

# Mortality

## Key Findings

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The life expectancy for Saskatchewan residents has increased between 1992/94 and 2007/09 to 79.6 years and the gender gap decreased. The expected number of years in full health has also increased.

Saskatchewan males had a higher mortality rate compared to females over the time period 1995 to 2009.

When examining the broad categories of disease and conditions grouped by the International Classification of Diseases (ICD) chapters over the 1995 to 2009 time period, the chapters with decreasing mortality rates included neoplasms, circulatory system diseases, respiratory diseases, and congenital anomalies. Those with increasing rates included infectious and parasitic diseases; endocrine, nutritional and metabolic diseases; mental disorders; and musculoskeletal diseases.

For both males and females, the top ICD chapter cause of mortality in 2009 was circulatory system diseases and was followed by neoplasms.

When the mortality data were further analyzed by specific disease conditions within each ICD chapter, the leading causes of death with decreasing mortality rates over the 1995 to 2009 time period included malignant neoplasms, heart diseases and cerebrovascular diseases.

The top five leading causes of death in 2009 were found to be malignant neoplasms (cancers), followed by heart disease, unintentional injuries (accidents), cerebrovascular diseases and chronic lower respiratory diseases.

## Introduction

This chapter describes mortality for the Saskatchewan population, including life expectancy, potential years of life lost (PYLL), mortality by ICD chapters and the leading causes of death.

According to *Healthy Canadians 2008*, the life expectancy for Canadian men has increased to 77.8 years in 2004 from 76.7 in 2000, while it has increased for women to 82.6 years in 2004 from 81.9 years in 2000 (Health Canada, 2009).

Since the end of the 1970s, the leading causes of death in Canada have been diseases of the circulatory system (mainly cardiovascular disease and stroke) and cancer. Mortality rates for diseases of the

circulatory system remained higher in men than women, although reductions in mortality rates for specific circulatory system diseases were substantial for both sexes, i.e., acute myocardial infarction and cerebrovascular disease (St-Arnaud, J, Beaudet & Tully, 2005).

Definitions and references are available at the end of the chapter.

## Life Expectancy

Life expectancy is an estimate of the number of years a person would be expected to live, either from birth or from age 65 years, based on age and sex-specific mortality rates for a given period, under the assumption that these mortality rates would stay constant over subsequent years. Life expectancy, which can be used to compare groups across years, geographical areas or characteristics, is a common indicator of population health. Life expectancy at birth is a measure of the population's general state of health. Life expectancy at 65 years is an indicator of the overall health of those over 65 years. Life expectancy differs from average length of life, which is based on multiple years of mortality data for persons born in the same year (St-Arnaud, J, et al, 2005).

**At Birth:** Life expectancy at birth for residents of Saskatchewan increased to 79.6 years in 2007/09 from 78.6 years in 1992/94. During the same time period, life expectancy at birth for Canadians increased to 81.1 years in 2007/09 from 78.0 years in 1992/94 (Figure 5.1).

For the combined three year period of 2007/09, Saskatchewan had the fourth lowest life expectancy at birth at 79.6 years of the Canadian provinces and territories and was lower than for Canada as a whole (Figure 5.2). In 2007/09, the provinces with the longest life expectancies at birth were British Columbia, Ontario and Quebec: 81.7, 81.5 and 81.2 years, respectively. The combined territories had the shortest at 75.1 years. At 78.9 years, Newfoundland and Labrador had the shortest life expectancy of the provinces. For the remaining provinces, life expectancy was approximately 80 years.

Saskatchewan life expectancy at birth for men increased to 77.0 years in 2007/09 from 75.5 in 1992/94, while it increased for women to 82.1 years in 2007/09 from 81.8 years in 1992/94. During the same time period, life expectancy at birth for Canadian men increased to 78.8 years in 2007/09 from 74.9 in 1992/94, while it increased for women to 83.3 years in 2007/09 from 81.0 years in 1992/94.

Of the three prairie provinces, Alberta had the highest life expectancy at birth, followed by Sas-

Fig: 5.1 Life Expectancy: At birth, Canada and Saskatchewan, 1992/94 - 2007/09

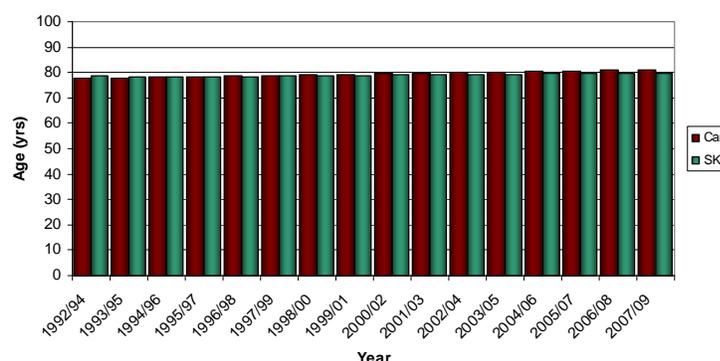
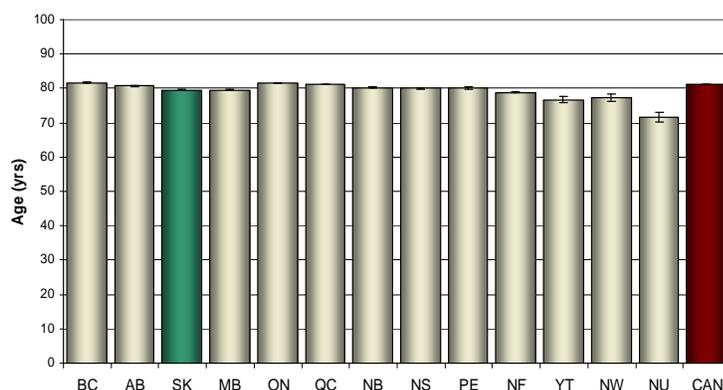


Fig: 5.2 Life Expectancy: At birth, Provinces, Territories and Canada, 2007/09



katchewan and Manitoba.

For the three year period of 2007/09, life expectancy at birth was found to be significantly higher in the health regions of Sun Country, Cypress and Saskatoon than the provincial life expectancy; Kelsey Trail, Prairie North and the combined northern regions had significantly lower life expectancies than the province.

**At age 65 years:** Life expectancy at age 65 years for residents of Saskatchewan increased to 19.7 years in 2007/09 from 18.9 years in 1992/94. During that same time period, it increased for Canadians to 20.2 years in 2007/09 from 18.1 years in 1992/94 (Figure 5.3).

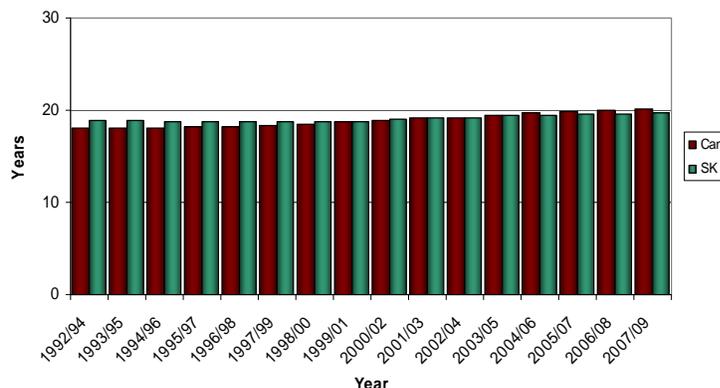
For the combined three year period of 2007/09, Saskatchewan had the fifth highest life expectancy at age 65 years at 19.7 years of the Canadian provinces and territories and was lower than for Canada (Figure 5.4). The provinces with the longest life expectancies at age 65 years in 2007/09 were British Columbia, Ontario and Alberta: 20.7, 20.3 and 20.2 years, respectively. The life expectancy at age 65 for the combined territories was the lowest at 16.9 years. In the remaining provinces, the figure was around 20 years.

Saskatchewan life expectancy at age 65 years for men increased to 17.9 years in 2007/09 from 16.7 in 1992/94, while it increased for women to 21.3 years in 2007/09 from 21.1 years in 1992/94. During the same time period, life expectancy at age 65 years for Canadian men increased to 18.5 years in 2007/09 from 15.9 in 1992/94, while it increased for women to 21.6 years in 2007/09 from 20 years in 1992/94.

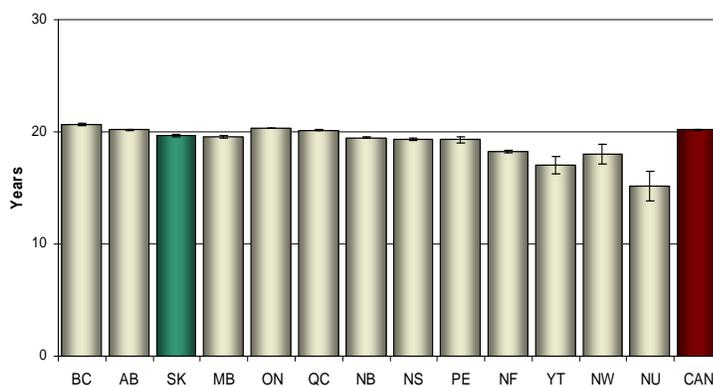
Of the three prairie provinces, Alberta had the highest life expectancy at age 65 years, followed by Saskatchewan and Manitoba.

Life expectancy at age 65 years for the three year period of 2007 to 2009 was found to be statistically higher in the health region of Prince Albert Parkland than the provincial life expectancy while the Heartland health region and the combined three northern regions had statistically lower life expectancies than the province.

**Fig. 5.3 Life Expectancy: At age 65, Canada and Saskatchewan, 1992/94 - 2007/09**

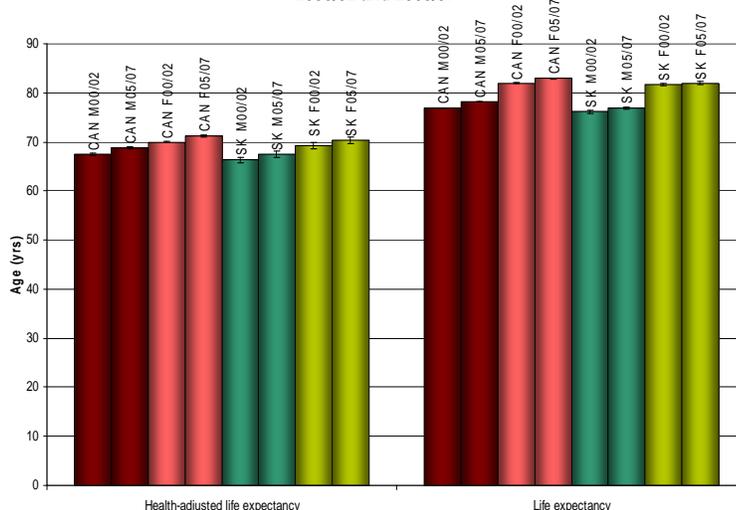


**Fig. 5.4 Life Expectancy: At age 65, Provinces, Territories and Canada, 2007/09**



Health-adjusted life expectancy (HALE) is the number of years in full health that an individual can expect to live given the current morbidity and mortality conditions and is a summary measure of population health that combines mortality and morbidity data into a single index (Statistics Canada). The HALE at birth for Saskatchewan men was 67.4 years in 2005/07 and for Saskatchewan women was 70.3 years with a difference between the sexes of 2.9 years. The HALE at birth for Canadian men was 68.9 years in 2005/07 and for Canadian women was 71.2 years with a difference between the sexes of 2.3 years (Figure 5.5).

Fig: 5.5 HALE and Life Expectancy: At birth by Sex, Canada and Saskatchewan, 2000/02 and 2005/07

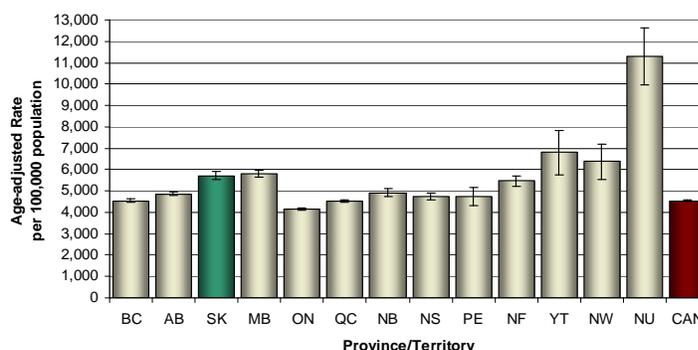


## Potential Years of Life Lost

Potential years of life lost (PYLL) is a measure of premature mortality. For an individual, PYLL is calculated by determining the difference between age 75, and the age of death (if less than age 75). For a population and for each cause of mortality, the total PYLL is divided by the total population at the mid-period (APHEO, 2006).

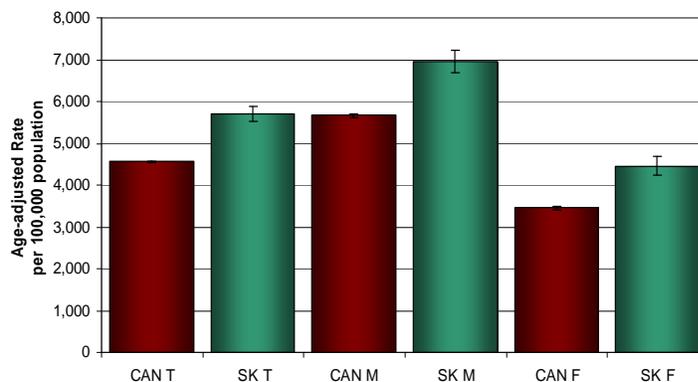
For the combined three year period of 2005 to 2007, of the Canadian provinces and territories, Saskatchewan had the fifth highest rate of PYLL at 5709 per 100,000 population. PYLL rates for Saskatchewan residents were significantly higher than for Canada (Figure 5.6).

Fig: 5.6 PYLL: Age-adjusted rate, Provinces, Territories and Canada, 2005/07



PYLL rates for Saskatchewan males were higher than for Saskatchewan females, and both rates were higher than that seen for the male and female residents of Canada (Figure 5.7).

Fig: 5.7 PYLL: Age-adjusted rate, by Sex, Provinces, Territories and Canada, 2005/07



Of the three prairie provinces, Alberta had the lowest rate of PYLL, followed by Saskatchewan and Manitoba.

For the combined three year period of 2005 to 2007, the PYLL rate was found to be statistically higher in the Prairie North health region and the combined three northern regions than the provincial rate while the health regions of Cypress and Heartland had statistically lower PYLL rates than the province.

## All-Cause Mortality

Mortality reflects the upper limit of the disease severity continuum. Mortality analysis by all causes of death provides information on the total number of deaths within a population and is used to monitor diseases and health status, and also to plan health services. Age at death and cause of death provide other important population health status information. Analysis by International Classification of Diseases (ICD) chapters provides broad categories of causes of death and analysis by leading causes provides a more specific breakdown within the ICD chapters.

In 2009, Saskatchewan had the sixth highest all-cause mortality rate (573.9 per 100,000) in the Canadian provinces and territories for 2009 but its all-cause mortality was higher than for Canada (Figure 5.8). The provinces or territories with the highest all-cause mortality rates in 2009 were Nunavut, Yukon, and Northwest Territories: 1165, 754.9 and 700.2 per 100,000, respectively. The lowest all-cause mortality rates were in British Columbia and Ontario: 480.2 and 499.7 per 100,000, respectively.

Of the three prairie provinces, Alberta had the lowest all-cause mortality rates, followed by Saskatchewan and Manitoba.

In 2009, Saskatchewan all-cause mortality for men was 712.8 per 100,000 and for women was 460.1 per 100,000 (Figure 5.9). During the same time period, the all-cause mortality rate for Canadian men was 629.9 per 100,000 and 423.5 per 100,000 for Canadian women. The all-cause mortality rates for Saskatchewan men and women have decreased slightly over the 2005 to 2009 time period.

Fig. 5.8

Mortality: All-cause,  
Provinces, Territories and Canada, 2009

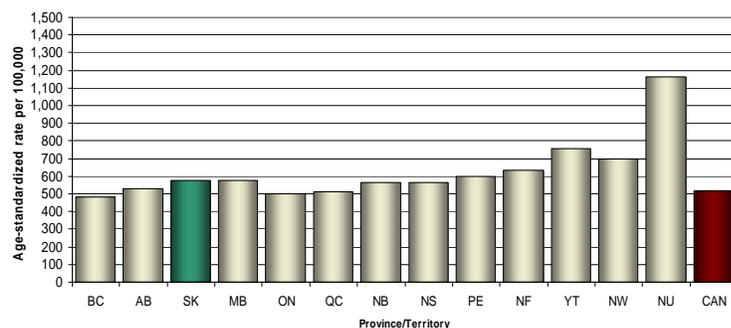
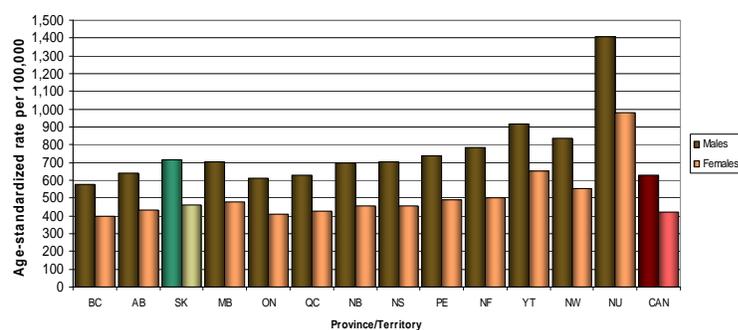


Fig. 5.9 Mortality: All-cause by Sex, Provinces, Territories and Canada, 2009



Mortality rates due to all causes exhibited a slight downward trend over the time period 1995-2009, declining from 635.5 per 100,00 in 1995 to 568.1 per 100,000 in 2009 (Figure 5.10). Due to differences in methodologies between Statistics Canada and the Saskatchewan Ministry of Health (for example, the inclusion of Saskatchewan resident deaths that occurred out of province), the Saskatchewan mortality rates in Figure 5.8 (Statistics Canada) and 5.10 (Ministry of Health) are slightly different.

As would be expected, mortality rates increased exponentially with age with the exception of the 0 to 4 year age group which includes infant deaths. The age-specific rates remained relatively stable over the 15 year time period (Figure 5.11 and Figure 5.12)

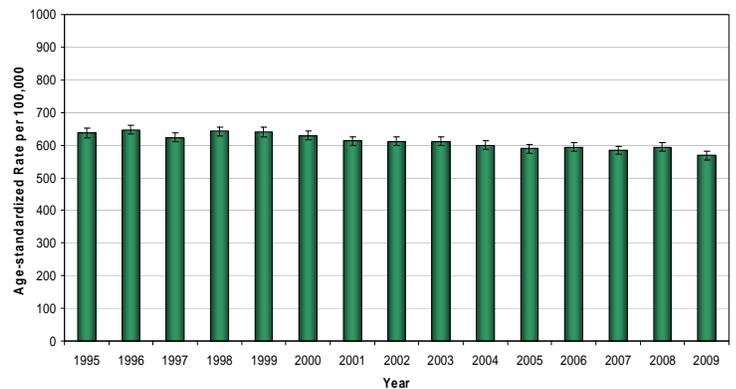
The highest mortality rate was in those aged 85 years and older. The age-specific mortality rate of this age group was twice that of the next highest rate, the 80 to 84 year age group, which was also approximately twice the rate of the next highest group, the 75 to 79 year olds (Figure 5.11 and Figure 5.12).

Age groups with less than 20 deaths annually included males aged 5 to 9 years to under 15 years and females aged 5 to 9 years to under 35 years.

In 2009, age-specific all-cause mortality rates per 100,000 population were found for the following age groups:

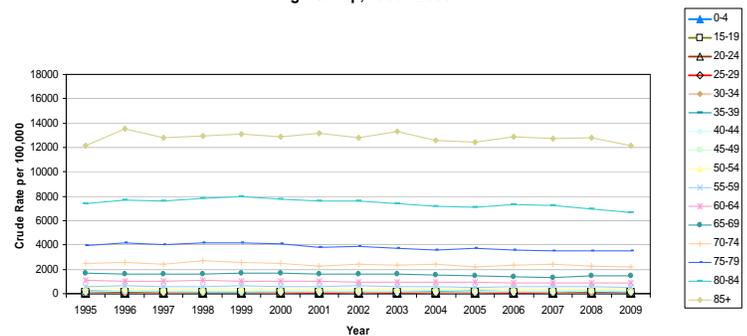
- 50-54 years - 395.6
- 55-59 years - 496.1
- 60-64 years - 879.2
- 65-69 years - 1,433.0
- 70-74 years - 2,180.0
- 75-79 years - 3,503.8
- 80-84 years - 6,652.3
- 85+ years - 12,118.7

**Fig: 5.10** All Cause Mortality: Age-standardized Mortality Rate in Saskatchewan, 1995 - 2009



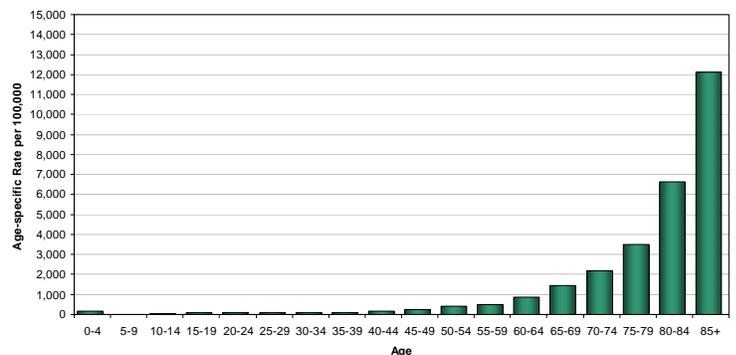
**Fig: 5.11**

All Cause Mortality: Crude Rate of Mortality in Saskatchewan by Age Group, 1995 - 2009



**Fig: 5.12**

All Cause Mortality: Age-specific Mortality Rate in Saskatchewan 2009



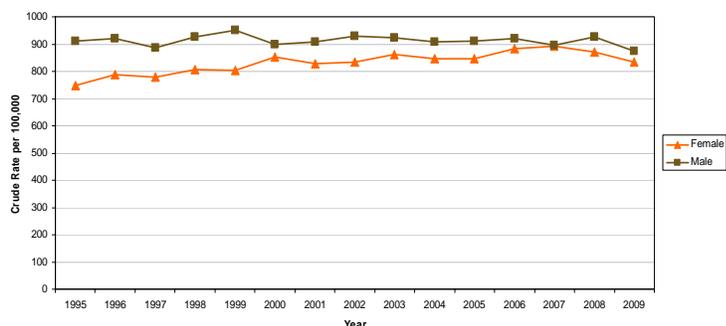
Sex-specific mortality rates due to all causes were greater in males than females for every year from 1995 to 2009 (Figure 5.13). In 2009, the all cause mortality rate was 833.8 per 100,000 for females, and 875 per 100,000 for males.

For males, mortality rates for all causes in all age groups have remained fairly constant over the period 1995 to 2009 (Figure 5.14). The rates were consistently higher in those aged 75 and over with the highest rates in those aged 85 years and over. Age groups 5 years to 14 years were not displayed due to small numbers

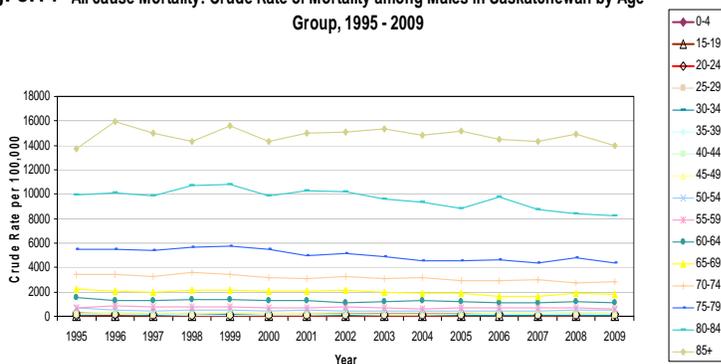
All cause mortality rates for females in all age groups have remained fairly constant over the period 1995 to 2009 (Figure 5.15). The rates were consistently higher in those aged 75 and over with the highest rates in those aged 85 years and over. Age groups 5 years to 34 years were not displayed due to small numbers.

In 2009, the age-standardized mortality rate (ASMR) due to all causes of death was 568.1/100,000 in Saskatchewan. The rates for the RHAs were significantly higher than the provincial rate for Keewatin Yatthé and Heartland and significantly lower than the provincial rate for Cypress and Saskatoon.

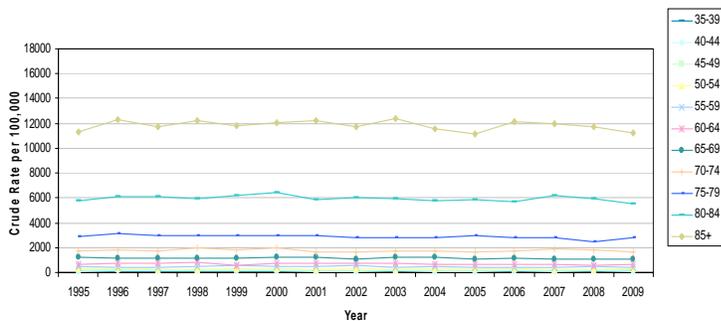
**Fig: 5.13 All Cause Mortality: Crude Rate of Mortality in Saskatchewan by sex, 1995 - 2009**



**Fig: 5.14 All cause Mortality: Crude Rate of Mortality among Males in Saskatchewan by Age Group, 1995 - 2009**



**Fig: 5.15 All Cause Mortality: Crude Rate of Mortality among Females in Saskatchewan by Age Group, 1995 - 2009**



# Mortality by ICD Chapters

Mortality analysis by International Classification of Diseases (ICD) chapters enables an examination of broad categories of death in terms of related conditions. In Saskatchewan death registration data began reporting ICD-10 codes in 2000. Prior to that, ICD-9 codes were used to report cause of death. Compared with ICD-9, ICD-10 has greater detail, changes in detail and in some cases, expanded concepts. The number of chapters has increased and the chapter order has been changed. As a result of this change, differences in trends between the years before and after the year 2000 may be seen. For the purposes of this report, the chapters are described using the ICD-9 order and titles.

the circulatory system diseases, followed by the neoplasms, then the external causes of mortality, and closely followed by the respiratory system diseases (Figure 5.16).

When analysis was stratified by sex, some differences were noted (Figure 5.17). The circulatory system diseases had the highest mortality rates for males and females, followed by the male and female neoplasms mortality rates. For males the external causes of mortality and respiratory system diseases had the third and fourth highest mortality rates, respectively. For females, the third highest mortality rate was associated with respiratory system diseases and the fourth highest was the mental disorders rate.

In 2009 the highest mortality rates were caused by

Fig: 5.16

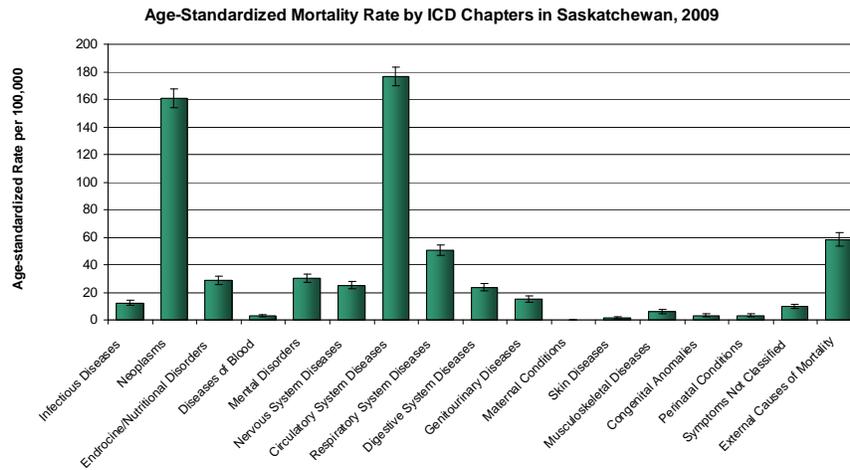
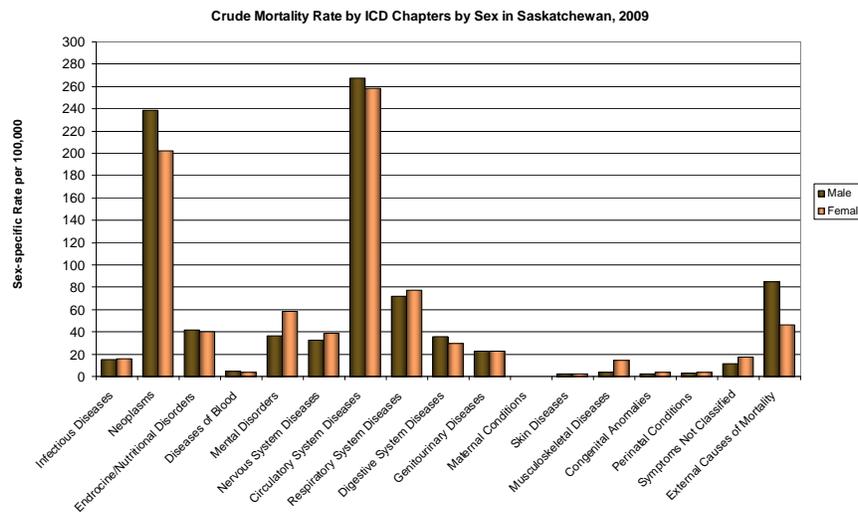


Fig: 5.17



**Infectious and Parasitic Diseases:** This ICD chapter includes infections and diseases caused by bacterial, viral, fungal, parasitic and other infectious agents. There was an increasing trend in deaths due to infectious and parasitic diseases from 1995 to 2009 in Saskatchewan. Although relatively stable during 1995-2002, a significant increase in the age-standardized mortality rates of infectious and parasitic diseases was observed between 2002 and 2009. The rates significantly increased from 7.0 per 100,000 in 1995 to 12.1 per 100,000 in 2009 (Figure 5.18).

Mortality rates varied across age groups over the period 1995-2009, with the highest mortality rate in those aged 75 years and older. The mortality rate of this age group varied between three and six times the rate of the next highest group, the 65 to 74 year age category, and has doubled during the fifteen year time period (Figure 5.19). The age-specific rates for the remaining age groups remained relatively stable over the same time period.

Mortality in those aged under 20 years was rare over the observation period and the rates for this age group were, therefore, not displayed.

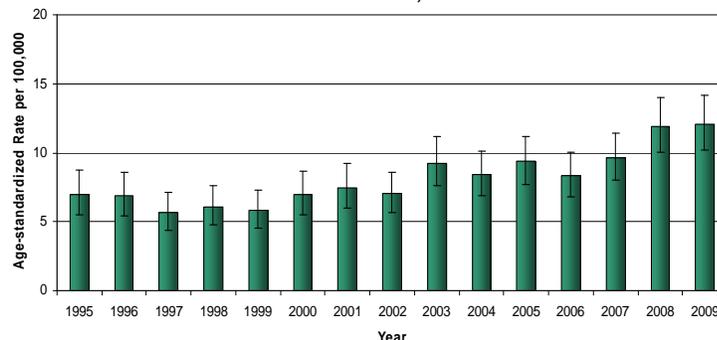
In 2009, the age-specific mortality rates per 100,000 population due to infectious and parasitic diseases were found for the following age groups:

20-44 years - 6.3  
 45-64 years - 7.0  
 65-74 years - 31.5  
 75+ years - 105.1

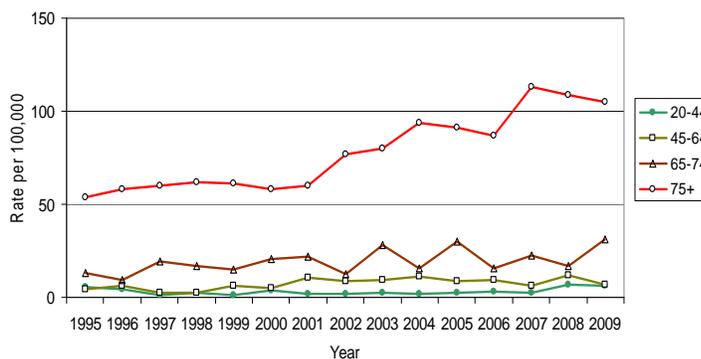
Sex-specific mortality rates increased for both sexes over the period 1995 to 2009 (Figure 5.20). The rate has increased gradually for females. Some fluctuations were observed in male rates.

In 2009, only Regina Qu'Appelle and Saskatoon health regions had over 20 deaths due to infectious and parasitic diseases and their rates did not differ significantly from the provincial rate of 12.1/100,000.

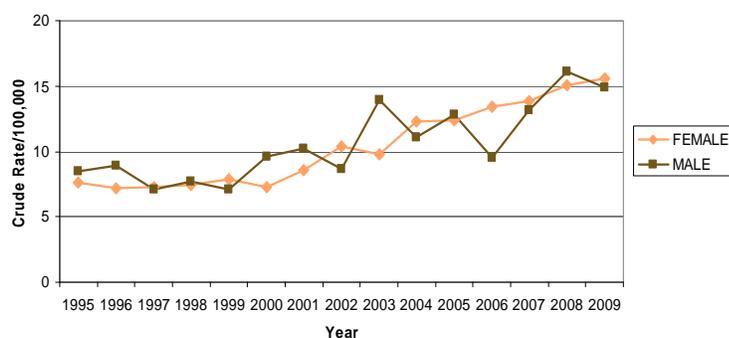
**Fig: 5.18 Infectious and Parasitic Diseases: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009**



**Fig: 5.19 Infectious and Parasitic Diseases: Age-specific Mortality Rate in Saskatchewan, 1995-2009**



**Fig: 5.20 Infectious and Parasitic Diseases: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009**



**Neoplasms:** This ICD chapter includes the malignant, benign, in situ and other neoplasms. There appeared to be a slightly decreasing trend in deaths due to neoplasms from 1995 to 2009 in Saskatchewan. Although the age-standardized mortality rates were stable during 1995-2002, a significant decrease in the rates was observed between 2002 and 2009, decreasing from 177.9 to 161.0 per 100,000 (Figure 5.21).

Mortality rates varied across age groups over the time period 1995-2009, but the rates were stable in each group. The highest mortality rate was seen in those aged 75 years and older. The age-specific mortality rate of this age group was twice the rate of the next highest group, the 65 to 74 year age group (Figure 5.22).

Mortality in those aged under 20 years was rare over the observation period and, therefore, the rates were not displayed.

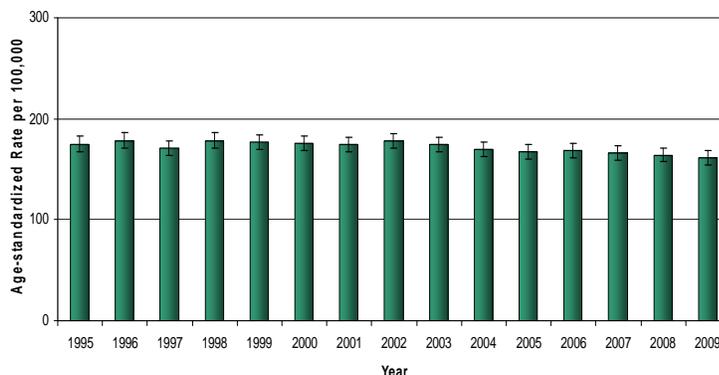
In 2009, the age-specific mortality rates per 100,000 population due to neoplasms were found for the following age groups:

- 20-44 years - 12.8
- 45-64 years - 189.0
- 65-74 years - 735.1
- 75+ years - 1480.8 per 100,000

Sex-specific mortality rates remained stable for both sexes over the time period 1995 to 2009 (Figure 5.23). The rate was consistently higher for males than females.

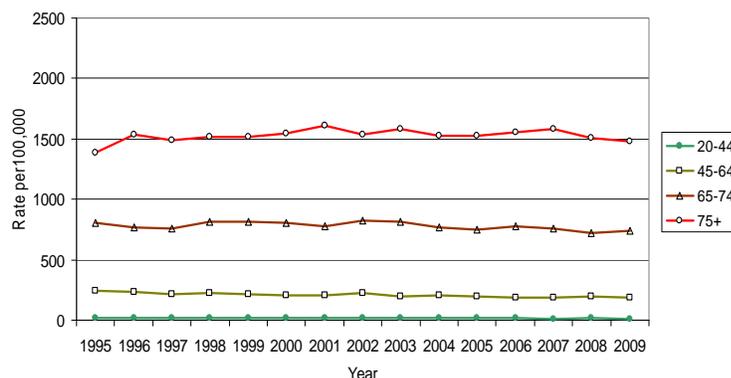
In 2009, the age-standardized mortality rate due to neoplasms was 161.0/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate.

**Fig: 5.21** Neoplasms: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

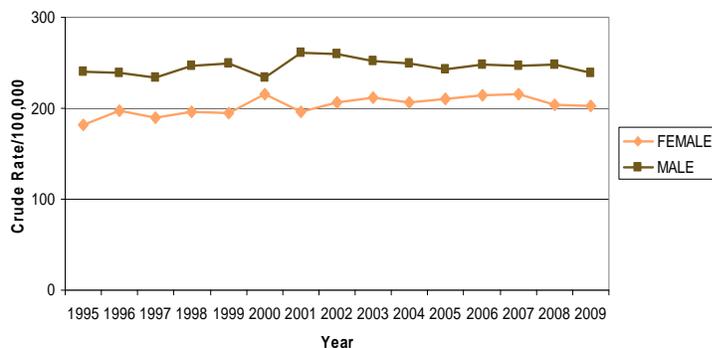


**Fig: 5.22**

Neoplasms: Age-specific Mortality Rate in Saskatchewan, 1995-2009



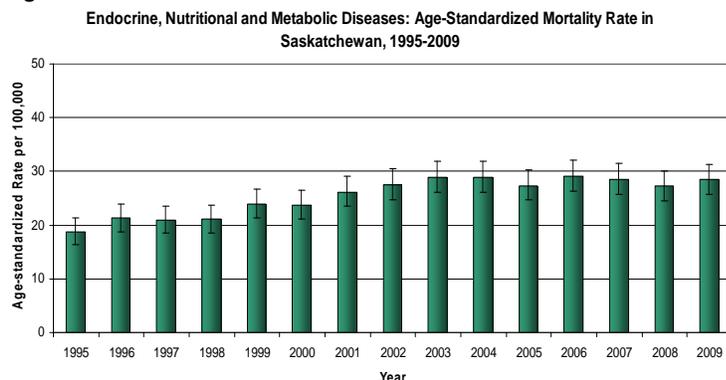
**Fig: 5.23** Neoplasms: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Endocrine, Nutritional and Metabolic Diseases:**

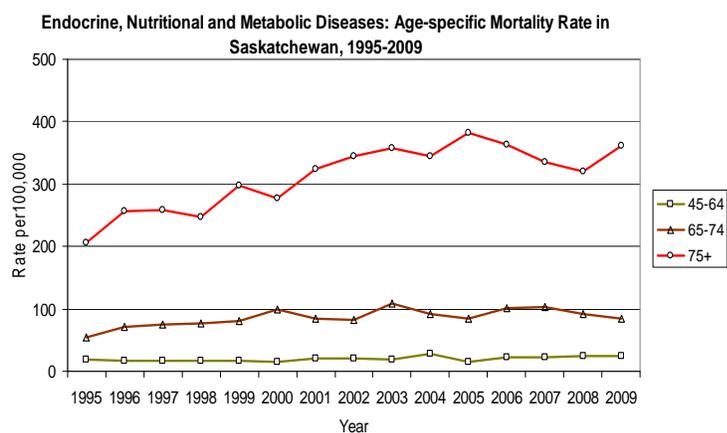
This ICD chapter includes diseases of the endocrine system such as the thyroid gland, pancreas including diabetes, and other glands; nutritional diseases such as malnutrition, obesity, and metabolic disorders of proteins, fats and carbohydrates. There appeared to be an increasing trend in deaths due to endocrine, nutritional and metabolic diseases from 1995 to 2009 in Saskatchewan (Figure 5.24). The rate significantly increased from 18.7 to 28.5 per 100,000 during this period with the majority of the increase seen between 1995 and 2003, after which the rates stabilized.

Fig: 5.24



Mortality rates varied across age groups over the time period 1995-2009. The highest mortality rate was seen in those aged 75 years and older. The age-specific mortality rate of this age group was over four times the rate of the next highest group, the 65 to 74 year age group, and increased from 206.2 to 362.0 per 100,000 over the fifteen year time period (Figure 5.25). The age-specific rates for the remaining age groups remained relatively stable over the same time period.

Fig: 5.25



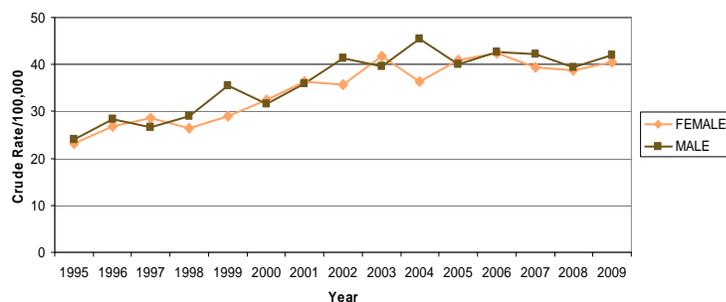
Mortality in those aged under 45 years was rare over the observation period and therefore, the rates were not displayed.

In 2009, the age-specific mortality rates per 100,000 population due to endocrine, nutritional and metabolic disease were found for the following age groups:

- 45-64 years - 24.4
- 65-74 years - 83.7
- 75+ years - 362.0

Sex-specific mortality rates increased for both sexes over the time period 1995 to 2009 (Figure 5.26). The rate was similar for both males and females.

Fig: 5.26 Endocrine, Nutritional and Metabolic Diseases: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



In 2009, the age-standardized mortality rate due to endocrine, nutritional and metabolic disease was 28.5/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate with the exception of Sunrise RHA which was significantly lower than the provincial rate.

### Diseases of Blood and Blood-forming Organs

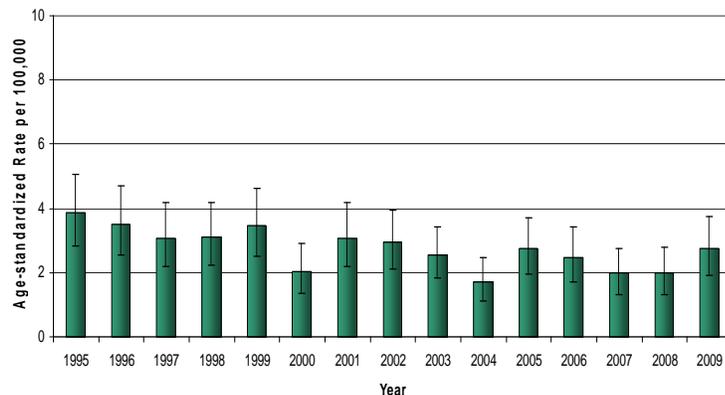
**and Immunity Disorders:** This ICD chapter includes anemias, haemorrhagic conditions and immune disorders. The mortality rates due to diseases of blood and blood-forming organs and immunity disorders remained relatively stable from 1995 to 2009 in Saskatchewan. The rate decreased from 3.8 to 2.7 per 100,000 from 1995 to 2009; however, the difference was not significant (Figure 5.27).

There were less than 20 deaths in each age group over the time period 1995-2009 and age-specific rates were, therefore, not displayed.

Sex-specific mortality rates remained relatively stable for both sexes over the time period 1995 to 2009 (Figure 5.28). In most years, the rate was slightly higher for females than for males.

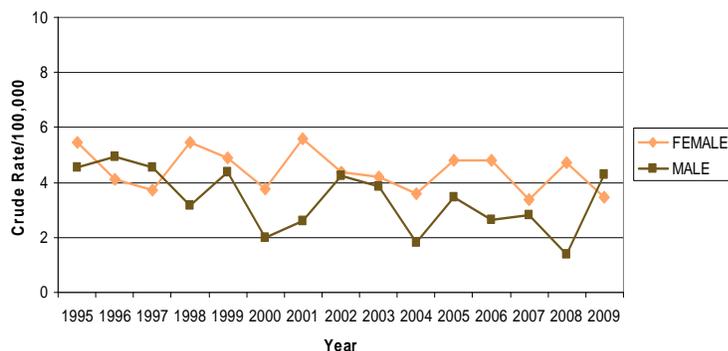
In 2009, the age-standardized mortality rate due to diseases of blood and blood-forming organs & immunity disorders was 2.7/100,000 in Saskatchewan. Mortality rates for RHAs are not presented because the number of deaths due to diseases of the blood and blood-forming organs and immunity disorders was small (i.e., less than 20 deaths) in each RHA.

**Fig: 5.27** Diseases of Blood and Blood-forming Organs & Immunity Disorders: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.28**

Diseases of Blood and Blood-forming Organs & Immunity Disorders: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Mental Disorders:** This ICD chapter includes mental and behavioural disorders including substance use, schizophrenia, mood disorders, neurotic disorders and dementias. There was an increase in deaths due to mental disorders from 1995 to 2009 in Saskatchewan. Although stable during 1995-2005, a significant increase in the age-standardized mortality rate due to mental disorders was observed between 2006 and 2009. The rate significantly increased from 12.2 to 30.2 per 100,000 between 1995 and 2009 (Figure 5.29).

Mortality rates varied across age groups over the period 1995-2009, with the highest mortality rate in those aged 75 years and older. The age-specific mortality rate of this age group has more than doubled during the time period (Figure 5.30).

Mortality in those aged under 45 years was rare over the observation period and, therefore, the rates were not displayed.

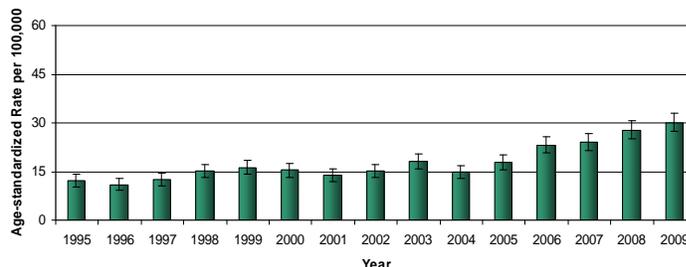
In 2009, the age-specific mortality rates per 100,000 population due to mental disorders were found for the following age groups:

- 45-64 years - 11.1
- 65-74 years - 30.2
- 75+ years - 540.4

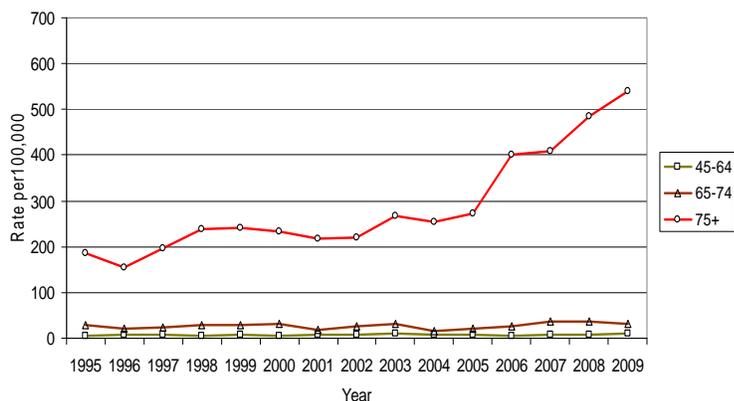
Sex-specific mortality rates increased for both sexes over the period 1995 to 2009 (Figure 5.31). The rate was consistently higher in females and has increased to a greater extent than in males.

In 2009, the age-standardized mortality rate for the mental disorders in the Five Hills health region was significantly higher than the provincial average of 30.2 per 100,000. The rates in the remaining health regions did not differ significantly from the provincial average.

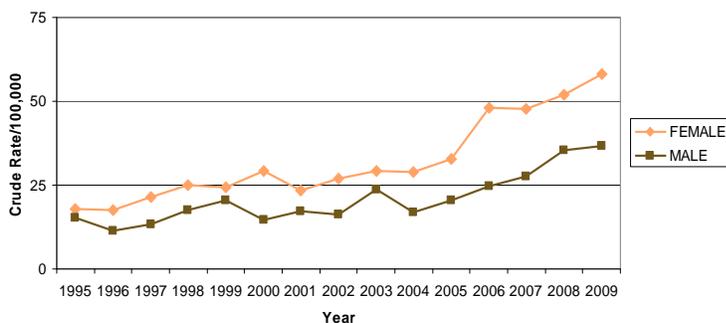
**Fig: 5.29 Mental Disorders: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009**



**Fig: 5.30 Mental Disorders: Age-specific Mortality Rate in Saskatchewan, 1995-2009**



**Fig: 5.31 Mental Disorders: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009**



**Diseases of the Nervous System and Sense Organs:** This ICD chapter includes nervous system disorders such as inflammatory diseases of the central nervous system, Alzheimer's disease, demyelinating diseases (for example multiple sclerosis), as well as diseases of the sense organs. The mortality rates due to diseases of the nervous system and sense organs varied from 1995 to 2009 in Saskatchewan. Overall from 1995 to 2009, the rates increased slightly from 21.3 to 25.1 per 100,000, but the difference was not significant (Figure 5.32).

Mortality rates varied across age groups over the time period 1995-2009, but the rates were stable in all age groups other than the 75 years and over group which had the highest mortality rate. The age-specific mortality rate of this age group varied from twice to five times the rate of the next highest group, the 65 to 74 year age group (Figure 5.33). Rates for those less than 45 years were not displayed due to low numbers.

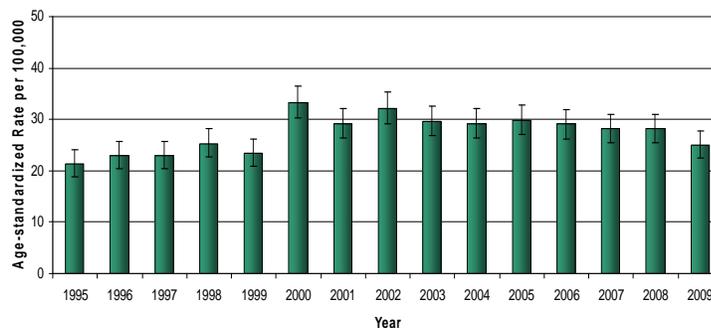
In 2009, the age-specific mortality rates per 100,000 population due to diseases of the nervous system and sense organs were found for the following age groups:

45-64 years - 16.2  
65-74 years - 57.6  
75+ years - 322.7

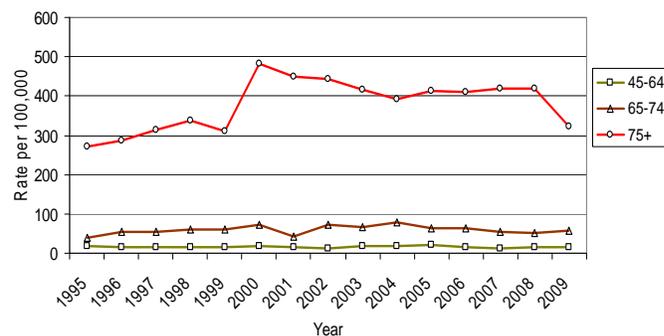
Sex-specific mortality rates due to diseases of the nervous system and sense organs varied for both sexes over the time period 1995 to 2009, with a small decrease seen for females in recent years (Figure 5.34). The rate was higher in females than for males.

In 2009, the age-standardized mortality rate due to diseases of the nervous system and sense organs was 25.1/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate.

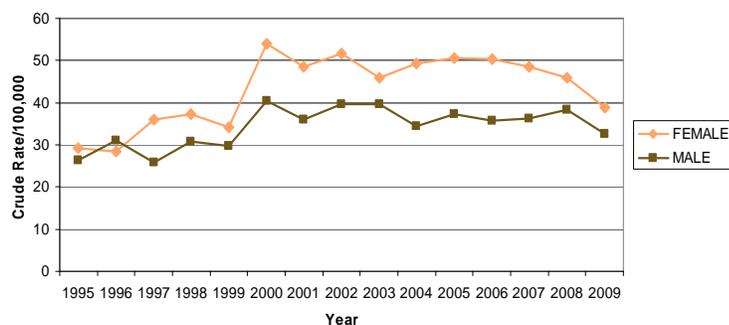
**Fig: 5.32** Diseases of the Nervous System and Sense Organs: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.33** Diseases of the Nervous System and Sense Organs: Age-specific Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.34** Diseases of the Nervous System and Sense Organs: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Diseases of the Circulatory System:** This ICD chapter includes conditions such as rheumatic fever, hypertensive diseases, ischemic heart diseases, and pulmonary heart disease. There was a decreasing trend in deaths due to diseases of the circulatory system from 1995 to 2009 in Saskatchewan. Overall from 1995 to 2009, the rates decreased from 247.4 to 176.3 per 100,000 (Figure 5.35).

Mortality rates varied across age groups over the time period 1995-2009. The rates decreased in the 75 years and over and 65 to 74 year age groups. The highest mortality rate was seen in those aged 75 years and older. The age-specific mortality rate of this age group was approximately five times that of the next highest group, the 65 to 74 year age group (Figure 5.36). Rates for those less than twenty years were not displayed due to low numbers.

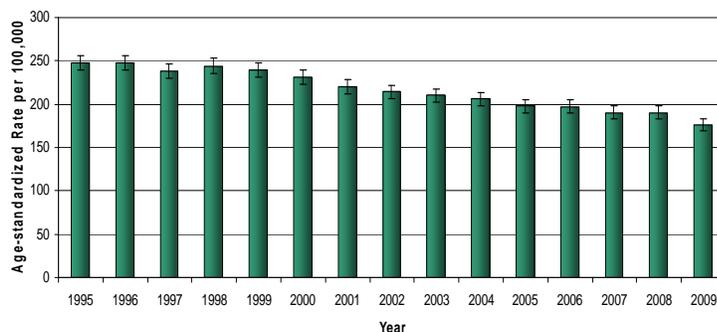
In 2009, the age-specific mortality rates per 100,000 population due to diseases of the circulatory system were found for the following age groups:

- 20-44 years - 13.4
- 45-64 years - 99.3
- 65-74 years - 475.9
- 75+ years - 2,582.0

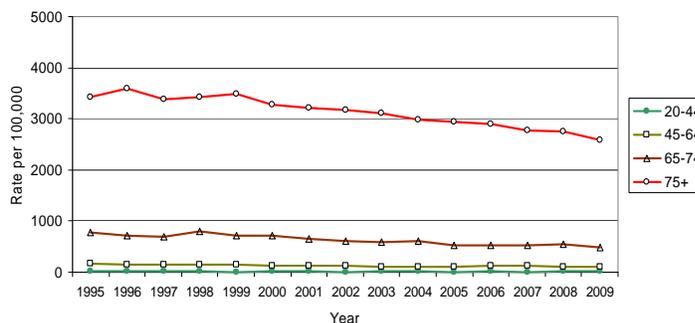
Sex-specific mortality rates decreased gradually for both sexes over the time period 1995 to 2009. The rate was similar for females and males (Figure 5.37).

In 2009, the age-standardized mortality rate due to diseases of the circulatory system was 176.3/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate.

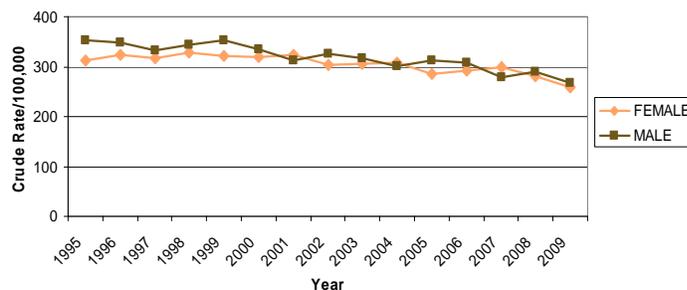
**Fig: 5.35** Diseases of the Circulatory System: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.36** Diseases of the Circulatory System: Age-specific Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.37** Diseases of the Circulatory System: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Diseases of the Respiratory System:** This ICD chapter includes the upper and lower respiratory conditions such as asthma and COPD and acute and chronic respiratory infections. There appeared to be a slightly decreasing trend in deaths due to diseases of the respiratory system from 1995 to 2009 in Saskatchewan, especially between 1999 and 2000, after which the rates tended to remain stable at the lower rate. Overall from 1995 to 2009, the rates decreased slightly from 57.1 to 50.4 per 100,000 (Figure 5.38).

Mortality rates varied across age groups over the time period 1995-2009, but the rates were stable in age groups other than the 75 years and over group which displayed a slight decrease. The highest mortality rate was seen for those aged 75 years and older group and the age-specific mortality rate of this age group was approximately six times the next highest rate which was in the 65 to 74 year age group (Figure 5.39). Rates were not displayed for those under 45 years due to small numbers.

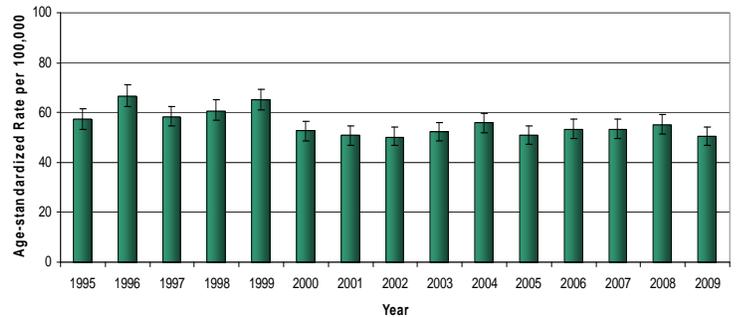
In 2009, the age-specific mortality rates per 100,000 population due to diseases of the respiratory system were found for the following age groups:

- 45-64 years - 25.5
- 65-74 years - 144.0
- 75+ years - 724.0

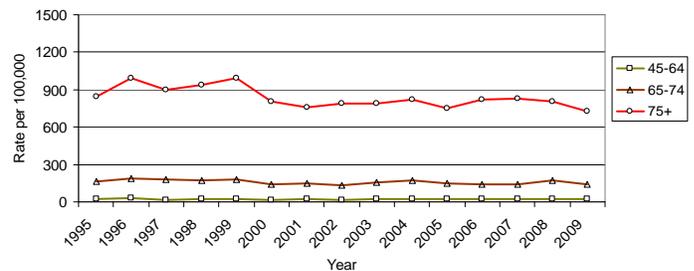
Sex-specific mortality rates remained relatively stable for females over the time period 1995 to 2009. For males the rates decreased over that time period (Figure 5.40). The rate was higher in males than for females for all years except 2003 and 2009.

In 2009, the age-standardized mortality rate due to diseases of the respiratory system was 50.4/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate with the exception of Five Hills health region which was significantly higher than the provincial rate.

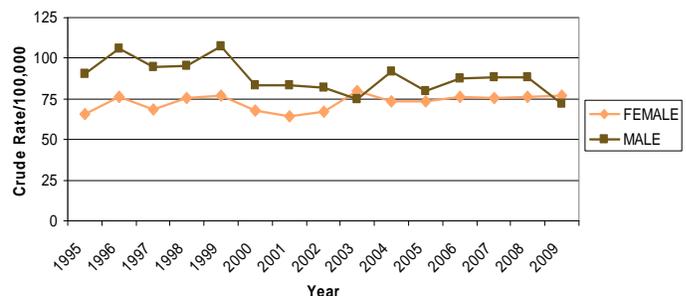
**Fig: 5.38** Diseases of the Respiratory System: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.39** Diseases of the Respiratory System: Age-specific Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.40** Diseases of the Respiratory System: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Diseases of the Digestive System:** This ICD chapter includes diseases and disorders of the teeth, stomach, appendix, intestines, liver and other digestive system components. Age-standardized mortality due to diseases of the digestive system did not change significantly from 1995 to 2009 in Saskatchewan. The rate was 22.9 per 100,000 in 1995 and was 23.7 per 100,000 in 2009 (Figure 5.41).

Mortality rates varied across age groups over the time period 1995-2009, but the rates were stable in age groups other than the 75 years and over group which fluctuated during the period. The highest mortality rate was seen in those aged 75 years and older and the age-specific mortality rate of this age group was approximately three times the next highest rate, the 65 to 74 year age group (Figure 5.42). Rates were not displayed for those under 20 years due to small numbers.

In 2009, the age-specific mortality rates per 100,000 due to diseases of the digestive system were found for the following age groups:

- 20-44 years - 4.2
- 45-64 years - 29.5
- 65-74 years - 74.1
- 75+ years - 240.5

Sex-specific mortality rates increased slightly over the time period 1995 to 2009. For females the rates decreased from 2008 to 2009 (Figure 5.43). The rate was similar for the sexes for most years.

In 2009, the age-standardized mortality rate due to diseases of the digestive system was 23.7/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate with the exception of the Prince Albert Parkland health region which was significantly lower than the provincial rate.

Fig: 5.41

Diseases of the Digestive System: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

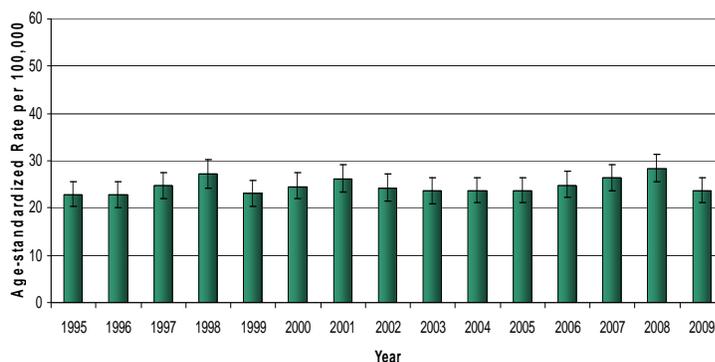


Fig: 5.42 Diseases of the Digestive System: Age-specific Mortality Rate in Saskatchewan, 1995-2009

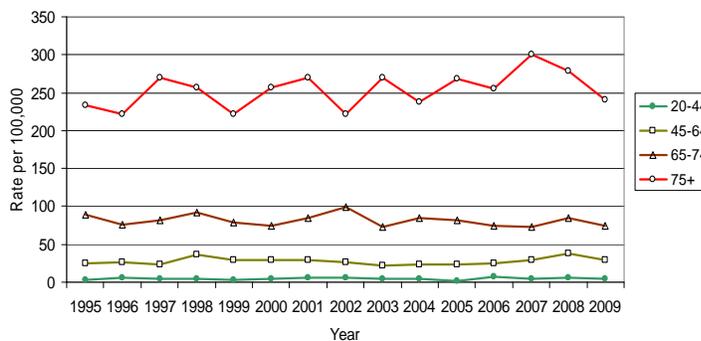
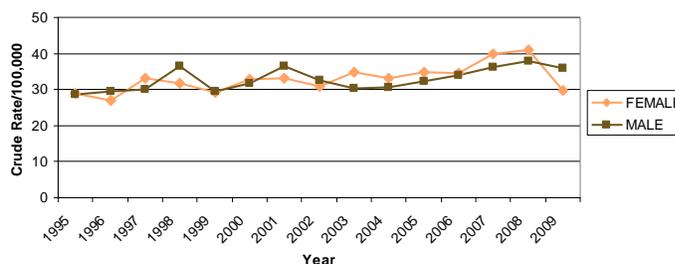


Fig: 5.43

Diseases of the Digestive System: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Diseases of the Genitourinary System:** This ICD chapter includes diseases of the urinary system, genital organs and breasts. Age-standardized mortality due to diseases of the genitourinary system increased slightly from 1995 to 2009 in Saskatchewan but the change was not significant. The rate was 11.7 per 100,000 in 1995 and was 15.0 per 100,000 in 2009 (Figure 5.44).

Mortality rates varied across age groups over the time period 1995-2009, but the rates were stable in age groups other than the 75 years and over group which displayed an increase. The highest mortality rate was seen in those aged 75 years and older and the age-specific mortality rate of this group was approximately seven times the next highest rate which was in the 65 to 74 year age group (Figure 5.45). Rates were not displayed for those under 45 years due to small numbers.

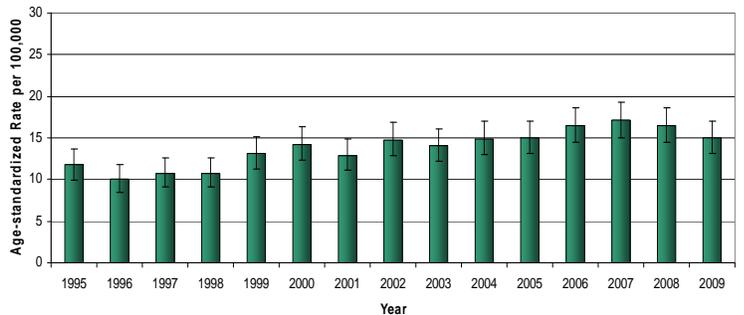
In 2009, the age-specific mortality rates per 100,000 due to diseases of the genitourinary system were found for the following age groups:

- 45-64 years - 8.5
- 65-74 years - 32.9
- 75+ years - 236.7

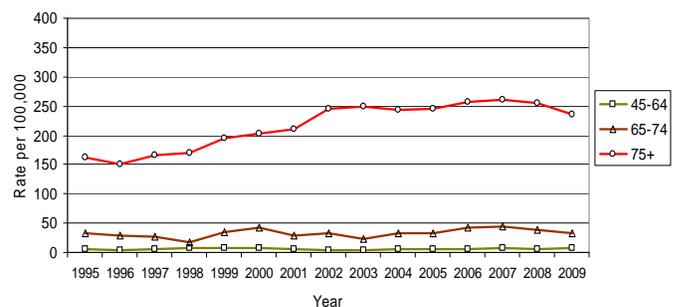
Sex-specific mortality rates increased slightly over the time period 1995 to 2009 (Figure 5.46). The rate was similar for the sexes.

In 2009, the age-standardized mortality rate due to diseases of the genitourinary system was 15.0/100,000 in Saskatchewan. The rates for the four RHAs with over 20 deaths in 2009 did not differ significantly from the provincial rate. These regions include Prairie North, Regina Qu'Appelle, Sunrise and Saskatoon health regions. The rates for the other health regions were not reported due to small numbers.

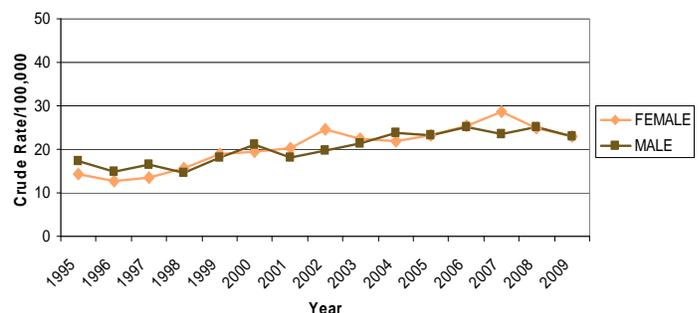
**Fig: 5.44** Diseases of the Genitourinary System: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.45** Diseases of the Genitourinary System: Age-specific Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.46** Diseases of the Genitourinary System: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Diseases of Pregnancy, Childbirth, and the Puerperium:** Age-standardized mortality due to diseases of pregnancy, childbirth and the puerperium could not be displayed due to the extremely small numbers of events.

**Diseases of the Skin and Subcutaneous Tissue:** Age-standardized mortality due to diseases of the skin and subcutaneous tissue could not be displayed due to the extremely small numbers.

**Diseases of the Musculoskeletal System:** This ICD chapter includes the arthropathies, soft tissue disorders, and osteopathies. Age-standardized mortality due to diseases of the musculoskeletal system and connective tissue slightly increased from 1995 to 2009 in Saskatchewan. Overall from 1995 to 2009, the rates increased from 3.2 to 5.9 per 100,000 (Figure 5.47).

Mortality rates varied across age groups over the time period 1995-2009. The highest mortality rate was seen in those aged 75 years and older and the age-specific mortality rate of this age group was approximately six times the next highest rate which was the 65 to 74 year age group (Figure 5.48). Rates were not displayed for those under 65 years due to small numbers.

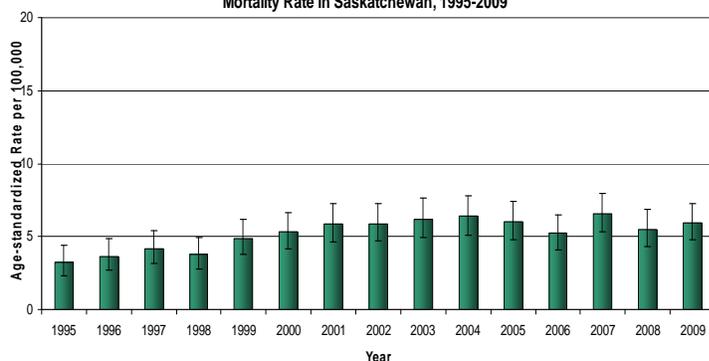
In 2009, the age-specific mortality rates per 100,000 due to diseases of the musculoskeletal system were found for the following age groups:

65-74 years - 15.1  
75+ years - 92.4

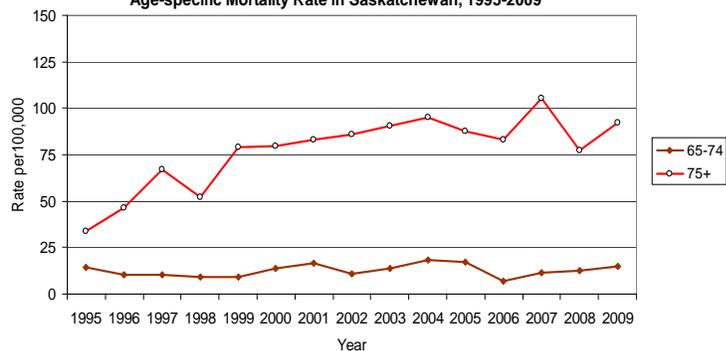
Sex-specific mortality rates increased slightly over the time period 1995 to 2009 (Figure 5.49). The rates were higher for females than for males.

In 2009, the age-standardized mortality rate due to diseases of the musculoskeletal system was 5.9/100,000 in Saskatchewan. The rates for the two RHAs with over 20 deaths did not differ significantly from the provincial rate. These regions include Regina Qu'Appelle and Saskatoon health regions.

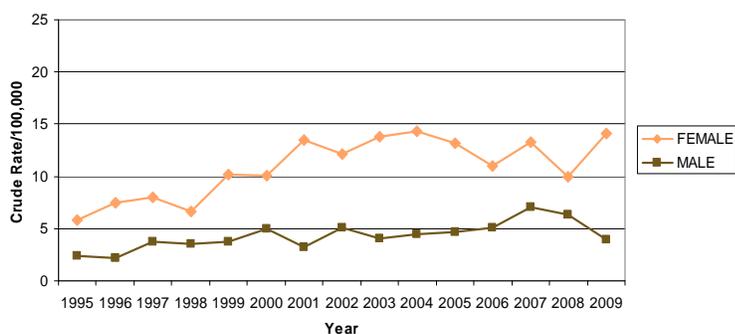
**Fig: 5.47** Diseases of the Musculoskeletal System and Connective Tissue: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.48** Diseases of the Musculoskeletal System and Connective Tissue: Age-specific Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.49** Diseases of the Musculoskeletal System and Connective Tissue: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Congenital Anomalies:** This ICD chapter includes congenital malformations and deformations, and chromosomal abnormalities. There appeared to be a slight decreasing trend in deaths due to congenital anomalies from 1995 to 2009 in Saskatchewan, particularly between 1998 and 2000 after which the rates tended to remain stable at the lower rate. Overall from 1995 to 2009, the rates decreased from 6.8 to 3.1 per 100,000 (Figure 5.50).

Mortality rates were displayed for the under one year of age group (Figure 5.51). The remaining age groups have less than 20 deaths per year for the time period 1995-2009. The mortality rates within the under one year age category fluctuated from 1995 through 2009; however, they show a general downward trend.

In 2009, the age-specific mortality rates due to congenital anomalies in the less than one year old group was 129.9 per 100,000.

Sex-specific mortality rates exhibited a decline over the time period 1995 to 2009 with fluctuations from 2001 to 2006 (Figure 5.52). The rate was higher for males than for females for about half the years.

In 2009, the age-standardized mortality rate due to congenital anomalies was 3.1/100,000 in Saskatchewan. The rates for the RHAs were not compared due to small numbers.

Fig: 5.50

Congenital Anomalies: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

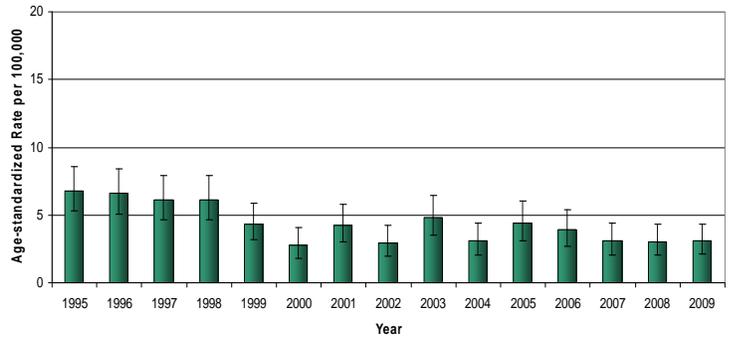


Fig: 5.51

Congenital Anomalies: Age-specific Mortality Rate in Saskatchewan, 1995-2009

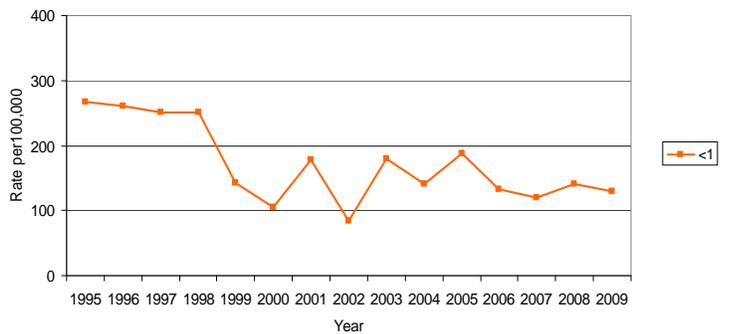
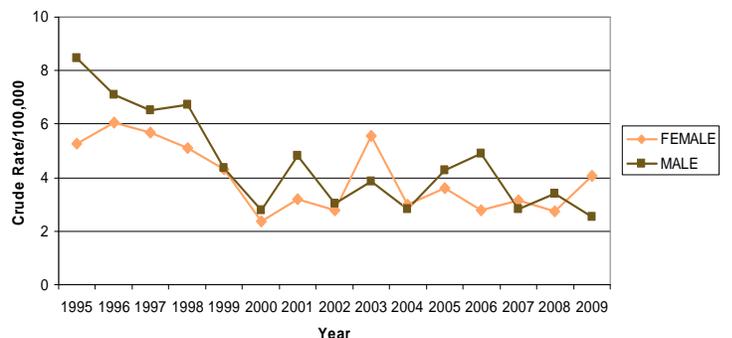


Fig: 5.52

Congenital Anomalies: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Certain Conditions Originating in the Perinatal**

**Period:** This ICD chapter includes birth trauma, complications of pregnancy, labour and delivery, and perinatal infections. Age-standardized mortality due to certain conditions originating in the perinatal period did not change significantly from 1995 to 2009 in Saskatchewan. The rate was 4.8 per 100,000 in 1995 and 3.3 per 100,000 in 2009 (Figure 5.53).

Mortality rates were displayed for the under one year of age group (Figure 5.54). The remaining age groups have less than 20 deaths per year for the time period 1995-2009. The mortality rates within the under one year age category fluctuated from 1995 through 2009; however, they show a slight downward trend overall.

In 2009, the age-specific mortality rate due to certain conditions originating in the perinatal period for the less than one year old group was 230.7 per 100,000.

Sex-specific mortality rates decreased slightly over the time period 1995 to 2009 (Figure 5.55). The rate was slightly higher for males than for females with the exception of 2007 and 2009.

In 2009, the age-standardized mortality rate due to certain conditions originating in the perinatal period was 3.3/100,000 in Saskatchewan. The rates for the RHAs were not compared due to small numbers.

Fig: 5.53

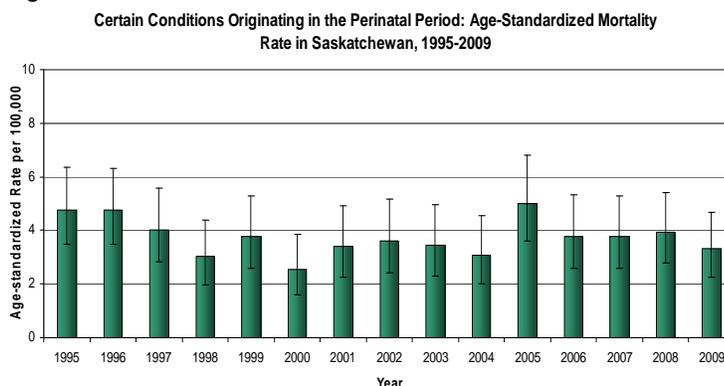


Fig: 5.54

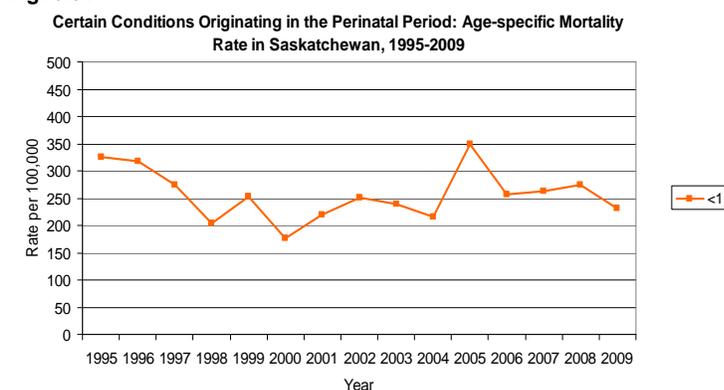
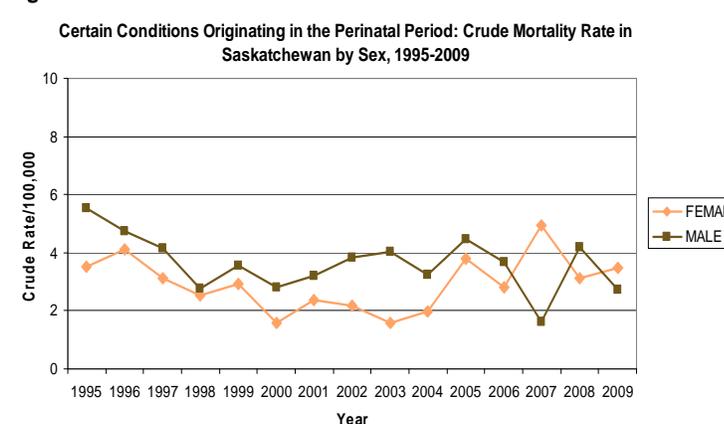


Fig: 5.55



**Ill-Defined Conditions:** This ICD chapter includes symptoms, signs and abnormal clinical and laboratory findings not elsewhere classified. Age-standardized mortality due to symptoms, signs and ill-defined conditions did not change significantly from 1995 to 2009 in Saskatchewan. The rate was 8.5 per 100,000 in 1995 and was 9.6 per 100,000 in 2009 (Figure 5.56).

Mortality rates varied across age groups over the time period 1995-2009 but were stable in the age group 65-74 years, and fluctuated in the 75 years and over and less than one year of age groups. In most years, the highest mortality rate was seen for those aged 75 years and older (Figure 5.57). Rates were not displayed for those one to under 65 years due to small numbers.

In 2009, the age-specific mortality rates per 100,000 population due to ill-defined conditions were found for the following age groups:

- less than one year - 86.5
- 65-74 years - 6.9
- 75+ years - 156.9

Sex-specific mortality rates increased slightly over the time period 1995 to 2009 (Figure 5.58). The rates were higher for females than for males.

In 2009, the age-standardized mortality rate due to ill-defined conditions was 9.6/100,000 in Saskatchewan. The rates for the RHAs were not compared due to small numbers.

Fig: 5.56

Symptoms, Signs and Ill-Defined Conditions: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

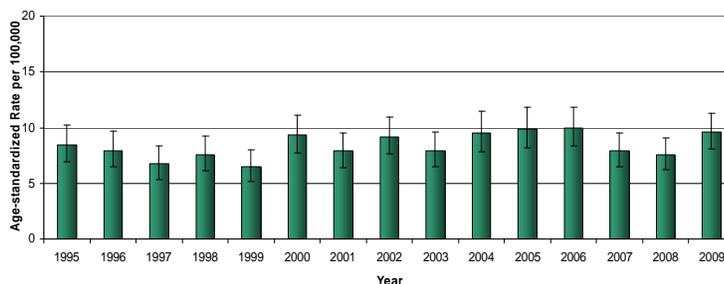


Fig: 5.57

Symptoms, Signs and Ill-defined Conditions: Age-specific Mortality Rate in Saskatchewan, 1995-2009

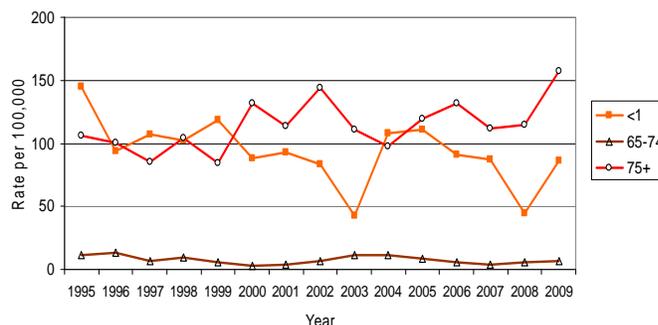
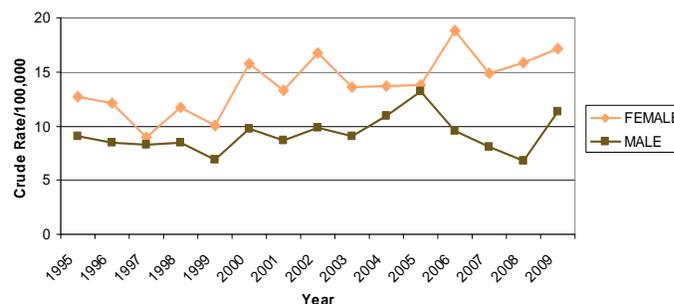


Fig: 5.58

Symptoms, Signs and Ill-defined Conditions: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**External Causes of Injury and Poisoning:** This ICD chapter includes external causes of mortality including accidents, assaults, intentional self-harm, and complications of medical and surgical care. Age-standardized mortality related to external causes of injury and poisoning did not change significantly from 1995 to 2009 in Saskatchewan. The rates were fairly stable from 53.1 per 100,000 in 1995 to 58.3 per 100,000 in 2009 (Figure 5.59).

Mortality rates varied across age groups over the time period 1995-2009, but the rates were stable in age groups other than the 75 years and over group which displayed an increase. The highest mortality rate was seen for those aged 75 years and older and the age-specific mortality rate of this age group was almost four times the rate of the next highest rates, the 20 to 44 year and 65 to 74 year age groups (Figure 5.60). Rates were not displayed for those under one year due to small numbers.

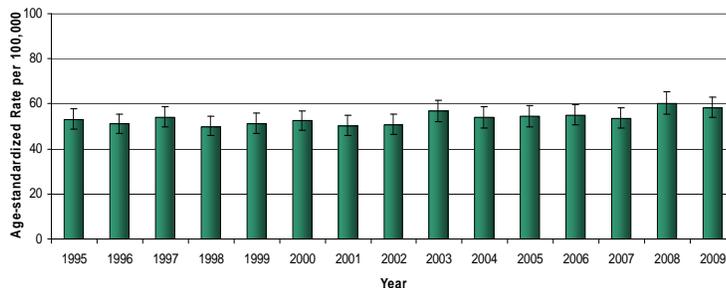
In 2009, the age-specific mortality rates per 100,000 population related to external causes of injury and poisoning were found for the following age groups:

- 1-19 years - 21.7
- 20-44 years - 56.8
- 45-64 years - 51.6
- 65-74 years - 76.8
- 75+ years - 287.3

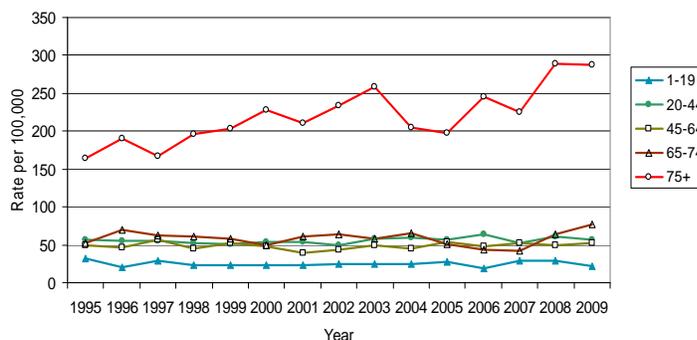
Sex-specific mortality rates slightly increased over the time period 1995 to 2009 (Figure 5.61). The rate was higher in males than females for all years.

In 2009, the age-standardized mortality rate related to external causes of injury and poisoning was 58.3/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate with the exception of the combined three northern regions that was significantly higher than the provincial rate.

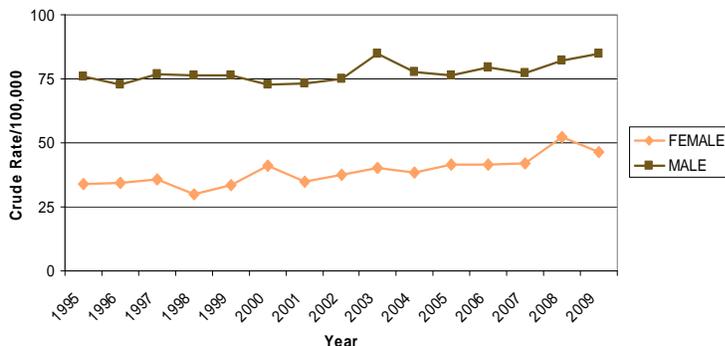
**Fig: 5.59** External Causes of Injury and Poisoning: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.60** External Causes of Injury and Poisoning: Age-specific Mortality Rate in Saskatchewan, 1995-2009



**Fig: 5.61** External Causes of Injury and Poisoning: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009

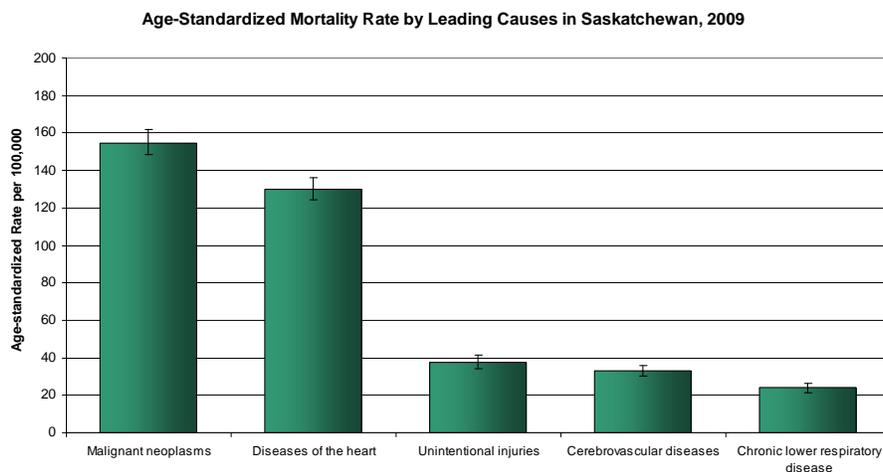


## Mortality by Leading Causes

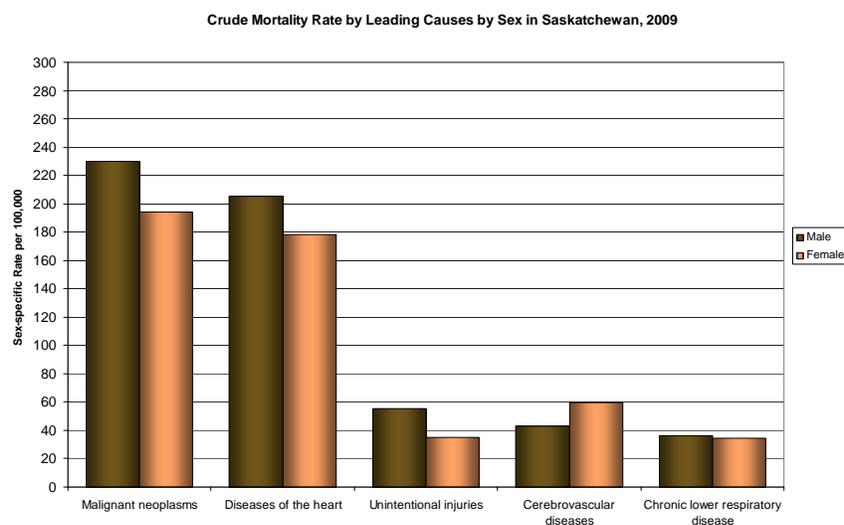
Leading causes of death analyses provide finer detail regarding mortality. According to Statistics Canada, in 2009 the top five leading causes of death in Canada in descending order were malignant neoplasms, diseases of the heart, cerebrovascular diseases, chronic lower respiratory diseases, and accidents (unintentional injuries). The order was similar when analyzed by sex. For males the top five leading causes of death in Canada were malignant neoplasms, diseases of the heart, accidents (unintentional injuries), cerebrovascular diseases, and chronic lower respiratory diseases. For females, the top five leading causes of death in Canada were malignant neoplasms, diseases of the heart, cerebrovascular diseases, chronic lower respiratory diseases, and Alzheimer's disease.

In 2009, the top five leading causes of death using the Statistics Canada classification for Saskatchewan were malignant neoplasms, diseases of the heart, accidents (unintentional injuries), cerebrovascular diseases and chronic lower respiratory diseases (Figure 5.62). The order was similar when the leading causes were analyzed by sex (Figure 5.63). For males the top five leading causes of death were malignant neoplasms, diseases of the heart, accidents (unintentional injuries), cerebrovascular diseases, and chronic lower respiratory diseases. For females, the top five leading causes of death in Canada were malignant neoplasms, diseases of the heart, cerebrovascular diseases, accidents (unintentional injuries), and chronic lower respiratory diseases.

**Fig. 5.62**



**Fig. 5.63**



**Malignant Neoplasms:** Malignant neoplasms exclude the benign neoplasms. There appeared to be a slightly decreasing trend in deaths due to malignant neoplasms from 1995 to 2009 in Saskatchewan. Although stable during 1995-2002, a significant decrease in the age-standardized mortality rate of malignant neoplasms was observed between 2002 and 2009. The rate significantly decreased from 171.5 per 100,000 in 1995 to 154.9 per 100,000 in 2009 (Figure 5.64).

Mortality rates varied across age groups over the period 1995-2009, with the highest mortality rate for those aged 75 years and older. The age-specific mortality rate of this age group has remained relatively stable during the time period (Figure 5.65). Mortality due to malignant neoplasms in those aged under 20 years was rare over the observation period.

In 2009, the age-specific mortality rates per 100,000 population due to malignant neoplasms were found for the following age groups:

- 20-44 years - 12.2
- 45-64 years - 185.3
- 65-74 years - 703.5
- 75+ years - 1416.3

Sex-specific mortality rates remained relatively stable for both sexes over the period 1995 to 2009, with males having slightly higher rates than females (Figure 5.66).

In 2009, none of the health regions exhibited significantly different rates from the provincial rate of 154.9/100,000.

Fig: 5.64 Malignant Neoplasm: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

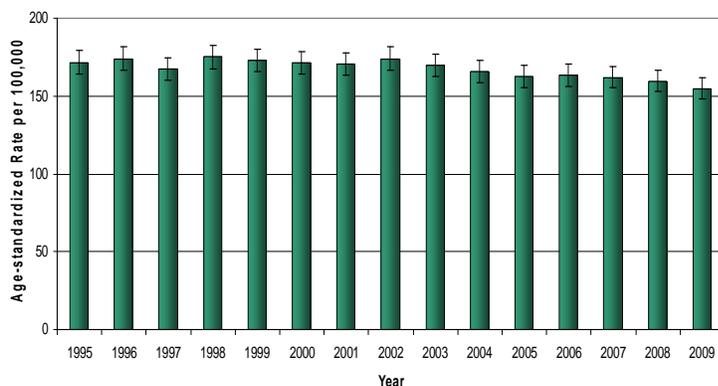


Fig: 5.65

Malignant Neoplasm: Age-specific Mortality Rate in Saskatchewan, 1995-2009

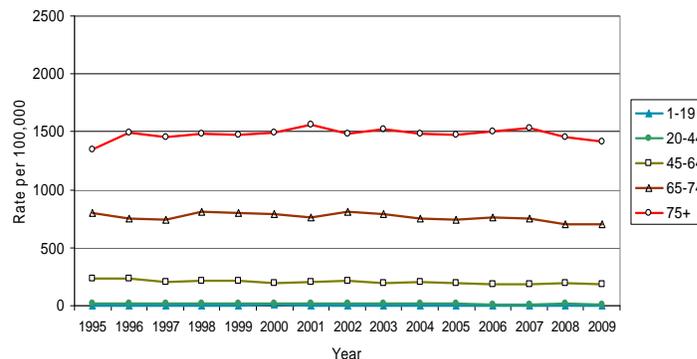
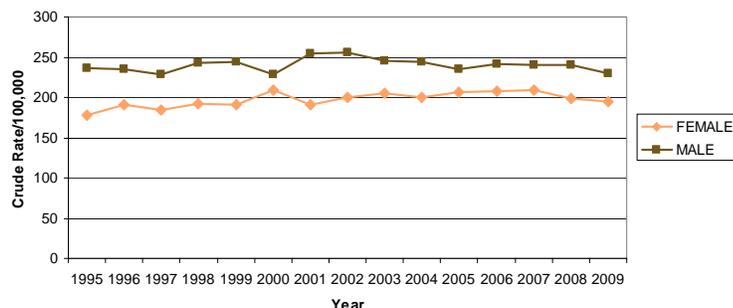


Fig: 5.66

Malignant Neoplasm: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Diseases of the Heart:** This group includes the main components of the circulatory diseases, ischemic heart disease and heart failure. There was a decreasing trend in deaths due to diseases of the heart from 1995 to 2009 in Saskatchewan, decreasing significantly from 180.4 to 130.2 per 100,000 (Figure 5.67).

Mortality rates varied across age groups over the time period 1995-2009. The rates were stable in the younger age categories and decreased in the 75 years and over and 65-74 year age categories. The highest mortality rate was seen in those aged 75 years and older. The age-specific mortality rate of this age group was four times the next highest rate which was in the 65 to 74 year age group (Figure 5.68). Mortality due to diseases of the heart for those aged under 20 years was rare over the observation period and therefore, the rates were not displayed.

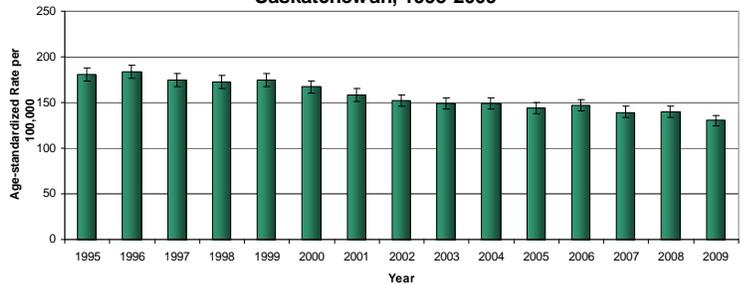
In 2009, the age-specific mortality rates per 100,000 due to diseases of the heart were found for the following age groups:

- 20-44 years - 11.3
- 45-64 years - 83.0
- 65-74 years - 377.1
- 75+ years - 1,813.7

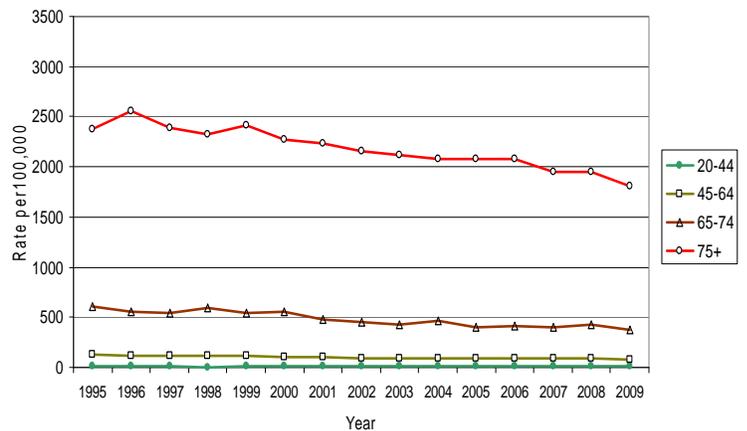
Sex-specific mortality rates decreased for both sexes over the time period 1995 to 2009 (Figure 5.69). The rate tended to be higher in males than for females.

In 2009, the age-standardized mortality rate due to diseases of the heart was 130.2/100,000 in Saskatchewan. The rates for the Five Hills and Heartland health regions were significantly higher than the provincial rate and those for the Cypress health region were significantly lower than the provincial rate.

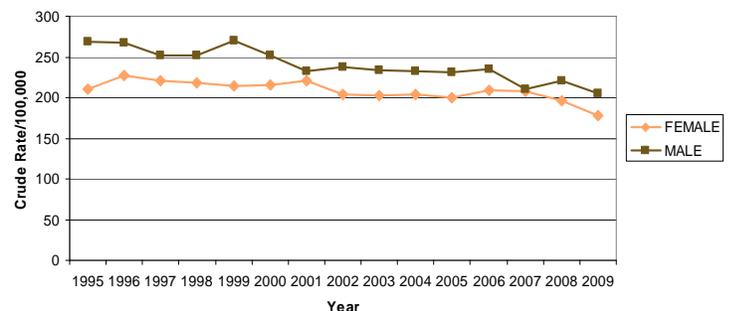
**Fig: 5.67 Heart Disease: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009**



**Fig: 5.68 Heart Disease: Age-specific Mortality Rate in Saskatchewan, 1995-2009**



**Fig: 5.69 Heart Disease: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009**



**External Causes of Unintentional Injuries:** This group includes the main components of the external causes of injuries. There appeared to be a relatively stable trend in deaths due to unintentional injuries from 1995 to 2009 in Saskatchewan. The rate was 35.6 per 100,000 in 1995 and 37.8 per 100,000 in 2009 (Figure 5.70).

Mortality rates varied across age groups over the time period 1995-2009. The highest mortality rate was seen for those aged 75 years and older. The age-specific mortality rate of this age group was over five times the next highest rate which was in the 65 to 74 year age group, and increased from 139.8 to 256.9 per 100,000 over the fifteen year period (Figure 5.71). The age-specific rates for the remaining age groups remained stable over the same time period

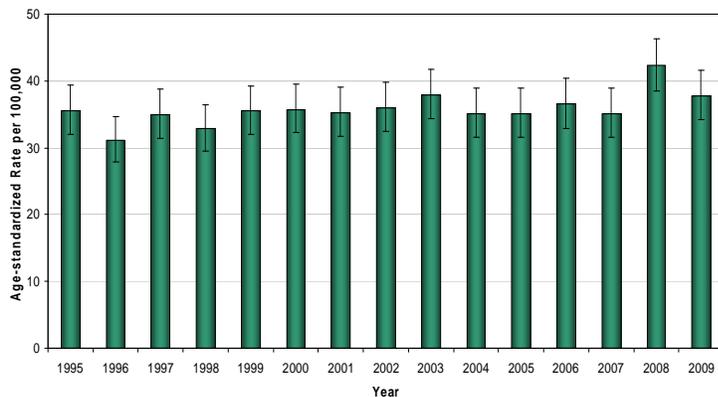
In 2009, the age-specific mortality rates per 100,000 population due to unintentional injuries were found for the following age groups:

- less than one year old - 21.6
- 1-9 years - 1.7
- 10-19 years - 22.4
- 20-44 years - 31.0
- 45-64 years - 31.0
- 65-74 years - 50.7
- 75+ years - 256.9

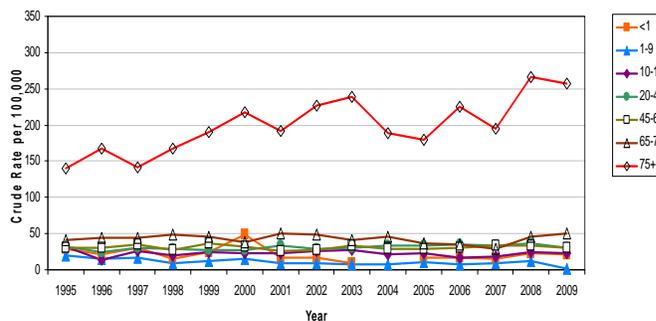
Sex-specific mortality rates increased slightly for both sexes over the time period 1995 to 2009 (Figure 5.72). The rate was higher for males than for females.

In 2009, the age-standardized mortality rate related to unintentional injuries was 37.8/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate. Due to small numbers, some regions could not be compared to the provincial rate.

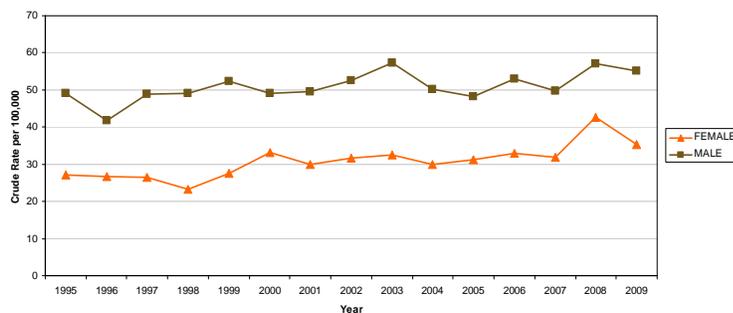
**Fig: 5.70** Unintentional Injuries: Age-standardized Mortality Rate in Saskatchewan 1995 - 2009



**Fig: 5.71** Unintentional Injuries: Crude Rate of Mortality in Saskatchewan by Age Group, 1995 - 2009



**Fig: 5.72** Unintentional Injuries: Crude Rate of Mortality in Saskatchewan by sex, 1995 - 2009



**Cerebrovascular Diseases:** This group includes the remaining components of the circulatory diseases once the diseases of the heart have been removed. There appeared to be a decreasing trend in deaths due to cerebrovascular disease from 1995 to 2009 in Saskatchewan, decreasing significantly from 46.9 to 33.2 per 100,000 (Figure 5.73).

Mortality rates varied across age groups over the time period 1995-2009. The rates were stable in the younger age categories and decreased in the 75 years and over and 65-74 year age categories. The highest mortality rate was seen for those aged 75 years and older. The age-specific mortality rate of this age group was seven times the next highest rate in the 65 to 74 year age group (Figure 5.74). Due to small numbers, the rates for those aged under 45 years were not displayed.

In 2009, the age-specific mortality rates per 100,000 population due to cerebrovascular disease were found for the following age groups:

- 45-64 years - 11.4
- 65-74 years - 68.6
- 75+ years - 564.5

Sex-specific mortality rates decreased slightly for both sexes over the time period 1995 to 2009 (Figure 5.75). The rate was consistently higher in females than males.

In 2009, the age-standardized mortality rate due to cerebrovascular diseases was 33.2/100,000 in Saskatchewan. The rates for the health regions did not differ significantly from the provincial rate.

Fig: 5.73

Cerebrovascular Disease: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

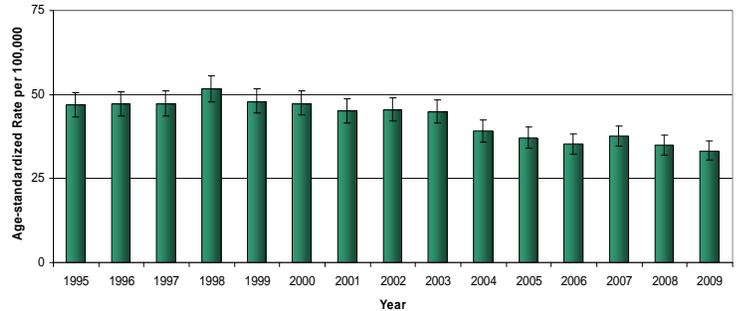


Fig: 5.74

Cerebrovascular Disease: Age-specific Mortality Rate in Saskatchewan, 1995-2009

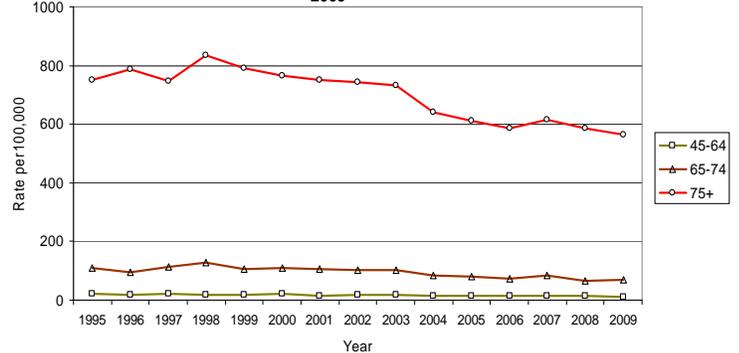
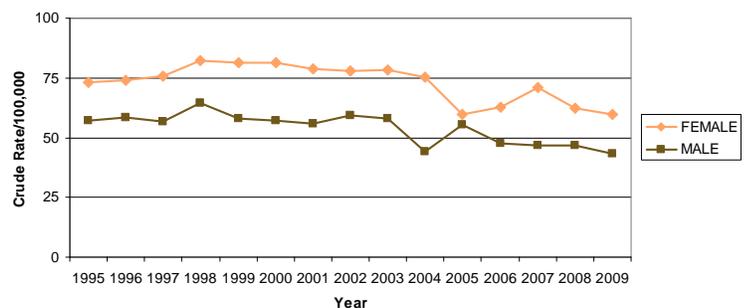


Fig: 5.75

Cerebrovascular Disease: Crude Mortality Rate in Saskatchewan by Sex, 1995-2009



**Chronic Lower Respiratory Diseases:** This group includes the main components of the respiratory diseases. There appeared to be a relatively stable trend in deaths due to chronic lower respiratory diseases from 1995 to 2009 in Saskatchewan. The rate fluctuated between 23.9 to 28.3 per 100,000 (Figure 5.76).

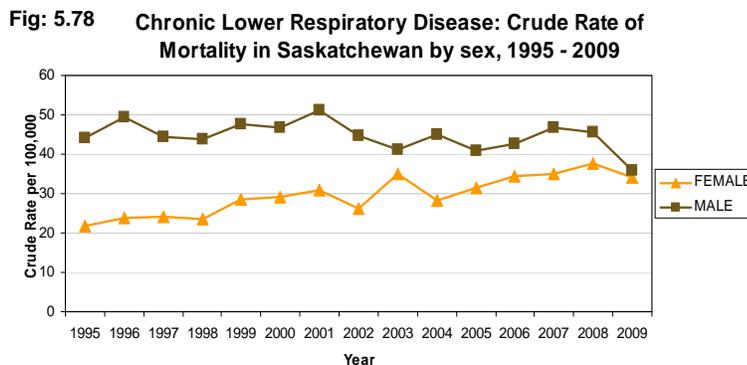
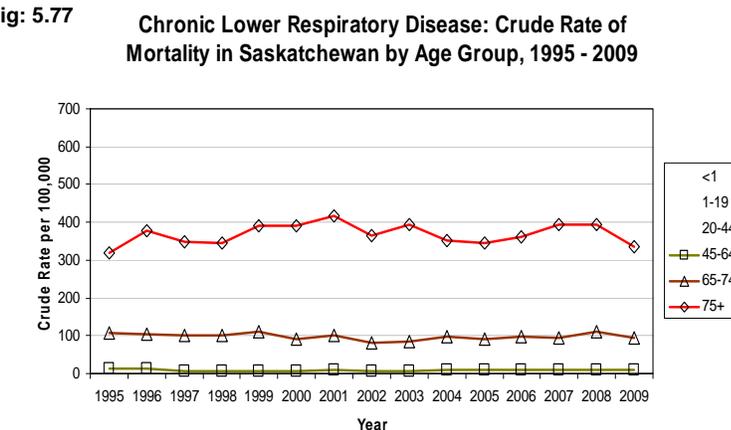
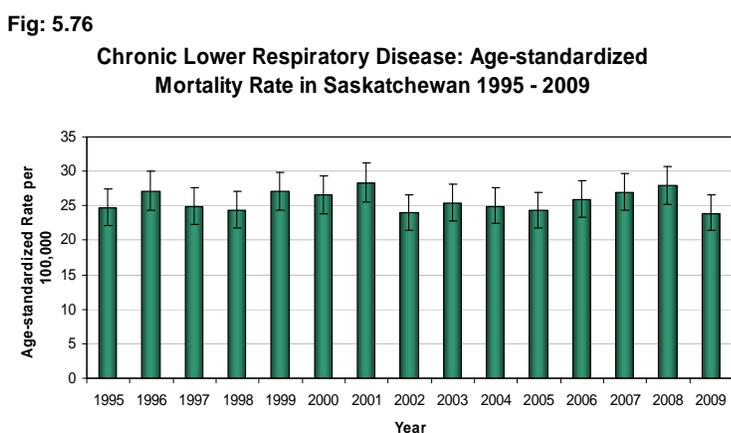
Mortality rates varied across age groups over the time period 1995-2009. The highest mortality rate was seen for those aged 75 years and older. The age-specific mortality rate of this age group was over three times the rate of the next highest group, the 65 to 74 year age category, and fluctuated over the fifteen year time period (Figure 5.77). The age-specific rates for the 45 to 64 year age group remained stable over the same time period. Due to small numbers, the rates for those aged under 45 years were not displayed.

In 2009, the age-specific mortality rates per 100,000 population due to chronic lower respiratory disease were found for the following age groups:

- 45-64 years - 8.9
- 65-74 years - 94.6
- 75+ years - 336.7

Sex-specific mortality rates decreased slightly for males and increased for females over the time period 1995 to 2009 (Figure 5.78). The rate was higher for males than for females.

In 2009, the age-standardized mortality rate due to chronic lower respiratory diseases was 23.9/100,000 in Saskatchewan. The rates for the RHAs did not differ significantly from the provincial rate. Due to small numbers, some regions could not be compared to the provincial rate.



## Definitions

**Health-adjusted life expectancy (HALE)** - Health-adjusted life expectancy (HALE) is the number of years in full health that an individual can expect to live given the current morbidity and mortality conditions and is a summary measure of population health that combines mortality and morbidity data into a single index (Statistics Canada, 2012).

**International Classification of Diseases (ICD)** - The International Classification of Diseases (ICD) is the foundation for the identification of health trends and statistics globally. It sets the international standard for defining and reporting diseases and health conditions by defining the universe of diseases, disorders, injuries and other related health conditions (World Health Organization, 2013).

**Injury** - A bodily lesion resulting from acute over-exposure to energy (this can be mechanical, thermal, electrical, chemical or radiant) interacting with the body in amounts or rates that exceed the threshold of physiological tolerance. Injuries may be unintentional (i.e., not purposely inflicted, either by the patient or anyone else) or intentional injury (i.e., purposefully caused). In some cases an injury results from an insufficiency of any of the vital elements (e.g., oxygen, warmth). Acute poisonings and toxic effects, including overdoses of substances and wrong substances given or taken in error are included. Psychological harm and assault are excluded. Note that the scope of this definition is in accordance with the scope of the ICD-9 Supplementary Classification of External Causes of Injury and Poisoning and ICD-10 CA Chapter XX. (Public Health Agency of Canada 2005).

**Life Expectancy** - Life expectancy is an estimate of the number of years a person would be expected to live, either from birth or from age 65 years, based on age- and sex-specific mortality rates for a given period, under the assumption that these mortality rates would stay constant over subsequent years (St-Arnaud, J, et al, 2005).

**Morbidity** - Illness.

**Mortality** - Death.

**Potential Years of Life Lost (PYLL)** - The numbers of years of life lost when a person dies prema-

turely from any cause, typically, before age 75. The PYLL rate for a given period is the ratio of the total years of life lost before age 75 to the total population under 75 and is usually expressed per 1,000 population.

**Rates** - The rate is the proportion of a group affected over a period of time (such as a year). It expresses the number of hospital separations or deaths, usually per 100,000 population. Hospital separation rates are calculated using Saskatchewan Ministry of Health Covered Population in the denominator whereas Statistics Canada's population estimates are used for mortality rate calculations. To compare rates in populations or of the same population in different years, age standardization is applied using the 1991 census population of Canada as a standard population.

- The crude rate is ratio of the total number of hospital separations or deaths for selected causes of injury relative to the total population and is usually expressed per 100,000 population.
- The age-specific rate is the ratio of the total number of hospital separations or deaths for selected causes of injury in a given age group to the total population in that age group and is usually expressed per 100,000 population.
- The age-standardized rate is the number of hospital separations or deaths for selected causes of injury per 100,000 population that would occur in the population if it had the same age distribution as the 1991 Canadian census population. It is defined as the weighted average of the age-specific rates where the weights are taken from the standard population. Confidence intervals for the age-standardized rates were calculated using the gamma method. (See: Fay PM and Feuer EJ. Confidence intervals for directly standardized rates - A method based on gamma distribution. Stat Med 1997;16:791-801).
- The sex-specific rate is the ratio of the total number of hospital separations or deaths for selected causes of injury for a given sex to the total population of that sex and is usually ex-

pressed per 100,000 population.

- The age-sex specific rate is the ratio of the total number of hospital separations or deaths for selected causes of injury in a given age-sex group to the total population of the age-sex group and is usually expressed per 100,000 population.

## Data Sources

Canadian Community Health Survey (CCHS), Statistics Canada

Demography). CANSIM Population estimates were used from Statistics Canada for 1996 to 2009.

Saskatchewan Ministry of Health Vital Statistics files.

Saskatchewan Ministry of Health year-end hospital files (included both inpatient and day procedure records)

Statistics Canada CANSIM tables (Population and

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St-Arnaud J, Beaudet MP, Tully P. Life expectancy. Health reports, Statistics Canada, Canadian Centre for Health Information; 2005; 17(1): 43-7.

Statistics Canada, Health-adjusted life expectancy, by sex. (2012) Retrieved 20130704, from <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/hlth67-eng.htm>

Association of Public Health Epidemiologist of Ontario (APHEO), Potential Years of Life Lost (75) (2006) Retrieved 20130704, from <http://www.apheo.ca/index.php?pid=90>

World Health Organization, International Classification of Diseases (ICD) Information Sheet. (2013) Retrieved 20130704, from <http://www.who.int/classifications/icd/factsheet/en/index.html>