

Injuries

Key Findings

According to the Canadian Community Health Survey (CCHS) in 2005, approximately 15 percent of the Saskatchewan population aged 12 years and over reported having an injury in the past 12 months.

- Falls were the most common injury.
- Adolescents aged 12 to 19 years had the highest prevalence.
- Males reported more injuries than females.
- The top two activities associated with injury were sports or physical exercise, and work.
- Injuries occurred most frequently in the home or its surrounding, and sports facilities or athletics areas.

There was no significant change in injury-related annual mortality rates from 1995 to 2009 or hospital separation rates from 1995 to 2008. For injury deaths in general, males had a higher prevalence than females.

Many of the specific-injury types exhibited declines or no changes in the rates, (e.g., farm injury-related hospitalizations, motor vehicle-related hospitalizations, bicycling-related hospitalizations, accidental burn-related hospitalizations).

Falls-related mortality rates more than doubled from 1995 to 2008 and non-snow off-road vehicle-related hospitalizations increased considerably from 2005 to 2008.

Introduction

This chapter describes injuries and their causes in the Saskatchewan population. Injury may include both unintentional and intentional injuries such as self harm and assault. Definitions and references are available at the end of the chapter.

Injuries costs Canadians \$19.8 billion annually – more than \$600 for each man, woman and child. In fact, injury (both unintentional and intentional, from falls, traffic, drowning, suicide, violence and other means) remains the leading cause of death for Canadians aged less than 45 years and, in 2004, took the lives of 13,667 people (Smartrisk, 2009).

Overall in Canada, based on the 2008–2009 National Trauma Registry Comprehensive Data, the leading cause of severe injury was motor vehicle collisions, which accounted for 41 percent of all cases (n =

5,797). Thirty-eight percent of cases were due to falls (n = 5,348). Gunshot wounds (n = 245) and stab wounds (n = 382) together accounted for four percent of injuries. The other 17 percent of cases involved blunt injuries, land transport incidents, etc. (National Trauma Registry, 2011).

Unintentional injuries are the leading cause of death among children and youth. In 2005, 720 Canadians aged 19 years and younger died as a result of injuries – an over 40 percent reduction since 1990, primarily due to the decline in motor vehicle traffic collision deaths. In the approximate same time period, there were 29,142 hospitalizations for treatment of injuries among children and youth (19 years and younger) in Canada – a reduction of almost 40 percent since 1994/95 (Public Health Agency of Canada, 2009).

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In 2004 injuries claimed 554 Saskatchewan lives in that year. For the 2004 population of 995,391, the annual death rate was 55.7 per 100,000 population with an estimated 1,377.2 potential years of life lost (PYLL), and \$791 in per capita total costs (SMARTRISK, 2009). Direct health care costs were \$420 million or \$420 per capita, representing 53 percent of total injury costs; indirect costs were \$370 million (47 percent). In 2004, unintentional injuries accounted for \$630 million or 80 percent of Saskatchewan's \$790 million total injury costs. Almost half of the total costs of injury in Saskatchewan in 2004 were attributable to falls (30%) and transport incidents (19%). Falls were also the leading cause of health care or direct costs due to injury, accounting for 40 percent of all direct injury costs in 2004, followed by other unintentional injuries at 24 percent, and transport incidents at 15 percent. Transport incidents were the leading cause of indirect costs arising from injury at 23 percent, followed by falls (18%), and suicide/self-harm (16%) (SMARTRISK, 2009).

In 2005/06 approximately one in ten hospital separations in Saskatchewan were due to injuries (Figure 7.1). In the same time period, about half of injury hospital separations in Saskatchewan were due to falls (Figure 7.2).

A previous study of injuries in Saskatchewan indicated that injury was the most frequent cause of deaths among residents in the age groups 10 to 14 years, 15 to 19 years and 20 to 34 years for the two study periods 1995-2000 and 2001-2005, while in age groups 0 to 9 years and 35 to 64 years, it ranked third for both the periods. (SK Ministry of Health, 2008). Between 1995 and 2005, 616 children and youth between birth and 19 years of age died from unintentional injuries due to motor vehicle incidents, drowning, fires, poisoning, falls, cycling incidents, pedestrian incidents and other causes (excluding self-injury and assaults).

Injury fatalities occurred in every sector of society or activity. Almost every injury is considered preventable. According to the 2005 provincial report on deaths (SK Ministry of Health, 2005), the leading cause for PYLL is suicide for Saskatchewan males and motor vehicle traffic crashes for Saskatchewan females. Transport incidents were the leading cause of injury deaths in 2004 in Saskatchewan (12.9 per 100,000 population), while

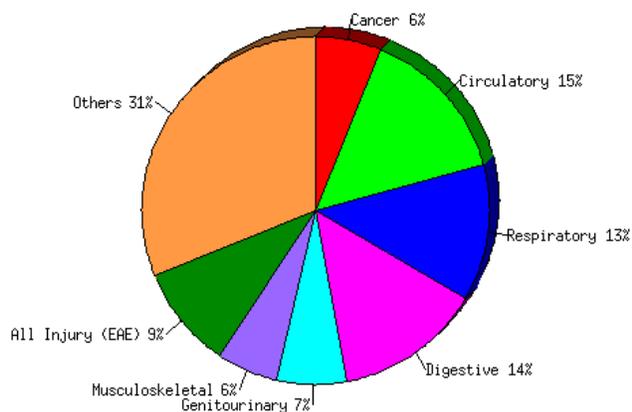
falls generated the greatest per capita injury costs (SMARTRISK, 2009).

As Saskatchewan has a large agricultural industry, farm-related injuries are a sizeable component of the overall injuries in the province. Machinery-related injuries are the leading cause of fatal and hospitalized injuries on Canadian farms. In Saskatchewan, the proportion of all farm injuries related to farm machinery exceeds that reported for all of Canada (Hagel et al., 2004).

Shah et al. conducted a study to estimate farm fatality rates and to describe patterns of fatal agricultural injury on Saskatchewan farms from 1990 to 2004 (Shah et al., 2011). Trend analysis of the fatality rate of all cases (n=251) showed a statistically significant average annual increase of 3.8 percent. Bystander and runover injuries contributed to a high proportion of farm fatalities in children (32.1%) and the elderly population (26.7%). The study concluded that enhanced vigilance is needed on the part of adults to prevent a high proportion of runover injuries in children and the elderly population (Marlenga et al., 2010).

Socioeconomic factors have been cited as important risk factors for injury on farms (Pickett et al., 2011). Etiological data confirm the practical importance of operational safety practices as components of injury control strategies on farms (Narasimhan et al., 2010).

Fig: 7.1 Leading Causes of Hospital Separations
Both Sexes Combined, All Ages, 2005/06
Saskatchewan



Source:
Injury and Child Maltreatment Section, Health Surveillance and Epidemiology Division, Centre for Health Promotion, Public Health Agency of Canada; Accessed through Canadian Injury Surveillance On-Line.

Fig: 7.2 Injury Hospital Separations,
Both Sexes Combined, All Ages, 2005/06
Saskatchewan



Source:
Injury and Child Maltreatment Section, Health Surveillance and Epidemiology Division, Centre for Health Promotion, Public Health Agency of Canada; Accessed through Canadian Injury Surveillance On-Line. Note: unintentional motor vehicle traffic crashes (MVTC-Unint)

Self-Reported Injuries

The Canadian Community Health Survey (CCHS), is conducted by Statistics Canada biannually to provide regular and timely cross-sectional estimates of health determinants, health status and health system utilization at health region, provincial and national levels. The comprehensive self-reported injury questions were not included in the 2007/2008 cycle core content but were part of the optional module, hence the absence of 2007/2008 data from the CCHS charts.

In 2000/01, the proportion of CCHS respondents (12 years and older) who reported injury in the past 12 months was significantly higher in Saskatchewan than in Canada (Figure 7.3). For 2003 and 2005, the national and provincial rates were not statistically significantly different. The Canadian prevalence remained fairly constant from 2000/01 through 2005; the Saskatchewan rate declined slightly.

Adolescents, 12 to 19 years old, had the highest rate of self-reported injury. The rates declined significantly in the older age groups. Rates for the 20 to 44 year old age group were significantly lower than adolescents and significantly higher than the 45 to 64 year old age group. Seniors (65 or older) had the lowest rate in all survey years (Figure 7.4).

Generally, males were more likely to report an injury in the past 12 months than females. The rates for males were significantly higher than rates for females in 2000/01 and 2005 (Figure 7.5).

Activities: The top four activities associated with injury in the Saskatchewan population aged 12 years or older in decreasing order were: “sports or physical exercise”, “work at job or business or travel”, “household chores” and “leisure or hobby” (Figure 7.6). Sports or physical exercise ranked highest in the rates of activities associated with self-reported injury for both males and females. In 2005, among youths (12 to 19 year olds) more than two-thirds (67.2%) of the reported injuries was related to the sports or physical exercise activities.

The injury rates related to work were significantly higher in the age groups 20 to 44 years (31.7%) and 45 to 64 years (32.4%) than the age groups 12 to 19 years (4.7%) and 65+ years (5.5%). The rates

Fig: 7.3 Prevalence of self-reported injury in past 12 months, in 12+ year olds, Canada and Saskatchewan, CCHS Cycles, 2000/01, 2003, 2005.

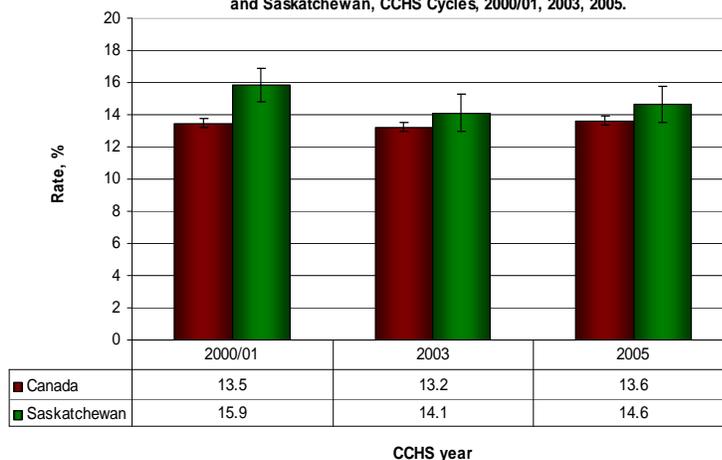


Fig: 7.4 Prevalence of self-reported injury for past 12 months in 12+ year olds, by Age group, Saskatchewan, CCHS, 2000/01, 2003, 2005.

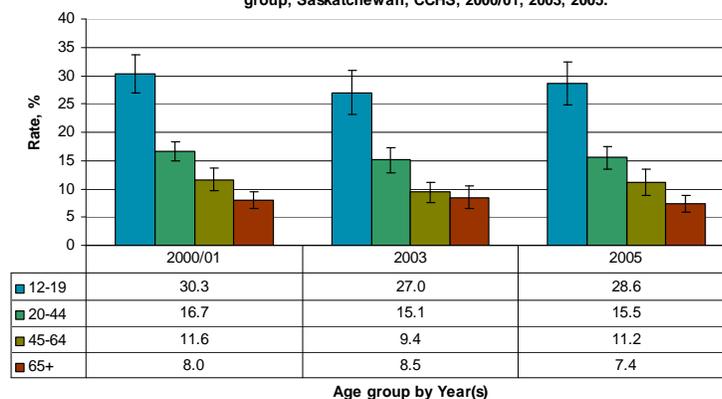
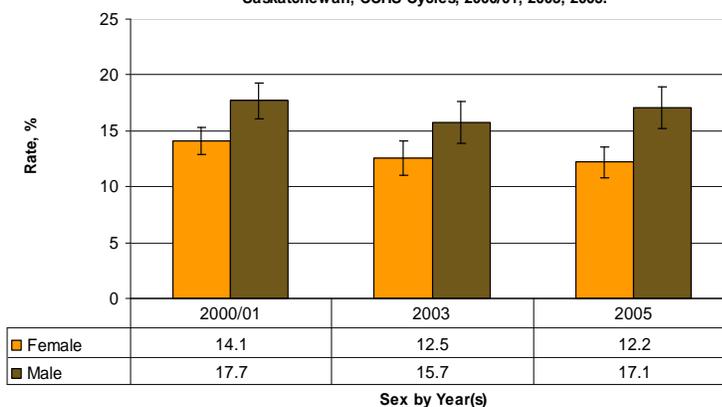


Fig: 7.5 Prevalence of self-reported injury for past 12 months in 12+ year olds, by sex, Saskatchewan, CCHS Cycles, 2000/01, 2003, 2005.



for household chore-related injuries were significantly higher in seniors (65+) (29.4%) than those aged 12 to 19 years (2.9%).

Causes: Falls and overexertion (or strenuous body movement) are the two most common causes of self-reported injury in Saskatchewan across CCHS survey years, 2000/01, 2003 and 2005 (Figure 7.7). More than one-third of those injured (35.5%) reported a fall as the cause of injury in 2000/01, which increased to 42.1 percent in 2005.

Falls were the most common cause of injury reported by both males and females aged 12 years and older. The rates associated with falls were significantly higher than the rates for other causes of injury across the survey years, 2000/01, 2003 and 2005. Females tended to have higher rates of falls than males; the difference was statistically significant in 2003. Most other causes of injuries had higher reported rates in males than in females with the exception of the rates of transportation accident-related injuries, which were higher in females than in males.

For all cycles of the CCHS, falls as cause of injury were significantly higher in seniors (65+) (57.1 to 70.1%) compared to 20-44 year (27.5 to 34.3%) and 45-64 year (32.0 to 40.7%) age groups. Overexertion or strenuous body movement as a cause of injury tended to be higher in the age groups 20-44 years (14.6 to 24.6%) and 45-64 years (16.8 to 40.7%) than in the other two age groups, 12-19 years and 65 years and older, (8.5 to 18.0% and 6.1 to 16.6%, respectively).

Place of Occurrence: The major places of occurrence of injury in Saskatchewan across the survey years, 2000/01, 2003 and 2005 (in decreasing order) were “home or its surrounding”, “sports facilities or athletics areas”, “street, highway or sidewalk”, “commercial area”, “industrial or construction areas”, “farm” and “school, college or university”.

Home (or its surrounding) and sports facilities (or athletics areas) were the top two places of injury occurrence in 2005, with their rates significantly different from the rates for other places. Based on the 2005 CCHS data, the rate of injury occurring in the home or its surrounding area was significantly higher in females than in males. Among males, the rates of injury that occurred in the home (or its surrounding area) or sports (or athletic

Fig: 7.6 Prevalence of self-reported injury-related activities in 12+ year olds, Saskatchewan, CCHS Cycles, 1.1 (2000/01), 2.1 (2003), 3.1 (2005).

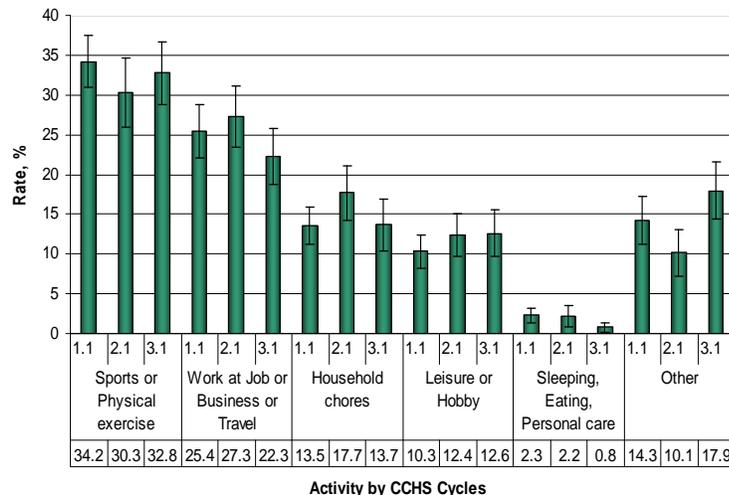


Fig: 7.7 Prevalence of self-reported major causes of injury for past 12 months in 12+ year olds, Saskatchewan, CCHS Cycles, 1.1 (2000/01), 2.1 (2003), 3.1 (2005).

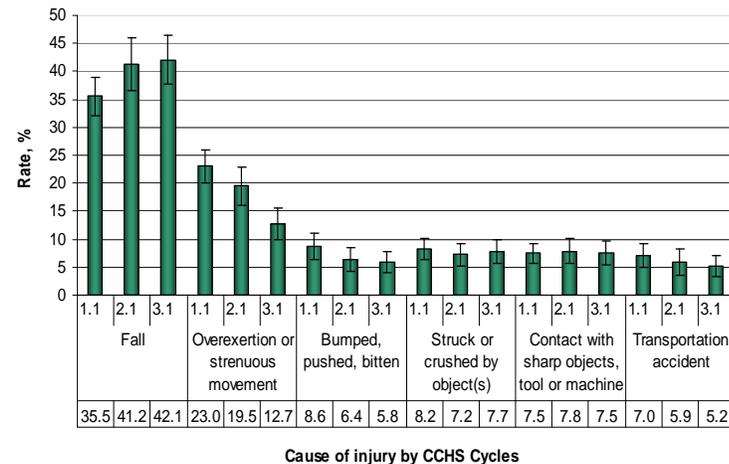
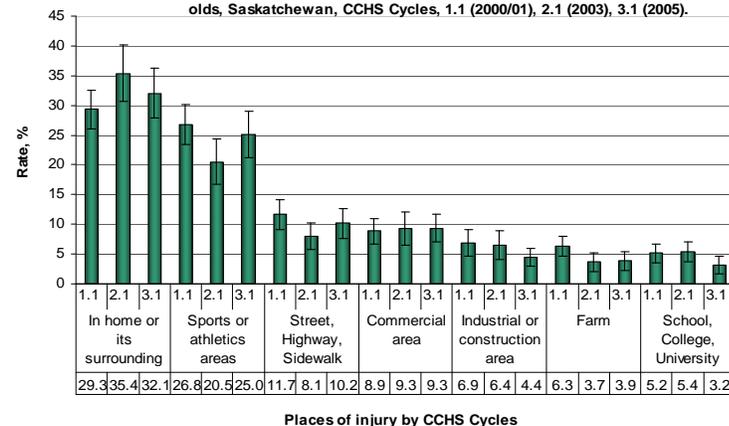


Fig: 7.8 Prevalence of self-reported major places of injury for past 12 months in 12+ year olds, Saskatchewan, CCHS Cycles, 1.1 (2000/01), 2.1 (2003), 3.1 (2005).



ics areas) were significantly higher than the rates of injury which occurred in other places.

In Saskatchewan, self-reported injury occurring in the home and surrounding area tended to increase with advancing age across CCHS survey years, 2000/01, 2003 and 2005. Seniors aged 65 years or older were significantly more likely to report having injury in the home and its surrounding areas compared to other age groups. The rate of injury occurring in sports facilities tended to de-

cline with the advancing age across CCHS survey years, 2000/01, 2003 and 2005 for Saskatchewan. Adolescents (aged 12 to 19 years) were significantly more likely to report having an injury in sports or athletics areas compared to other age groups. As a result of variability in seniors aged 65+ years, the rate was not reported or compared to the other age groups.

Injury Mortality

There was no significant change in the age-standardized mortality rate due to unintentional injuries in Saskatchewan from 1995 to 2009. With the exception of 2008, the annual age-standardized mortality rates remained within the range of 30 and 40 per 100,000 (Figure 7.9). Unintentional injuries included all injuries except those due to self harm and assault.

The mortality rate related to unintentional injuries is considerably higher in those aged 75 years and over than in the younger age groups. Among those 75 years and older, the rate increased from 140 per 100,000 to 257 per 100,000 representing an increase of 84% from 1995 to 2009 (Figure 7.10). The mortality rates for all age groups under 75 years remained under 50 per 100,000 for the same time period of 1995-2009.

Mortality rates due to unintentional injuries were higher in males than in females for the 1995-2009 time period (Figure 7.11). Mortality rates due to unintentional injuries fluctuated around 50 per 100,000 among males and 30 per 100,000 among females.

The age-standardized mortality rate due to unintentional injuries amongst the RHAs in 2009 did not significantly differ from the provincial rate of 37.8 per 100,000. Fewer than 20 deaths due to unintentional injuries were reported among Cypress, Mamawetan Churchill and Athabasca Health Region residents.

Fig: 7.9 Unintentional Injuries: Age-standardized Mortality Rate in Saskatchewan 1995 - 2009

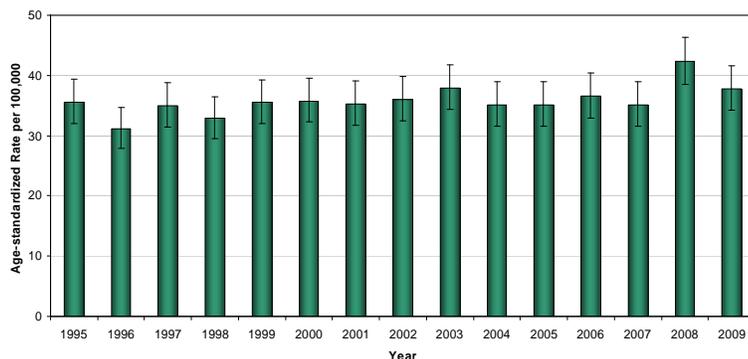


Fig: 7.10 Unintentional Injuries: Crude Rate of Mortality in Saskatchewan by Age Group, 1995 - 2009

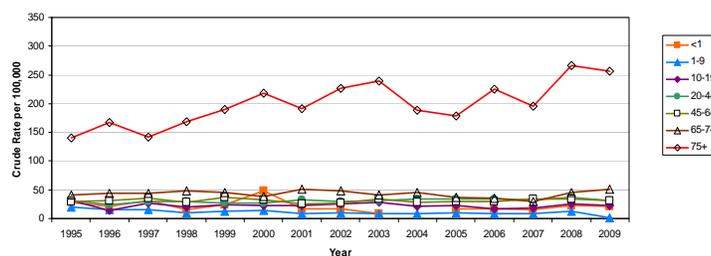
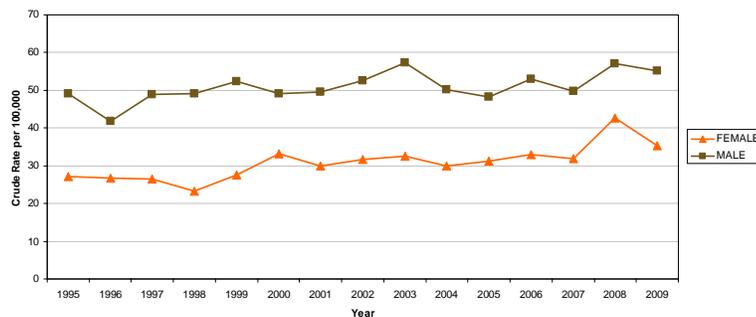


Fig: 7.11 Unintentional Injuries: Crude Rate of Mortality in Saskatchewan by sex, 1995 - 2009



Injury Morbidity

Age-standardized rates of hospital separations related to unintentional injuries in Saskatchewan did not differ significantly across the years from 1995 to 2008. The rate in Saskatchewan in 1995 was 996 per 100,000 and 945 per 100,000 in 2008 (Figure 7.12). As with injury mortality in the previous section, unintentional injuries included all injuries except those related to self harm and assault.

Changes in age-specific rates of hospital separations related to unintentional injuries were mostly evident in those aged 75 years and over. Among seniors aged 75 years and over, the rates increased slightly by 7 percent from a rate of 4,123 per 100,000 in 1995 to 4,393 per 100,000 in 2008 (Figure 7.13). A decline of 55 percent, with some fluctuation, was seen in the hospital separation rates related to unintentional injuries among infants between 1995 and 2008, from 1,176 to 573 per 100,000.

Overall, the sex-specific rates of hospital separations related to unintentional injuries in Saskatchewan for the time period of 1995 to 2008 were consistently higher among males than for females (Figure 7.14). An almost constant rate was maintained among both females (hovering around 1,000 per 100,000) and males (around 1,200 per 100,000).

In 2008, the age-standardized rate of hospital separations related to unintentional injuries was 945/100,000 in Saskatchewan. The RHAs of Kelsey Trail, Sun Country, Sunrise and the combined three northern Regional Health Authorities were significantly higher than the provincial rate while the rates within Regina Qu'Appelle and Saskatoon RHAs were significantly lower than that of Saskatchewan.

Fig: 7.12 Unintentional Injuries: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

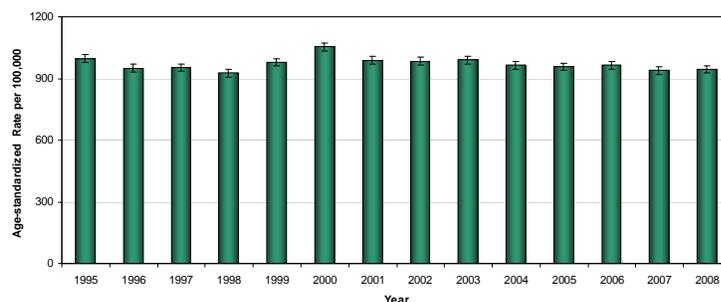


Fig: 7.13 Unintentional Injuries: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

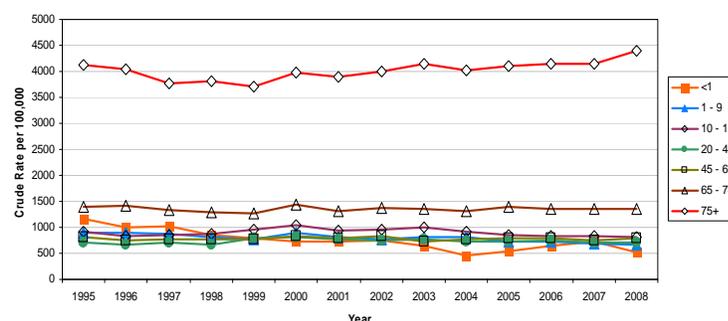
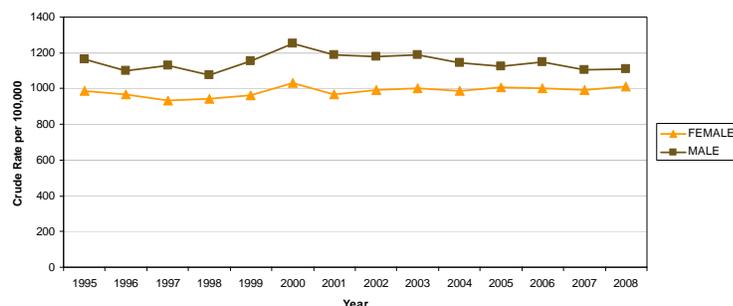


Fig: 7.14 Unintentional Injuries: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995-2008



Farm Injuries

Mortality: The total number of deaths due to farm injuries in Saskatchewan from 1995 to 2009 was 98 deaths. Farm injury-related mortality rate charts were not included in this report due to the small number of events.

Morbidity: Figure 7.15 shows annual provincial age-standardized rates for hospital separations related to farm injury. Hospital separations declined over time with a 50% decrease between 1996 and 2008 (from 44.8 per 100,000 to 22.3 per 100,000, respectively).

The age-specific rates were high among adults aged 45 years and older (Figure 7.16). The age-specific rates among those aged 10-19 years and 20-44 years declined over the 14-year period (frequencies were less than 20 separations in 2004 and 2008 among those aged 10-19 years).

The annual frequency of hospital separations among the 1-9 year old age group dropped to fewer than 20 separations in 2001 and this trend persisted through 2008. Among the age group less than one, hospital separations were reported for only three years and those frequencies were less than 20 separations. Therefore, the rates for this age group were not displayed.

For the 1995-2008 time period, the sex-specific rates among males were consistently higher than for females. (Figure 7.17). The rates declined in both sexes, by 39.5 percent among males (from 66.9 per 100,000 to 40.5 per 100,000) and by 49 percent among females (from 18.9 per 100,000 to 9.6 per 100,000).

In 2008, the age-standardized rate of hospital separations related to unintentional injuries was 22.3/100,000 in Saskatchewan. The RHAs of Cypress, Sunrise and Sun Country were significantly higher than the provincial rate while the rates within Regina Qu'Appelle and Saskatoon RHAs were significantly lower than that of Saskatchewan. Fewer than 20 farm injury-related hospital separations were reported for Kelsey Trail, Prairie North and the combined northern regions.

Fig: 7.15 Farm Injury: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

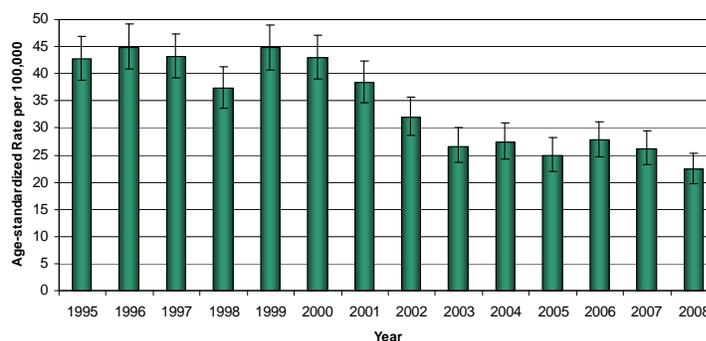


Fig: 7.16 Farm Injury: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

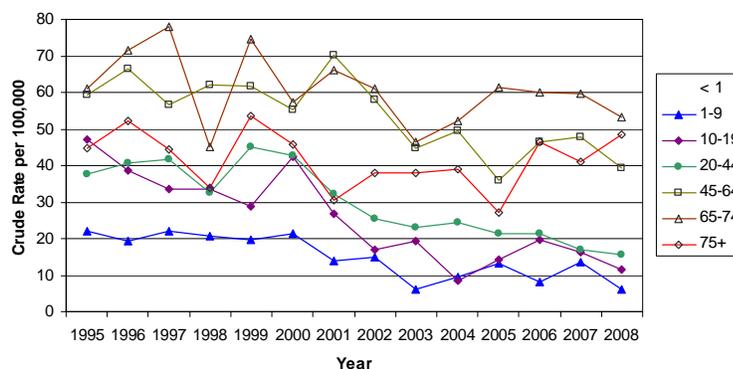
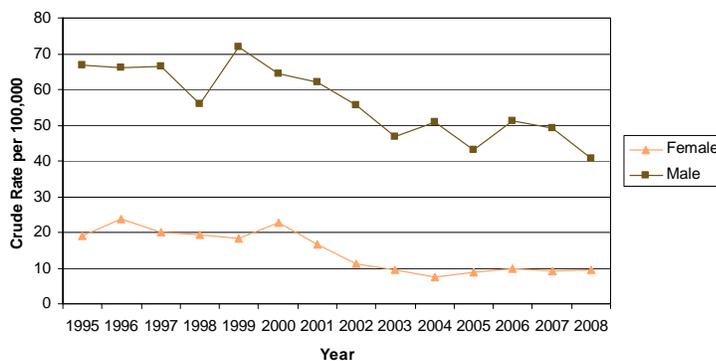


Fig: 7.17 Farm Injury: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Falls

According to SMARTRISK (2009), in 2004 falls on stairs were the leading cause of fall-related death in Saskatchewan, accounting for 13% of all deaths by falling. Falls on the same level were the leading specified cause of hospitalizations (33%), emergency room visits (31%), and cases of permanent partial disability (34%), and permanent total disability (30%) due to falls and were also the single greatest specified cause of costs due to falls, accounting for 29% of total costs, 30% of direct costs, and 25% of indirect costs in 2004.

Based on CCHS data, falls were the most common cause of injury in Saskatchewan. Falls accounted for between 35 and 40 percent of the 12+ year old respondents who reported being injured in the past 12 months across CCHS survey years, 2000/01, 2003 and 2005. Figure 7.18 shows that the Canadian rate remained fairly consistent from 2000/01 through 2005, while the Saskatchewan rates tended to increase slightly, although the rate differences were not significantly different.

Across the survey years 2000/01 through 2005, seniors (65+ years) reported the highest rates of fall-related injuries, followed by adolescents (12-19 years). In particular, the differences in rates of fall as a cause of injury between the age groups of 20-44 years and 65+ years were significantly different across survey years.

Among those who reported an injury in CCHS, falls were higher among females than males. In 2003, the percentage of fall-related injuries between females (50.1%) and males (32.3%) was significantly different.

Mortality: There appears to be an increasing trend in deaths due to unintentional falls in Saskatchewan between 2004 and 2009 (Figure 7.19). The rate significantly increased from 5.3 to 11.6 per 100,000 between 2004 and 2009.

In Saskatchewan, mortality rates from unintentional falls were highest in the 75+ year age group (Figure 7.20). There is a considerable increasing trend in unintentional fall-related deaths for the 75 and over age group between 1995 to 2009. Between 2000 and 2009, the rate increased from 45/100,000 to 139/100,000 population.

Fig: 7.18 Prevalence of self-reported fall among injured people aged 12+ years, Canada and Saskatchewan, CCHS Cycles 2000/01, 2003, 2005.

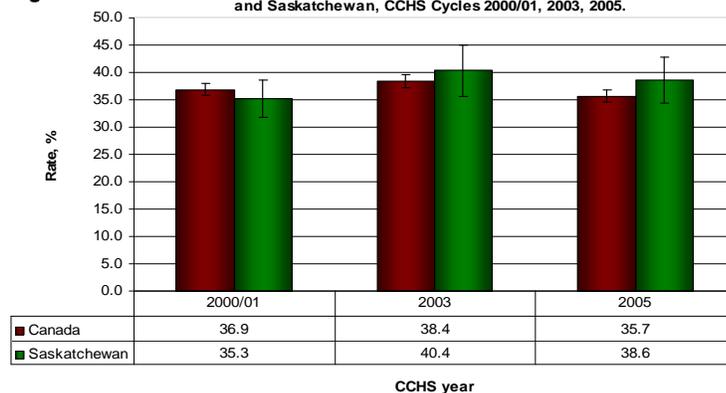


Fig: 7.19 Falls - Unintentional: Age-standardized Rate of mortality in Saskatchewan, 1995 - 2009

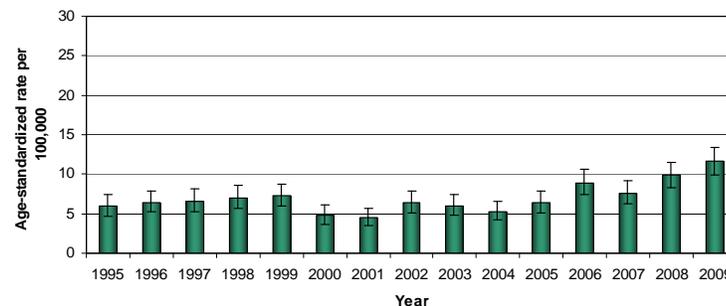


Fig: 7.20 Falls - Unintentional: Crude Rate of mortality in Saskatchewan by Age Group, 1995 - 2009

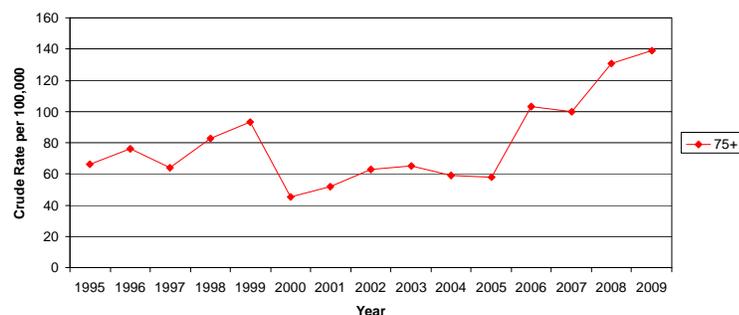
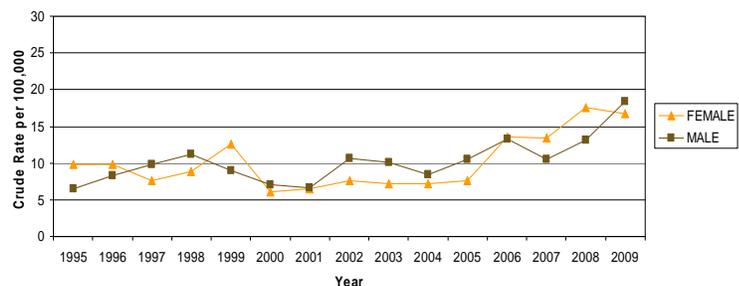


Fig: 7.21 Falls - Unintentional: Crude Rate of mortality in Saskatchewan by Sex, 1995 - 2009



For all other age groups there were less than 20 deaths in all but one year. As a result these groups have not been displayed in the graph.

Sex-specific mortality rates for males and females followed the same pattern for unintentional fall-related deaths between 1995 to 2009 (Figure 7.21). Neither males nor females had consistently higher rates of mortality.

The three most populous Saskatchewan RHAs (Prince Albert Parkland, Regina Qu'Appelle and Saskatoon) each had over 20 deaths due to unintentional falls in 2009.

Morbidity: Provincial age-standardized rates of hospital separations related to accidental falls varied significantly over the 1995-2008 time period with no distinct pattern (Figure 7.22). Over the 14 year period, the rates declined by six percent from 459.2/100,000 in 1995 to 431.4/100,000 in 2008. The 2008 rate was statistically lower than the 1995 rate. The lowest rate was 431.4/100,000 in 2008 and the highest was 466.9/100,000 in 2000. Most age-standardized annual rates during the period 1995 to 2008 were not statistically different from each other.

The age-specific rate of hospital separations for accidental falls was highest among seniors aged 75 years and older, followed by seniors aged 65 to 74 years (Figure 7.23). During the observation period, rates in the 75+ age group were 3.5 to 4 times higher than the corresponding rates in the 65 to 74 year age group.

The annual sex-specific rates of hospital separations for accidental falls were consistently higher among females than males (Figure 7.24). On average, the annual rates for females exceeded the corresponding rates for males by 41% (range 31% to 54%). Between 1995 and 2008, the hospital separation rate for accidental falls changed only slightly, increasing by 7.1% for females and decreasing by 5.9% for males.

In 2008, the age-standardized rate of hospital separations related to accidental falls was 431.4/100,000 in Saskatchewan. The RHAs of Kelsey Trail, Sunrise and Sun Country were significantly higher than the provincial rate while the rate within Saskatoon RHAs was significantly lower. Due to small numbers the three northern regions were combined.

Fig: 7.22 Accidental Falls: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

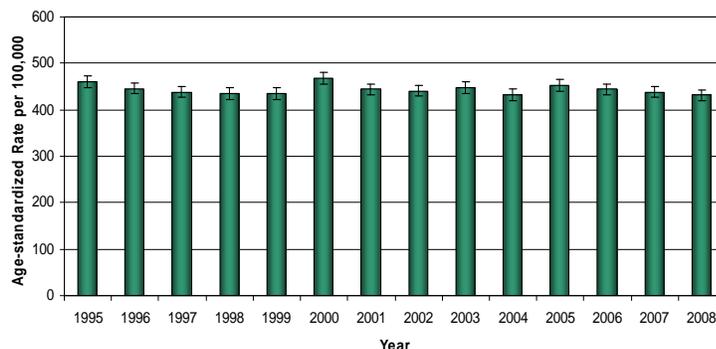


Fig: 7.23 Accidental Falls: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

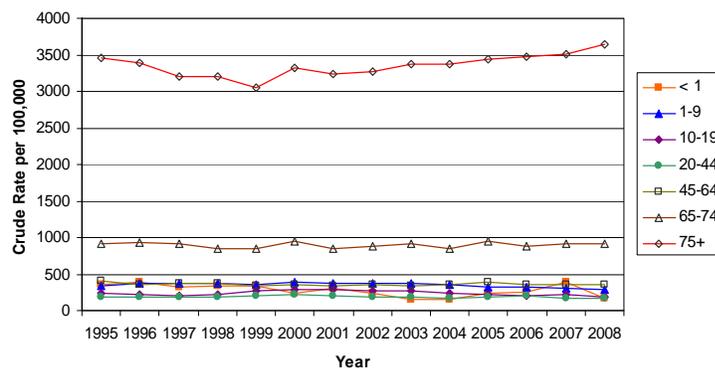
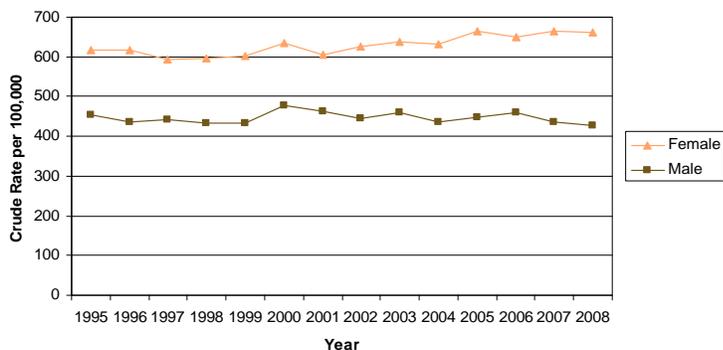


Fig: 7.24 Accidental Falls: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Motor Vehicle Traffic Crashes

Motor vehicle incidents accounted for approximately half of total costs (52%), direct costs (56%), and indirect costs (49%) arising from injuries due to transport incidents in Saskatchewan in 2004 (SMARTRISK, 2009).

Mortality: Although there is year to year variation, there appears to be no trend in deaths due to motor vehicle traffic crashes in Saskatchewan during the 1995-2009 time period (Figure 7.25).

In Saskatchewan, mortality rates from motor vehicle traffic crashes were highest in the 10 to 19 year, 20 to 44 year and 45 to 64 year age groups (Figure 7.26). There appears to be no trend in motor vehicle traffic crash deaths for the 10 to 19 year, 20 to 44 year and 45 to 64 year age groups in Saskatchewan for the 1995-2009 time period. In the age groups less than 1 year, 1 to 9 years and 65+ years, there were less than 20 deaths from motor vehicle traffic crashes in most years. As a result, these groups have not been displayed in the graph.

Males had consistently higher annual rates of death due to motor vehicle traffic crashes than females for the entire 1995-2009 time period (Figure 7.27). In 2009, the mortality rate for females was 8.5 per 100,000, while the rate for males was 15.4 per 100,000.

Only Saskatoon RHA had over 20 deaths due to motor vehicle crashes.

Fig: 7.25 Motor Vehicle Traffic Crash Injuries: Age-standardized Rate of mortality in Saskatchewan, 1995 - 2009

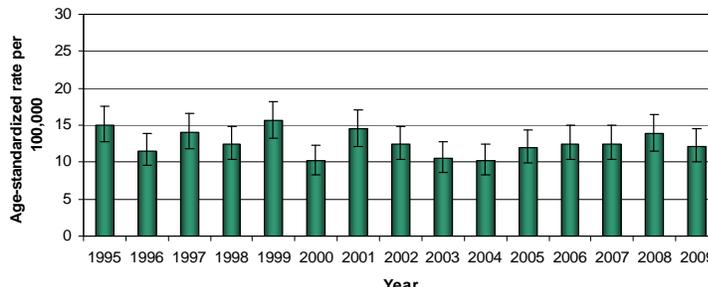


Fig: 7.26 Motor Vehicle Traffic Crash Injuries: Crude Rate of mortality in Saskatchewan by Age Group, 1995 - 2009

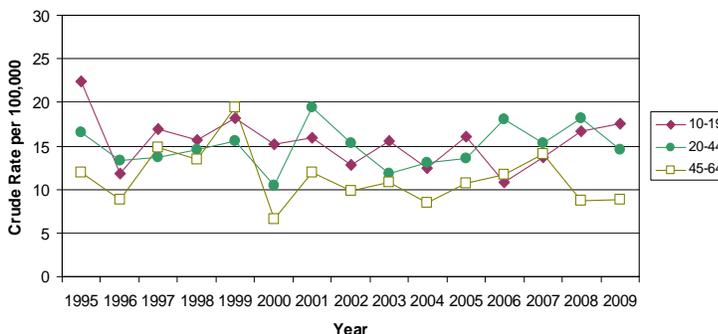
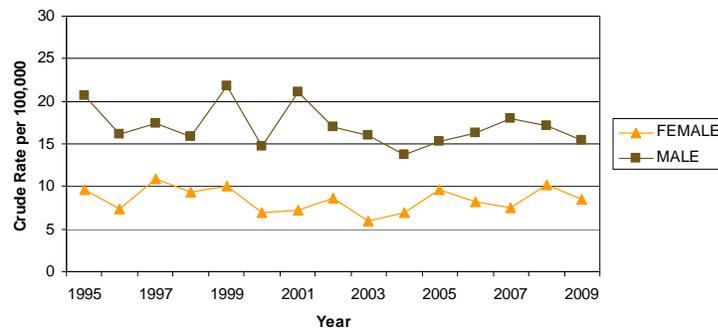


Fig: 7.27 Motor Vehicle Traffic Crash Injuries: Crude Rate of mortality in Saskatchewan by Sex, 1995 - 2009



Morbidity: Figure 7.28 shows the annual rates of hospital separations related to motor vehicle traffic crashes. The provincial age-standardized rate declined over time with a 25.6 percent decrease between 1997 and 2008 (from 131.9 per 100,000 to 98.1 per 100,000 respectively).

Figure 7.29 shows hospital separation rates were high among adolescents (10-19 years), young adults (20-44 years) and the very elderly (75+ years). The rate among those 10-19 years of age decreased by 34 percent between 1995 and 2008, from 205/100,000 to 135/100,000. The frequencies of motor vehicle traffic crash related hospital separations among children less than one year were five events or less in all years; therefore, rates are not displayed for this age group.

The sex-specific rates of hospital separations were, on average, 50 percent higher, among males than among females (Figure 7.30).

In 2008, the age-standardized rate of hospital separations related to motor vehicle crashes was 98.1/100,000 in Saskatchewan. The RHAs of Keewatin Yatthé and Sun Country were significantly higher than the provincial rate while the rate within Saskatoon RHAs was significantly lower than that of Saskatchewan. Fewer than 20 motor vehicle traffic crash-related hospital separations were reported among Athabasca Health Region residents.

Fig: 7.28 Motor Vehicle Traffic Crashes: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

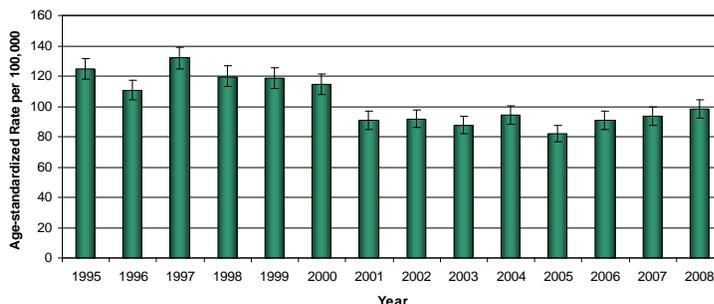


Fig: 7.29 Motor Vehicle Traffic Crashes: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

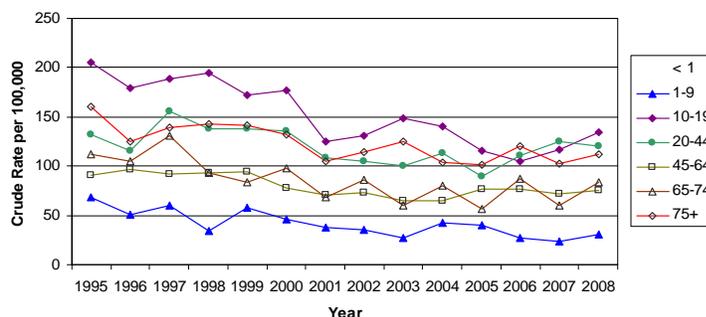
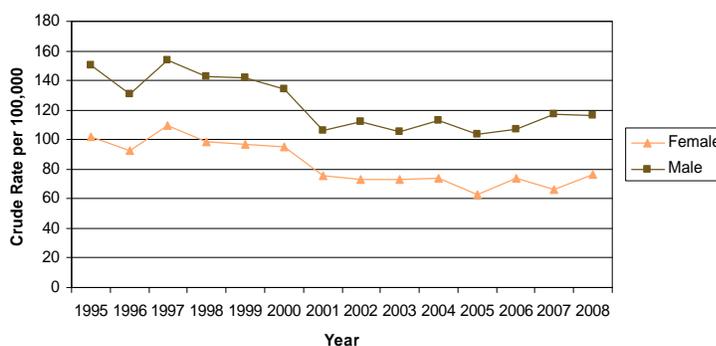


Fig: 7.30 Motor Vehicle Traffic Crashes: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Pedestrian Traffic-Related Accidents

Mortality: From 1995 to 2009, there were less than 20 deaths each year for all age groups due to pedestrian traffic-related injuries in Saskatchewan; hence, the charts were not displayed.

Morbidity: The provincial age-standardized rates of hospital separations related to traffic-related pedestrian accidents decreased by 31 percent from 12.4/100,000 in 1995 to 8.6/100,000 in 2008 (Figure 7.31). Although the 2008 rate was not statistically different from the 1995 rate, it was statistically lower than the 1996 to 1999 rates.

The rate of hospital separations for traffic-related pedestrian accidents among adults aged 20 to 44 years was relatively stable from 1995 to 2008 ranging from a low of 7.2/100,000 in 2004 to a high of 13.9/100,000 in 2007. The frequency of hospital separations for traffic-related pedestrian accidents among infants (aged <1 year) was zero for all years except 2001. For children and adolescents (aged 1 to 19 years) and adults aged 45 years or older, the frequency of hospital separations for traffic-related pedestrian accidents was less than 20 in more than half of the years from 1995 to 2008. Therefore, the annual rates are not displayed for these age groups (Figure 7.32).

The sex-specific rates of hospital separations for traffic-related pedestrian accidents were consistently higher among males than females during the years 1995 to 2008 (Figure 7.33). On average, the male rates exceeded the female rates by 52 percent. For males, the hospital separation rate for traffic-related pedestrian accidents declined by 25 percent between 1995 and 2008 and the female rates declined by 47 percent.

In 2008, the age-standardized rate of hospital separations related to traffic-related pedestrian accidents was 8.6/100,000 in Saskatchewan. Fewer than 20 hospital separations related to traffic-related pedestrian accidents were reported among residents of all health regions except Regina and Saskatoon. Their rates were not significantly different from the provincial rate.

Fig: 7.31 Traffic-related Pedestrian Accidents: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

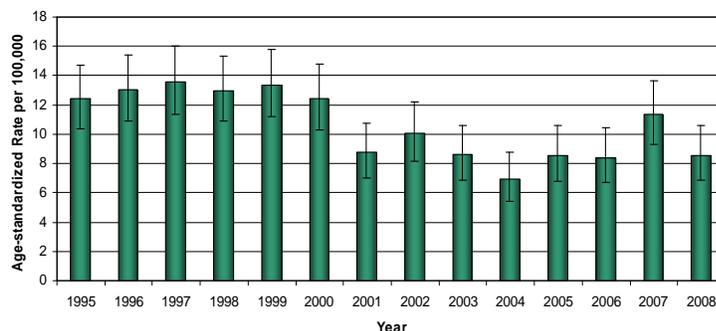


Fig: 7.32 Traffic-related Pedestrian Accidents: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

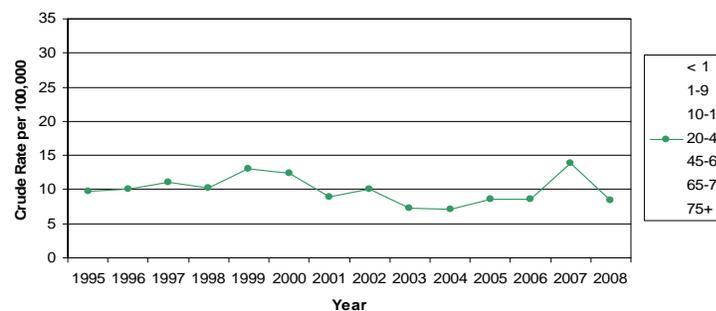
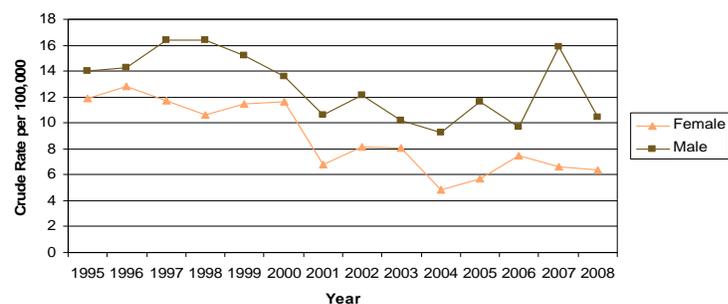


Fig: 7.33 Traffic-related Pedestrian Accidents: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Bicycling Injuries

In Canada, cycling injuries are by far the most common injury from summer sports and recreational activity accounting for half of all related hospital admissions. In 2009–2010, 4,324 Canadians were hospitalized for a cycling injury, with close to half of these injuries occurring from June to August. Between 2001 and 2010, hospital admissions for cycling injuries were most common among children and youth younger than 20 (42%), with boys aged 10-14 years hospitalized most frequently (SMARTRISK 2009).

Mortality: For the 1995-2009 time period, the number of deaths by year and sex in Saskatchewan due to pedal cycle accidents was less than five deaths; therefore, no charts are displayed.

Morbidity: Provincial age-standardized hospital separation rates related to pedal-cycle accidents fluctuated prior to 2005 (Figure 7.34). Rates declined over time with a 24 percent decrease between 2005 and 2008 (from 16.1/100,000 to 12.3/100,000).

Hospital separation rates were highest among children (1-9 years) and adolescents (10-19 years) (Figure 7.35). The largest decrease in rates was among those aged 1-9 years, a 56.7 percent decrease between 1995 and 2008, from 44.8/100,000 to 19.4/100,000. Among those aged 10-19 years, there was a 22.2 percent rate decrease between 1995 and 2008, from 35.2/100,000 to 27.4/100,000.

The sex-specific rates were consistently higher among males than females (Figure 7.36); on average, male rates were 150% higher than among females. Since 2005, there was a 28.5 percent decrease in the male rate from 24.4/100,000 to 17.5/100,000 and a 20 percent decrease in the female rates (from 8.2/100,000 to 6.5/100,000).

In 2008, the age-standardized rate of hospital separations related to pedal cycle accidents was 12.3/100,000 in Saskatchewan. Fewer than 20 hospital separations related to pedal cycle accidents were reported among residents of all health regions except Regina and Saskatoon. Their rates were not significantly different from the provincial rate.

Fig: 7.34 Pedal Cycle Accidents: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

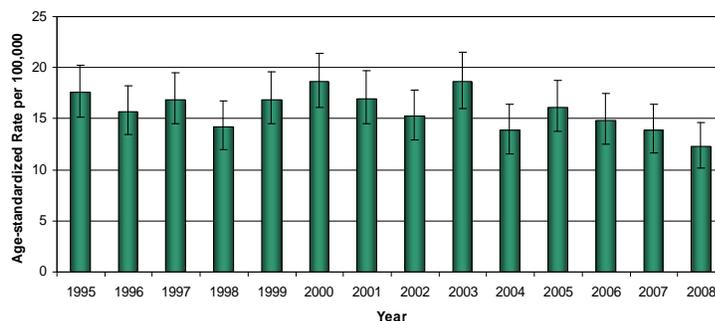


Fig: 7.35 Pedal Cycle Accidents: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

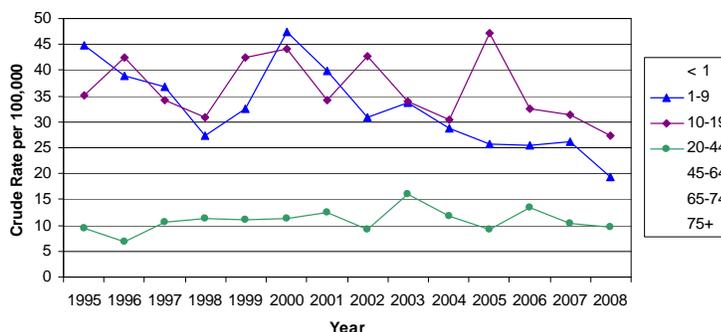
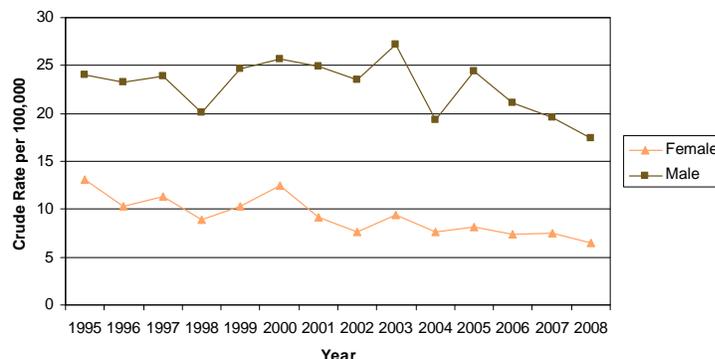


Fig: 7.36 Pedal Cycle Accidents: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Motor-Driven Snow Vehicle Injuries

Mortality: In Saskatchewan, there were less than 20 deaths every year from motor driven snow/off road vehicle traffic crashes from 1995 to 2009. No charts can be displayed due to the small number of deaths in each group. The categories motor driven snow vehicle and off road vehicle were analyzed together due to the content information in Vital Statistics (deaths) database, but were able to separately analyzed for the hospital separations.

Morbidity: As Figure 7.37 shows the age-standardized rate of hospital separations related to motor-driven snow vehicles in Saskatchewan did not differ significantly from 1995 (14.0/100,000) to 2008 (12.2/100,000).

The age-specific rate of hospital separations related to motor driven snow vehicles for the ages of 10 to 64 years fluctuated slightly between 1995 and 2008. The rate was either the highest among the 20-44 year age group or the same as the 10-19 year olds between 1995 and 2008.

There were only five years between 1995 to 2008 where the number of events was greater than 20 in the 45 to 64 year age group (Figure 7.38). There were no hospitalizations among individuals under one year of age; there were events in the 1-9 year and 65+ year age groups but for most years, the number of events was less than 20 so the rates were not displayed.

The sex-specific rate of hospital separations related to motor driven snow vehicles was consistently higher among males than females from 1995 to 2008 (Figure 7.39). Between 1995 and 2008, the rate among females remained in the range of 4 to 5/100,000; among males the rate hovered around 20/100,000. Although the rates for females are presented in Figure 7.28, only four out of 14 years are based on 20 or more hospital separations.

In 2008, the age-standardized rate of hospital separations related to motor-driven snow vehicles was 12.2/100,000 in Saskatchewan. Fewer than 20 hospital separations were reported among all health regions except Regina Qu'Appelle, Saskatoon and the combined northern regions. Only the northern regions rate was significantly different from the provincial rate.

Fig: 7.37 Motor-driven Snow Vehicle: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

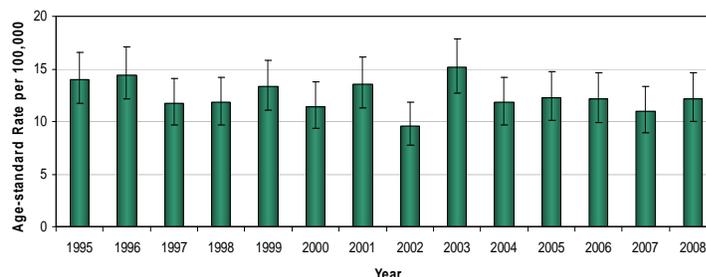


Fig: 7.38 Motor-driven Snow Vehicle: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

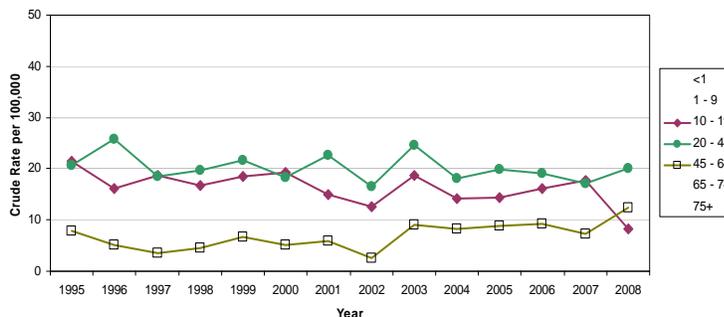
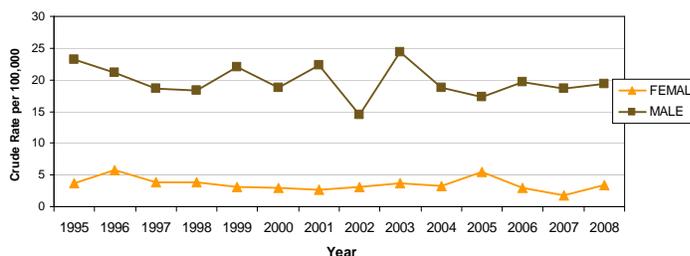


Fig: 7.39 Motor-driven Snow Vehicle: Crude Rate of Hospital separations in Saskatchewan by sex, 1995 - 2008



Other Off-Road Motor Vehicle Accidents

Mortality: In Saskatchewan, there were less than 20 deaths every year from motor driven snow/off road vehicle traffic crashes from 1995 to 2009. No charts was displayed due to the small numbers. The categories motor driven snow vehicle and off road vehicle were analyzed together due to the content information in Vital Statistics (deaths) database, but were able to be analyzed separately for the hospital separations.

Morbidity: Provincial age-standardized rates of hospital separations related to other off-road motor vehicle accidents (other than motor driven snow vehicles) increased from 5.6/100,000 to 10.3/100,000 between 1995 and 1997 and then remained relatively stable until 2005 (Figure 7.40). From 2005 to 2008, the rate more than doubled from 10.2/100,000 to 23.3/100,000.

The annual rate of hospital separations by age group were highest in the adolescent (10-19 years) age group. (Figure 7.41). The rates among those aged 10-19 and 20-44 years more than quadrupled between 1995 and 2008. The remaining age groups annual rates are not displayed due to small numbers.

The annual sex-specific rates of hospital separations for other off-road motor vehicle accidents were consistently higher among males than females. For most years, the male rates were 3 to 5 times higher than the female rates (Figure 7.42). For males, the rate nearly quadrupled between 1995 and 2008. For females, the rate in 2008 was 4.6 times the 1995 rate. Although annual rates for females are displayed, it should be noted that were fewer than 20 separations for the years 1995, 1996, 1998, 2000-2002 and 2004.

In 2008, the age-standardized rate of hospital separations related to other off-road motor vehicle accidents was 23.3/100,000 in Saskatchewan. Prairie North and Sun Country RHAs had rates that were significantly higher than the provincial rate and Regina Qu'Appelle and Saskatoon RHAs were statistically lower. Many RHAs had fewer than 20 hospital separations.

Fig: 7.40 Other Off-Road Motor Vehicle Accidents: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

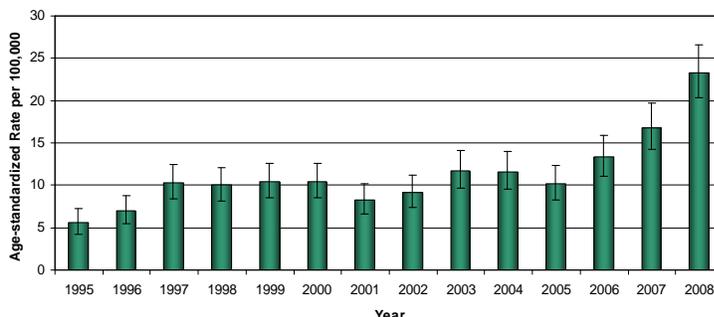


Fig: 7.41 Other Off-Road Motor Vehicle Accidents: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

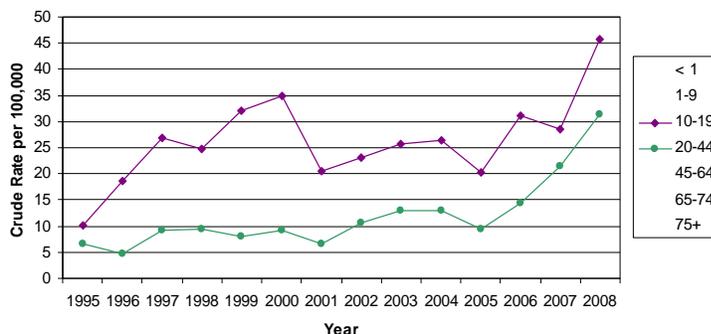
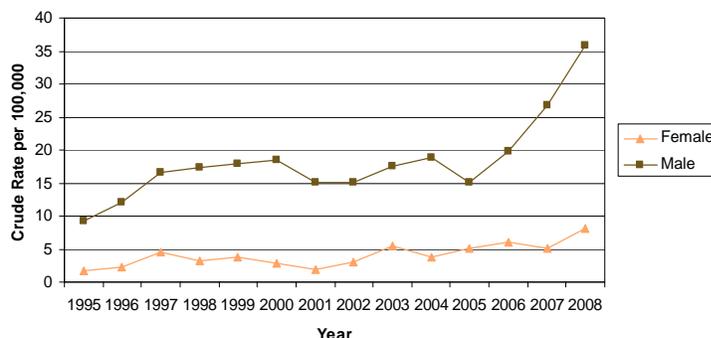


Fig: 7.42 Other Off-Road Motor Vehicle Accidents: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Injuries While Boating

Mortality: From 1995 to 2009, the annual number of deaths due to recreational boating in Saskatchewan ranged from zero to two deaths per year with a total of 11 deaths. Due to small numbers, no charts for this category could be displayed.

Morbidity: Hospital separations related to recreational boating accidents had annual frequencies of less than 15 for the period 1995-2008. Due to small numbers, no charts for this category could be displayed.

Drowning and Near Drowning

Mortality: For each year during the 1995-2009 time period, there were less than 20 deaths among males and less than 10 deaths among females due to accidental drowning. Due to small numbers, no charts for this category could be displayed.

Morbidity: The total number of hospital separations related to accidental drowning in Saskatchewan between 1995 and 2008 was 156. Due to small numbers, no charts for this category could be displayed.

Poisoning

Mortality: Although there was year to year variation, there was no trend in unintentional poisoning deaths in Saskatchewan between 1995 and 2009 (Figure 7.43).

In Saskatchewan, mortality rates from unintentional poisoning were highest in the 20 to 44 year age group with an apparent slight increasing trend between 1995 to 2009 (Figure 7.44). In all other age groups, there were less than 20 deaths in most years and these age groups were not displayed in the chart.

For males, the annual number of deaths due to unintentional poisoning ranged from 13 to 40 between 1995 to 2009. This number was consistently higher than unintentional poisoning deaths for females which ranged from 7 to 26 per year between 1995 to 2009. Due to small numbers of deaths, mortality rates for males and females could not be displayed.

There was no Saskatchewan RHA in 2009 with over 20 deaths due to unintentional poisoning.

Fig. 7.43 Poisoning - Unintentional: Age-standardized Rate of mortality in Saskatchewan, 1995 - 2009

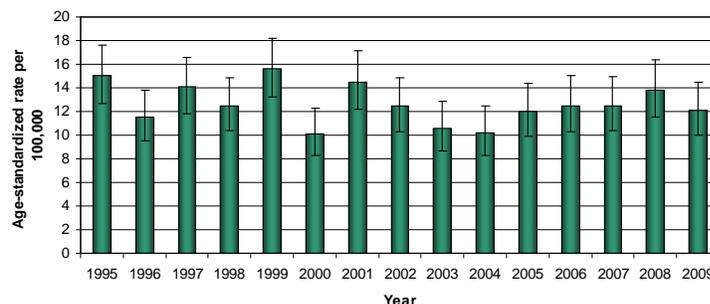
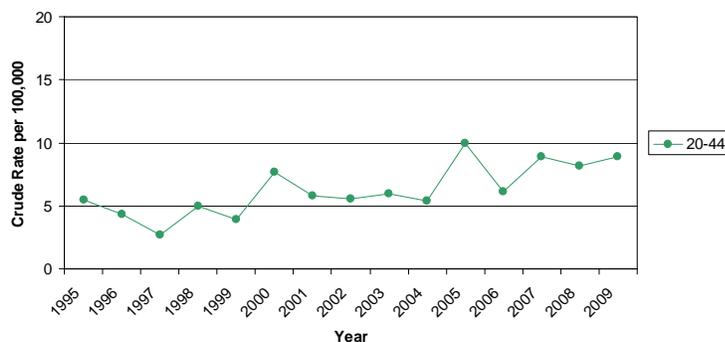


Fig. 7.44 Poisoning - Unintentional: Crude Rate of mortality in Saskatchewan by Age Group, 1995 - 2009



Morbidity: Provincial age-standardized rates of accidental poisoning related hospital separations fluctuated over the 14 year observation period (Figure 7.45).

As Figure 7.46 shows age-specific hospital separation rates related to accidental poisoning are highest among children (1-9 years) and the very elderly (75+ years). The rates showed the largest decrease for the 1 to 9 year age group, decreasing by 42 per cent between 1995 and 2008.

The frequencies are less than 20 in all but two years for the time period 1995-2008 for those under 1 year of age; therefore, the rates are not displayed for this age group.

The sex-specific hospital separation rates were similar in both sexes for the 1995-2008 time period (Figure 7.47).

In 2008, the age-standardized rate of hospital separations related to poisoning was 43.6/100,000 in Saskatchewan. The rate for Sunrise Health Regions was statistically different from the provincial rate. Fewer than 20 hospital separations were reported among many health regions.

Fig: 7.45

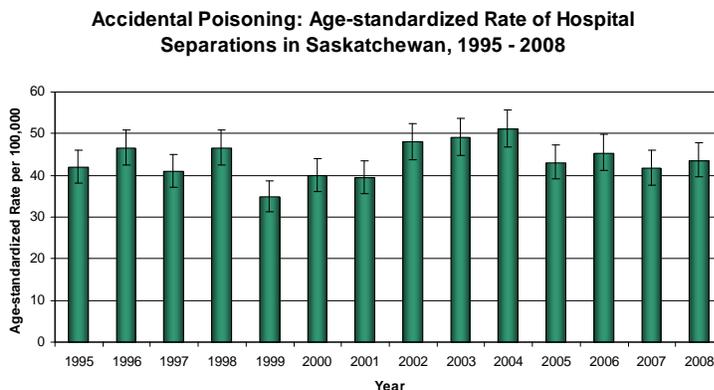


Fig: 7.46 Accidental Poisoning: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

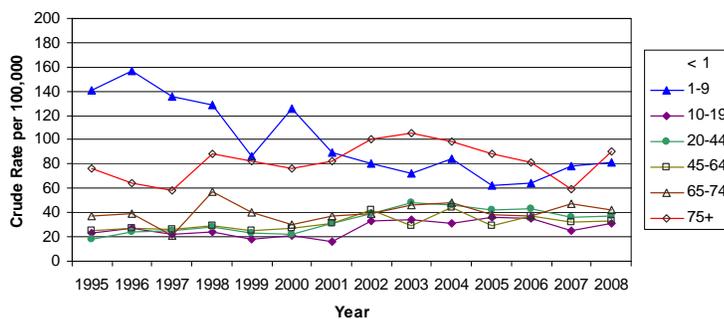
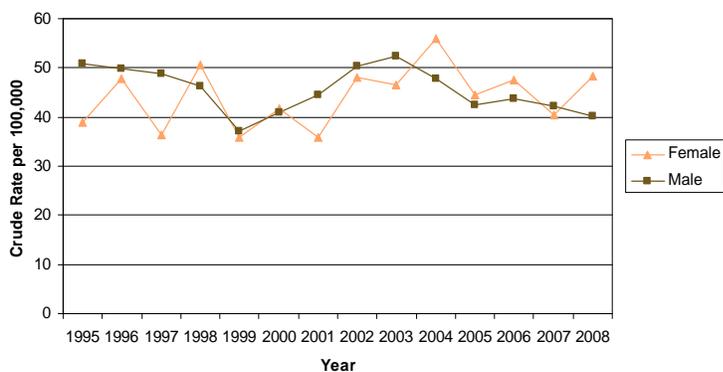


Fig: 7.47 Accidental Poisoning: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Burn Injuries

Mortality: From 1995 to 2009, in Saskatchewan, there were less than 20 deaths due to unintentional burn injuries in most years. There was a significant decline in the age-standardized rate of mortality due to unintentional burns between 1995 and 2009. No charts are displayed due to small numbers

Morbidity: As Figure 7.48 shows, provincial age-standardized rates of accidental burn-related hospital separations decreased over time, with a 37 percent decrease between 1995 and 2008 (from 24.0/100,000 to 15.1/100,000 respectively).

Age-specific hospital separation rates are highest among children (1-9 years) (Figure 7.49). The rate in this age group decreased by 39 percent between 1995 and 2008. In 2006, the number of separations among those aged 1-9 years was less than 20. Frequencies were less than 20 in all years for those under 1 year, in 13 of 14 years for those age 65-74 years, and in seven of 14 years among those 75 years and older; therefore, rates are not displayed for these age groups.

The sex-specific rates were consistently higher among males than among females (Figure 7.50). On average, the rates among males were double than those found for females.

From 1995, there was a 37 percent decrease in the rate among males (from 32.0/100,000 to 20.2/100,000) and a 39.5 percent decrease in the rate among females (from 17.2/100,000 to 10.4/100,000).

In 2008, the age-standardized rate of hospital separations related to accidental burns was 15.1/100,000 in Saskatchewan. Fewer than 20 hospital separations related to traffic-related pedestrian accidents were reported among residents of all health regions except Regina and Saskatoon. The rate in Saskatoon RHA was statistically lower than the provincial rate.

Fig: 7.48 Accidental Burns: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

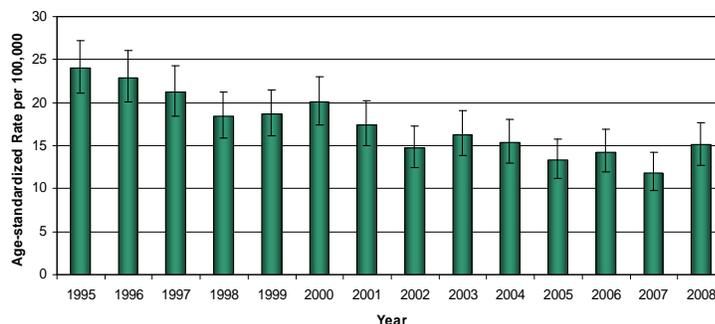


Fig: 7.49 Accidental Burns: Crude Rate of Hospital Separations in Saskatchewan by Age Group, 1995 - 2008

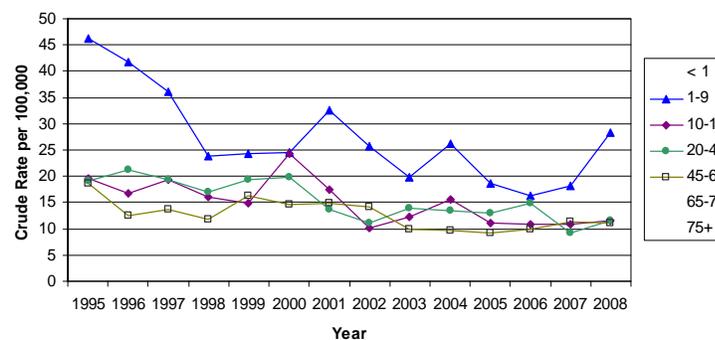
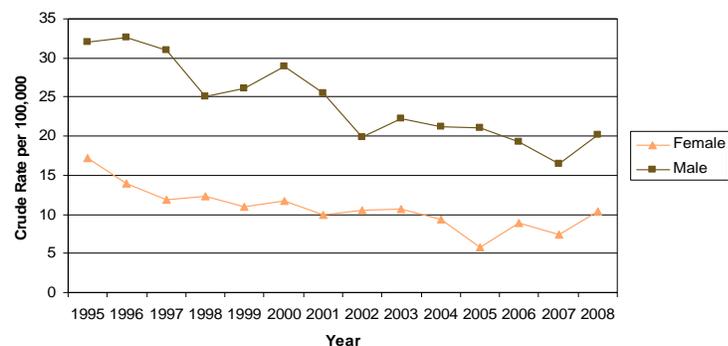


Fig: 7.50 Accidental Burns: Crude Rate of Hospital Separations in Saskatchewan by Sex, 1995 - 2008



Suffocation

Mortality: Age standardized rates of mortality due to suffocation did not change significantly between 1995 and 2009. The overall rate was about 2 deaths per 100,000 population (Figure 7.51). In 2009, the rate was 1.4 per 100,000 population.

Morbidity: The age-standardized rates of hospital separations related to suffocation in Saskatchewan fluctuated between 1995 and 2008 (Figure 7.52). Although there was a significant increase between the 1995 rate and the 2008 rate, the rate between 2002 and 2004 was significantly lower than the rates in 1995 and 2008.

The age-specific rate of hospitals separations related to suffocation was consistently higher among individuals aged 75 years and older than other age groups (Figure 7.53). The rate between 1995 and 2008 was only displayed for individuals aged 75 years and older. Suffocation events occurred in other age groups sporadically between 1995 and 2008, but were consistently less than 20 events per year.

The sex-specific rate of hospital separations related to accidental suffocation among males and females were generally similar between 1995 and 2004 after which they diverged such that, by 2008, the rate was 8.5/100,000 among females and 14.2/100,000 among males (Figure 7.54). Note: In 2003 and 2004, the events were less than 20 among females.

In 2008, the age-standardized rate of hospital separations related to accidental suffocation was 9.8/100,000 in Saskatchewan. Fewer than 20 hospital separations related to accidental suffocation were reported among residents of all health regions except Five Hills, Regina and Saskatoon. The rate in Five Hills was statistically higher than the provincial rate; however, the numbers were quite small.

Fig: 7.51 Suffocation: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

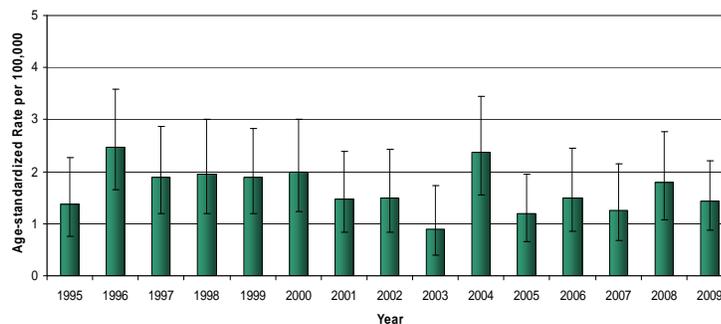


Fig: 7.52 Accidental Suffocation: Age-standardized Rate of Hospital Separations in Saskatchewan, 1995 - 2008

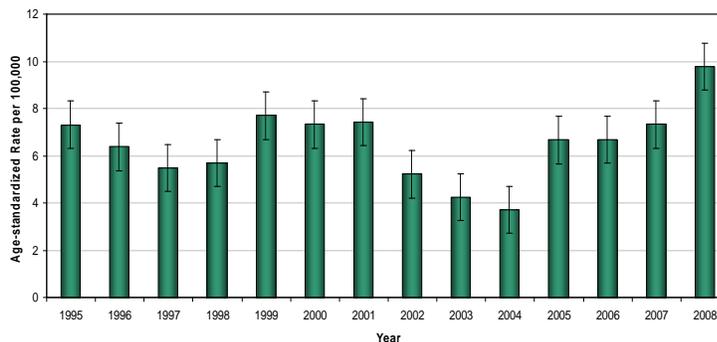


Fig: 7.53 Accidental Suffocation : Crude Rate of Hospital Separation by Age in Saskatchewan 1995 - 2008

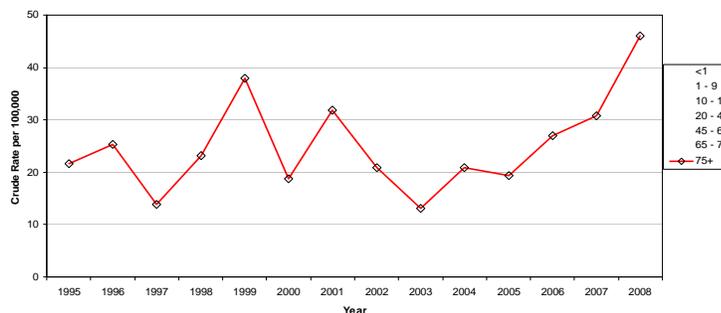
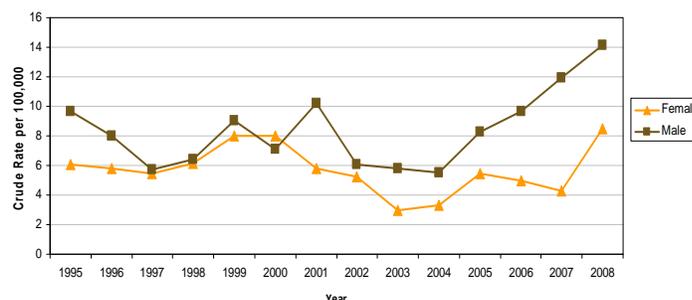


Fig: 7.54 Accidental Suffocation: Crude Rate of Hospital Separations in Saskatchewan by sex, 1995 - 2008



Intentional Injuries

Suicide mortality: The age-standardized suicide mortality rate varied between 12 and 17 deaths per 100,000 population during the 1995-2009 time period; however, the rate did not change significantly over this time period (Figure 7.55). In 2009, the age-standardized suicide mortality rate was 16.9 per 100,000 population.

Overall, the age-specific suicide mortality rate was slightly higher in those aged 25-44 years with no particular difference across other age groups over the period 1995-2009. In 2009, the rate in people aged 25-44 years was 21 deaths per 100,000 population whereas the rates for 10-24 year, 45-64 year and 65+ year age groups were around 14 deaths per 100,000 population.

Only Regina Qu'Appelle and Saskatoon RHAs had over 20 deaths due to suicide in 2009. Neither were statistically different from the provincial rate.

Suicide morbidity: The age-standardized rates of hospital separations related to attempted suicides in Saskatchewan decreased between 1995 and 2008 (Figure 7.56). Although the rates from 1995 to 2000 fluctuated, there was a significant decrease between the 2000 rate and the 2008 rate.

The age-specific rate of hospital separations related to attempted suicide was highest among individuals aged less than 45 years (Figure 7.57). Rates decreased over time for all age groups less than 65 years, decreasing by 42.5%, 38.6%, and 29.5% among those 10-24, 25-44 and 45-64 years, respectively.

The sex-specific annual rates of hospital separations related to attempted suicide were higher among females compared to males (Figure 7.58). In 1995 the rate among females was 89% higher than males and in 2008 the rate was 108% higher in females compared to males.

In 2008, the age-standardized rate of hospital separations related to suicide was 78.7/100,000 in Saskatchewan. Five Hills, Regina Qu'Appelle, and Saskatoon RHAs rates were statistically lower than the provincial rate and Kelsey Trail, Keewatin Yat-thé, and Mamawetan Churchill River RHAs rates were statistically higher. Fewer than 20 hospital separations were reported among residents of Athabasca.

Fig: 7.55 Suicide: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

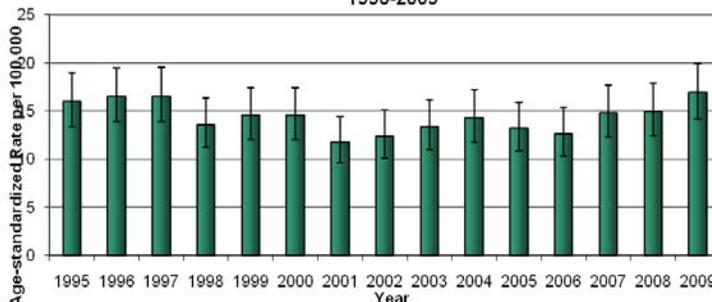


Fig: 7.56 Attempted Suicide: Age-standardized Rate of Hospital Separations among those 10 Years and Older in Saskatchewan, 1995 - 2008

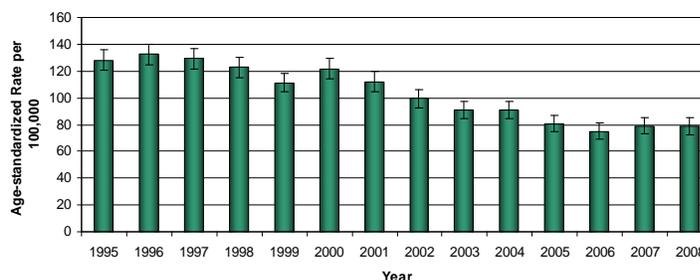


Fig: 7.57 Attempted Suicide: Crude Rate of Hospital Separations among Those 10 Years and Older in Saskatchewan by Age Group, 1995 - 2008

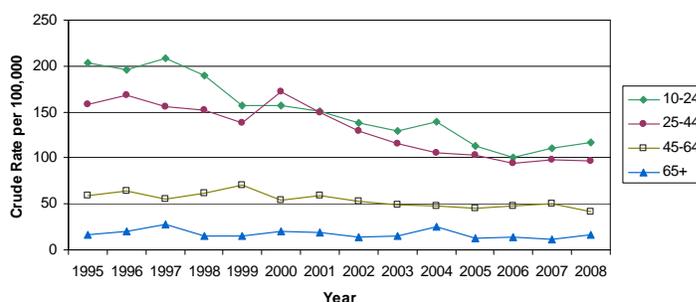
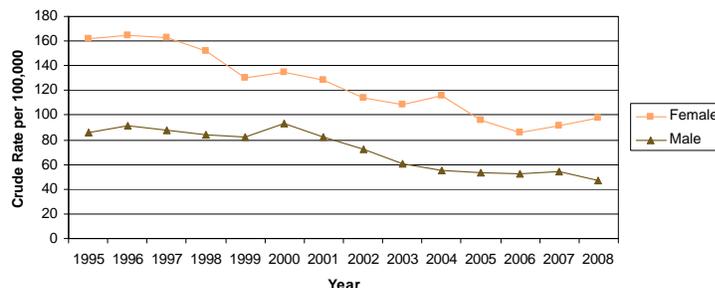


Fig: 7.58 Attempted Suicide: Crude Rate of Hospital Separations among Those 10 Years and Older in Saskatchewan by Sex, 1995 - 2008



Homicide: The age-standardized homicide mortality rates increased gradually and significantly between 1999 and 2006, and then remained steady from 2007 to 2009 (Figure 7.59). In 2009, the age-standardized homicide rate was 3.2 per 100,000 population. Homicide mortality occurred mostly in people aged 20 to 44 years; the numbers in the remaining age groups were too small to display (Figure 7.60). The age-specific homicide mortality rate of the 20 to 44 year age group varied but did not change notably between 1995 and 2009. In 2009, the age-specific homicide mortality rate was about 4 deaths per 100,000 population in the 20 to 44 year age group.

The age-specific homicide mortality rate was higher in males than females; however the female rates are not presented due to small numbers (Figure 7.61). Among males, the rate was 5 to 10 deaths per 100,000 over the period 1995-2009. The overall homicide mortality rate for the female population in the 20-44 age group was less than 6 deaths per 100,000.

In 2009, none of the health regions reported 20 or more deaths due to homicide.

Fig: 7.59 Homicide: Age-Standardized Mortality Rate in Saskatchewan, 1995-2009

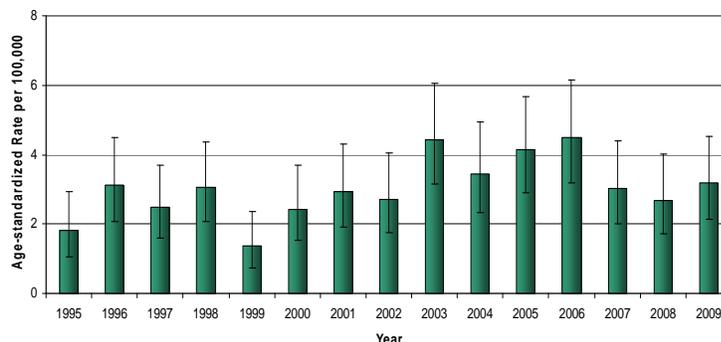


Fig: 7.60 Homicide: Age-specific Mortality Rate in Saskatchewan, 1995-2009

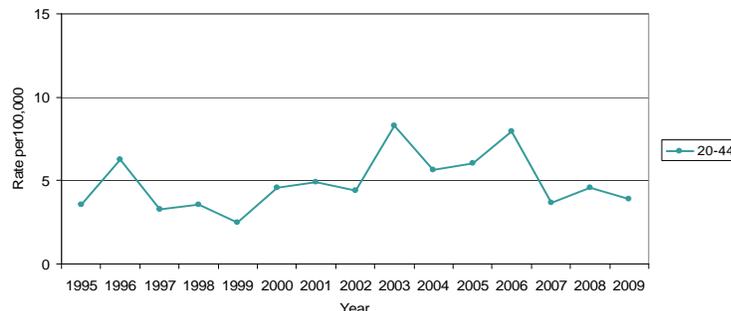
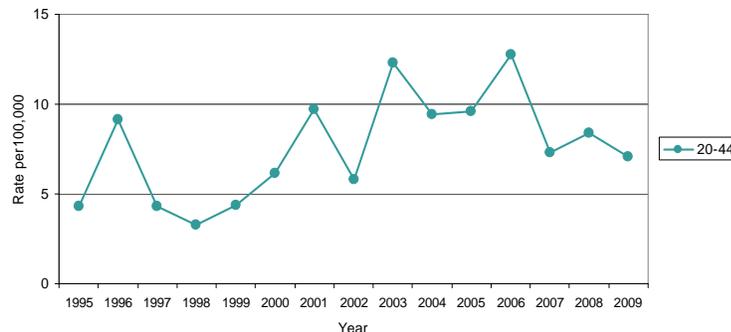


Fig: 7.61

Homicide: Age-specific Mortality Rate among Males in Saskatchewan, 1995-2009



Definitions

Hospital separations - For injury by cause, a separation from a health care facility is due to death, discharge or transfer and is identified by the ICD code for external causes of injury. Separation rates are often used to study morbidity trends. It should be noted that an individual can be admitted to hospital more than once for the treatment of the same injury and that injury separation data are simply the numbers of discharges or deaths with at least one discharge diagnosis of injury. They do not represent either the number of injuries that led to the separations or the number of injured people who separated from the hospital. (Public Health Agency of Canada 2005).

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. 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). Injuries may be unintentional (i.e., not purposely inflicted, either by the patient or anyone else) or intentional injury (i.e., purposefully caused).

Morbidity - Illness.

Mortality - Death.

Potential Years of Life Lost (PYLL) - The numbers of years of life lost when a person dies prematurely 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 Separations rates are calculated using Saskatche-

wan Ministry of Health Covered Population in the denominator whereas Statistics Canada's estimated population is used for mortality rate calculations. To compare rates in populations or of the same population in different years, standardization for age factor using the 1991 census population of Canada is applied 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 per population in the 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 expressed 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)

Saskatchewan Ministry of Health covered population

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

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