Alberta Health Services

Report on Cancer Statistics in Alberta

Non-Hodgkin Lymphoma

November 2009

Surveillance - Cancer Bureau
Health Promotion, Disease and Injury Prevention

Purpose of the Report

The Surveillance Department-Cancer Bureau; Health Promotion, Disease and Injury Prevention; Alberta Health Services is dedicated to Alberta Health Services' strategic plan of quality (responsive to communities and improving population health), access (supporting research commitments) and sustainability. Specifically, the Surveillance Department contributes to the common goal of reducing the burden of cancer by conducting cancer ***surveillance*** through the collection, integration, analysis and dissemination of cancer related information.

This report is designed to provide comprehensive and detailed information regarding non-Hodgkin lymphoma in Alberta. This document will help support health professionals, researchers and policy makers in the planning, monitoring and evaluation of cancer-related health programs. It will also be a useful education tool for the general public and media.

Navigating the Report

This document provides information on non-Hodgkin lymphoma statistics in Alberta. Details about other individual cancer types are available within separate documents. The words highlighted in ***dark blue*** are terms described in detail within the **Glossary**.

Data Clarifications

In this document, the term "cancer" refers to ***invasive cancers*** unless otherwise specified. It is important to note that this document contains both actual and estimated data; distinctions are made where applicable. The numbers published in this report should be considered provisional, as a few cases and deaths may be registered in subsequent years. The data in this report reflect the state of the Alberta Cancer Registry as of June 1, 2009.

For detailed descriptions about data sources and how they affect data presented in this report, please see the **Data Sources and Quality** section.

Summary

- Approximately **1 in 45** men and **1 in 52** women will develop invasive non-Hodgkin lymphoma within their lifetime.
- In 2006, **2,807** potential years of life were lost due to non-Hodgkin lymphoma.
- As of December 31, 2006, approximately **3,410** Albertans were alive who had previously been diagnosed with non-Hodgkin lymphoma.
- In 2006, there were **552** new cases of non-Hodgkin lymphoma in Alberta and **200** deaths due to the disease.
- If current trends continue, approximately **400** males cases and **300** female cases of non-Hodgkin lymphoma are expected to be diagnosed in 2011.
- The five-year relative survival for non-Hodgkin lymphoma in Alberta is approximately **65%** for those diagnosed between 2004 and 2006.

Probability of Developing and Dying from Non-Hodgkin Lymphoma

The ***probability of developing or dying of cancer*** measures the risk of an individual in a given age range developing or dying of cancer, and is conditional on the person being non-Hodgkin lymphoma free prior to the beginning of that age range.

It is important to note that the probabilities of developing and dying of cancer represent all of Alberta's population on average and should be interpreted with caution at the individual level. In addition, someone diagnosed with cancer has a higher probability of developing another cancer in the future.[1]

Table 7-1: Probability of Developing Non-Hodgkin Lymphoma by Age and Sex, Alberta, 2006

Age Group	Males	Females
Lifetime Risk (all ages)	1 in 45	1 in 52
0 - 20	1 in 3,268	1 in 5,291
20 - 30	1 in 5,102	1 in 4,425
30 - 40	1 in 1,245	1 in 2,725
40 - 50	1 in 657	1 in 1,152
50 - 60	1 in 387	1 in 465
60 - 70	1 in 210	1 in 227
70 - 80	1 in 130	1 in 165
80+	1 in 81	1 in 106

Approximately 1 in 45 males and 1 in 52 females will develop invasive non-Hodgkin lymphoma in their lifetime (**Table 7-1**).

The bottom eight rows of the table show the probability of developing non-Hodgkin lymphoma by the end of the age range for a non-Hodgkin lymphoma free individual at the beginning of the age range. The probability of dying from non-Hodgkin lymphoma increases with age. For instance, a non-Hodgkin lymphoma free female at age 40 has a 1 in 1,152 chance of developing non-Hodgkin lymphoma by the time she is 50.

Table 7-2: Probability of Dying from Non-Hodgkin Lymphoma by Age and Sex, Alberta, 2006

Age Group	Males	Females
Lifetime Risk (all ages)	1 in 93	1 in 124
0 - 20	Less than 1 in 10,000	Less than 1 in 10,000
20 - 30	Less than 1 in 10,000	Less than 1 in 10,000
30 - 40	Less than 1 in 10,000	Less than 1 in 10,000
40 - 50	1 in 2,941	Less than 1 in 10,000
50 - 60	1 in 2,525	1 in 3,067
60 - 70	1 in 501	1 in 943
70 - 80	1 in 204	1 in 412
80+	1 in 128	1 in 150

The probability of dying from non-Hodgkin lymphoma varies by age and sex (**Table 7-2**).

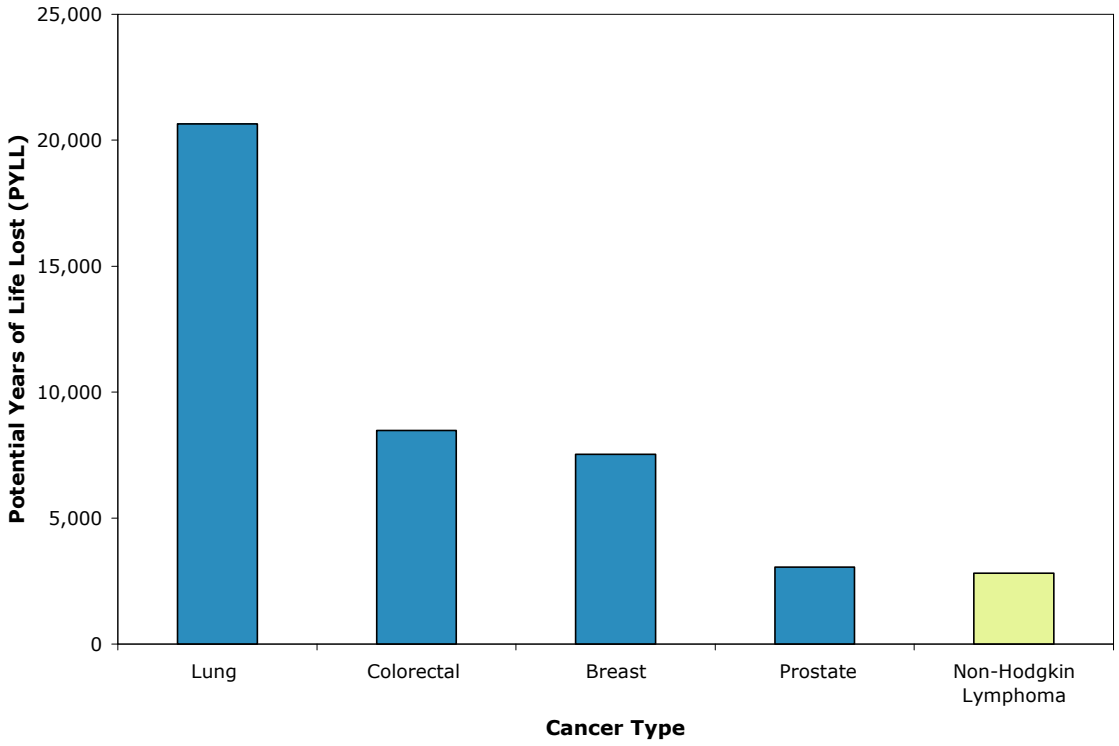
Approximately 1 in 93 males and 1 in 124 females will die of invasive non-Hodgkin lymphoma.

The bottom eight rows of the table show the probability of a non-Hodgkin lymphoma free individual at the beginning of the age range dying from non-Hodgkin lymphoma by the end of the age range. For example, a non-Hodgkin lymphoma free female at age 50 has a 1 in 3,067 chance of dying from non-Hodgkin lymphoma by the time she is 60.

Potential Years of Life Lost

One frequently used measure of premature death is ***potential years of life lost (PYLL)***. PYLL due to cancer is an estimate of the number of years that people would have lived had they not died from cancer. PYLL was calculated by obtaining the number of deaths and the mean life expectancy of each age group. The results are a reflection of how many people died, their ages at death, and life expectancy. Life expectancy is calculated by determining the age to which an individual would have been expected to live had they not died from cancer. PYLL is one way to measure the impact, or burden, of a disease on a population.

Figure 7-1: Potential Years of Life Lost (PYLL) from Non-Hodgkin Lymphoma* Compared with Lung*, Colorectal*, Breast† and Prostate‡ Cancers, Alberta, 2006



* Male and Female
† Female only
‡ Male only

In 2006, **2,807** potential years of life were lost due to non-Hodgkin lymphoma, which constitutes 3.3% of PYLL for all cancers (**Figure 7-1**).

Prevalence

The ***prevalence*** of a disease is defined as the number of people currently living with that disease. In this section of the report, the cancer prevalence presented describes the number of people alive as of December 31, 2006 who had ever been diagnosed with non-Hodgkin lymphoma.

Prevalence is a useful indicator of the impact of cancer on individuals, the healthcare system and the community as a whole. Although many cancer survivors lead healthy and productive lives, the experience can have a strong impact on the physical and emotional well-being of individuals and their families. The cancer experience can also result in the continued use of the healthcare system through rehabilitation or support services, as well as loss of work productivity that can affect the whole community.

As of December 31, 2006, approximately **3,410** Albertans were alive who had previously been diagnosed with non-Hodgkin lymphoma.

Non-Hodgkin Lymphoma Incidence and Mortality

Introduction

Incidence counts are the number of new cancer cases diagnosed during a specific time period in a specific population. In this section of the report, incidence counts refer to the number of new non-Hodgkin lymphoma diagnoses in Alberta in a calendar year. Incidence rates are the number of new cancer cases diagnosed per 100,000 population in a specific time period.

Mortality counts describe the number of deaths attributed to cancer during a specific period of time in a specific population. In this section of the report, mortality refers to the number of deaths due to non-Hodgkin lymphoma in Alberta in a calendar year, regardless of date of diagnosis. Mortality rates are the number of deaths per 100,000 population in a specific time period.

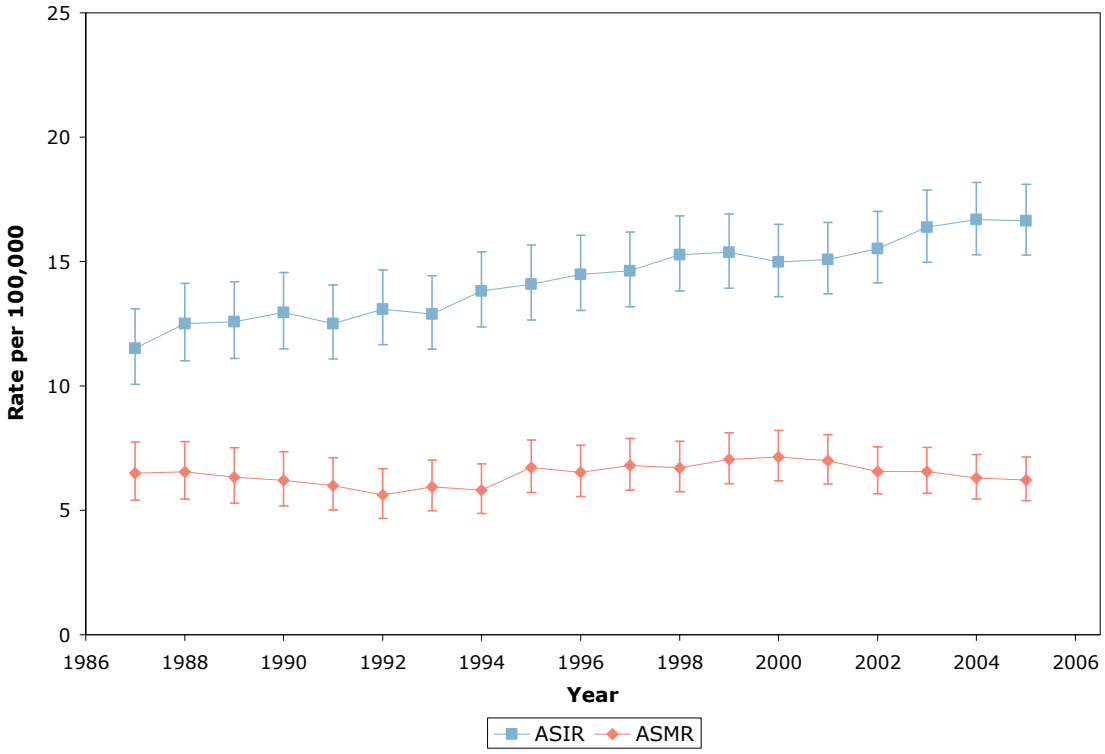
In order to compare cancer incidence or cancer mortality over time or between populations, ***age-standardized incidence rates (ASIRs)*** or ***age-standardized mortality rates (ASMRs)*** are presented. These are weighted averages of ***age-specific rates*** using a standard population. These rates are useful because they are adjusted for differences in age distributions in a population over time, which permit comparisons of cancer incidence or mortality between populations that differ in size, structure or time period. ASIRs and ASMRs give the overall incidence and mortality rates that would have occurred if the population of Alberta had been the same as the standard population. In this report the Canadian 1991 population is used as the standard population.

Three-year moving averages are used to smooth out year-to-year fluctuations so that the underlying trend may be more easily observed. They are calculated based on aggregating three years of data. Age-standardized incidence rates (ASIRs) and age-standardized mortality rates (ASMRs) are presented as three-year moving averages. This smoothing of trends is especially important when the number of cancer cases per year is relatively small, where year-to-year variability can be quite large.

Incidence and mortality can be affected by the implementation of public health prevention or screening strategies that either prevent disease or find cancer in its early ***stages*** when treatment is generally more successful, the development of cancer treatment programs that may impact chances of survival, and research innovations.

The following three figures show incidence and mortality trends in Alberta. Separate analyses for both incidence and mortality are shown in subsequent sections. Significant increases or decreases were detected using JoinPoint[2] and are described in the text accompanying each graph. JoinPoint models are based on yearly rates; hence there may be slight differences in the rates presented in the text (from JoinPoint model) and the graphs (where ASIRs and ASMRs are shown as three-year moving averages).

Figure 7-2: Age-Standardized Incidence Rates (ASIRs)[*†] and Mortality Rates (ASMRs)[*†] for Non-Hodgkin Lymphoma, Both Sexes, Alberta, 1986-2006

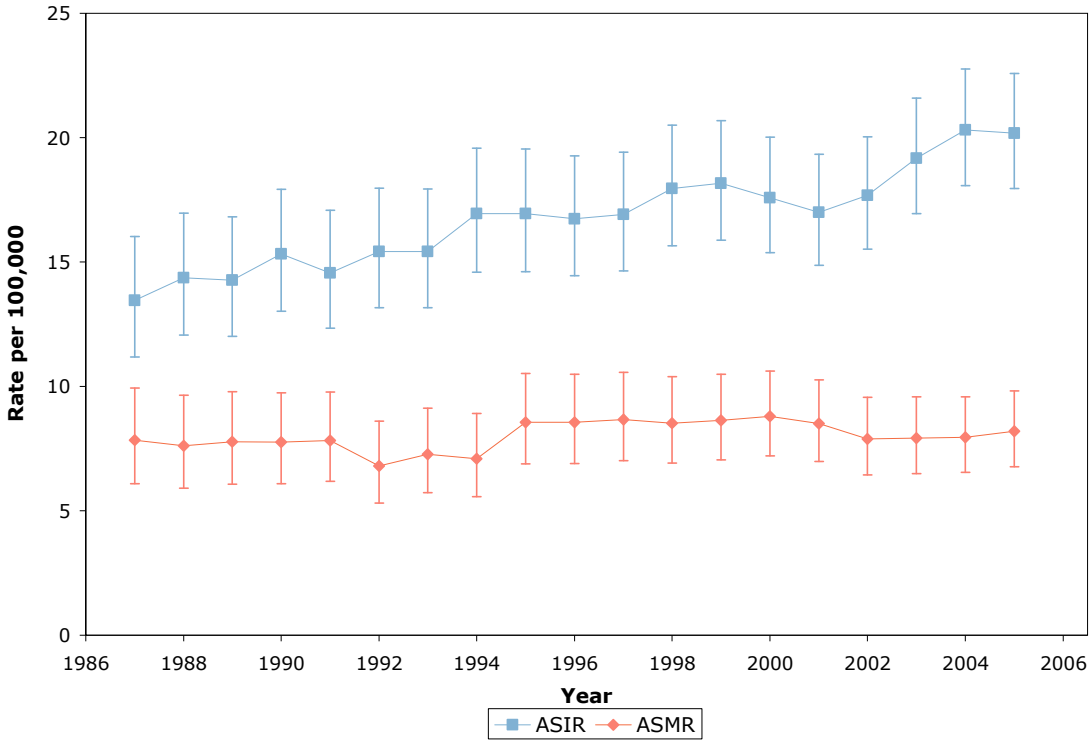


[*] Three-year moving average.
[†] Standardized to 1991 Canadian population.

Non-Hodgkin lymphoma ASIRs have increased significantly since 1986 (**Figure 7-2**). Between 1986 and 2006, non-Hodgkin lymphoma ASIRs increased 46% from 11.7 to 17.1 per 100,000. This corresponds to an annual increase in non-Hodgkin lymphoma rates of 1.9% between 1986 and 2006.

Non-Hodgkin lymphoma mortality rates are lower than incidence rates (**Figure 7-2**). ASMRs have not changed significantly since 1986.

Figure 7-3: Age-Standardized Incidence Rates (ASIRs)[*†] and Mortality Rates (ASMRs)[*†] for Non-Hodgkin Lymphoma, Males, Alberta, 1986-2006

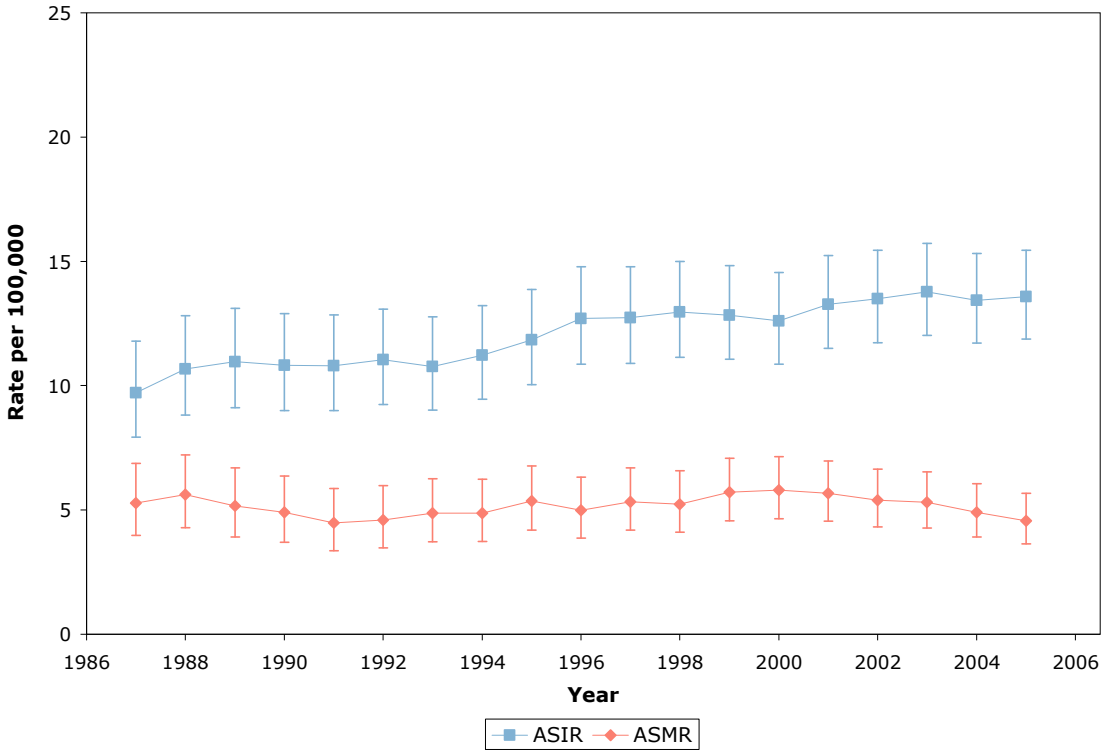


[*] Three-year moving average.
[†] Standardized to 1991 Canadian population.

Male non-Hodgkin lymphoma ASIRs have increased since 1986 (**Figure 7-3**). Between 1986 and 2006, male non-Hodgkin lymphoma ASIRs increased 47% from 13.7 to 20.2 per 100,000. This corresponds to an annual increase in non-Hodgkin lymphoma rates of 2.0% between 1986 and 2006.

Male mortality rates are lower than incidence rates (**Figure 7-3**). Male non-Hodgkin lymphoma ASMRs have not changed significantly since 1986.

Figure 7-4: Age-Standardized Incidence Rates (ASIRs)[*†] and Mortality Rates (ASMRs)[*†] for Non-Hodgkin Lymphoma, Females, Alberta, 1986-2006



[*] Three-year moving average.
[†] Standardized to 1991 Canadian population.

Female non-Hodgkin lymphoma ASIRs have increased significantly since 1986 (**Figure 7-4**). Between 1986 and 2006, female non-Hodgkin lymphoma ASIRs increased 43% from 10.0 to 14.3 per 100,000. This corresponds to an annual increase in non-Hodgkin lymphoma rates of 1.8% between 1986 and 2006.

Female mortality rates are lower than incidence rates (**Figure 7-4**). Female non-Hodgkin lymphoma ASMRs have not changed significantly since 1986.

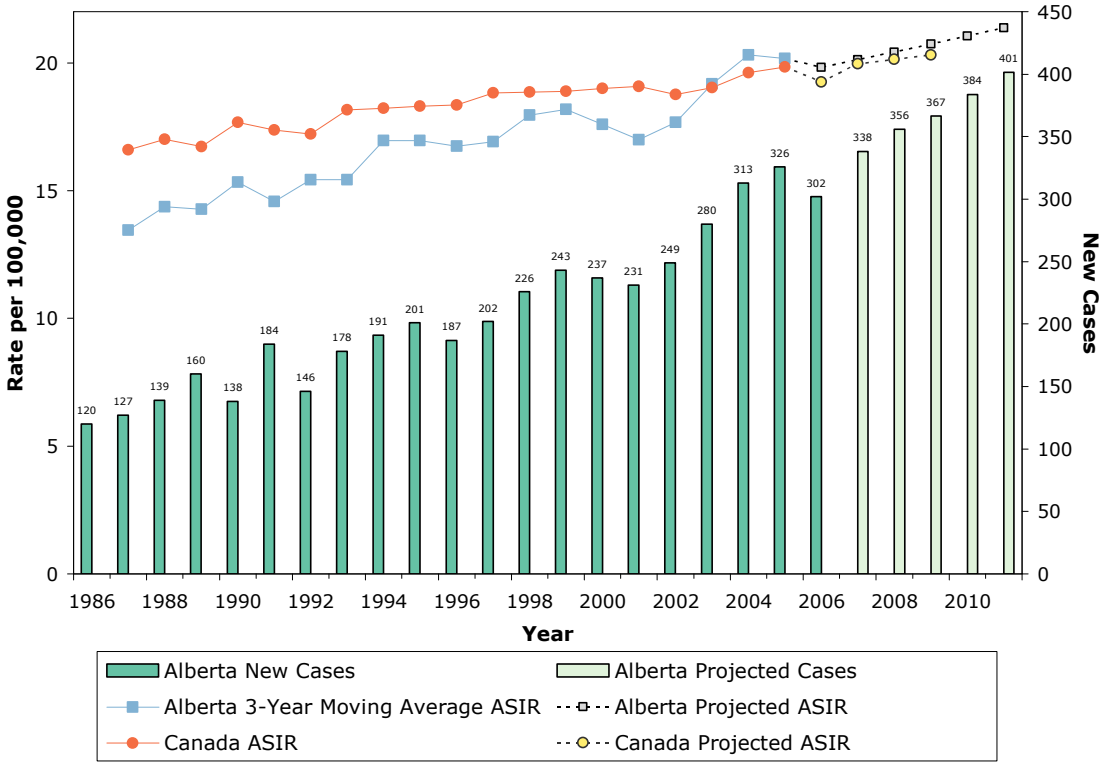
Non-Hodgkin Lymphoma Incidence

The following three figures (**Figures 7-5 to 7-7**) provide information on non-Hodgkin lymphoma incidence in Alberta. The number of new cancer cases in Alberta is affected not only by changes in the incidence rates, but also by the changes in the age structure and growth of the population. In order to compare trends over time, age-standardized incidence rates (ASIRs) are also provided.

Years 2006-2011 in **Figures 7-5** and **7-6** are shown as ***projections***, which are estimates of new cancer cases and cancer rates that may occur in the future. The projected cancer numbers were calculated by applying the estimated five-year age-specific cancer incidence rates to the projected age-specific population figures (observed up to 2008 and estimated for 2009-2011) provided by Alberta Health and Wellness.[3] Caution should be exercised when comparing Canada[4] and Alberta rates due to minor differences between the Canadian Cancer Society and Alberta Cancer Registry classification of non-Hodgkin lymphoma.

The estimated cancer incidence rates were calculated by extrapolating the recent trends in observed five-year age-specific rates, which were modeled using log-linear regression.[5] For those age groups where there were few cancers for most of the years, the average rates for the most recent five years were used.

Figure 7-5: Actual and Projected Number of New Cases and Age-Standardized Incidence Rates (ASIRs)[*†] for Non-Hodgkin Lymphoma, Males, Alberta, 1986-2011

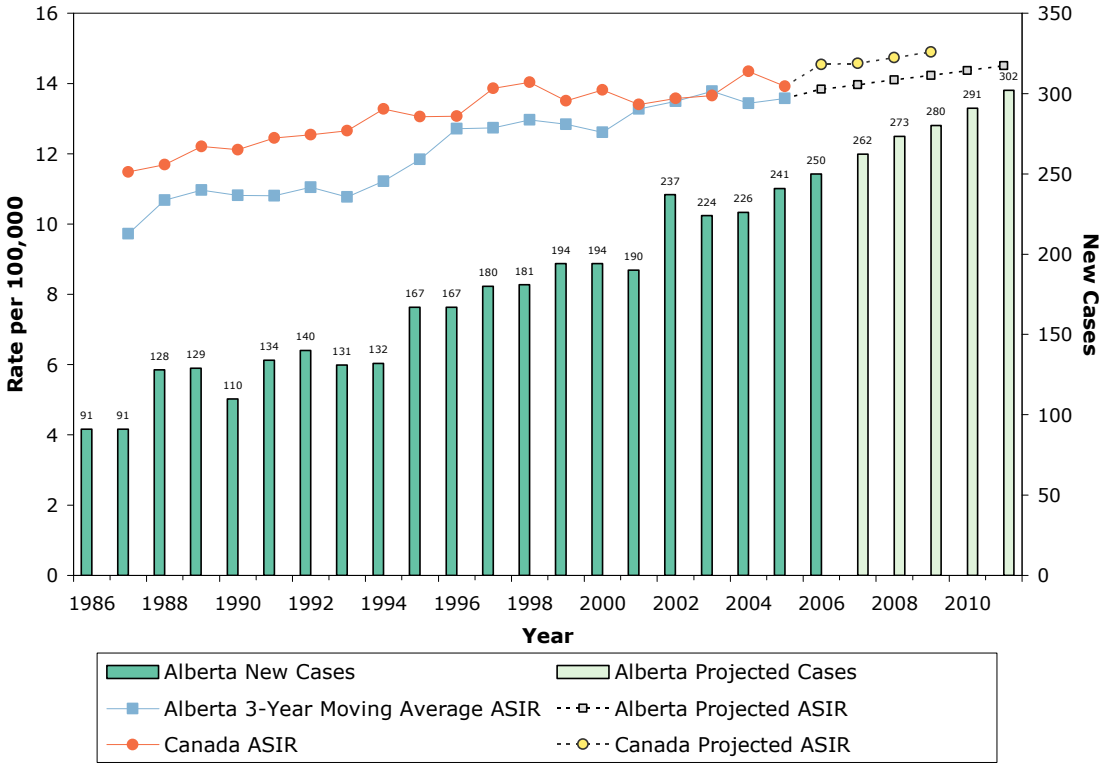


[*] Three-year moving average.
[†] Standardized to 1991 Canadian population.

In 2006, 302 cases of male non-Hodgkin lymphoma were diagnosed (**Figure 7-5**). This was more than twice as many cases than were diagnosed in 1986. ASIRs for non-Hodgkin lymphoma in Alberta were lower than ASIRs in Canada between 1987 and 2002; however, for the period 2003 to 2005, ASIRs were higher in Alberta than the ASIRs in Canada.

If current trends continue, about 400 cases of male non-Hodgkin lymphoma will be diagnosed in Alberta in 2011.

Figure 7-6: Actual and Projected Number of New Cases and Age-Standardized Incidence Rates (ASIRs)[*†] for Non-Hodgkin Lymphoma Cancer, Females, Alberta, 1986-2011

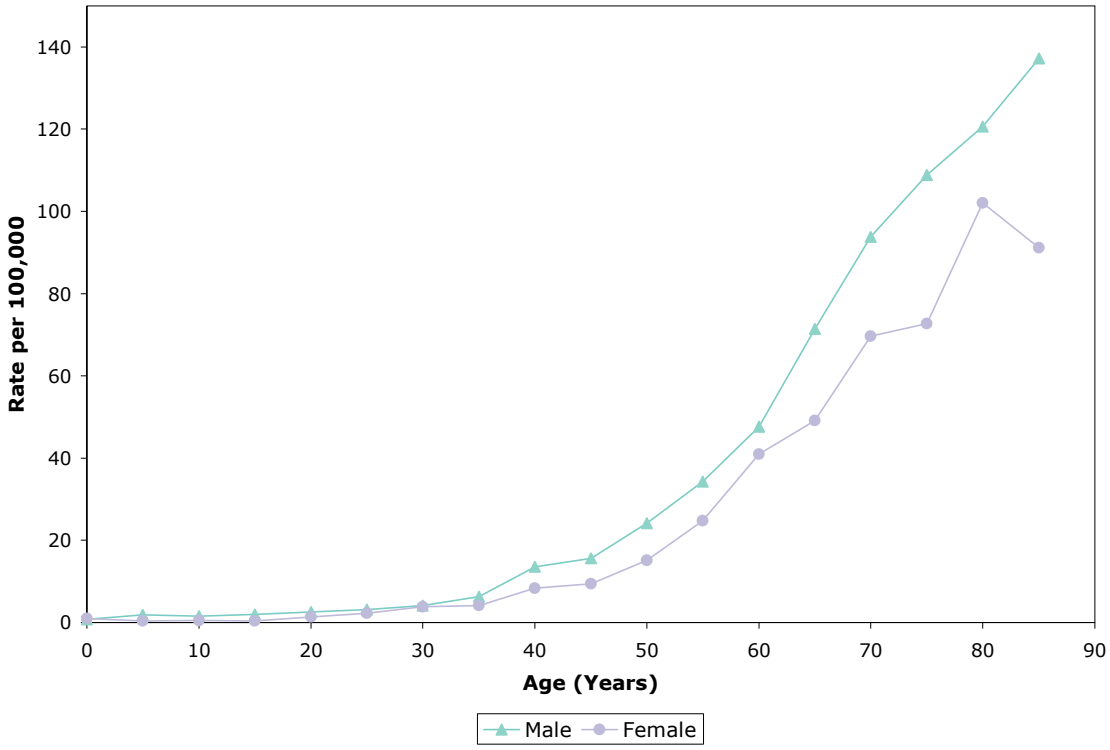


[*] Three-year moving average.
[†] Standardized to 1991 Canadian population.

In 2006, 250 cases of female non-Hodgkin lymphoma were diagnosed (**Figure 7-6**). This was almost three times more cases than were diagnosed in 1986. ASIRs for female non-Hodgkin lymphoma in Alberta were lower than ASIRs in Canada between 1987 and 2005; however, the gap is closing.

If current trends continue, about 300 cases of female non-Hodgkin lymphoma will be diagnosed in Alberta in 2011.

Figure 7-7: Age-Specific Incidence Rates for Non-Hodgkin Lymphoma by Sex, Alberta, 2002-2006



Incidence rates of non-Hodgkin lymphoma change with age in males and females (**Figure 7-7**). Age-specific incidence rates for non-Hodgkin lymphoma in both sexes increase rapidly after the age of 30. Female incidence rates are similar to male rates until the age of 35 but are lower compared to males after the age of 35.

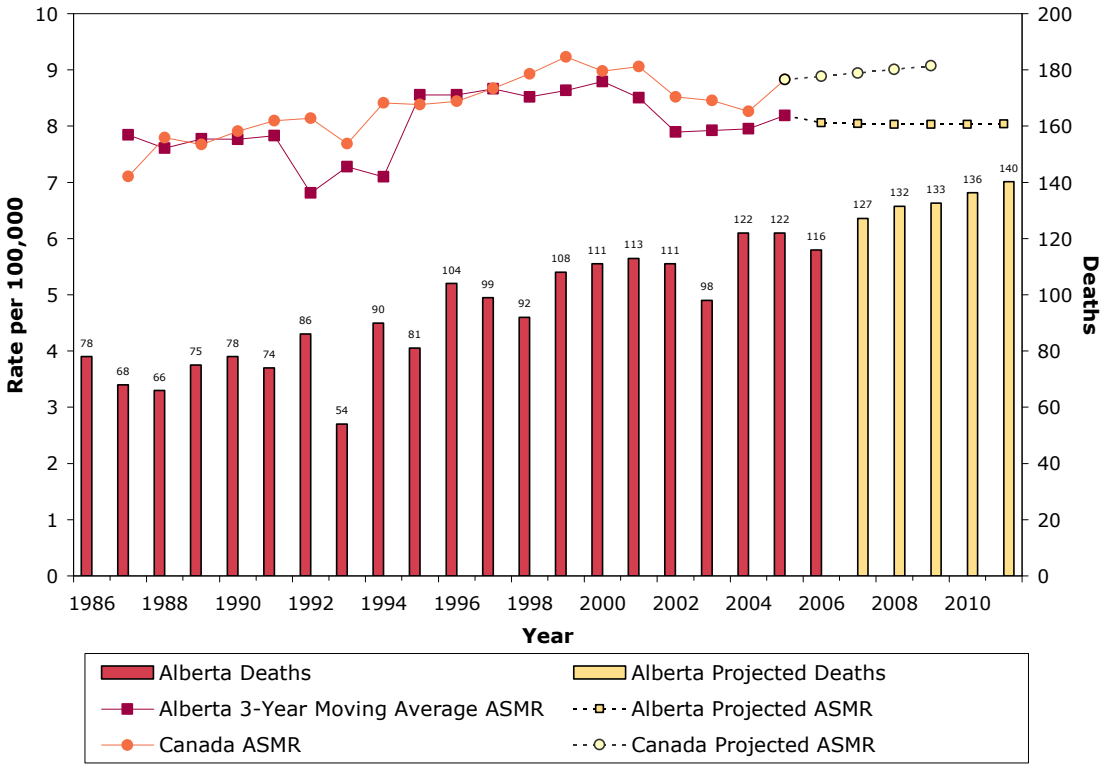
Non-Hodgkin Lymphoma Mortality

The following three figures (**Figures 7-8 to 7-10**) provide information on non-Hodgkin lymphoma mortality in Alberta. The number of deaths in Alberta is affected not only by changes in the mortality rates, but also by the changes in the age structure and growth of the population. In order to compare trends over time, age-standardized mortality rates (ASMRs) are also provided.

Years 2007-2011 in **Figures 7-8** and **7-9** are shown as ***projections***, which are estimates of the number of cancer deaths and cancer mortality rates that may occur in the future. The projected numbers of cancer deaths were calculated by applying the estimated five-year age-specific cancer mortality rates to the projected age specific population figures (observed up to 2008 and estimated for 2009-2011) provided by Alberta Health and Wellness.[3] Caution should be exercised when comparing Canada[4] and Alberta rates due to minor differences between the Canadian Cancer Society and Alberta Cancer Registry classification of non-Hodgkin lymphoma.

The estimated cancer mortality rates were calculated by extrapolating the recent trends in observed five-year age-specific rates, which were modeled using log-linear regression.[5] For those age groups where there were few cancers deaths for most of the years, the average rates for the most recent five years were used.

Figure 7-8: Actual and Projected Number of Deaths and Age-Standardized Mortality Rates (ASMRs)*† for Non-Hodgkin Lymphoma, Males, Alberta, 1986-2011

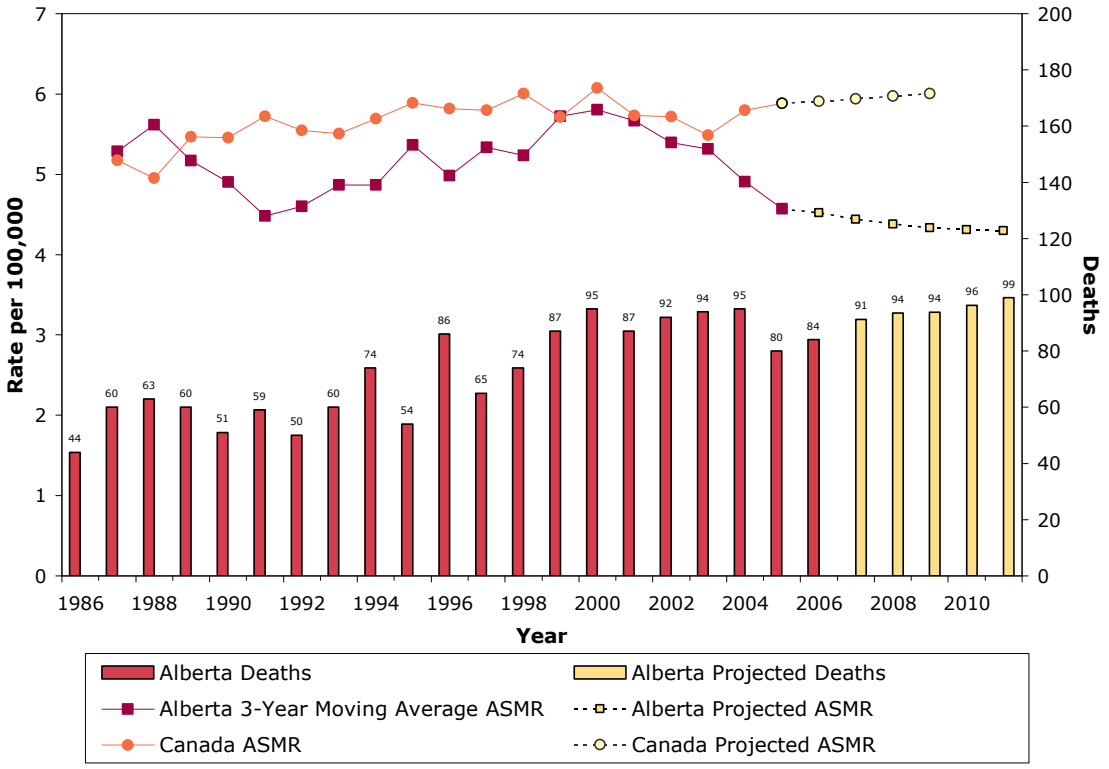


* Three-year moving average.
† Standardized to 1991 Canadian population.

In 2006, 116 males died of non-Hodgkin lymphoma (**Figure 7-8**). ASMRs for non-Hodgkin lymphoma in Alberta were lower than ASMRs in Canada between 1990 and 2004.

If current trends continue, about 140 males are expected to die from non-Hodgkin lymphoma in Alberta in 2011.

Figure 7-9: Actual and Projected Number of Deaths and Age-Standardized Mortality Rates (ASMRs)*† for Non-Hodgkin Lymphoma, Females, Alberta, 1986-2011

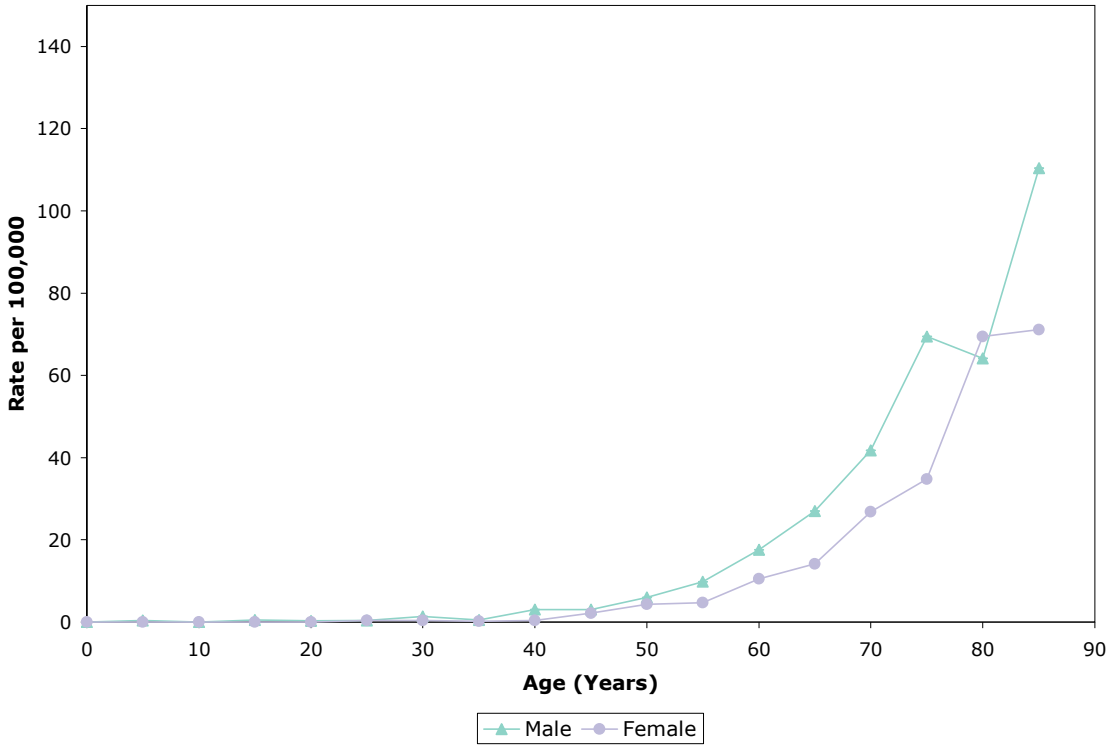


* Three-year moving average.
† Standardized to 1991 Canadian population.

In 2006, 84 females died of non-Hodgkin lymphoma in Alberta (**Figure 7-9**). ASMRs for female non-Hodgkin lymphoma in Alberta were lower than ASMRs in Canada between 1989 and 2004.

If the current trend continues, about 100 females are expected to die from non-Hodgkin lymphoma in Alberta in 2011.

Figure 7-10: Age-Specific Mortality Rates for Non-Hodgkin Lymphoma by Sex, Alberta, 2002-2006



Male and female non-Hodgkin lymphoma mortality rates differ by age and sex (**Figure 7-10**). Age-specific mortality rates for non-Hodgkin lymphoma in both sexes increase after the age of 45. Female mortality rates are similar to male rates until the age 55, but are lower compared to males after 55 years of age.

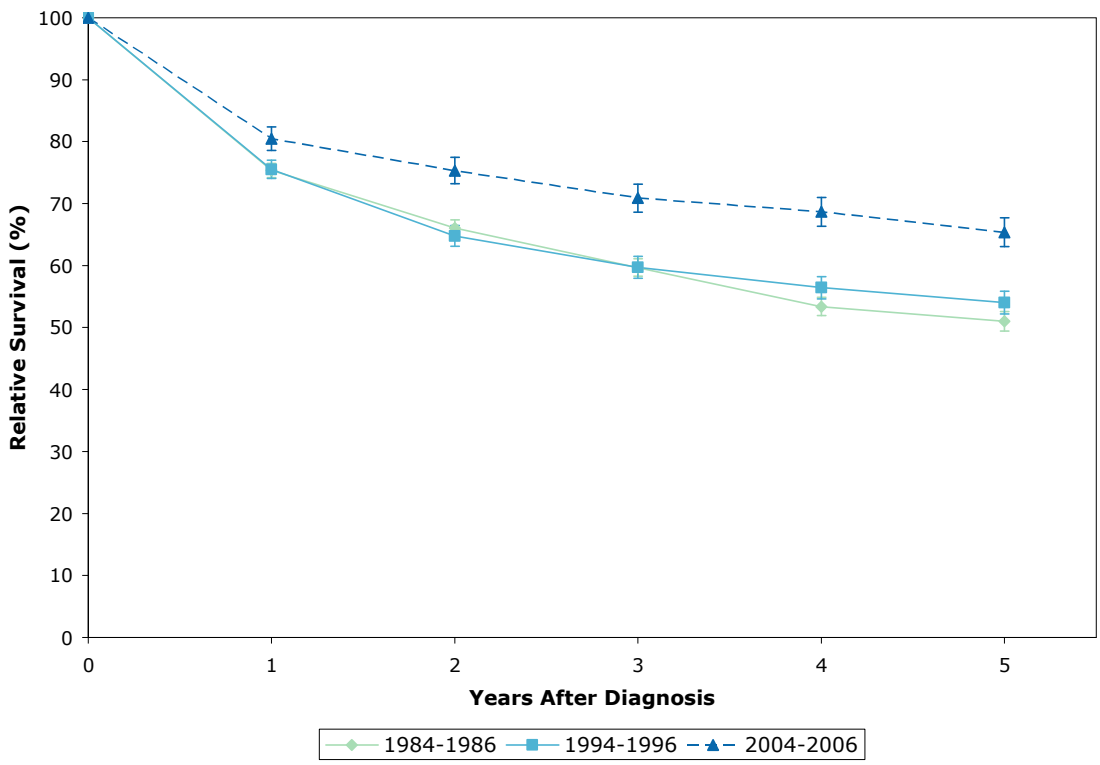
Non-Hodgkin Lymphoma Survival

Cancer survival ratios indicate the proportion of people who will be alive at a given time after they have been diagnosed with cancer. Survival is an important outcome measure and is used for evaluating the effectiveness of cancer control programs.

Survival depends on several factors including the cancer type (most importantly site, stage and morphology at diagnosis), sex, age at diagnosis, health status and available treatments for that cancer. While ***relative survival ratios*** give a general expectation of survival over the whole province, these ratios may not apply to individual cases. Individual survival outcomes depend on the stage of diagnosis, treatment and other individual circumstances.

Relative survival ratios are estimated by comparing the survival of cancer patients with that expected in the general population of Albertans of the same age, sex and in the same calendar year. Ratios are estimated by the ***cohort method*** (solid line) when complete follow-up data (e.g., at least five years of follow-up to estimate five-year rate) after diagnosis are available. For recently diagnosed cases, whose complete follow-up data are not available, the up-to-date estimates are computed using the ***period method*** (dashed line). Relative survival ratio is usually expressed as a percentage (%) and the closer the value is to 100%, the more similar the survival pattern is to the general population.

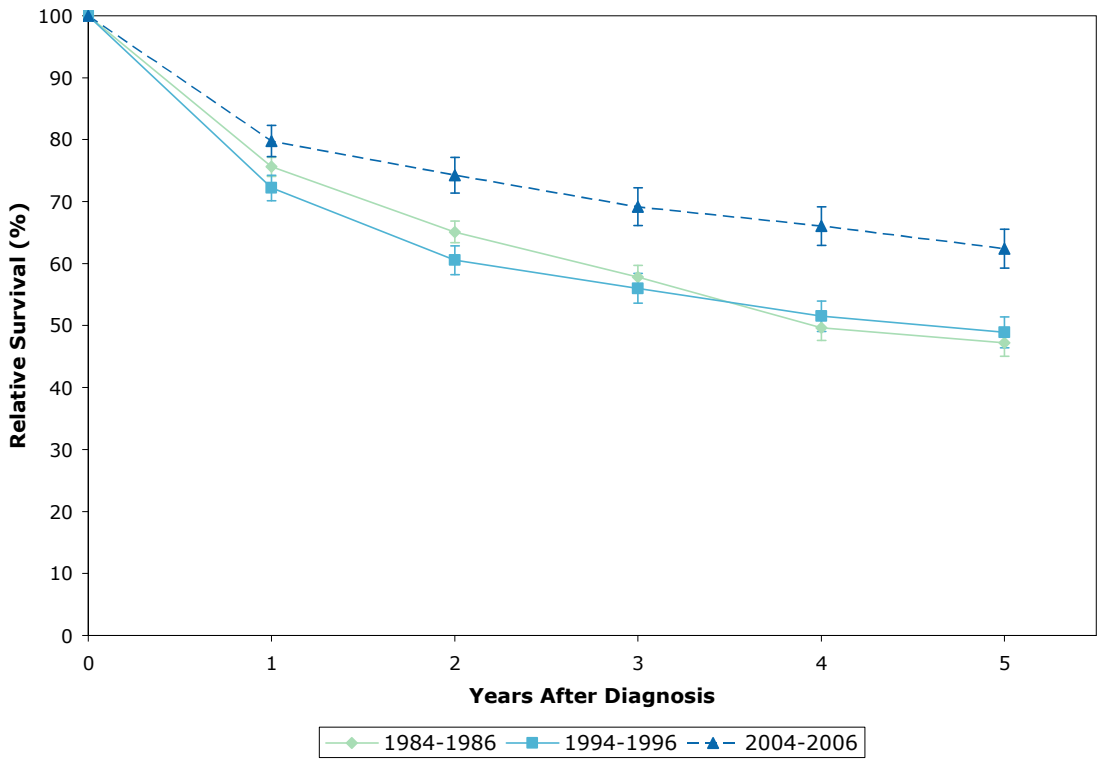
Figure 7-11: Relative Survival Trends for Non-Hodgkin Lymphoma, Both Sexes, Alberta, (1984-1986, 1994-1996 and 2004-2006)



—— (solid line): Ratios calculated by cohort method, where complete follow-up data are available
------ (dashed line): Ratios calculated by period method, where complete follow-up data are not available

The five-year relative survival ratio for individuals diagnosed with non-Hodgkin lymphoma (NHL) in Alberta has improved by approximately 14% from 1984-1986 to 2002-2006 cohort years (**Figure 7-11**). The five-year relative survival ratio for non-Hodgkin lymphoma cases diagnosed in the period 2004-2006 is 65% indicating that out of all individuals diagnosed with this cancer between 2004 and 2006, around 65% are as likely to be alive five years after diagnosis as individuals in the general Alberta population.

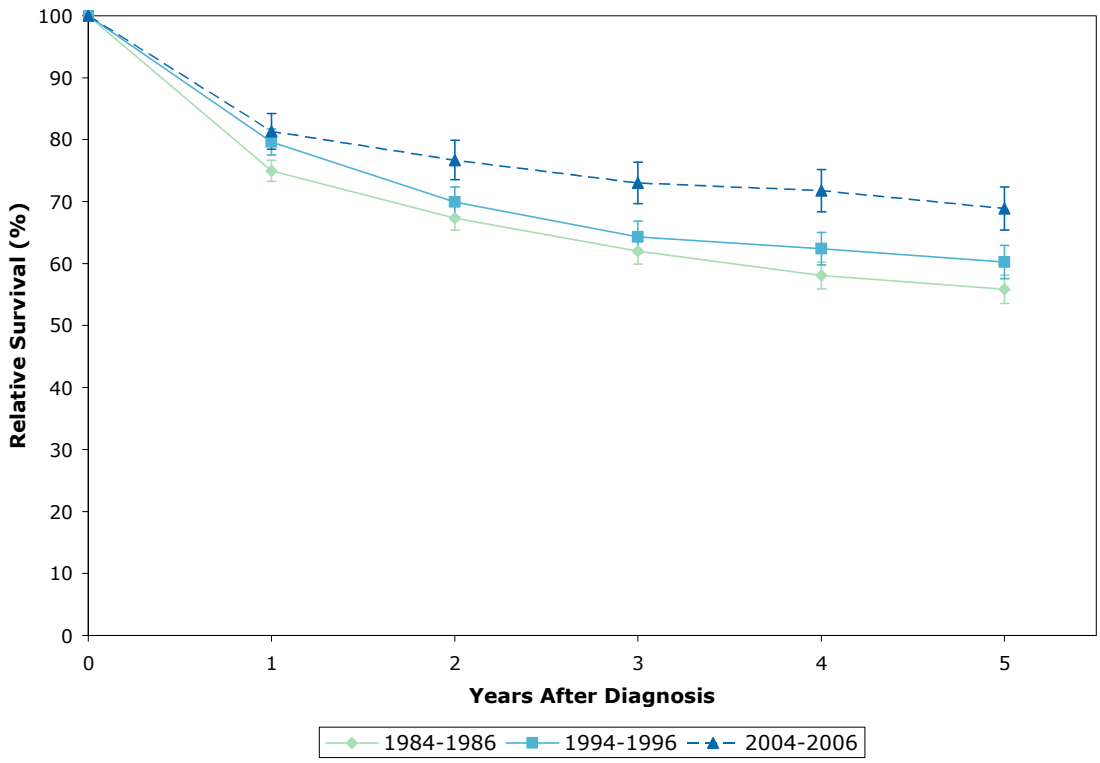
Figure 7-12: Relative Survival Trends for Non-Hodgkin Lymphoma, Males, Alberta, (1984-1986, 1994-1996 and 2004-2006)



—— (solid line): Ratios calculated by cohort method, where complete follow-up data are available
------ (dashed line): Ratios calculated by period method, where complete follow-up data are not available

The five-year relative survival ratio for males diagnosed with non-Hodgkin lymphoma (NHL) in Alberta has improved by approximately 15% from 1984-1986 to 2002-2006 cohort years (**Figure 7-12**). The five-year relative survival ratio for males diagnosed in the period 2004-2006 is 62%, indicating that out of all males diagnosed with this cancer between 2004 and 2006, around 62% are as likely to be alive five years after diagnosis as males in the general Alberta population.

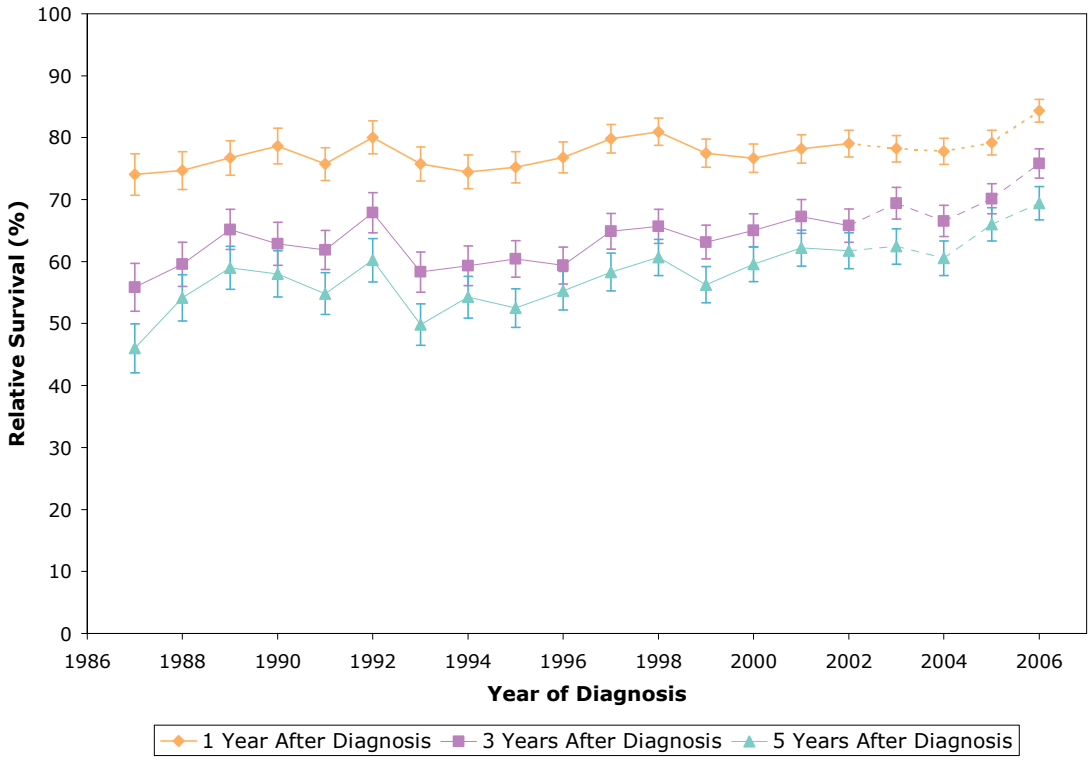
Figure 7-13: Relative Survival Trends for Non-Hodgkin Lymphoma, Females, Alberta, (1984-1986, 1994-1996 and 2004-2006)



—— (solid line): Ratios calculated by cohort method, where complete follow-up data are available
------ (dashed line): Ratios calculated by period method, where complete follow-up data are not available

The five-year relative survival ratio for females diagnosed with non-Hodgkin lymphoma (NHL) in Alberta has improved by approximately 13% from 1984-1986 to 2002-2006 cohort years (**Figure 7-13**). The five-year relative survival ratio for females diagnosed in the period 2004-2006 is 69%, indicating that out of all females diagnosed with this cancer between 2004 and 2006, around 69% are as likely to be alive five years after diagnosis as females in the general Alberta population.

Figure 7-14: One-, Three-, and Five-Year Relative Survival Ratios for Non-Hodgkin Lymphoma, Both Sexes, Alberta, (1987-2006)



—— (solid line): Ratios calculated by cohort method, where complete follow-up data are available
------ (dashed line): Ratios calculated by period method, where complete follow-up data are not available

One-, three-, and five- year relative survival ratios for non-Hodgkin lymphoma increased slightly between 1987 and 2006 (**Figure 7-14**).

Further Information

Data Sources and Quality

The data presented within this report are derived from the Alberta Cancer Registry (ACR). The ACR is responsible for recording and maintaining data on all new primary cancers, as well as all cancer deaths occurring within the province of Alberta, as mandated by the Regional Health Authorities (RHA) Act of Alberta.[6]

The quality of data collected by any registry is dependent on three factors: comparability, completeness and validity. Firstly, comparability is accomplished by applying standard practices regarding classification and coding of new cases and by using consistent definitions, such as the coding of multiple primaries. To achieve comparability, the ACR employs the International Classification for Oncology (ICD-O-2 for 1986-2000 data and ICD-O-3 for 2001 onwards) to classify all cancers by site and morphology. Cancer deaths are coded using the International Statistical Classification of Diseases and Related Health Problems (ICD-9 for 1986-2000 data and ICD-10 for 2001 onwards).

Secondly, completeness refers to the extent to which all the cancers in Alberta are accurately captured by the ACR. The ACR is notified of new cancers by doctors and laboratories throughout the province, who are mandated to report such information. Cancer-related deaths are recorded and validated by the ACR using registry and Alberta Vital Statistics information. Over the years, the ACR has achieved a completeness of over 95%.

Lastly, validity depends on the documentation available and the level of expertise in the abstracting, coding and recording of data within a registry. The ACR has numerous data edits to ensure all information is input as accurately as possible. For example, date of diagnosis of cancer must be after the date of birth. There are additional data quality reviews performed on ACR data by the Canadian Cancer Registry and the North American Association of Central Cancer Registries (NAACCR).

Confidentiality and security of personal information are protected by the RHA Act and the Health Information Act (HIA). The Alberta Cancer Registry maintains the trust of the public, the government, the data provider, and the general public by requiring rigorous confidentiality and security practices, in accordance with the RHA Act and HIA, to access the Registry database. Formal policies on information disclosure are available on request from the Alberta Cancer Registry.

By recording information on cancer cases and cancer-related deaths over the past few decades, the Alberta Cancer Registry has been able to compare cancer statistics in Alberta with other provinces and countries. The Registry also provides information to health care stakeholders throughout the province so that they can plan effective prevention, treatment and research programs.

For many years, the Alberta Cancer Registry has been certified by NAACCR and has achieved a Gold Standard for completeness of the data, timely reporting and other measures that judge data quality.

Glossary of Terms

Age-specific rates:
The number of new cancer cases or cancer deaths per 100,000 people per year within a given age group.

Age-standardized (incidence/mortality) rates:
A weighted average of age-specific rates using a standard population distribution. They reflect the overall rates that would be expected if the population of interest had an age structure identical to the standard population they used to compare cancer rates among populations or identify trends over time.

Benign:
A tumour that is not malignant (i.e. does not spread).

Carcinoma:
A tumour that begins in the skin or in tissues that line or cover body organs.

Confidence intervals:
An indication of the reliability of an estimate. A wide confidence interval indicates less precision and occurs when a population size is small.

Cohort method:
The cohort method provides survival estimate of cases having complete follow-up for the number of years of survival of interest. For example cases diagnosed in 2001, for which vital status data are available to the end of year 2006, the cohort method, may be used to obtain an estimate of 5-year survival. The cohort survival represents the actual survival experience of individuals.

Count:
Count refers to the number of cases (primaries) or deaths in a given time period. One patient may have multiple primaries.

Incidence count:
The frequency of new cancer cases during a period of time; often the number of new invasive cases diagnosed in a year.

Invasive cancer:
Cancer with the ability to spread beyond its point of origin.

Life table:
A life table estimates, for people at a certain age, what the probability is that they die before their next birthday. From this starting point, a number of statistics can be derived and thus also included in the table: a) the probability of surviving any particular year of age; b) remaining life expectancy for people at different ages; c) the proportion of the original birth cohort still alive. They are usually constructed separately for males and females because of their substantially different mortality rates.

Lymphatic system:
A system of vessels that carry lymph between lymph nodes located throughout the body.

Malignant:
Refers to a tumour that invades and destroys surrounding tissues, may spread elsewhere in the body, and is likely to recur after removal; a cancerous tumour.

Median Age:
The age at which half of the population is older and half is younger.[7]

Metastasis:
Refers to the spread of the original tumour to other parts of the body.

Mortality count:
The number of deaths due to cancer during a period of time.

Period analysis:
The period method provides up-to-date survival estimate of recently diagnosed cases considering the survival experience of those cases within the most recent calendar period that allows for the estimation of a given period of survival. For example, to estimate the five year survival for cases diagnosed in 2004-2006, this method considers zero to one year survival experience for cases diagnosed in 2004-2006, one to two year survival experience for cases diagnosed in 2003-2005 who survived at least one year, and so on up to four to five year survival experience for cases diagnosed in 2000-2002 who survived at least four years.

Potential years of life lost (PYLL):
PYLL is the total number of years of life lost obtained by multiplying, for each age group, the number of deaths by the life expectancy of survivors. The indicator was calculated by obtaining the number of deaths and mean life expectancy for each age group.[4]

Prevalence:
The number of people alive at a specific point in time with cancer. Complete prevalence is the number of people alive today who have *ever* been diagnosed with cancer. In this document, we report complete prevalence.

Primary Site of Cancer:
The tissue or organ in which the cancer originates.[8]

Probability of developing/dying of cancer:
The risk of an individual in a given age range developing/dying of cancer in a given time period, and is conditional on the person being cancer-free prior to the beginning of that age range.

Prognosis:
A prediction about the outcome or likelihood of recovering from a given cancer.

Projection:
An estimate of cancer incidence or mortality in the future, based on recent historical trends.

Rate:
The number of cancer cases or deaths occurring in a specified time period.

Relative survival:
The survival of cancer patients relative to that of the general population, assuming cancer was the only cause of death. It is the ratio of observed survival in a group of cancer patients relative to the expected survival of a similar group of people in the general public, matched by age and sex in Alberta.

Stage of cancer:
Refers to the degree of cancer progression and the size of tumor at the time of diagnosis. If the cancer has spread, the stage describes how far it has spread from the original site to other parts of the body.[7]

Surveillance:
Cancer surveillance includes the collection of data, and the review, analysis and dissemination of findings on incidence (new cases), prevalence, morbidity, survival and mortality. Surveillance also serves to collect information on the knowledge, attitudes and behaviours of the public with respect to practices that prevent cancer, facilitate screening, extend survival and improve quality of life.[9]

Survival - Cohort method:
The cohort method provides survival estimates of cases having complete follow-up for the number of years of survival of interest. For example, cases diagnosed in 2001, for which vital status data are available to the end of year 2006, the cohort method may be used to obtain an estimate of five-year survival. The cohort survival represents the actual survival experience of individuals.

Survival - Period analysis:
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Three-year moving average:
Three-year moving averages are used to smooth out year-to-year fluctuations in age-standardized rates so that the underlying trend may be more easily observed. They are calculated based on aggregating three years of data.

Tumour:
An abnormal mass of tissue that is not inflammatory, arises without obvious cause from cells of pre-existent tissue, and possesses no physiologic function.

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