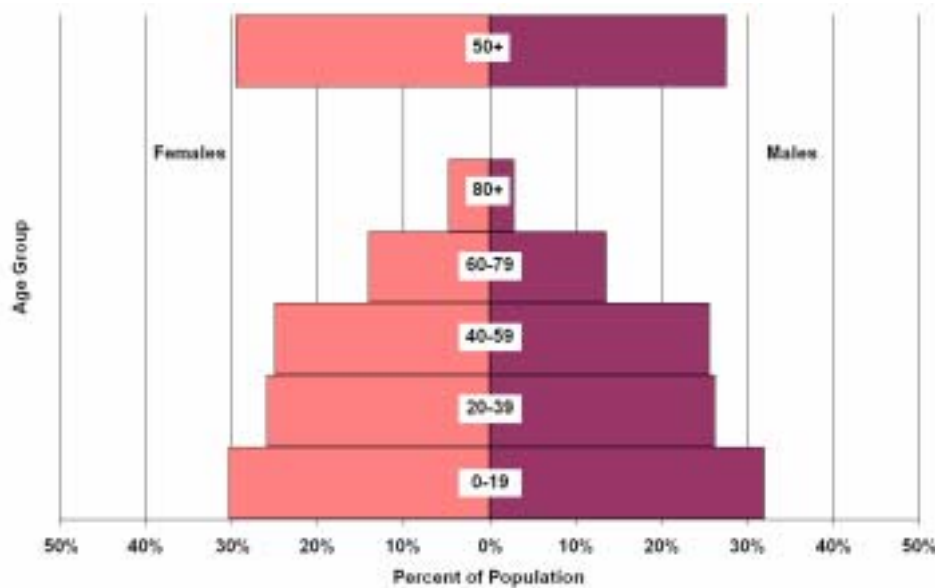
Situated in the north-central area of the province, the Prince Albert Parkland RHA serves the city of Prince Albert and communities such as Shellbrook and Birch Hills.

The total population of Prince Albert Parkland in 2002 was 77,215. The population pyramid in Figure 80 shows the distribution of the population of Prince Albert Parkland by age group and sex.

In Prince Albert Parkland, 29.5% of females and 27.5% of males were over age 50 in 2002. Overall, 28.5% of the population was over age 50, compared to 29.2% for the province (30.9% in females and 27.6% in males).



Figure 80: Population of Prince Albert Parkland by Age and Sex, 2002



Cancer Incidence

Table 11 shows the cancers diagnosed in residents of Prince Albert Parkland for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting

on only one year. In Prince Albert Parkland, there were 1,645 invasive cancers diagnosed over the five-year period, fifth most among the regions. Prostate cancer was the most common with 273 cases, followed by breast cancer in females with 225 cases. In males and females, lung and

Table 11: Cancer in Prince Albert Parkland Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	0	6	7.4	25	11	31.7	81.1
Bone & Connective Tissue	*	*	*	*	*	0	14.6
Brain & Central Nervous System	*	*	*	7	*	*	22
Breast	48	0	98.6	*	78.6	*	227.2
Cervix Invasive	12	0	*	0	*	0	20
Colon	7	*	18.6	24.6	42.6	42.2	137.9
Digestive Tract	0	0	0	0	0	*	*
Esophagus	0	*	0	6	*	9	19
Female Genital Organs	*	0	*	0	*	0	5
Gall Bladder & Biliary Tract	*	0	*	*	*	*	17
Head & Neck	*	0	*	5	0	*	12.4
Hodgkin's Disease	*	*	0	*	0	0	*
Kidney	*	6	9	14	6	7	45
Larynx	0	*	*	8	*	*	13
Leukemia	5	9	5	12	8	18	57
Lip	*	0	*	*	*	8.6	16.6
Liver	0	*	*	*	*	*	9
Non-Hodgkin's Lymphoma	5	*	16	11	11	12	58
Male Genital Organs	0	7.4	0	*	0	*	10.4
Melanoma of Skin	10	5	11	9	8.4	5	48.4
Multiple Myeloma	0	*	*	*	*	*	11
Oral Cavity	0	*	*	*	*	0	7
Other Endocrine Glands	*	0	0	0	0	0	*
Other Primaries	*	*	5	10	12.6	9.7	40.2
Other Urinary Tract	0	0	*	*	0	*	*
Ovary	5.4	0	9	0	8	0	22.4
Pancreas	0	*	5	5	7.7	7	26.7
Primary Unknown	5	*	15	*	14	17.6	56.6
Prostate	0	*	0	121.8	0	148.6	273.3
Rectum	*	*	11	19	12	15.7	63.7
Respiratory System	0	*	0	*	*	*	8.7
Stomach	*	*	*	11	7	12.7	35.7
Thyroid	8.4	*	*	*	*	0	14.4
Trachea, Bronchus & Lung	*	5	41.6	51.7	40	75.8	216.1
Uterus	6	0	26.7	0	13	0	45.7
Total	138.1	72.4	307.8	365.4	316.4	445	1644.8
Cervix In Situ	43.6	0	*	0	*	0	45.6
Non-Melanoma Skin	31	41	88.6	137	212.5	279.3	789.3
Other In Situ	12	*	28.4	10	25	22.7	100.1

colorectal cancer were the third (216) and fourth (201) most common, respectively.

Figure 81 shows the top five invasive cancer sites by sex for Prince Albert Parkland. The most common site in females was breast (225 cases), accounting for 29.8% of cases. Colorectal (95) and lung cancers (84) were next most common, together accounting for 23.6% of cases. These were followed by cancers of the uterus (46) and primary unknown (34).

The most common invasive cancer among males was prostate (273 cases), accounting for 31.2% of all cancers. Together, lung (132) and colorectal cancer (106) accounted for 27.2% of cases. These were followed by bladder and leukemia with 63 and 39 cases, respectively.

Figure 82 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Prince Albert Parkland and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Prince Albert Parkland increased from 108.9 per 100,000 in 1983-1986 to 128 per 100,000 in 1999-2002. There was no increase in 1999-2002 as there was in the province and many other RHAs. Colorectal cancer rates remained fairly stable but tended to be lower than the provincial rates. Lung cancer rates in Prince Albert Parkland peaked in 1991-1994 and have dropped since. Lung cancer rates have declined provincially over the 20-year period.

Figure 81: Top Five Invasive Cancer Sites in Prince Albert Parkland by Sex, 1998-2002

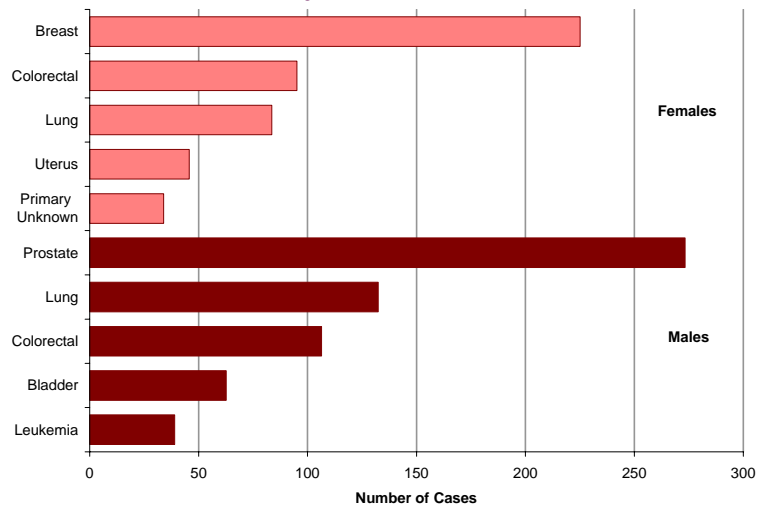
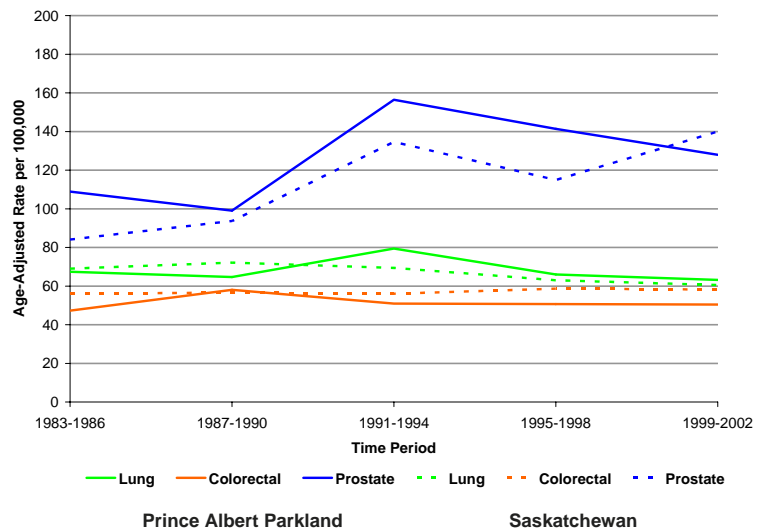


Figure 82: Trends in Incidence Rates for Common Cancer Sites in Males



The most common invasive cancer among males was prostate (273 cases), accounting for 31.2% of all cancers.



Figure 83 shows the age-adjusted incidence rates among females. Breast cancer incidence in Prince Albert Parkland increased from 70.8 per 100,000 to 105.6 per 100,000 over the 20-year period. The rates are very similar to provincial rates. Colorectal and lung cancer rates over the 20-year period were very similar to provincial rates. Lung cancer rates almost doubled and colorectal cancer rates have been very stable.

Cancer Mortality

Figure 84 shows the number of cancer deaths in Prince Albert Parkland among males and females for the period 1998 to 2002. There were 454 cancer deaths in males and 349 deaths in females.

The most common cancer death among females was lung (86), accounting for 24.5% of cancer deaths. This was followed by breast (58), which caused 16.5% of all cancer deaths. Colorectal cancer (38), primary unknown (21), and cancer of the pancreas (20) were the remaining sites in the top five.

The most common cancer death in males was, by far, lung (133), accounting for 29.3% of all cancer deaths in Prince Albert Parkland. Prostate (84), colorectal (46), primary unknown (32), and esophagus (17) round out the top five sites.

Figure 83: Trends in Incidence Rates for Common Cancer Sites in Females

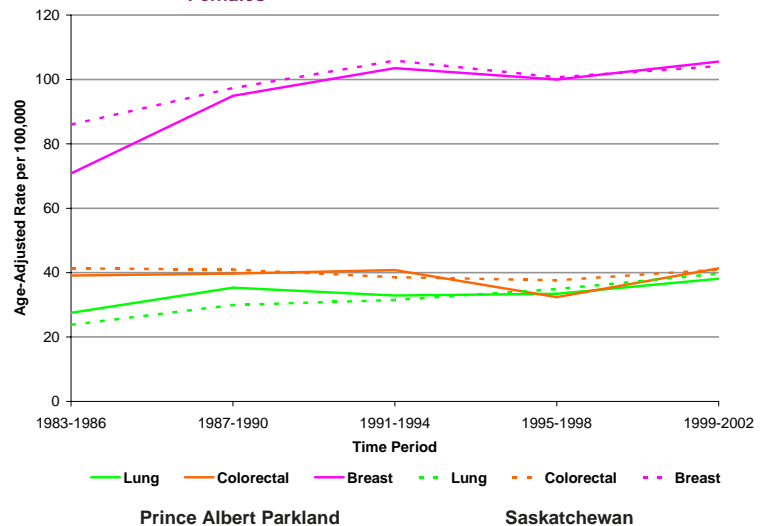
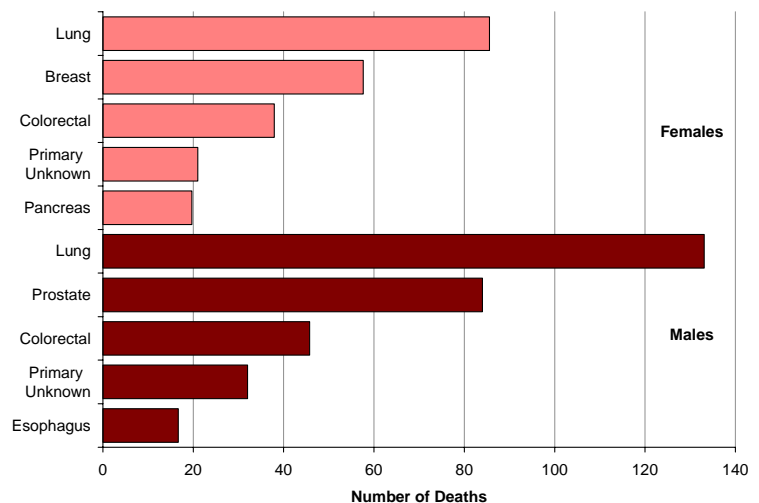


Figure 84: Top Five Cancer Causes of Death in Prince Albert Parkland by Sex, 1998-2002



The most common cancer death among females was lung (86), accounting for 24.5% of cancer deaths.

Mortality Rates

Figure 85 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for Prince Albert Parkland and dashed lines are the provincial rates. The age-adjusted mortality rates for lung cancer were higher than the provincial rates and ranged from 68.5 per 100,000 to 58.2 per 100,000 over the 20-year period. For the province, rates were decreasing over the 20-year period. Prostate cancer mortality rates increased in Prince Albert Parkland and were similar to provincial rates. Colorectal cancer mortality rates were very stable over time and were very similar to provincial mortality rates.

Figure 86 shows the mortality rates among females. Lung cancer mortality rates in Prince Albert Parkland increased from 26.3 per 100,000 to 38 per 100,000 over the 20-year period. The increase was greater in Prince Albert Parkland than in the province. Breast cancer mortality rates remained fairly stable over the 20 years for Prince Albert Parkland, while the rates have decreased provincially. Colorectal cancer mortality rates decreased among Prince Albert Parkland females, which was very similar to the provincial trend.

Figure 85: Trends in Mortality Rates for Common Cancer Sites in Males

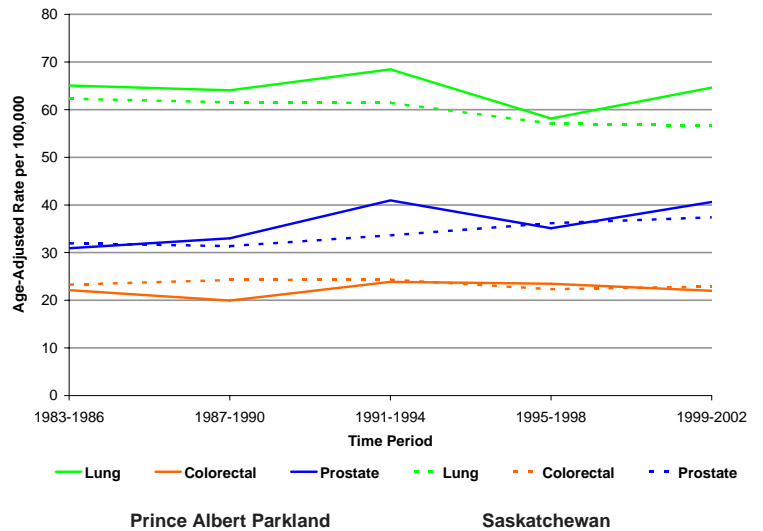
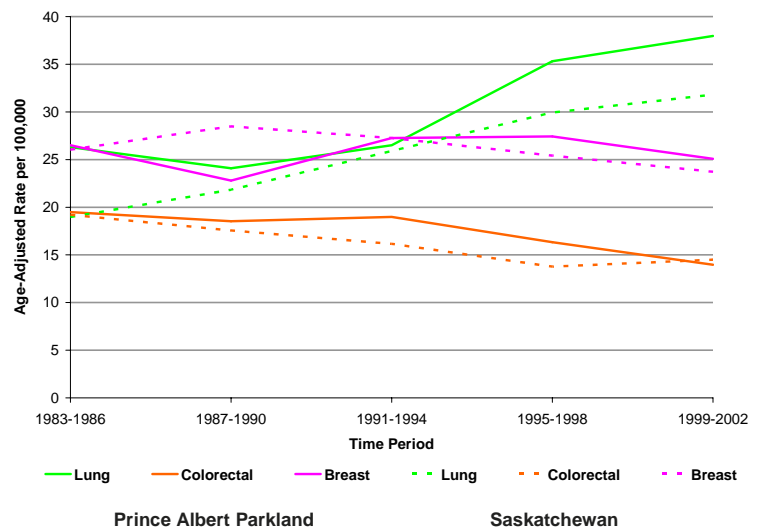


Figure 86: Trends in Mortality Rates for Common Cancer Sites in Females



RHA: PRAIRIE NORTH

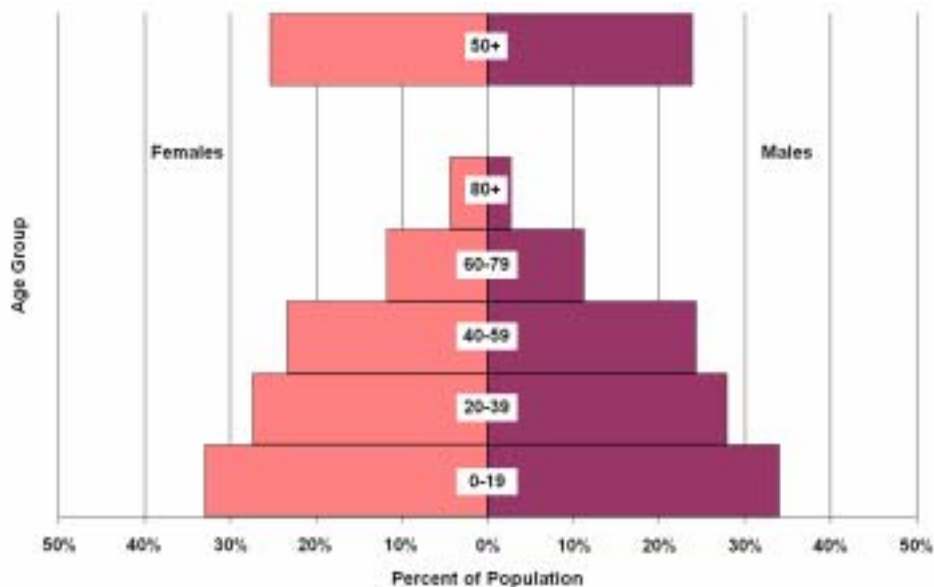
Situated in the west-central area of the province, the Prairie North RHA serves communities such as North Battleford, Lloydminster, and Meadow Lake.

The total population of Prairie North in 2002 was 71,542. The population pyramid in Figure 87 shows the percent distribution of the population of Prairie North by age group and sex.

In Prairie North, 25.3% of females and 23.9% of males were over age 50 in 2002. Overall, only 24.6% of the population was over age 50, compared to 29.2% for the province (30.9% in females and 27.6% in males).



Figure 87: Population of Prairie North by Age and Sex, 2002



Cancer Incidence

Table 12 shows the cancers diagnosed in residents of Prairie North for the five-year period 1998-2002. A five-year period was used to avoid having small numbers that would result from reporting on only one year. In Prairie North, there were 1,278

invasive cancers diagnosed over the five-year period. Prostate cancer was the most common with 187 cases, followed by colorectal cancer (177 cases) in males and females. Breast cancer in females and lung cancer in males and females were very close with 162 and 160 cases, respectively.

*Table 12: Cancer in Prairie North
Residents by Cancer Site, Age at
Diagnosis, and Sex, 1998-2002*

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	*	*	6	17	12	33	72
Bone & Connective Tissue	*	*	*	*	*	*	15
Brain & Central Nervous System	*	*	*	*	*	*	15
Breast	34	0	68.6	0	59	0	161.6
Cervix Invasive	11	0	8	0	0	0	19
Colon	6	*	11	23	36	37	114
Digestive Tract	0	0	0	*	*	0	*
Esophagus	0	*	*	5	0	*	10
Female Genital Organs	0	0	0	0	*	0	*
Gall Bladder & Biliary Tract	*	0	0	*	6	*	10
Head & Neck	0	*	*	*	0	0	5
Hodgkin's Disease	*	5	0	0	0	*	8
Kidney	*	*	9	9	0	8	33
Larynx	0	0	0	6	0	*	9
Leukemia	5	*	*	9	13	10	41
Lip	*	*	*	*	*	5	11
Liver	*	0	0	0	*	0	*
Non-Hodgkin's Lymphoma	*	5	*	10	12	12	45
Male Genital Organs	0	5	0	0	0	*	6
Melanoma of Skin	8	*	*	9	9	6	39
Multiple Myeloma	0	*	*	8	6	6	22
Oral Cavity	*	*	*	6	*	*	20
Other Primaries	*	*	5	9	14	11	44
Other Urinary Tract	0	*	*	0	*	0	*
Ovary	*	0	7	0	5.3	0	14.3
Pancreas	*	*	*	*	7	7	22
Primary Unknown	*	*	6	6.9	10	8	33.9
Prostate	0	*	0	70.3	0	113	187.3
Rectum	*	*	5	19	16	19	63
Respiratory System	*	*	0	*	0	*	6
Stomach	0	*	*	5	8	9	26
Thyroid	11	0	*	*	*	*	17
Trachea, Bronchus & Lung	*	*	34	43	28	52.3	160.3
Uterus	7	0	20	0	11.3	0	38.3
Total	116	53	209.6	271.2	270.6	357.3	1277.6
Cervix In Situ	124	0	*	0	*	0	129
Non-Melanoma Skin	24	22	80	101.9	162	223	612.9
Other In Situ	10	*	18	20	37.3	34	122.3



Figure 88 shows the top five invasive cancer sites by sex for Prairie North. The most common among females was breast (162 cases), accounting for 27.4% of all cancers diagnosed. Colorectal (76) and lung cancers (64) were next most common, together accounting for 23.8% of cases. These were followed by cancers of the uterus (38) and melanoma (21). These were followed by cancers of the prostate (187 cases) and colorectal (101) and lung cancers (96) combined accounted for 29.6% of cases. These were followed by bladder cancer and non-Hodgkin's lymphoma with 52 and 27 cases, respectively.

The most common invasive cancer among males was prostate (187 cases), accounting for 28.1% of all cancers. Colorectal (101) and lung cancers (96) combined accounted for 29.6% of cases. These were followed by bladder cancer and non-Hodgkin's lymphoma with 52 and 27 cases, respectively.

Figure 89 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for Prairie North and dashed lines are the provincial rates. The age-adjusted prostate cancer rate in Prairie North increased from 71.3 per 100,000 in 1983-1986 to 115.2 per 100,000 in 1999-2002, and these were lower than provincial rates. Colorectal cancer rates are similar to the provincial rates other than in one time period, 1987-1990, when the rate was lower. Lung cancer rates in Prairie North have been decreasing since 1991-1994. This is similar to the provincial trend.

Figure 88: Top Five Invasive Cancer Sites in Prairie North by Sex, 1998-2002

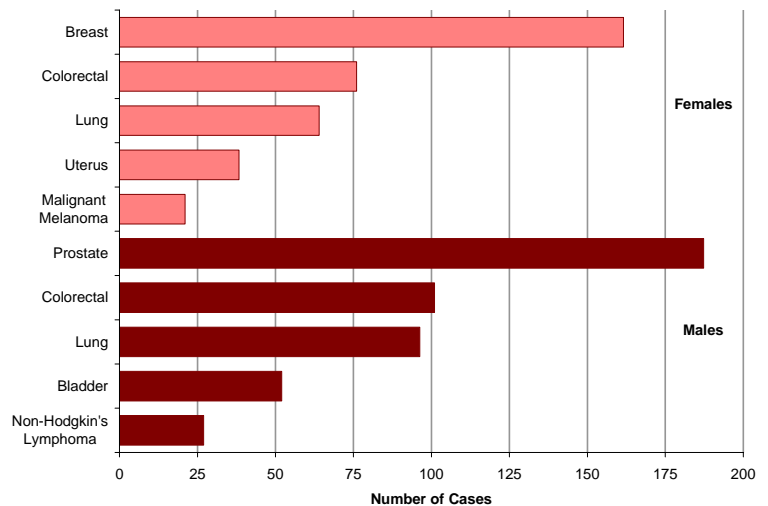
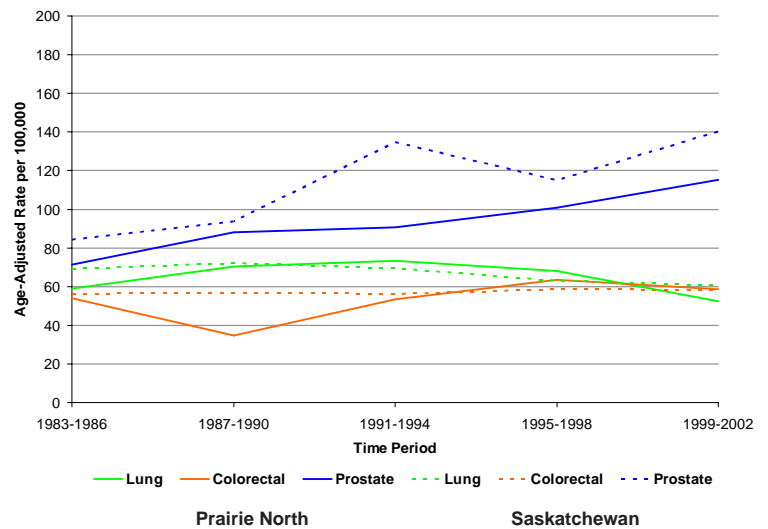


Figure 89: Trends in Incidence Rates for Common Cancer Sites in Males



The age-adjusted prostate cancer rate in Prairie North increased from 71.3 per 100,000 in 1983-1986 to 115.2 per 100,000 in 1999-2002, and these were lower than provincial rates.

Figure 90 shows the age-adjusted incidence rates among females. Breast cancer incidence rates in Prairie North have increased from 80.7 per 100,000 to 96.2 per 100,000 over the 20-year period. Rates were lower in Prairie North compared to the provincial breast cancer rates. Colorectal cancer rates were steady and are very similar to provincial rates. Lung cancer rates have increased among Prairie North females, similar to provincial trends.

Cancer Mortality

Figure 91 shows the number of cancer deaths in Prairie North among males and females for the period 1998 to 2002. There were 393 cancer deaths in males and 310 deaths in females.

The most common cancer death among females was lung (69), accounting for 22.2% of cancer deaths. This was followed by colorectal (42), which caused 13.5% of all cancer deaths. Breast cancer (39), primary unknown (21), and cancer of the stomach (16) were the remaining sites in the top five.

The most common cancer death among males was lung (96), accounting for 24.5% of all cancer deaths in Prairie North. Prostate (80), colorectal (44), non-Hodgkin's lymphoma (18), and cancer of the pancreas (17) round out the top five sites.

Figure 90: Trends in Incidence Rates for Common Cancer Sites in Females

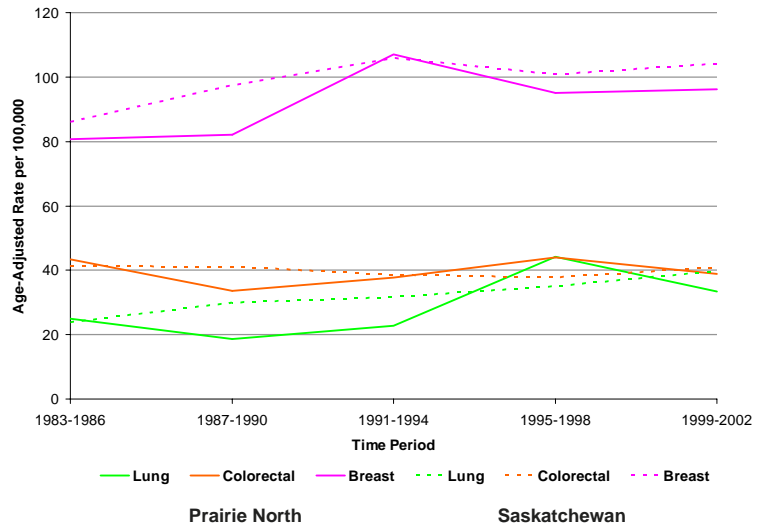
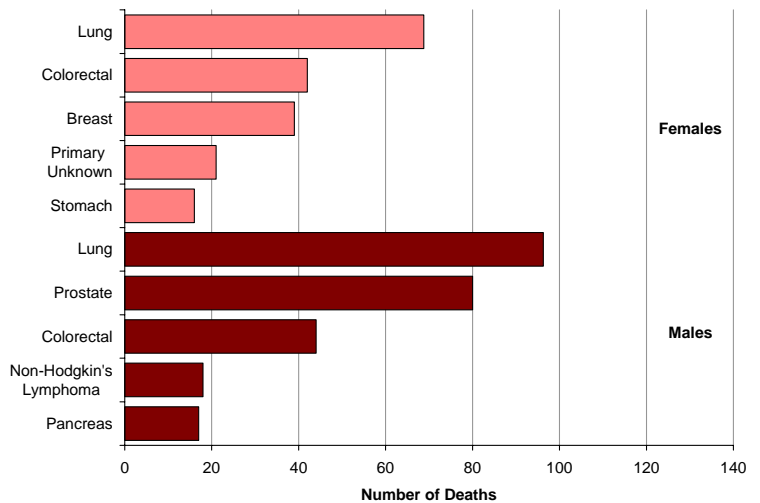


Figure 91: Top Five Cancer Causes of Death in Prairie North by Sex, 1998-2002



There were 393 cancer deaths in males and 310 deaths in females.



Mortality Rates

Figure 92 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for Prairie North and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer in Prairie North decreased from 70.0 per 100,000 in 1987-1990 to 53.3 per 100,000 in 1999-2002, with some fluctuation due to small numbers. The lung cancer mortality rate for the province decreased slightly over the same time period. Prostate cancer mortality rates increased from 25 per 100,000 in 1983-1986 to 45 per 100,000 in 1999-2002. The provincial increase was not as great. Colorectal cancer mortality rates in Prairie North were fairly stable with some fluctuation. The provincial trend was very stable over the 20-year period.

Figure 93 shows the mortality rates among females. Lung cancer mortality rates in Prairie North nearly doubled from 19.1 per 100,000 to 36.4 per 100,000 over the 20-year period. Rates also increased provincially. Breast cancer mortality rates decreased about 30%, more than the decrease that occurred in the province. Colorectal cancer mortality rates fluctuated and tended to be higher than the provincial mortality rates.

Figure 92: Trends in Mortality Rates for Common Cancer Sites in Males

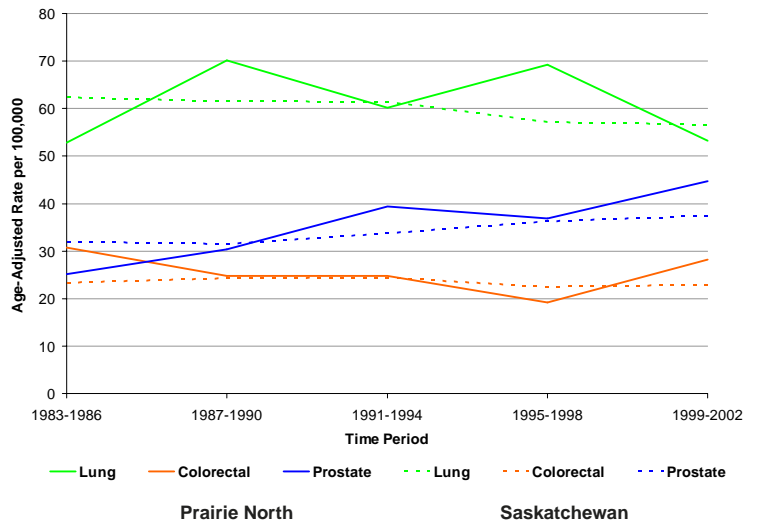
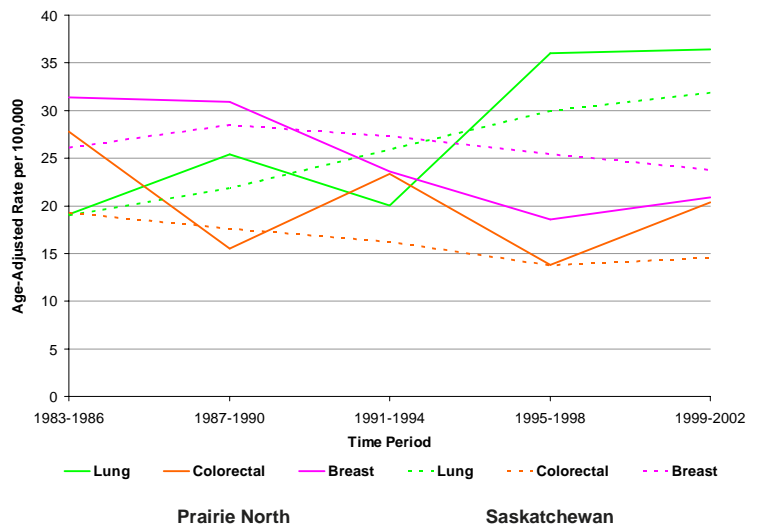


Figure 93: Trends in Mortality Rates for Common Cancer Sites in Females



Breast cancer mortality rates decreased about 30%, more than the decrease that occurred in the province.

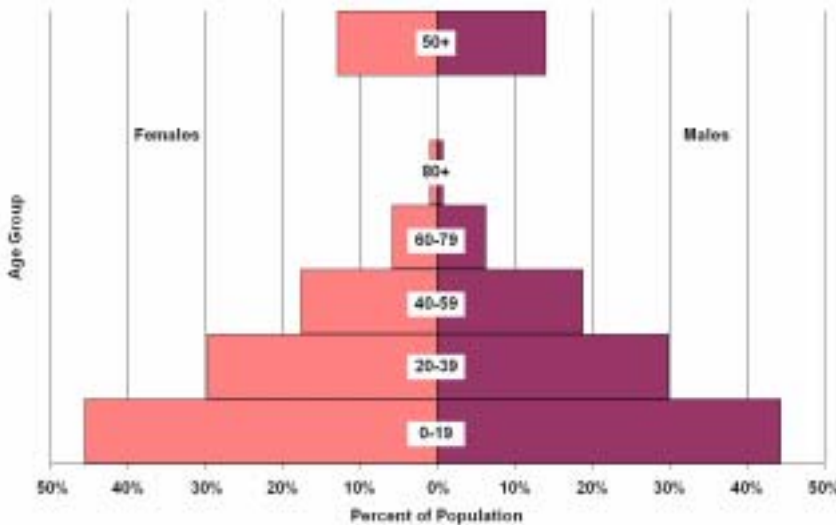
NORTHERN REGIONS

The three northernmost RHAs, Mamawetan Churchill River, Keewatin Yatthé, and Athabasca, are combined into one area called North. This region of the province is unique because the population is small and much younger than in the rest of the province. Reporting cancer information for each RHA would result in very small numbers and unstable trends.

The North serves communities such as La Ronge, Ile-a-la-Crosse, and Stony Rapids. The total population in 2002 was 34,601. The population pyramid in Figure 94 shows the distribution of the population of the North by age group and sex. A large majority of the population is under age 40.



Figure 94: Population of the North by Age and Sex, 2002



In the North, 13% of females and 14% of males were over age 50 in 2002. Overall, only 13.9% of the population was over 50, much lower than the 29.2% for the province (30.9% in females and 27.6% in males).



NORTHERN REGIONS

Cancer Incidence

Table 13 shows the cancers diagnosed in residents of the three northern health regions combined for the five-year period 1998-2002. The regions were combined and a five-year period was used to avoid having small numbers that would result from reporting on only one year and only

one RHA. The North was the only region where lung cancer was the most common cancer site, with 63 cases in males and females. The second most common cancer was female breast with 47 cases. Colorectal cancer in males and females and prostate cancer were close with 27 and 25 cases, respectively.

Table 13: Cancer in Northern Residents by Cancer Site, Age at Diagnosis, and Sex, 1998-2002

Site	Age Group						Total
	0-49		50-69		70+		
	F	M	F	M	F	M	
Bladder	0	0	0	*	0	*	6
Bone & Connective Tissue	*	*	0	0	0	0	*
Brain & Central Nervous System	*	*	0	0	*	0	*
Breast	14	0	21	0	12	0	47
Cervix Invasive	*	0	*	0	*	0	8
Colon	*	*	*	*	*	*	14
Esophagus	0	*	0	*	0	*	*
Gall Bladder & Biliary Tract	*	0	*	*	*	*	6
Head & Neck	0	0	0	*	0	0	*
Hodgkin's Disease	*	*	0	*	0	0	*
Kidney	*	*	*	*	*	*	12
Larynx	0	0	*	0	*	0	*
Leukemia	*	0	*	*	*	*	5
Lip	0	0	0	*	0	0	*
Non-Hodgkin's Lymphoma	0	*	*	5	0	*	12
Male Genital Organs	0	6	0	*	0	*	8
Melanoma of Skin	*	*	*	*	*	0	8
Multiple Myeloma	0	*	0	*	*	0	*
Oral Cavity	*	*	0	*	*	0	7
Other Primaries	0	*	0	*	*	0	6
Other Urinary Tract	0	0	*	0	0	*	*
Ovary	*	0	0	0	*	0	5
Pancreas	0	0	*	*	*	0	*
Primary Unknown	0	*	*	*	*	*	13
Prostate	0	0	0	14	0	11	25
Rectum	0	*	*	6	0	*	13
Respiratory System	*	0	0	0	0	0	*
Stomach	0	*	0	*	0	*	*
Thyroid	*	0	0	*	0	0	*
Trachea, Bronchus & Lung	*	*	10	18	13	19	63
Uterus	*	0	*	0	0	0	*
Total	40	29	59	77	46	48	299
Cervix In Situ	47	0	*	0	*	0	49
Non-Melanoma Skin	*	*	7	15	*	7	37
Other In Situ	*	0	5	*	*	*	16



NORTHERN REGIONS

Figure 95 shows the top five invasive cancer sites by sex for the North. Among females the most common was breast (47 cases), accounting for 32.6% of all cancers diagnosed. Lung (23) and colorectal cancer (10) were next most common, together accounting for 22.9% of cases. These were followed by cancer of the cervix (8) and primary unknown (7).

The most common invasive cancer among males was lung (38 cases), accounting for 25.2% of all cancers. Together, prostate (25) and colorectal cancer (17) accounted for 27.8% of cases, followed by non-Hodgkin's lymphoma and testicular cancer with nine and seven cases, respectively.

Figure 96 shows the age-adjusted incidence rates of the top three invasive cancers in males. Solid lines are the incidence rates for the North and dashed lines are the provincial rates. The age-adjusted prostate cancer rates in the North increased from 36 per 100,000 to 59.4 per 100,000 over the 20-year period, but were much lower than provincial rates. Colorectal cancer rates fluctuated between 40 per 100,000 and 60 per 100,000 over the 20-year period. Lung cancer rates in the North were higher than the provincial rates, but the small number of cases makes trends difficult to interpret.

Figure 95: Top Five Invasive Cancer Sites in the North by Sex, 1998-2002

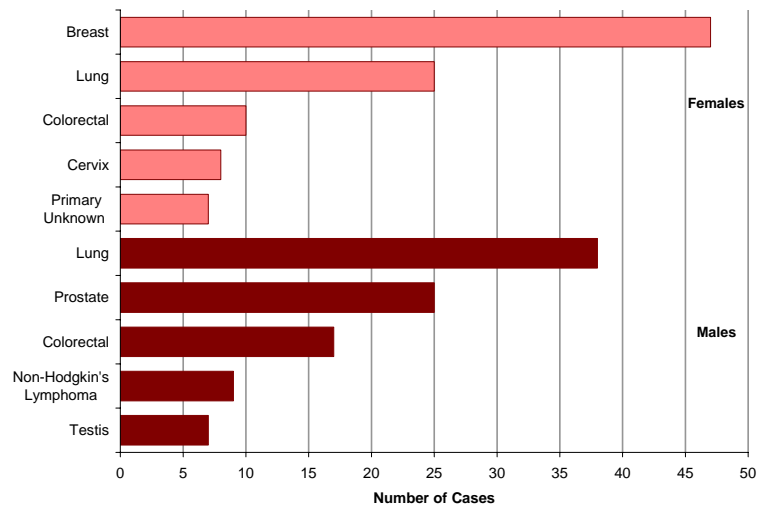
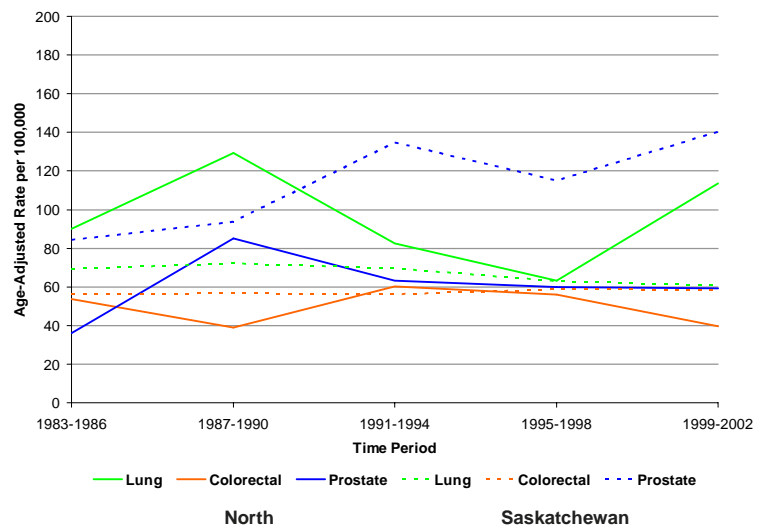


Figure 96: Trends in Incidence Rates for Common Cancer Sites in Males



The most common invasive cancer among males was lung (38 cases), accounting for 25.2% of all cancers.



NORTHERN REGIONS

Figure 97 shows the age-adjusted incidence rates among females. Breast cancer incidence in the North fluctuated between 59.3 per 100,000 and 110.9 per 100,000 over the 20-year period. Provincially, breast cancer rates have been stable since the 1987-1990 period. Colorectal cancer rates were generally lower in the North compared to the provincial rates and increased slightly over time. Lung cancer rates have increased among females, with the rate more than doubling from 1983-1986 to 1999-2002. Lung cancer rates in females were about 75% higher than provincial female rates.

Cancer Mortality

Figure 98 shows the leading causes of cancer deaths in the North among males and females for the period 1998 to 2002. There were 75 cancer deaths in males and 73 deaths in females.

The most common cancer death among females was lung (25), accounting for 33.3% of cancer deaths. This was followed by breast (9), which caused 12% of all cancer deaths. Primary unknown (8) was the third leading cause of cancer death in the North.

The most common cancer death among males was lung (34), accounting for a large 46.6% of all cancer deaths. Primary unknown (7) and colorectal cancer (6) round out the top three sites.

Figure 97: Trends in Incidence Rates for Common Cancer Sites in Females

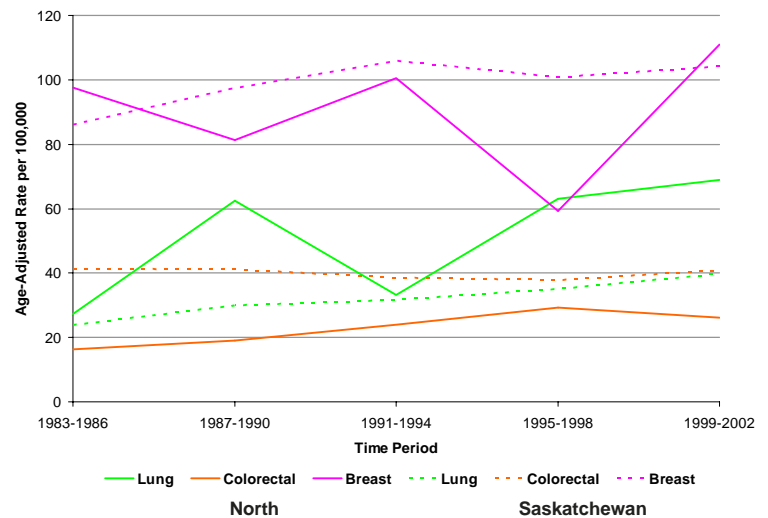
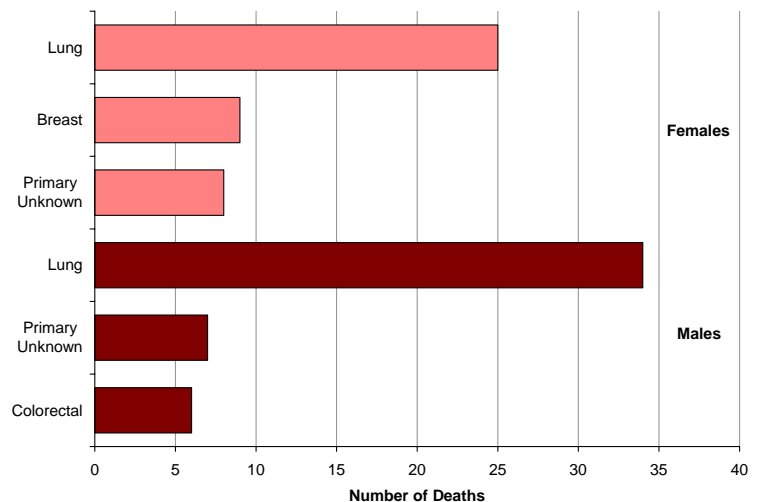


Figure 98: Top Three Cancer Causes of Death in the North by Sex, 1998-2002



The most common cancer death among males was lung (34), accounting for a large 46.6% of all cancer deaths.



Mortality Rates

Figure 99 shows the age-adjusted mortality rates of the top three invasive cancers in males over the 20-year period. Solid lines are the mortality rates for the North and dashed lines are the provincial rates. The age-adjusted mortality rate for lung cancer in the North fluctuated from a low of 67.0 per 100,000 to a high of 106.7 per 100,000 over the 20-year period. Lung cancer mortality rates for the North were much higher compared to provincial rates. Prostate cancer mortality rates have declined over time and were much lower compared to provincial rates. Colorectal cancer mortality rates in the North have increased but the rates fluctuated due to small numbers. Colorectal cancer mortality rates in males have remained stable provincially.

Figure 100 shows the mortality rates among females. Lung cancer mortality rates in the North ranged from 23.0 per 100,000 to 67.0 per 100,000 over the 20-year period. Lung cancer mortality rates were much higher in females in the North compared to provincial rates. Mortality rates due to breast cancer have dropped from a peak of 43.8 per 100,000 in 1987-1990 to a low of 13.1 per 100,000 in 1999-2002. Gall bladder cancer mortality rates more than doubled from 1983-1986 to 1999-2002. The rates were consistently higher than provincial rates. Gall bladder cancer rates have been shown to be higher in Native Americans, which may explain the higher rates observed in the North⁴.

Figure 99: Trends in Mortality Rates for Common Cancer Sites in Males

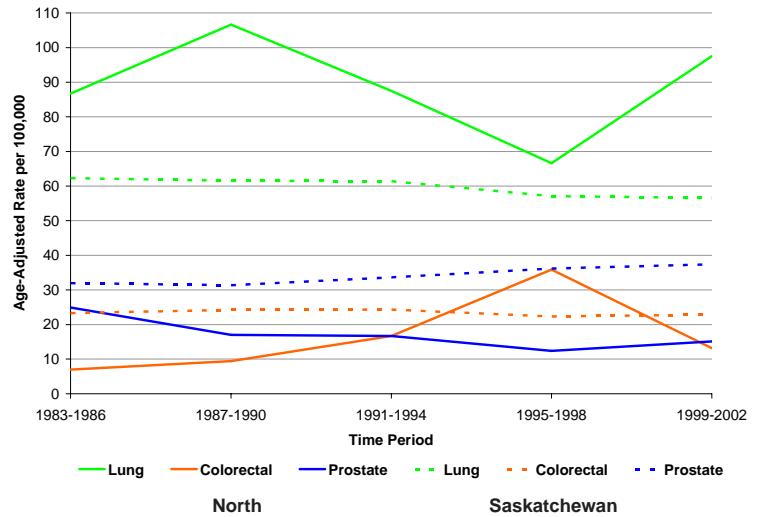
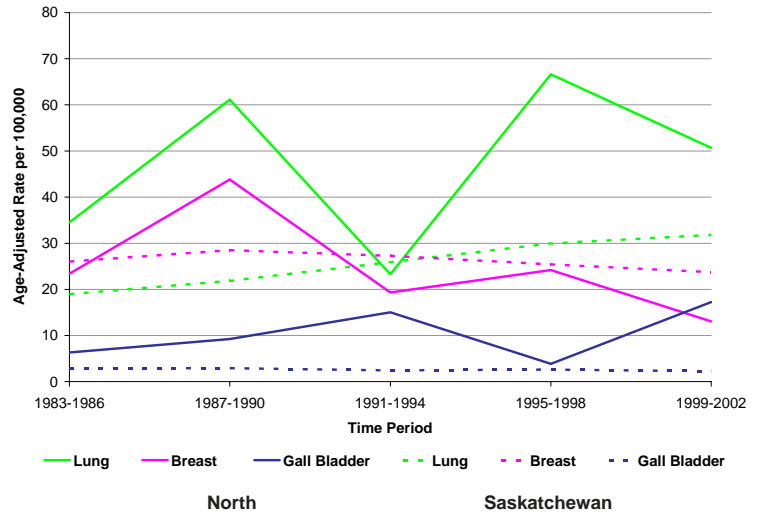


Figure 100: Trends in Mortality Rates for Common Cancer Sites in Females



Lung cancer mortality rates [in males and females] for the northern RHAs were much higher compared to provincial rates.



GLOSSARY OF TERMS

Age-Adjusted

A statistical technique used to remove, as much as possible, the effects of differences in age when comparing two or more populations. An age-adjusted rate represents the number of new cases of cancer or cancer deaths that would have occurred if the age distribution of the study population 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).

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.

P value

The probability that a test statistic (e.g. a standardized incidence ratio) would be as extreme or more extreme than the one observed, because of chance, if the groups were really alike.

Prevalence

The number of people alive at a point in time who were 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.

Surveillance

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

Acronyms

ICDO -- International Classification of Diseases for Oncology

PSA ---- Prostate Specific Antigen

RHA --- Regional Health Authority

SIR ---- Standardized Incidence Ratio

SCA --- Saskatchewan Cancer Agency

SCCR -- Saskatchewan Cancer Control Report



Data Source

The data for this report was provided by the Saskatchewan Cancer Registry, which is maintained by the Saskatchewan Cancer Agency. A detailed description of the history of the Registry, the data sources, coding classifications, and the information recorded in it, is provided in the first issue of the Saskatchewan Cancer Control Report¹.

All cases of invasive and in situ cancer were retrieved from the Registry for the 20 years 1983-2002. Information obtained for each case included age at diagnosis, sex, date of diagnosis, date of death, cause of death, age at death, ICDO-T and ICDO-M topography and morphology codes, behaviour, and residence (five-digit provincial rescode) at date of diagnosis and date of death.

The cancers were grouped into common site categories using the ICDO-T, ICDO-M, and behaviour codes as indicated in Appendix A. These site categories were used for all analysis.

The Covered Population of Saskatchewan was used for the denominators to calculate rates⁵.

Analysis

When assigning new cancer cases or deaths to an RHA for analysis, fractional counts (such as 7.8 cases) can result because of how the population is assigned to each RHA. The RHAs are made from the rural municipalities of the province and some municipalities are split between different RHAs. For example, 35% of the Poplar Valley RM population is assigned to the Five Hills RHA and the remaining 65% is assigned to the Cypress RHA. The same apportioning was used to assign new cancer cases and cancer deaths to RHAs, which often results in fractional counts of cases in an RHA.

Age-adjusted rates were made using the direct method of standardization⁶. Five-year age groups between 15 and 79 years of age were

used to calculate age-specific rates. The age groups 0-14 and 80+ (80 and over) were used for the youngest and oldest age groups. These age-specific rates were calculated for each sex and cancer site category. The rates were then applied to the 1991 Canadian population, which was the standard, to produce age-adjusted rates per 100,000.

Standardized incidence ratios (indirect method of standardization) were calculated for the top sites in males and females for each RHA⁶. The expected numbers of cancers for a given site were determined by applying the provincial age and sex-specific rates for that site to the population at risk for each RHA. The populations of each RHA were summed over the five-year period 1998-2002 by age group and sex, providing the population at risk in person-years⁷.

Observed cancers by site and sex for the same years (1998-2002) were grouped by RHA. The observed number was divided by the expected number. The SIR was found using Equation 1. The SIRs were shown with signs depending on whether the observed number of cases was greater than expected (+) or less than expected (-).

$$\text{SIR} = (1 - (\text{observed number} / \text{expected number})) \times 100\% \quad (1)$$

P values for the SIRs were calculated based on a large sample method assuming a Poisson model for the observed number of cases. The Poisson model can be applied when the sample is large (populations of the RHAs) and risk (of cancer) is low. The score statistic in Equation 2 was calculated and compared to standard normal values to determine a one-sided p value for the SIRs⁸.

$$\chi_{\text{score}} = (O - E) / E^{1/2} \quad (2)$$

where O=observed number of cases, and
E= expected number of cases

Analysis for the report was done using SPSS 11.01 and Epi Info 2000. Maps were made using ArcMap 8.3.



APPENDIX A

SITE CATEGORIES AND ICDO DEFINITIONS

Site Category	ICDO-T (Topography)	ICDO-M (Morphology)	Behaviour
Lip	C000-C009		3
Oral Cavity	C019-C069		3
Head & 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 & Biliary Tract	C221-C249		3
Pancreas	C250-C259		3
Digestive Tract	C260-C269		3
Respiratory System	C300-C319, C379, C380-C399		3
Larynx	C320-C329		3
Trachea, Bronchus & Lung	C339-C349		3
Bone & Connective Tissue	C400-C419, C490-C499		3
Malignant Melanoma	C440-C449	8720-8790	3
Non-Melanoma Skin	C440-C449	Not 8720-8790	3
Breast	C500-C509		3
Female Genital Organs	C510-C519, C529, C570-C589		3
Cervix Invasive	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		3*
Brain & Central Nervous System	C700-C709, C710-C729		3
Thyroid	C739		3
Other Endocrine Glands	C740-C759		3
Non-Hodgkin's Lymphoma		9670-9729; 9590-9596	3
Hodgkin's Disease		9650-9667	3
Multiple Myeloma		9730-9739	3
Leukemia		9800-9949	3
Other Primaries	C470-C488, C690-C699, C760-C779, any other		3
Primary Unknown	C809		3
Cervix In Situ	C53		2
Other In Situ	Not C53		2

* In situ cases were included in Bladder prior to 2002, but as of 2002 only invasive cases are included.



APPENDIX B

INCIDENCE – AGE-SPECIFIC NUMBERS (FEMALE) – 2002

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	2	0	0	0	0	1	1	1	3	8	
Oral Cavity	0	0	0	0	0	0	1	0	0	3	4	1	1	1	8	19	
Head & Neck	0	0	0	0	0	0	0	2	0	3	0	1	1	0	2	9	
Esophagus	0	0	0	0	0	0	1	0	0	0	1	1	0	2	7	12	
Stomach	0	0	0	0	0	0	0	0	1	2	2	0	2	6	17	30	
Colon	0	0	0	0	0	1	3	6	8	16	15	24	30	32	76	211	
Rectum	0	0	0	0	1	0	3	7	8	6	16	8	4	13	23	89	
Liver	0	0	0	0	0	0	0	0	1	0	0	2	1	1	0	5	
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	1	2	0	1	4	3	7	9	27	
Pancreas	0	0	0	0	0	0	1	2	2	2	2	2	8	8	11	38	
Digestive Tract	0	1	0	0	0	0	1	1	1	1	2	2	3	0	2	14	
Larynx	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	4	
Trachea, Bronchus & Lung	0	0	0	1	0	0	1	4	11	35	36	40	38	44	43	253	
Respiratory System	0	0	0	0	0	0	1	2	2	2	0	0	2	0	0	9	
Bone & Connective Tissue	1	1	1	1	0	1	1	3	1	1	4	0	4	0	4	23	
Malignant Melanoma of Skin	0	2	1	1	2	7	7	5	7	5	6	5	3	1	13	65	
Breast	0	0	0	2	2	17	46	59	71	72	63	63	71	74	104	644	
Cervix Invasive	0	0	1	2	2	3	3	1	5	3	3	2	2	0	3	30	
Uterus	0	0	0	1	0	0	4	5	14	17	16	20	14	15	16	122	
Ovary	1	0	1	2	0	0	2	3	8	8	5	7	8	9	16	70	
Female Genital Organs	0	0	0	0	0	0	1	0	2	2	2	2	1	1	3	14	
Kidney	1	0	0	0	0	1	2	4	3	5	2	5	3	6	7	39	
Bladder	0	0	0	0	0	0	1	3	0	0	1	4	3	7	7	26	
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	3	0	1	3	7	
Brain & Central Nervous System	3	0	0	0	0	2	2	1	1	1	4	4	2	3	1	24	
Thyroid	0	0	3	3	4	1	4	7	5	1	5	3	3	6	2	47	
Other Endocrine Glands	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Non-Hodgkin's Lymphoma	0	0	0	1	0	3	3	3	2	10	5	15	12	8	18	80	
Hodgkin's Disease	0	2	2	1	1	2	1	0	2	0	0	0	2	0	2	15	
Multiple Myeloma	0	0	0	0	0	0	0	1	1	1	1	4	5	6	5	24	
Leukemia	3	1	1	0	0	1	4	1	2	2	5	9	9	9	6	53	
Primary Unknown	0	0	0	0	0	0	4	3	2	4	8	7	10	4	18	60	
Other Primaries	0	0	0	0	0	0	3	3	2	8	2	4	13	13	16	64	
Total	9	7	10	15	12	39	102	127	164	210	212	245	259	278	447	2136	
Non-Melanoma Skin	0	5	0	1	8	18	31	61	46	55	64	68	108	141	367	973	
Cervix In Situ	1	14	51	80	51	34	15	10	8	1	2	2	0	1	0	270	
Other In Situ	0	0	1	5	2	10	11	12	27	23	20	29	43	35	78	296	



APPENDIX B

INCIDENCE – AGE-SPECIFIC NUMBERS (MALE) – 2002

Age Group

SITE	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+	All Ages
Lip	0	0	0	0	0	0	1	0	2	2	0	5	9	0	4	23
Oral Cavity	0	0	0	0	0	0	2	3	2	2	2	3	1	0	3	18
Head & Neck	0	0	0	0	0	0	1	4	3	1	3	3	6	1	0	22
Esophagus	0	0	0	0	0	0	0	2	3	3	3	6	5	7	9	38
Stomach	0	0	0	0	0	1	1	0	4	5	5	9	10	5	19	59
Colon	0	1	0	0	0	3	5	4	11	18	22	27	32	39	44	206
Rectum	0	0	0	1	1	0	3	4	9	10	18	26	22	18	22	134
Liver	1	0	0	0	0	0	2	2	2	1	1	3	1	1	2	16
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	0	4	0	3	2	2	2	13
Pancreas	0	0	0	0	0	1	2	3	6	4	3	9	5	9	12	54
Digestive Tract	0	0	0	0	0	0	0	1	0	0	0	1	1	0	6	9
Larynx	0	0	0	0	0	0	1	1	2	2	2	7	5	3	0	23
Trachea, Bronchus & Lung	0	0	0	0	0	0	1	6	7	17	35	53	69	63	71	322
Respiratory System	0	0	1	0	0	1	0	1	0	0	2	2	2	3	1	13
Bone & Connective Tissue	1	0	0	0	0	1	0	1	3	1	2	1	1	1	4	16
Malignant Melanoma of Skin	0	0	0	1	2	0	1	6	7	2	7	7	7	6	8	54
Breast	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	5
Prostate	0	0	0	0	0	0	3	13	24	63	111	143	156	139	119	771
Male Genital Organs	0	3	7	6	6	3	4	2	1	2	3	0	3	1	0	41
Kidney	0	0	0	0	1	0	5	3	10	9	12	11	8	8	9	76
Bladder	0	0	0	0	1	1	0	2	5	6	9	15	18	14	30	101
Other Urinary Tract	0	0	0	0	0	0	1	0	0	1	0	0	4	6	3	15
Brain & Central Nervous System	1	0	0	1	1	4	3	4	4	3	3	5	0	5	0	34
Thyroid	0	0	1	1	1	2	3	0	1	3	1	1	1	0	1	16
Other Endocrine Glands	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
Non-Hodgkin's Lymphoma	0	0	0	2	1	4	9	12	12	4	12	9	16	10	16	107
Hodgkin's Disease	2	0	2	2	1	2	0	1	2	0	0	1	1	1	1	16
Multiple Myeloma	0	0	0	0	0	0	0	0	3	5	2	3	5	2	7	27
Leukemia	1	0	2	1	3	3	2	2	9	3	8	13	14	11	20	92
Primary Unknown	0	0	0	0	0	0	1	0	4	3	4	9	6	13	14	54
Other Primaries	0	1	0	0	1	0	0	0	5	3	7	11	8	11	5	52
Total	6	5	13	15	19	27	51	77	141	178	277	386	419	380	435	2429
Non-Melanoma Skin	0	0	0	4	5	12	36	47	84	97	101	170	211	231	393	1391
Other In Situ	0	0	0	2	0	2	9	7	19	10	22	26	46	48	53	244



APPENDIX B

INCIDENCE – AGE-SPECIFIC RATES PER 100,000 (FEMALE) – 2002

Age Group

SITE	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+	All Ages
Lip	0	0	0	0	0	0	5	0	0	0	0	5.3	5.4	5.8	10.3	1.6
Oral Cavity	0	0	0	0	0	0	2.5	0	0	12.3	19.6	5.3	5.4	5.8	27.4	3.7
Head & Neck	0	0	0	0	0	0	0	5.4	0	12.3	0	5.3	5.4	0	6.8	1.7
Esophagus	0	0	0	0	0	0	2.5	0	0	0	4.9	5.3	0	11.7	23.9	2.3
Stomach	0	0	0	0	0	0	0	0	3.3	8.2	9.8	0	10.7	35	58.1	5.8
Colon	0	0	0	0	0	2.7	7.5	16.1	26.3	65.6	73.7	127.4	161.1	186.4	259.9	41
Rectum	0	0	0	0	3.2	0	7.5	18.7	26.3	24.6	78.6	42.5	21.5	75.7	78.7	17.3
Liver	0	0	0	0	0	0	0	0	3.3	0	0	10.6	5.4	5.8	0	1
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	2.7	6.6	0	4.9	21.2	16.1	40.8	30.8	5.2
Pancreas	0	0	0	0	0	0	2.5	5.4	6.6	8.2	9.8	10.6	43	46.6	37.6	7.4
Digestive Tract	0	2.5	0	0	0	0	2.5	2.7	3.3	4.1	9.8	10.6	16.1	0	6.8	2.7
Larynx	0	0	0	0	0	0	0	0	0	0	4.9	5.3	0	0	6.8	0.8
Trachea, Bronchus & Lung	0	0	0	3.1	0	0	2.5	10.7	36.2	143.4	176.8	212.3	204	256.3	147.1	49.1
Respiratory System	0	0	0	0	0	0	2.5	5.4	6.6	8.2	0	0	10.7	0	0	1.7
Bone & Connective Tissue	1	2.5	2.8	3.1	0	2.7	2.5	8	3.3	4.1	19.6	0	21.5	0	13.7	4.5
Malignant Melanoma of Skin	0	5	2.8	3.1	6.4	19.1	17.5	13.4	23	20.5	29.5	26.5	16.1	5.8	44.5	12.6
Breast	0	0	0	6.2	6.4	46.4	114.8	157.9	233.7	295.1	309.4	334.4	381.2	431.1	355.7	125
Cervix Invasive	0	0	2.8	6.2	6.4	8.2	7.5	2.7	16.5	12.3	14.7	10.6	10.7	0	10.3	5.8
Uterus	0	0	0	3.1	0	0	10	13.4	46.1	69.7	78.6	106.2	75.2	87.4	54.7	23.7
Ovary	1	0	2.8	6.2	0	0	5	8	26.3	32.8	24.6	37.2	43	52.4	54.7	13.6
Female Genital Organs	0	0	0	0	0	0	2.5	0	6.6	8.2	9.8	10.6	5.4	5.8	10.3	2.7
Kidney	1	0	0	0	0	2.7	5	10.7	9.9	20.5	9.8	26.5	16.1	35	23.9	7.6
Bladder	0	0	0	0	0	0	2.5	8	0	0	4.9	21.2	16.1	40.8	23.9	5
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	15.9	0	5.8	10.3	1.4
Brain & Central Nervous System	2.9	0	0	0	0	5.5	5	2.7	3.3	4.1	19.6	21.2	10.7	17.5	3.4	4.7
Thyroid	0	0	8.3	9.3	12.8	2.7	10	18.7	16.5	4.1	24.6	15.9	16.1	35	6.8	9.1
Other Endocrine Glands	0	0	0	0	0	0	0	0	0	0	0	5.3	0	0	0	0.2
Non-Hodgkin's Lymphoma	0	0	0	3.1	0	8.2	7.5	8	6.6	41	24.6	79.6	64.4	46.6	61.6	15.5
Hodgkin's Disease	0	5	5.5	3.1	3.2	5.5	2.5	0	6.6	0	0	0	10.7	0	6.8	2.9
Multiple Myeloma	0	0	0	0	0	0	0	2.7	3.3	4.1	4.9	21.2	26.8	35	17.1	4.7
Leukemia	2.9	2.5	2.8	0	0	2.7	10	2.7	6.6	8.2	24.6	47.8	48.3	52.4	20.5	10.3
Primary Unknown	0	0	0	0	0	0	10	8	6.6	16.4	39.3	37.2	53.7	23.3	61.6	11.6
Other Primaries	0	0	0	0	0	0	7.5	8	6.6	32.8	9.8	21.2	69.8	75.7	54.7	12.4
Total	8.8	17.5	27.8	46.5	38.4	106.4	254.8	340	540	860.8	1041.1	1300.2	1390.6	1619.5	1528.7	414.6



APPENDIX B

INCIDENCE – AGE-SPECIFIC RATES PER 100,000 (MALE) – 2002

Age Group

SITE	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+	All Ages
Lip	0	0	0	0	0	0	2.5	0	6.4	8	0	27.9	54.2	0	24.2	4.5
Oral Cavity	0	0	0	0	0	0	4.9	7.8	6.4	8	10.1	16.7	6	0	18.1	3.5
Head & Neck	0	0	0	0	0	0	2.5	10.3	9.6	4	15.2	16.7	36.1	7.4	0	4.3
Esophagus	0	0	0	0	0	0	0	5.2	9.6	12	15.2	33.5	30.1	52	54.4	7.5
Stomach	0	0	0	0	0	2.7	2.5	0	12.7	20	25.3	50.2	60.2	37.2	114.8	11.6
Colon	0	2.4	0	0	0	8.2	12.3	10.3	35	72.2	111.1	150.5	192.6	289.9	265.9	40.4
Rectum	0	0	0	3	3.1	0	7.4	10.3	28.7	40.1	90.9	145	132.4	133.8	132.9	26.3
Liver	0.9	0	0	0	0	0	4.9	5.2	6.4	4	5.1	16.7	6	7.4	12.1	3.1
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	0	16	0	16.7	12	14.9	12.1	2.6
Pancreas	0	0	0	0	0	2.7	4.9	7.8	19.1	16	15.2	50.2	30.1	66.9	72.5	10.6
Digestive Tract	0	0	0	0	0	0	0	2.6	0	0	0	5.6	6	0	36.3	1.8
Larynx	0	0	0	0	0	0	2.5	2.6	6.4	8	10.1	39	30.1	22.3	0	4.5
Trachea, Bronchus & Lung	0	0	0	0	0	0	2.5	15.5	22.3	68.2	176.8	295.5	415.3	468.3	429	63.2
Respiratory System	0	0	2.6	0	0	2.7	0	2.6	0	0	10.1	11.2	12	22.3	6	2.6
Bone & Connective Tissue	0.9	0	0	0	0	2.7	0	2.6	9.6	4	10.1	5.6	6	7.4	24.2	3.1
Malignant Melanoma of Skin	0	0	0	3	6.3	0	2.5	15.5	22.3	8	35.4	39	42.1	44.6	48.3	10.6
Breast	0	0	0	0	0	0	0	0	0	4	0	0	0	7.4	18.1	1
Prostate	0	0	0	0	0	0	7.4	33.6	76.4	252.6	560.7	797.3	938.9	1033.2	719.1	151.3
Male Genital Organs	0	7.2	18	17.9	18.9	8.2	9.8	5.2	3.2	8	15.2	0	18.1	7.4	0	8
Kidney	0	0	0	0	3.1	0	12.3	7.8	31.8	36.1	60.6	61.3	48.1	59.5	54.4	14.9
Bladder	0	0	0	0	3.1	2.7	0	5.2	15.9	24.1	45.5	83.6	108.3	104.1	181.3	19.8
Other Urinary Tract	0	0	0	0	0	0	2.5	0	0	4	0	0	24.1	44.6	18.1	2.9
Brain & Central Nervous System	0.9	0	0	3	3.1	11	7.4	10.3	12.7	12	15.2	27.9	0	37.2	0	6.7
Thyroid	0	0	2.6	3	3.1	5.5	7.4	0	3.2	12	5.1	5.6	6	0	6	3.1
Other Endocrine Glands	0	0	0	0	0	2.7	0	0	0	0	0	0	6	0	0	0.4
Non-Hodgkin's Lymphoma	0	0	0	6	3.1	11	22.2	31	38.2	16	60.6	50.2	96.3	74.3	96.7	21
Hodgkin's Disease	1.9	0	5.1	6	3.1	5.5	0	2.6	6.4	0	0	5.6	6	7.4	6	3.1
Multiple Myeloma	0	0	0	0	0	0	0	0	9.6	20	10.1	16.7	30.1	14.9	42.3	5.3
Leukemia	0.9	0	5.1	3	9.4	8.2	4.9	5.2	28.7	12	40.4	72.5	84.3	81.8	120.9	18.1
Primary Unknown	0	0	0	0	0	0	2.5	0	12.7	12	20.2	50.2	36.1	96.6	84.6	10.6
Other Primaries	0	2.4	0	0	3.1	0	0	0	15.9	12	35.4	61.3	48.1	81.8	30.2	10.2
Total	5.5	12	33.4	44.9	59.4	73.8	125.8	199.2	449.2	713.3	1399.6	2152.2	2521.6	2824.6	2628.5	476.6



APPENDIX B

MORTALITY – AGE-SPECIFIC NUMBERS (FEMALE) – 2002

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
Oral Cavity	0	0	0	0	0	1	0	0	0	2	0	1	2	0	3	9
Head & Neck	0	0	1	0	0	0	1	0	0	0	3	1	1	0	1	8
Esophagus	0	0	0	0	0	0	0	0	1	1	1	2	1	2	3	11
Stomach	0	0	0	0	0	0	0	1	1	2	0	2	5	3	13	27
Colon	0	0	0	0	0	2	2	2	4	6	6	5	4	11	37	79
Rectum	0	0	0	0	0	1	1	0	0	0	1	2	2	4	6	17
Liver	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	4
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	2	0	1	3	1	1	12	20
Pancreas	0	0	0	0	0	0	0	2	3	2	1	3	6	11	17	45
Digestive Tract	0	0	0	0	0	0	0	0	1	0	1	0	2	2	11	17
Larynx	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	3
Trachea, Bronchus & Lung	0	0	0	0	0	0	0	5	16	28	35	24	37	35	47	227
Respiratory System	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	4
Bone & Connective Tissue	1	0	0	0	1	0	1	0	1	0	2	2	1	0	2	11
Malignant Melanoma of Skin	0	0	0	0	0	0	1	0	0	0	1	1	1	2	3	9
Breast	0	0	0	1	0	2	6	9	15	20	19	14	12	17	45	160
Cervix Invasive	0	0	1	1	0	1	0	3	1	2	0	1	1	1	1	13
Uterus	0	0	0	0	0	0	0	0	1	1	1	5	2	3	8	21
Ovary	0	0	0	0	0	0	0	2	3	5	4	9	8	4	12	47
Female Genital Organs	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
Kidney	0	0	0	0	0	0	0	1	2	2	1	2	3	4	8	23
Bladder	0	0	0	0	0	0	0	0	0	0	0	1	1	3	6	11
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brain & Central Nervous System	0	0	0	0	0	0	2	1	0	0	1	5	2	1	4	16
Thyroid	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Other Endocrine Glands	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Non-Hodgkin's Lymphoma	0	0	1	0	0	1	1	0	1	4	2	2	8	8	17	45
Hodgkin's Disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Multiple Myeloma	0	0	0	0	0	0	0	0	1	1	1	3	1	5	10	22
Leukemia	0	0	1	0	0	0	0	2	0	0	1	1	2	6	12	25
Primary Unknown	0	0	0	0	2	2	0	0	2	6	7	9	10	9	31	78
Other Primaries	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	6
Total	1	0	4	2	4	11	15	29	56	83	91	100	114	137	317	964



APPENDIX B

MORTALITY – AGE-SPECIFIC NUMBERS (MALE) – 2002

Age Group

SITE	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+	All Ages
Lip	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Oral Cavity	0	0	0	0	0	0	1	0	0	1	0	1	3	0	2	8
Head & Neck	0	0	0	0	0	0	0	2	0	3	1	2	1	1	1	11
Esophagus	0	0	0	0	0	0	0	1	4	0	3	7	8	4	9	36
Stomach	0	0	0	0	0	0	2	1	1	2	4	3	10	4	15	42
Colon	0	0	0	0	0	0	1	1	3	6	17	16	15	18	22	99
Rectum	0	0	0	0	1	0	1	2	3	3	5	4	9	5	12	45
Liver	0	0	0	0	0	0	1	1	1	0	0	0	0	1	1	5
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	1	0	0	1	2	3	5	12
Pancreas	0	0	0	0	0	1	2	2	4	2	5	6	9	14	17	62
Digestive Tract	0	0	0	0	0	0	0	1	0	1	0	5	4	5	9	25
Larynx	0	0	0	0	0	0	0	0	0	1	0	0	7	0	5	13
Trachea, Bronchus & Lung	0	0	0	0	0	0	1	4	10	15	29	51	58	44	104	316
Respiratory System	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Bone & Connective Tissue	1	1	0	0	1	0	0	1	0	1	1	0	0	0	4	10
Malignant Melanoma of Skin	0	0	0	0	0	0	1	1	0	1	1	3	5	0	1	13
Breast	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Prostate	0	0	0	0	0	0	0	1	3	4	5	14	37	37	120	221
Male Genital Organs	0	0	0	0	0	0	1	0	0	0	0	0	2	0	4	7
Kidney	1	0	0	0	0	0	0	0	2	5	3	3	5	6	4	29
Bladder	0	0	0	0	0	0	0	1	1	2	3	2	5	8	15	37
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Brain & Central Nervous System	0	0	0	0	1	3	1	0	4	3	1	4	1	4	5	27
Thyroid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Other Endocrine Glands	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	3
Non-Hodgkin's Lymphoma	1	0	0	0	0	0	0	1	1	4	3	4	9	10	16	49
Hodgkin's Disease	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Multiple Myeloma	0	0	0	0	0	0	0	0	2	0	2	2	3	3	4	16
Leukemia	0	0	0	1	0	1	0	0	2	2	5	5	6	10	19	51
Primary Unknown	0	0	0	0	0	0	0	2	3	7	11	10	11	20	35	99
Other Primaries	0	0	0	0	0	0	0	0	0	1	1	3	0	2	3	10
Total	3	1	0	1	3	6	12	22	45	64	100	147	212	201	437	1254



APPENDIX B

MORTALITY – AGE-SPECIFIC RATES PER 100,000 (FEMALE) – 2002

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
Oral Cavity	0	0	0	0	0	2.7	0	0	0	8.2	0	5.3	10.7	0	10.3	1.7
Head & Neck	0	0	2.8	0	0	0	2.5	0	0	0	14.7	5.3	5.4	0	3.4	1.6
Esophagus	0	0	0	0	0	0	0	0	3.3	4.1	4.9	10.6	5.4	11.7	10.3	2.1
Stomach	0	0	0	0	0	0	0	2.7	3.3	8.2	0	10.6	26.8	17.5	44.5	5.2
Colon	0	0	0	0	0	5.5	5	5.4	13.2	24.6	29.5	26.5	21.5	64.1	126.5	15.3
Rectum	0	0	0	0	0	2.7	2.5	0	0	0	4.9	10.6	10.7	23.3	20.5	3.3
Liver	0	0	0	0	0	0	0	2.7	3.3	0	0	5.3	0	5.8	0	0.8
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	6.6	0	4.9	15.9	5.4	5.8	41	3.9
Pancreas	0	0	0	0	0	0	0	5.4	9.9	8.2	4.9	15.9	32.2	64.1	58.1	8.7
Digestive Tract	0	0	0	0	0	0	0	0	3.3	0	4.9	0	10.7	11.7	37.6	3.3
Larynx	0	0	0	0	0	0	0	0	0	0	4.9	0	0	0	6.8	0.6
Trachea, Bronchus & Lung	0	0	0	0	0	0	0	13.4	52.7	114.7	171.9	127.4	198.7	203.9	160.7	44.1
Respiratory System	0	0	0	0	0	2.7	0	0	0	0	4.9	0	0	5.8	3.4	0.8
Bone & Connective Tissue	1	0	0	0	3.2	0	2.5	0	3.3	0	9.8	10.6	5.4	0	6.8	2.1
Malignant Melanoma of Skin	0	0	0	0	0	0	2.5	0	0	0	4.9	5.3	5.4	11.7	10.3	1.7
Breast	0	0	0	3.1	0	5.5	15	24.1	49.4	82	93.3	74.3	64.4	99	153.9	31.1
Cervix Invasive	0	0	2.8	3.1	0	2.7	0	8	3.3	8.2	0	5.3	5.4	5.8	3.4	2.5
Uterus	0	0	0	0	0	0	0	0	3.3	4.1	4.9	26.5	10.7	17.5	27.4	4.1
Ovary	0	0	0	0	0	0	0	5.4	9.9	20.5	19.6	47.8	43	23.3	41	9.1
Female Genital Organs	0	0	0	0	3.2	0	0	0	0	0	0	0	0	5.8	0	0.4
Kidney	0	0	0	0	0	0	0	2.7	6.6	8.2	4.9	10.6	16.1	23.3	27.4	4.5
Bladder	0	0	0	0	0	0	0	0	0	0	0	5.3	5.4	17.5	20.5	2.1
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brain & Central Nervous System	0	0	0	0	0	0	5	2.7	0	0	4.9	26.5	10.7	5.8	13.7	3.1
Thyroid	0	0	0	0	0	0	0	0	0	0	0	0	0	5.8	3.4	0.4
Other Endocrine Glands	0	0	0	0	0	0	0	0	0	4.1	0	0	0	0	0	0.2
Non-Hodgkin's Lymphoma	0	0	2.8	0	0	2.7	2.5	0	3.3	16.4	9.8	10.6	43	46.6	58.1	8.7
Hodgkin's Disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.4	0.2
Multiple Myeloma	0	0	0	0	0	0	0	0	3.3	4.1	4.9	15.9	5.4	29.1	34.2	4.3
Leukemia	0	0	2.8	0	0	0	0	5.4	0	0	4.9	5.3	10.7	35	41	4.9
Primary Unknown	0	0	0	0	6.4	5.5	0	0	6.6	24.6	34.4	47.8	53.7	52.4	106	15.1
Other Primaries	0	0	0	0	0	0	0	0	0	0	0	5.3	5.4	5.8	10.3	1.2
Total	1	0	11.2	6.2	12.8	30	37.5	77.9	184.6	340.2	446.7	530.5	612.2	798.1	1083.9	187.1



APPENDIX B

MORTALITY – AGE-SPECIFIC RATES PER 100,000 (MALE) – 2002

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	6	0	0	0.2
Oral Cavity	0	0	0	0	0	0	2.5	0	0	4	0	5.6	18.1	0	12.1	1.6
Head & Neck	0	0	0	0	0	0	0	5.2	0	12	5.1	11.2	6	7.4	6	2.2
Esophagus	0	0	0	0	0	0	0	2.6	12.7	0	15.2	39	48.1	29.7	54.4	7.1
Stomach	0	0	0	0	0	0	4.9	2.6	3.2	8	20.2	16.7	60.2	29.7	90.6	8.2
Colon	0	0	0	0	0	0	2.5	2.6	9.6	24.1	85.9	89.2	90.3	133.8	132.9	19.4
Rectum	0	0	0	0	3.1	0	2.5	5.2	9.6	12	25.3	22.3	54.2	37.2	72.5	8.8
Liver	0	0	0	0	0	0	2.5	2.6	3.2	0	0	0	0	7.4	6	1
Gall Bladder & Biliary Tract	0	0	0	0	0	0	0	0	3.2	0	0	5.6	12	22.3	30.2	2.4
Pancreas	0	0	0	0	0	2.7	4.9	5.2	12.7	8	25.3	33.5	54.2	104.1	102.7	12.2
Digestive Tract	0	0	0	0	0	0	0	2.6	0	4	0	27.9	24.1	37.2	54.4	4.9
Larynx	0	0	0	0	0	0	0	0	0	4	0	0	42.1	0	30.2	2.6
Trachea, Bronchus & Lung	0	0	0	0	0	0	2.5	10.3	31.8	60.1	146.5	284.4	349.1	327.1	628.4	62
Respiratory System	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0.4
Bone & Connective Tissue	0.9	2.4	0	0	3.1	0	0	2.6	0	4	5.1	0	0	0	24.2	2
Malignant Melanoma of Skin	0	0	0	0	0	0	2.5	2.6	0	4	5.1	16.7	30.1	0	6	2.6
Breast	0	0	0	0	0	0	0	0	0	0	0	0	0	7.4	0	0.2
Prostate	0	0	0	0	0	0	0	2.6	9.6	16	25.3	78.1	222.7	275	725.1	43.4
Male Genital Organs	0	0	0	0	0	0	2.5	0	0	0	0	0	12	0	24.2	1.4
Kidney	0.9	0	0	0	0	0	0	0	6.4	20	15.2	16.7	30.1	44.6	24.2	5.7
Bladder	0	0	0	0	0	0	0	2.6	3.2	8	15.2	11.2	30.1	59.5	90.6	7.3
Other Urinary Tract	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.1	0.4
Brain & Central Nervous System	0	0	0	0	3.1	8.2	2.5	0	12.7	12	5.1	22.3	6	29.7	30.2	5.3
Thyroid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.2
Other Endocrine Glands	0	0	0	0	0	2.7	0	0	0	0	0	0	0	7.4	6	0.6
Non-Hodgkin's Lymphoma	0.9	0	0	0	0	0	0	2.6	3.2	16	15.2	22.3	54.2	74.3	96.7	9.6
Hodgkin's Disease	0	0	0	0	0	0	0	0	0	0	0	5.6	0	0	0	0.2
Multiple Myeloma	0	0	0	0	0	0	0	0	6.4	0	10.1	11.2	18.1	22.3	24.2	3.1
Leukemia	0	0	0	3	0	2.7	0	0	6.4	8	25.3	27.9	36.1	74.3	114.8	10
Primary Unknown	0	0	0	0	0	0	0	5.2	9.6	28.1	55.6	55.8	66.2	148.7	211.5	19.4
Other Primaries	0	0	0	0	0	0	0	0	0	4	5.1	16.7	0	14.9	18.1	2
Total	2.7	2.4	0	3	9.3	16.3	29.8	57.1	143.5	256.3	505.8	819.9	1276	1494	2640.3	246.4



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