SASKATCHEWAN COMPREHENSIVE INJURY SURVEILLANCE REPORT, 1995-2005

Government of Saskatchewan

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Saskatchewan Ministry of Health, Acquired Brain Injury Partnership Project, Community Care Branch
Saskatchewan Ministry of Advanced Education, Employment and Labour, Occupational Health and Safety Division
Saskatchewan Ministry of Social Services, Community Living Division
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Saskatchewan Comprehensive Injury Surveillance Report, 1995 - 2005

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Foreword

I am pleased to present to you the ***Saskatchewan Comprehensive Injury Surveillance Report, 1995-2005.*** This project is the outcome of joint efforts made by several Government ministries, agencies and stakeholders that have interest in assessing the status of injury occurrences and preventing them in the province of Saskatchewan.

The report contains descriptive statistical information in the forms of tables, charts and bullet highlights on various aspects of injury occurrences in the province. It should provide government agencies, regional health authorities, other stakeholder organizations and communities with information for evidence-based planning and evaluation of injury prevention programs that impact on the population of Saskatchewan. At the same time, the publication may be of general interest to anyone wanting to learn about the injury situation in the province.

The data for preparation of this report were drawn from a variety of sources including Saskatchewan Health's Covered Population, Vital Statistics data, Canadian Community Health Survey (CCHS) data and administrative databases housed at various Government of Saskatchewan ministries, Saskatchewan Government Insurance and the Saskatchewan Workers' Compensation Board. In most instances, the study analyzed information from 1995 to 2005 or a part of this time period.

The full report covers information reported by the participating agencies and is intended to serve as a comprehensive resource to concerned agencies and stakeholders involved in injury prevention. It includes an executive summary providing the highlights of the study. There is as well a conclusion section, which comments on the collaborative process of developing the report and states the major findings.

On behalf of all participating agencies, I commend the work of the Saskatchewan Comprehensive Injury Surveillance Working Group for all their efforts culminating in this report. This report fills an important gap in dealing with an important preventable cause of disability and death in the province. In particular, I would like to thank the authors and analysts who dedicated many hours of their time in compiling the document.

Thank you.

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July 2008

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In particular, the chapter specific lead authors of the report are as follows:

Drona Rasali and William Osei (*Background, Introduction*)

Drona Rasali (*Self-Reported Injury Based on Canadian Community Health Survey, Injury Hospitalizations*)

Sharon Miller (*Injury Deaths*)

Shanthi Johnson and Drona Rasali (*Falls in Seniors*)

Tracey Carr and Laynny Locke (*Child and Youth Injuries*)

Kathryn Harris (*Motor Vehicle Injuries and Fatalities*)

Christine Han and Lou Spacic (*Workplace Injuries*)

Louise Hagel and Niels Koehncke (*Farm Injuries*[Ψ]); and

William Osei (*Conclusions*).

Tracey Carr contributed as the consulting editor to revise the entire report for consistency across the chapters as well as compile its executive summary.

Heather Murray compiled a set of best practices for injury prevention available from the literature around the world as reference materials for formulating prevention programs. This is available separately on request.

The staff of Epidemiology, Research & Evaluation Unit, Population Health Branch in the Ministry of Health completed editing and preparation of the report.

Drona Rasali (Population Health Branch), Kelly Froehlich and Melinda Melnyk (Community Care Branch), Raelyne Linton (Communications Branch) from the Ministry of Health completed final editing for this hard copy version of the report.

[Ψ] The farm injury surveillance program in Saskatchewan is supported by the Canadian Centre for Health and Safety in Agriculture, Occupational Health and Safety Division; Ministry of Advanced Education, Employment and Labour, Government of Saskatchewan; and Canadian Agriculture Safety Association through the Canadian Agricultural Injury Surveillance Program.

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Executive Summary

In Canada, as in many countries around the world, injuries, intentional and unintentional, have been one of the leading causes of death, particularly among the people between the ages of 1 and 44 years.[1] At the same time, injuries are considered one of the most preventable health problems, with 90% of injuries estimated as preventable. In Saskatchewan, there has been a recognized need for a comprehensive analysis of the magnitude of injury problems and the associated health burden and challenges across various relevant government and non-government agencies.

Various concerned ministries in the Government of Saskatchewan and other government and non-government agencies created a working group to develop a comprehensive study and this report. Those partners are: the Ministry of Health, Ministry of Advanced Education, Employment and Labour, Ministry of Social Services, Saskatchewan Prevention Institute, Saskatchewan Government Insurance (SGI), Saskatchewan Workers' Compensation Board, Canadian Center for Health and Safety in Agriculture (CCHSA) at the University of Saskatchewan, Safe Saskatchewan, Saskatchewan's regional health authorities, and the Saskatchewan Population Health and Evaluation Research Unit, Faculty of Kinesiology and Health Studies at the University of Regina.

The working group analyzed the following six components of injury data: 1) Canadian Community Health Survey (CCHS), cycle 3.1, 2005, providing the self-reported injuries among Saskatchewan residents of ages 12 years or older; 2) hospital discharge databases, providing the data for serious injuries that required hospitalizations; 3) Vital Statistics, providing the data for deaths; 4) SGI motor vehicle collision database, 5) Saskatchewan Workers' Compensation Board database; and 6) farm injuries database supplied by CCHSA in conjunction with Occupational Health and Safety Division in the Ministry of Advanced Education, Employment and Labour. The results of the analyses of the data are outlined in the following chapters: self-reported injuries, injury hospitalizations, injury deaths, seniors' fall injury, child and youth injury, motor vehicle traffic injuries and deaths, workplace injuries and farm injuries.

Summary of Findings

Self-Reported Injuries by Saskatchewan Residents Aged 12 Years or Older

- Overall, 14.6% of Saskatchewan residents 12 years or older self-reported being injured over the 12-month period prior to the survey in 2005. The percentage decreased with increasing age from 28.6% in the 12-19 year age-group to 7.4% in seniors 65 years or older. Males (17.1%) aged 12 years and older injured over a 12-month period were higher than females injured (12.2%).

[1] Canadian Institute for Health Information (CIHI). National Trauma Registry: 2006 Injury Hospitalization Highlights Report. May 9th, 2007.

- Prairie North (17.9%), Saskatoon (16.1%) and Heartland (15.6%) health regions had a higher percentage of injured residents compared to the provincial average.
- Overall, 'sprain/strain' was the most frequent type of injury (32.9%) followed by 'broken bones' (23.7%) among residents self-reporting injury over the 12-month period in 2005. 'Ankle/foot' was the body part most frequently injured in residents aged less than 65 years.
- 'Home/surrounding' was the place where the highest percentage of injury occurred in all age-groups except 12-19 years. For the 12-19 year age-group, 'non-school sport' had the highest percentage of injuries.
- 'Sports/exercise' was the most frequent activity related to injury in the 12-19 and 20-34 year age-groups (66.2% and 28.3%, respectively), while 'working at job' and 'household chores' had the highest injuries in 35-64 and 65+ year age-groups, respectively.
- Overall, fall was the most frequent cause of injury accounting for 38.6% of injuries. This was true across all age-groups with 52.8%, 45.3%, 33.7% and 33.6% of injuries among seniors (65+ years), children (12-19 years) and 20-34 and 35-64 year olds, respectively.
- Sunrise (25.2%), Heartland (27.1%), Prince Albert Parkland (36.2%), Prairie North and the three northern health regions (24.2%) had a higher percentage of multiple injuries than the provincial average of 22.2%.

Injury Hospitalizations

- Between the fiscal years 1995/96 and 2004/05, falls ranked as the highest cause category of injury hospitalization overall, followed by motor vehicle transport incidents (traffic and non-traffic). Suicide attempts and self-harm, assault and homicide, poisoning, and drowning, submersion and suffocation ranked third to sixth respectively.
- Across the age-groups, fall was the most frequent cause of injury in 0-9, 10-14, 35-64 and 65+ years, while 15-19 and 20-34 year age-groups had motor vehicle transport incidents in the first rank of external cause of injury.
- The overall provincial age-sex adjusted rate of injury hospitalizations was 125 per 10,000 population in Saskatchewan during the 1995/96-2004/05 period.
- The average annual unadjusted rate of injury hospitalizations over the 10-year study period was lowest in the Saskatoon Health Region (95 per 10,000 population), while Athabasca, Mamawetan Churchill River, Sunrise and Keewatin Yatthé had the highest rates at 223, 182, 174 and 171 per 10,000 population, respectively.
- Seniors aged 65+ of both sexes had the highest rates of injuries among all age-groups for all injuries largely due to the corresponding high rates for fall injuries.
- All injury rates increased with age in both sexes until reaching 15-19 year age-groups, followed by declining rates in subsequent age-groups until attaining 35-64 years. These trends were mainly due to declining rates for motor vehicle transport collisions, suicide and self-harm and assault.
- The age-sex adjusted rates of persons with unintentional fall injury hospitalization tended to increase from 1995/96 to 2004/05.
- In general, the age-sex specific rates of persons hospitalized with motor vehicle transport injuries, suicide attempts and self-inflicted injuries, drowning, submersion or suffocation injuries, and burn injuries, followed a declining trend across years from 1995/96 to 2004/05.

- Overall, a rising trend in the age-sex adjusted rate of assault and poisoning as the cause of injury hospitalization was observed from 1995/96 to 2004/05.
- Fractures were the major type of injury in Saskatchewan residents. The three-year average age-sex adjusted rate of patients hospitalized with fractures was 628.8 per 100,000 population from 2002/03 to 2004/05.

Injury Deaths

- Injury was the fourth major cause of death in Saskatchewan in each of the five year time periods, 1995 to 1999 and 2000 to 2004 (See table 1.0 for the latter period).

Table 1.0 Ranking of top five major causes of death, by age-group, Saskatchewan, 2000 to 2004.

Rank	Age-groups, years						Total
	0-9	10-14	15-19	20-34	35-64	65+	
1	Certain conditions originating in the Perinatal Period 132	Injury 53	Injury 221	Injury 536	Neoplasms 2545	Diseases of the Circulatory System 14183	Diseases of the Circulatory System 15741
2	Congenital Malformations, Deformations and Chromosomal 96	Neoplasms 13	Neoplasms 15	Neoplasms 75	Diseases of the Circulatory System 1470	Neoplasms 8780	Neoplasms 11444
3	Injury 76	Diseases of the Nervous System 7	Diseases of the Nervous System 11	Diseases of the Circulatory System 60	Injury 898	Diseases of the Respiratory System 3532	Diseases of the Respiratory System 3837
4	Diseases of the Nervous System 31	Diseases of the Circulatory System (<5)	Diseases of the Circulatory System 8	Diseases of the Nervous System 28	Diseases of the Digestive System 357	Diseases of the Nervous System 1882	Injury 2858
5	Diseases of the Respiratory System 26	Diseases of the Respiratory System (<5)	Diseases of the Respiratory System 6	Mental and Behaviour Disorders 24	Endocrine, Nutritional and Metabolic Diseases 273	Endocrine, Nutritional and Metabolic Diseases 1583	Diseases of the Nervous System 2193

- From 1995 to 1999, the major cause of injury-related death was motor vehicle traffic incidents (707), accounting for 26% of deaths. From 2000 to 2004, the major cause of injury-related death was motor vehicle incidents (685), accounting for 24% of deaths (See table 2.0).
- In the 0 - 9 year age-group, there were 126 and 74 injury-related deaths in 1995 to 1999 and 2000 to 2004, respectively. In the 10 - 14 year age-group, there were 62 and 55 injury-related deaths from 1995 to 1999 and 2000 to 2004, respectively. There were 209 and 220 deaths from 1995 to 1999 and 2000 to 2004 for the 15 - 19 year age-group.

Table 2.0 Ranking of top five causes of injury deaths, by age-group, Saskatchewan, 2000 to 2004.

Rank	Age-groups, years						Total
	0-9	10-14	15-19	20-34	35-64	65+	
1	Motor Vehicle Incidents 19	Motor Vehicle Incidents 24	Motor Vehicle Incidents 104	Motor Vehicle Incidents 185	Intentional self-harm 266	Exposure to other and unspecified factors 337	Motor Vehicle Incidents 685
2	Drowning and submersion 13	Intentional self-harm 12	Intentional self-harm 58	Intentional self-harm 156	Motor Vehicle Incidents 214	Falls 324	Intentional self-harm 553
3	Other threats to breathing 10	Exposure to smoke, fire and flames (<5)	Assault 12	Assault 58	Poisoning and exposure to other noxious substances 106	Motor Vehicle Incidents 139	Falls 406
4	Exposure to smoke, fire and flames 8	Poisoning and exposure to other noxious substances (<5)	Poisoning and exposure to other noxious substances 11	Poisoning and exposure to other noxious substances 49	Falls 62	Intentional self-harm 61	Exposure to other and unspecified factors 364
5	Falls 7	Assault (<5)	Drowning and submersion 7	Exposure to smoke, fire and flames 15	Assault 54	Other threats to breathing 53	Poisoning and exposure to other noxious substances 194

- In the 20 - 34 year age-group, there were 598 and 536 injury-related deaths from 1995 to 1999 and 2000 to 2004, respectively. For 35 - 64 year olds, there were 881 and 897 injury-related deaths from 1995 to 1999 and 2000 to 2004. In the 65 plus age-group, there were 893 and 1072 deaths, respectively, from 1995 to 1999 and 2000 to 2004.
- Saskatchewan's rate of injury-related death was 53.9 deaths per 100,000 population from 1995 to 1999 and 55.6 deaths per 100,000 from 2000 to 2004.
- The rate of injury-related deaths was twice as high for males (74.2 per 100,000 population) as for females (37.1 per 100,000), in the period 1995 to 1999. In 2000 to 2004, the rate for males (74.9 per 100,000 population) was twice as high as the female rate (33.1 per 100,000).
- From 1995 to 1999, Keewatin Yatthé had the highest rate of injury-related deaths in the province at 100.3 per 100,000 population. Athabasca Health Authority, during the period 2000 to 2004 had the highest rate of injury-related deaths in Saskatchewan at 127.1 per 100,000 population.
- The highest age-adjusted injury-related death rates were found in Athabasca health region at 166.6 deaths per 100,000 population. The lowest age-sex adjusted injury-

related death rates are found in Saskatoon health region at 60.5 per 100,000 population.

Falls in Seniors

- Overall, the likelihood of experiencing a fall serious enough to limit normal activities as a cause of injury was 69% among the injured Saskatchewan seniors in the previous year.
- The percentage of seniors reporting falls as the cause of serious injury increased with age-group. In the 65-74 year age-group, 49.8% reported falls compared to 76.5% of 75-84 year olds and 90.2% of those over age 85.
- Women (71.87%) were more likely to report a fall as the cause of serious injury than men (63.3 %).
- Broken bones were by far the most commonly reported serious fall injury across seniors' age-groups. Interestingly, younger seniors were more likely to report broken bones. Approximately 56% of those seniors aged 65-74 and 48% of seniors 75-84 reported broken bones, while 43% of seniors 85 years and older cited broken bones as the type of most serious injury.
- Fall injury in the home or surrounding area was most often the case for those aged 85 and older (about 75%). Approximately 58% of seniors between 65-74 years and roughly 65% of those between 75-84 years experienced an injury in the home or surrounding area.
- Household chores were the first most commonly reported activity resulting in falls for the seniors aged 65 -74 years (about 37%), while leisure was the first most commonly reported activity for those 75-84 years (approximately 29%) and 85 years and over (32%).
- Overall, the trend in the unadjusted rates was fairly stable for hospitalization of seniors due to fall injury at around 20-22 per 1,000 population over the 10-year period.
- Seniors in the Heartland health region had the highest rate of hospitalization due to a fall injury with a rate of 32 per 1,000 population during 1995/96 to 2004/05.
- Overall, average length of stay (ALOS) in hospital due to fall injury declined between 1995/96 and 2004/05 from about 8.9 days in 1995/96 to about 7.0 days in 2004/05. ALOS in hospital due to fall injury was shorter for women (about 7.7 days) than men (approximately 8.0 days).

Child and Youth Injuries

- For the period of 1995/96 to 2004/05, the total number of injury-related hospitalizations for children and youth under 20 years of age was 30,896.
- Male children and youth accounted for 62% of these injury-related hospitalizations, while the majority of hospitalizations occurred in the 15 to 19 year age-group.
- Falls were the number one cause of injury hospitalizations (28.8%). Motor vehicle transport-related injuries were the second leading cause of hospitalization (18.2%), followed by suicide/self-inflicted harm (7.8%), poisoning (6.2%), assault, homicide, and injury purposely inflicted by other persons (5.5%), drowning, submersion and suffocation (2.6%), and fire and flames (0.9%).

- For the three northern health regions, (Mamawetan Churchill River, Keewatin Yatthé, and Athabasca) the injury hospitalization rates for children and youth for all causes tend to be greater than the Saskatchewan rate.
- Fire and flame-related injuries account for the longest Average Length of Stay (ALOS) in hospital for children and youth. Males have slightly longer ALOS than females. Children under age one tend to stay the longest in hospital after injury.
- A total of 812 Saskatchewan children and youth died due to injury in the period of 1995 to 2005. In all age categories, the greatest number of injury deaths occurred in males.
- Motor vehicle-related injuries account for the largest proportion of all injury-related deaths (39.2%) followed by self-injury (19.1%) and drowning (8.6%).
- The northern health regions had the highest rates of child and youth injury-related deaths in the province. The north-central regions (Kelsey Trail, Prince Albert Parkland and Prairie North) had injury-related rates of death that were slightly higher than the provincial rate.

Motor Vehicle Injuries and Fatalities

- From 1995 to 1997, there was an average of 5,078 casualty collisions per year. In 2004 there were 5,506 which is an 8.4% increase from 1995 to1997.
- The rate of serious injuries per 1,000 licensed drivers has been decreasing since 1994. After peaking in 1999, the fatality rate has also been trending downwards.
- Between 1995 and 2004, the majority (63.7%) of injury collisions in Saskatchewan occurred on urban roads while significantly fewer collisions (21.7%) occurred on highways. In contrast, fatal collisions tended to be more likely to occur on a highway than an urban road.
- Overall, alcohol was the most prevalent factor in traffic deaths in Saskatchewan from 1995 to 2004. There were 585 occurrences of alcohol in fatal collisions during this time period. In fatal collisions where those fatally injured were in 15-64 years age-group, alcohol was most often a factor.
- Driver inattention or distraction occurred most often in fatal collisions that involved the death of a child between one and 14 years or a person over 64. This human condition was a factor that occurred 170 times for these age-groups.
- Driver condition accounted for over 42% of all factors reported in fatal collisions, followed by driver action at over 35%. The human condition of driver inattention or distraction occurred most often overall (29,214 times) and in each of the age categories in traffic collisions that involved one or more injured persons.
- Driver condition accounted for over 37% of all factors reported in injury collisions, followed by driver action at over 34%.
- Young people tend to be over-represented in motor vehicle collisions. Of the 1,521 people fatally injured between 1995 and 2004, 223 or 14.7% were 15-19 year olds.
- The severity of injury is much lower for victims using safety restraints. Ninety-one per cent of those using safety restraints sustained minor or moderate injuries. Those occupants not using safety restraints were severely or fatally injured 26.4% of the time, compared to 8.6% of those using restraints.
- With age-groups older than 19 years, the number of drinking drivers continuously decreased. The number of people injured due to a motor vehicle collision involving a drinking driver follows a similar trend. In 1997, 1,050 people were injured in a collision. This number dropped to 780 people in 2004.

Workplace Injuries

- From 1999 to 2005, there was an average of 14,373 accepted annual time loss claims due to injury in the workplace. In 2005, there were 13,904 accepted time loss claims, 3.26% below the seven year average.
- Consistently over the seven-year period, the government and municipal industry, which includes health care, long-term care facilities and schools, had the highest number of accepted time loss claims. Utility operations had the lowest number of accepted time loss claims between 1999 and 2005.
- On average, between 1999 and 2005, back injuries accounted for 6,017 of all accepted claims per year, 15.4% more than fingers, the next highest body part injured. The top body part injured for workers age 20 and over was the back.
- The highest number of back injuries occurred in the 40-49 year age-group with a total of 3,666 accepted time loss claims.
- Occupations in labour-intensive and other elemental work had the highest number of injuries with an average of 1,092 accepted time loss claims per year between 1999 and 2005, which was 42.4% higher than the next highest occupation.
- On average, bodily reaction and exertion accounted for 6,412 time loss claims per year between 1999 and 2005.
- Males had almost double the number of time loss claims than females. The average number of total time loss claims per year for males was 9,191 versus 4,851 for females.
- The age-group with the highest time loss claims for males was the 20-29 year range. For females, the age-group with the highest number of time loss claims was the 40-49 year range.
- The most frequent cause of injury involved bodily reaction and exertion with a total of 19,053 time loss claims. The 40 - 49 year age-group accounted for 5,851 or 30.7% of the accepted time loss claims for bodily reaction and exertion.
- From 1999 to 2005, there was an average of 26 accepted fatality claims. In 2005, there were 20 accepted fatality claims, 23.5% below the seven-year average.
- Overall, the development-mineral resources industry had the highest average number of fatalities between 1999 and 2005. Transportation and warehousing industry had the highest number (13) of fatalities in 2000.
- Males had significantly more fatalities than females in every age-group. Females averaged one fatality per year. The 40 - 49 year age-group had the highest fatality rates for males.

Farm Injuries

- From 1995 to 2004, the average annual rate of fatal farm injuries increased with increasing age. There was a sharp increase observed for persons 70 years and older. Fatal farm injuries occur primarily among males. The overall male to female ratio is 12.6:1.
- Fatal injury events where the agent of injury was a farm machine accounted for 77% of the total. Machinery rollover events primarily involved tractors during transport and grain trucks during transport.
- The leading mechanism of injury for all age-groups was animal-related.
- The average annual rate of hospitalized farm injuries increased with increasing age. There was a sharp increase observed for persons 80 years and older.

- Hospitalized farm injuries occurred primarily among males. The overall male to female ratio was 5.4:1.
- An increase in the frequency of farm injuries could be observed during the busy growing season with peaks in the months of May and September corresponding with seeding and harvest activities.
- Machinery-related injuries accounted for 46% of hospitalized farm injuries. This compared to 74% of fatal injuries.
- Animal-related injuries, machinery entanglements and falls accounted for 57% of all hospitalized farm injuries. A wide variety of other mechanisms accounted for the remainder.
- Tractors, augers and combines were involved in 50% of all machine-related farm injuries. Tractors were also the most common machines involved in fatal farm injuries.
- Entanglement with augers was the most common hospitalized farm injury type involved in farm injuries. The primary diagnoses most frequently associated with entanglement injuries were fractures, amputations, lacerations and contusions with over half of these involving the upper limbs.
- Persons in the 20 - 39 year age-group and in the 60 years and older age were over-represented in machinery entanglement injuries according to the proportion of the farm population that they represent.
- Non-machinery related hospitalizations accounted for 54% of all farm injury hospitalizations. This is different from the pattern observed for fatal injuries where non-machine related fatalities represented 26% of all farm work related fatalities.
- Animal-related injuries, falls, and being struck by an object accounted for 74% of all non-machine related farm injury hospitalizations.
- Persons in the oldest age-group were clearly over-represented among those who were involved in animal-related injuries according to the proportion of the farm population that they represent.

Conclusions

Saskatchewan has traditionally been one of the provinces most impacted by injury. However, we needed the documented evidence to inform appropriate injury prevention strategies. Until now, the evidence has been collected by various agencies in isolation and has not been reported on in a comprehensive manner.

This report is the result of collaboration among eleven agencies that have significant impact on injury in their day-to-day practices and performance. The purpose of the report was to bring together information and data on all types of injury and facilitate access to injury data for impact and burden estimation, programming, funding, evaluation and research.

This report is a model of inter-agency collaboration from which all Saskatchewan residents will benefit. The cooperative exchange of information between partners can only facilitate the development of evidence-based injury prevention policies and programs. In our view, this report did achieve its objectives.

The chapters of this report have included surveillance information that described distribution and trends of injuries as we drive, play, work, farm or rest in Saskatchewan. They have incorporated self-reported injuries based on the responses of the Canadian Community Health Survey (CCHS) Cycle 3.1 (2005), injury and poisoning diagnoses from hospitalization data (1995/96 – 2004/05), and fall injuries in seniors from both these sources of information. Other chapters have continued with analysis of child and youth injuries diagnosed from hospitalization data (1995/96 – 2004/05), workplace injuries (1999 - 2005) and farm injuries (1995-2004).

The most striking parts of the report are the ranking tables in each section describing the risk of injury or death by age-group. It would be worth taking a closer look at these tables. The information analysed by age, sex and health regions provided an insight into identifying the vulnerable demographic groups. Such identification facilitates the calculation of the burden of the problem and assists with targeting and focussing scarce resources for preventing or controlling injuries.

Furthermore, each chapter has identified populations or subgroups that were at the highest risk or most vulnerable for each type of injury. Invariably children, young adults and seniors were most vulnerable for suffering an injury. This type of information can assist health regions in aligning their priorities for appropriately targeting their injury control resources.

Saskatchewan's vital statistics data indicated that injury was the first ranking cause of deaths among residents in the age-groups 10-14, 15-19 and 20-34 years for the two study periods 1995-2000 and 2001-2005, while in age-groups 0-9 years and 35-64 years, it ranked third for both the periods. Since almost every injury is preventable, there is no justification for these deaths. Injury fatalities occurred in every sector of the society or activity. This finding could be the clarion call for our society at all levels and government to garner available resources to prevent these premature fatalities.

Injuries do not affect only the injured; they affect families, jobs, income, school attendance and the general economy of the province. This report has shown that injury prevention should be everybody's business and concern.

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1.0 BACKGROUND AND INTRODUCTION

1.1. Background

Injuries, intentional and unintentional, are a large and neglected health problem around the world, accounting for 16% of the global burden of disease in 1998.[1] However, over the past few decades, they are increasingly accepted as a preventable public health problem. This is due to a growing better understanding of the nature of injuries, and a move away from the traditional notion of viewing injuries as random, unavoidable "accidents". Today, injuries and their health implications have drawn the attention of decision-makers worldwide, making it necessary to put a firm injury policy in place in the public health arena. This has led to the development of preventive strategies in many countries.[2] In Canada, much like in many other countries around the world, injuries have been the leading cause of death particularly among the people between the ages of 1 and 44 years, but injuries are also considered one of the most preventable health problems, with 90% of injuries estimated as preventable.[1]

While an estimated 3.4 million Canadians aged 12 or older (13%) were injured severely enough to limit their usual activities over a 12-month period preceding 2000/01, Saskatchewan (15.8%) ranked second to Alberta (17.5%) in the percentage of people 12 years or older who sustained at least one activity-limiting injury in the past year across provinces and territories of Canada.[3] On the other hand, in Saskatchewan, injury ranks fourth as a major cause of death, and the potential years of life lost (PYLL) per 100,000 population due to unintentional injuries in the year 2003 was 1070, which was higher than the national figure of 612.[4]

Recent data released by Canadian Institute of Health Information (CIHI) showed that the leading cause of injury hospitalizations in Canada was unintentional falling, representing 57% (n=112,846) of all injury hospitalizations in 2004/05. This was followed by motor vehicle collisions, 14% (n=26,676), of which 72% (n=19,272) accounted for motor vehicle traffic collisions. The third leading specific cause of injury hospitalizations, 5% (n=8,977) was being struck by objects or colliding with another person, and the fourth was assault or the injury purposely inflicted by another person, 4% (n=8,422).[1]

Although there exists a body of published literature on injuries in Canada at the national level including data from Saskatchewan, there is limited information available with geo-political and demographic breakdowns within the province. The Saskatchewan Prevention Institute (formerly the Saskatchewan Institute on Prevention of Handicaps), in collaboration with the University of Saskatchewan reported child injury hospitalizations and deaths for the 1989-1994 period.[5] The Population Health Branch of Saskatchewan Health has reported fall injuries among Saskatchewan seniors for the period from 1992/93-1997/98, drawing implications for prevention.[6] CIHI released the 2004 Provincial Report on Saskatchewan Injury Hospitalization including 2001-2002.[7] More recently, a surveillance study of bicyclists injury hospitalization including head injury, based on 10-year data (1994/05-2003/04) was completed.[8]

In Saskatchewan, there has been a recognized need for a comprehensive analysis of the magnitude of the injury problems, associated health burden and challenges across various governmental and non-governmental agencies and departments.

1.2. Introduction to the Surveillance Study

In the last few decades, injuries have been documented globally as a significant but preventable health problem. The purpose of this Saskatchewan Comprehensive Injury Surveillance Report is to document and inform policy-makers, health care professionals, researchers, and the general public regarding the magnitude and burden of injuries, for evidence-based policy, program planning and prevention. This report is the result of a collaborative initiative among major agencies that have concerns about injuries and health implications in Saskatchewan.

A partnership, in the form of a working group, for developing this report through a comprehensive study was created by various concerned ministries in the Government of Saskatchewan and various government and non-government agencies. This partnership include the Ministry of Health, the Ministry of Advanced Education, Employment and Labour, the Ministry of Social Services, Saskatchewan Prevention Institute (SPI), Saskatchewan Government Insurance (SGI), Saskatchewan Workers' Compensation Board (WCB), Canadian Center for Health and Safety in Agriculture (CCHSA, University of Saskatchewan), Safe Saskatchewan, Regional Health Authorities, Faculty of Kinesiology and Health Studies & Saskatchewan Population Health and Evaluation Research Unit (University of Regina).

This report is comprised of the surveillance studies carried out independently by the concerned agencies and departments, using various sources of administrative and survey data available to the respective agencies. The following six components comprised the sources of injury data studied: 1) Canadian Community Health Survey, cycle 3.1 conducted in 2005 provided the self-reported injuries among Saskatchewan residents of ages, 12 years or older; 2) Hospital discharge database provided the data for serious injuries that required hospitalizations; 3) Vital Statistics provided the data for deaths; 4) SGI motor vehicle collision database, 5) WCB database; 6) CCHSA in conjunction with Occupational Health and Safety Division of Saskatchewan Labour provided farm injuries database. Technical notes related to the analyses of these data can be found in Appendix A.

The layout of the chapters in this report consists of provincial perspectives. Components include injury circumstances and status, injury hospitalizations, injury deaths and seniors' fall injury, child and youth injury, motor vehicle traffic injuries and deaths, occupational injuries and farm injuries.

1.3. References:

1. Canadian Institute for Health Information (CIHI). National Trauma Registry: 2006 Injury Hospitalization Highlights Report. May 9th, 2007.
2. World Health Organisation (WHO). Injury: A Leading Cause of the Global Burden of Disease. Geneva. 2000.
3. Wilkins, K. and Park, E. Injuries. In: Health Reports, 15 (3): 43-48. Statistics Canada, 2004. Catalogue 82-003.
4. Statistics Canada. CANSIM 2003 Data: Potential Years of Life Lost (PYLL). 2004.
5. Saskatchewan Institute on Prevention of Handicaps. Child Injury in Saskatchewan: Injury Hospitalization and Deaths, 1989-1994. Saskatoon: Saskatchewan Institute on Prevention of Handicaps/ University Extension Press, University of Saskatchewan; 1996.
6. Watson, F., Osei, W., Lix, L., McNutt, M., Miller, S., Livingstone, T., Weiman, L. and Beck, P. Fall Injuries among Saskatchewan Seniors, 1992/93 – 1997/98: Implications for Prevention. Regina: Seniors and Falls Research Team, Saskatchewan Health; 2002.
7. Canadian Institute for Health Information (CIHI). National Trauma Registry: 2004 Provincial Report Saskatchewan Injury Hospitalizations. 2004.
8. Rasali, D., Osei, W. and Findlater, R. Higher risks of head Injuries observed in under 20 year old and male cyclists in Saskatchewan. Canadian Society for Epidemiology and Biostatistics (CSEB) Conference- Abstracts Book (May 28- 30, 2007) p. 87.

2.0 METHODS

2.1 Self-reported injury based on Canadian Community Health Survey (CCHS), Cycle 3.1, 2005

The Canadian Community Health Survey (CCHS) is a major cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. The CCHS operates on a two-year collection cycle. The data for CCHS cycle 3.1 were collected between January and December in 2005. The survey responses were collected from persons aged 12 or older, living in private occupied dwellings in 122 health regions covering all provinces and territories. Excluded from the sampling frame were individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Forces, and residents of certain remote regions.

We analyzed a subset of sharefile data from CCHS, cycle 3.1, 2005, Saskatchewan for variables relating to injuries using Statistical Analysis Software, SAS®. The subset has a total sample of 7,393 respondents representing 787,765 Saskatchewan residents aged 12 years or older. The estimates were weighted to represent the Saskatchewan population in 2005.

2.2 Injury Hospitalizations, Saskatchewan, 1995/96-2004/05

The injury hospitalization data for Saskatchewan for the period from 1995/96 to 2004/05 was extracted from the Saskatchewan Health's hospital separation database. The National Diabetes Surveillance System (NDSS) software was used to link the hospital data to the Personal Registry System (PRS) database for the Saskatchewan covered population. The covered population includes all Saskatchewan residents with the exception of people whose health care coverage is federally funded (i.e., members of the Royal Canadian Mounted Police, Canadian Forces and inmates of federal penitentiaries). These groups account for less than 1% of the total provincial population.

For this investigation, we extracted a hospital separation record if it had one of the required diagnoses for injury (including codes for poisoning) in any of the 25 diagnosis fields available. The limitation of the data used in this investigation is that hospital separation data captures only the most serious injuries. Many injuries are treated at home, and/or general physicians' clinics and therefore would not be included in this study.

We analyzed the data by the number of separations and by the number of persons hospitalized each year with one or more injuries. Analysis covered various demographic and injury categories such as, injury type, type of hospitalization, year, sex, age-groups, health region (based on place of residence), and Registered Indian Status. The records were weighted for the specific health regions to which the patients are apportioned, based on their place of residence. Unadjusted rates (crude rates), sex and age-specific rates and age-sex adjusted rates were calculated for these categories. For this investigation, the age-groups were 0 - 09, 10 - 14, 15 - 19, 20 - 34, 35 to 64 and 65+ years in accordance with the reports[1, 7] released by the Canadian Institute of Health Information (CIHI).

2.3 Injury Deaths, Saskatchewan, 1995/96-2004/05

Mortality data was taken from the Saskatchewan Health Vital Statistics database (HISC), for the years 1995 to 1999 and 2000 to 2004. The data for 1995 to 1999 were extracted based on ICD9 E codes E800 to E999, intentional and unintentional deaths due to injury. Data for 2000 to 2004 were extracted based on ICD10 codes Chapters S to Y, which are intentional and unintentional death due to injury. Both groups were extracted for all ages and for both males and females. Events included all deaths occurring in Saskatchewan and to Saskatchewan residents.

Simple descriptive statistics were used to analysis the data. Frequencies and percentages were used to compare and contrast injury-related death across the different groupings. Also, the average death rates were calculated for health regions by sex across the two five year periods of study. To enhance the comparison across health regions, death data were age-sex standardized. This allows for comparison by region, taking into account differences in the age and sex breakdown in the different regions. Data were standardized to the 1996 Saskatchewan census population for 1995 to 2004 comparison of health region injury-related death rates.

It should be noted that comparison could not be accurately made between 1995 to 1999 data and 2000 to 2004 data. The reason for this is the classification of death codes is different in the two time periods. The ICD9 and ICD10 codes cannot be directly compared.

2.4 Fall injuries in Seniors, Saskatchewan, 1995/96-2004/05

A subset of the data for fall injury hospitalizations in seniors aged 65 years or older was extracted from the dataset originally generated for all injury hospitalizations as described in 3.2. For this investigation, we identified all discharge records that had an ICD-9 external cause of injury code ‘88’ or ICD-10-CA codes 'W00' through 'W19’ in any of the 25 diagnosis fields, that related to fall injuries.

We analyzed the subset for frequency of fall injury separations and collapsed them to number of persons hospitalized each year with one or more injuries, by various demographic and injury categories such as, injury type, type of hospitalization, year, sex, age-groups, and health region (based on place of residence). The records were weighted for the specific health regions to which the patients are apportioned, based on their place of residence. Unadjusted rates (crude rates), sex and age-specific rates and age-sex adjusted rates were calculated for these categories. For this investigation, the age-groups were 0 - 09, 10 - 14, 15 - 19, 20 - 34, 35 - 64 and 65+ years in line with the reports[1, 7] released by Canadian Institute of Health Information (CIHI).

2.5 Child and Youth Injury, Saskatchewan, 1995/96-2004/05

The dataset extracted for injury hospitalizations in Saskatchewan for the period from 1995/96 to 2004/05 as described above was used to generate a subset of data for children and youth under 20 years of age. Injury deaths were aggregated over the 10 year study period using a Statistics Canada ICD-9/ICD-10 conversion document.[2]

[2] http://www.statcan.ca/english/freepub/84-548-XIE/84-548-XIE2005001.pdf Comparability of ICD-10 and ICD-9 for Mortality Statistics in Canada, Statistics Canada, 2005.

3.0 SELF- REPORTED INJURIES BASED ON CANADIAN COMMUNITY HEALTH SURVEY, CYCLE 3.1, 2005

The Canadian Community Health Survey (CCHS) is a major cross-sectional survey, of which the objective is to produce timely data for more than 120 health regions across Canada. It collects information related to health status, health care utilization and health determinants for the Canadian population aged 12 years or older. The CCHS (Cycle 3.1) has a large sample and was designed to provide reliable estimates down to the health region level. People living on Indian Reserves or Crown lands, clientele of institutions, full-time members of the Canadian Armed Forces and residents of certain remote regions were excluded.

For Saskatchewan, the CCHS sample in its cycle 3.1 conducted in 2005 comprised of 7,393 respondents representing 787,765 province's residents aged 12 years or older. Of this sample, 13.4% reported injuries in the preceding 12-month period. All analyses performed on the CCHS data were weighted to ensure that derived estimates were meaningful or representative of the entire targeted Canadian population 12 years of age and older.

This part of the report contains the frequencies of self-reported injuries in Saskatchewan, examined for types and months of injury, type, place and activity of serious injuries among the injured people aged 12 years or older across age-groups, sex and health regions.

3.1 Overview of Self-Reported Injury by Age-group, Sex and Health Region

- Overall, the percentage of Saskatchewan 12 year or older residents injured over past 12-month period in 2005 was 14.6%. [Figure 3.1]

- The percentage decreased with increasing age from 28.6 % in 12-19 year age-group to 7.4% in seniors, 65 year or older.

- Injury rates for males (17.1%) aged 12 years and older injured were higher than for females (12.2%).

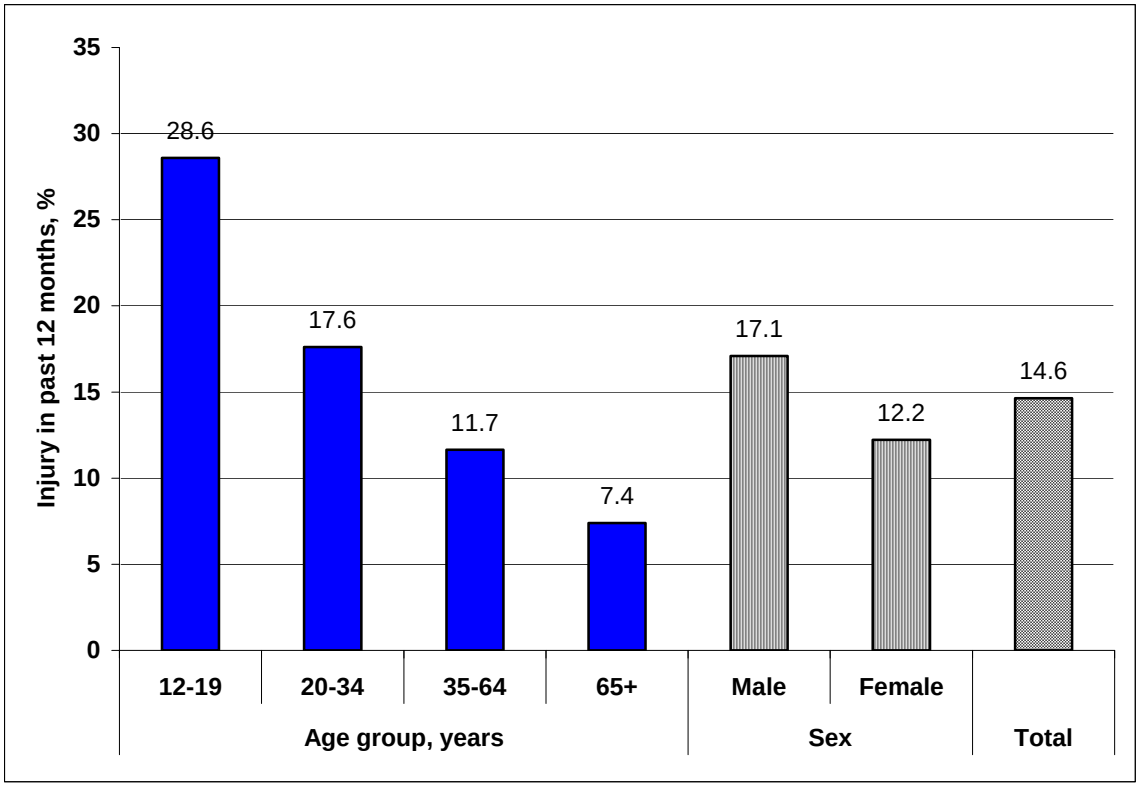


Figure 3.1. Percentage of 12 year or older resident reporting injury over a 12-month period, by age-group and sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Prairie North (17.9%), Saskatoon (16.1%) and Heartland (15.6%) are the three health regions that had the higher percentage of injured residents compared to the provincial average, 14.6%. [Figure 3.2]

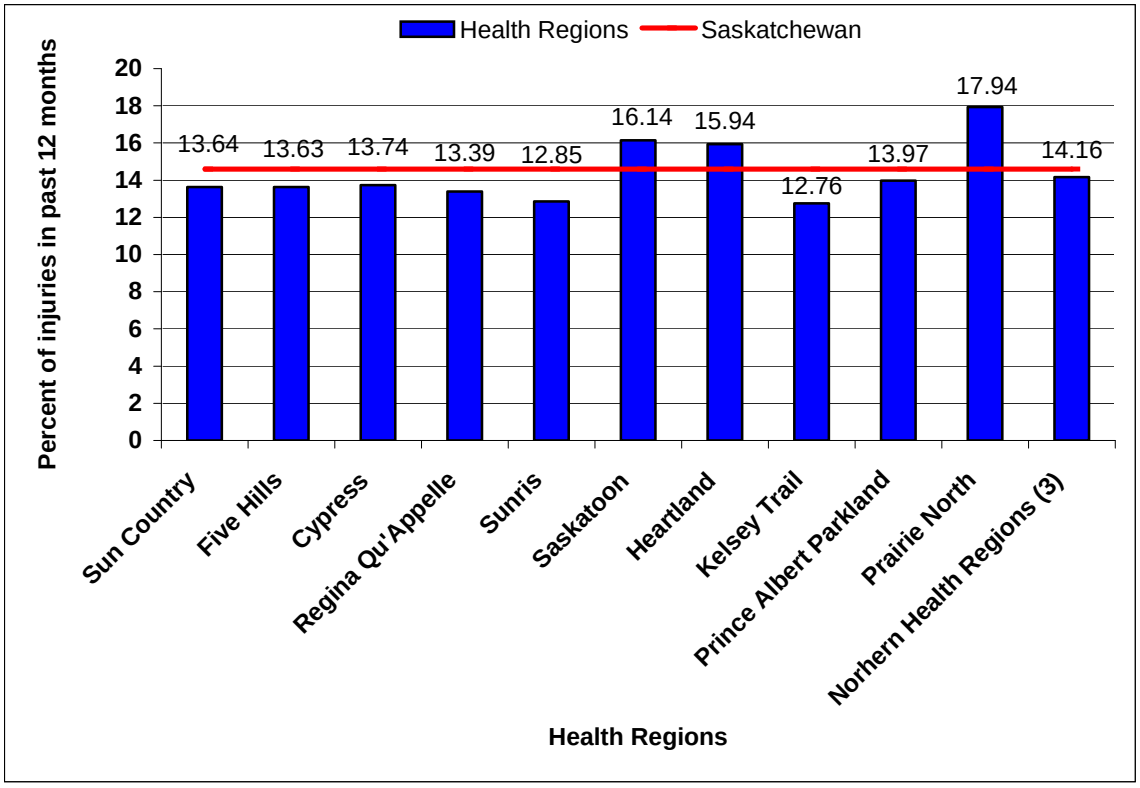


Figure 3.2. Percentage distribution of 12-year or older residents reporting injury over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

3.2 Self-Reported Injury by Age-group

3.2.1 Single and Multiple Injuries by Age-group

- Figure 3.3 shows that most residents aged 12 years or older (77.8%) had a single injury in the past 12-month period.

- The percentage of single injuries increased with age from 65.2% in 12-19 year age-group to 88.0% in seniors (65+ years), while that of multiple injuries followed proportionately reverse order from 34.0% in the former age-group to 12.1% in the latter.

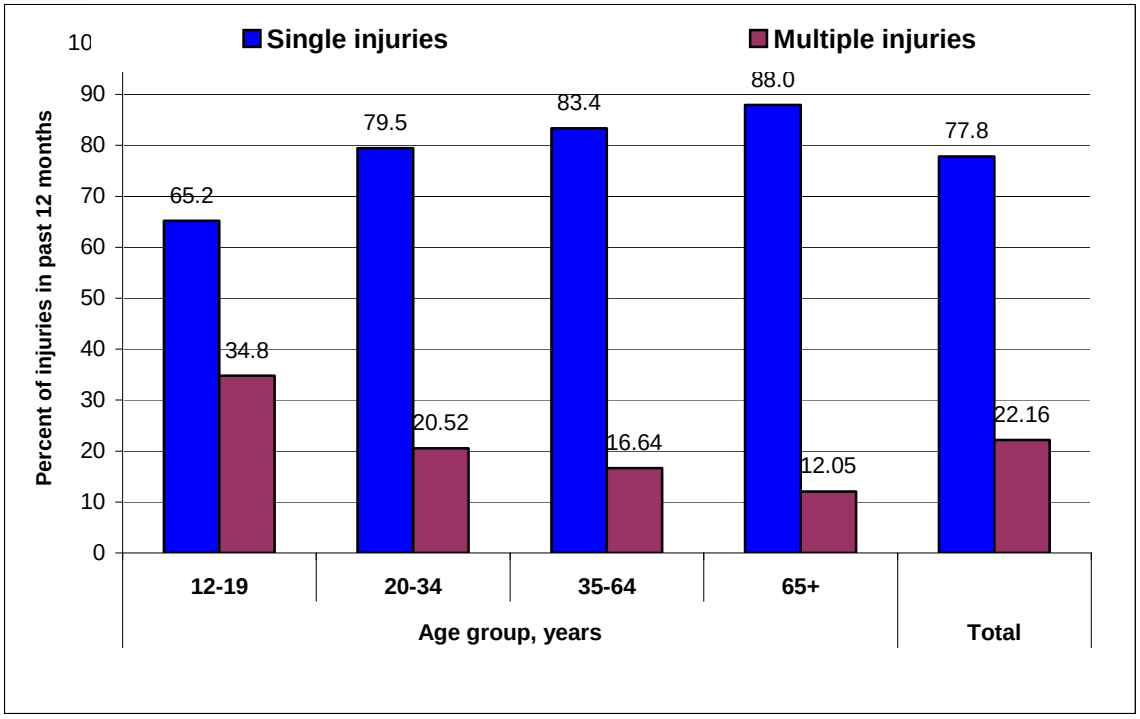


Figure 3.3. Percentages of single and multiple injuries reported over a 12-month period, by age-group and sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

3.2.2 Monthly Injuries by Age-group

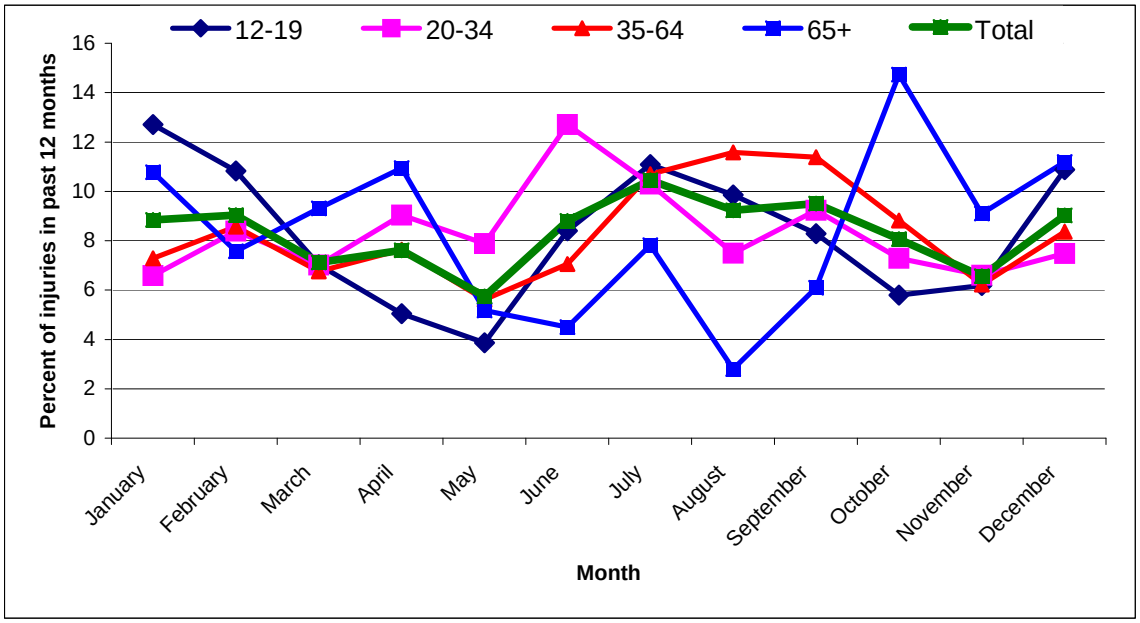


Figure 3.4. Monthly occurrence pattern of injuries reported over a 12-month period, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, the occurrence of injury was higher during months of summer through fall. Similar patterns followed in 12-19 year and 35-64 year age-groups. [Figure 3.4]

- In 20-34 year age-group, the highest occurrence was in summer, peaking (12.7%) in June.

- Seniors (65+) had the highest peak occurrence in October (14.7%), while the occurrence declined in spring with the lowest trough in August (2.8%).

3.2.3 Types of Injury by Age-group

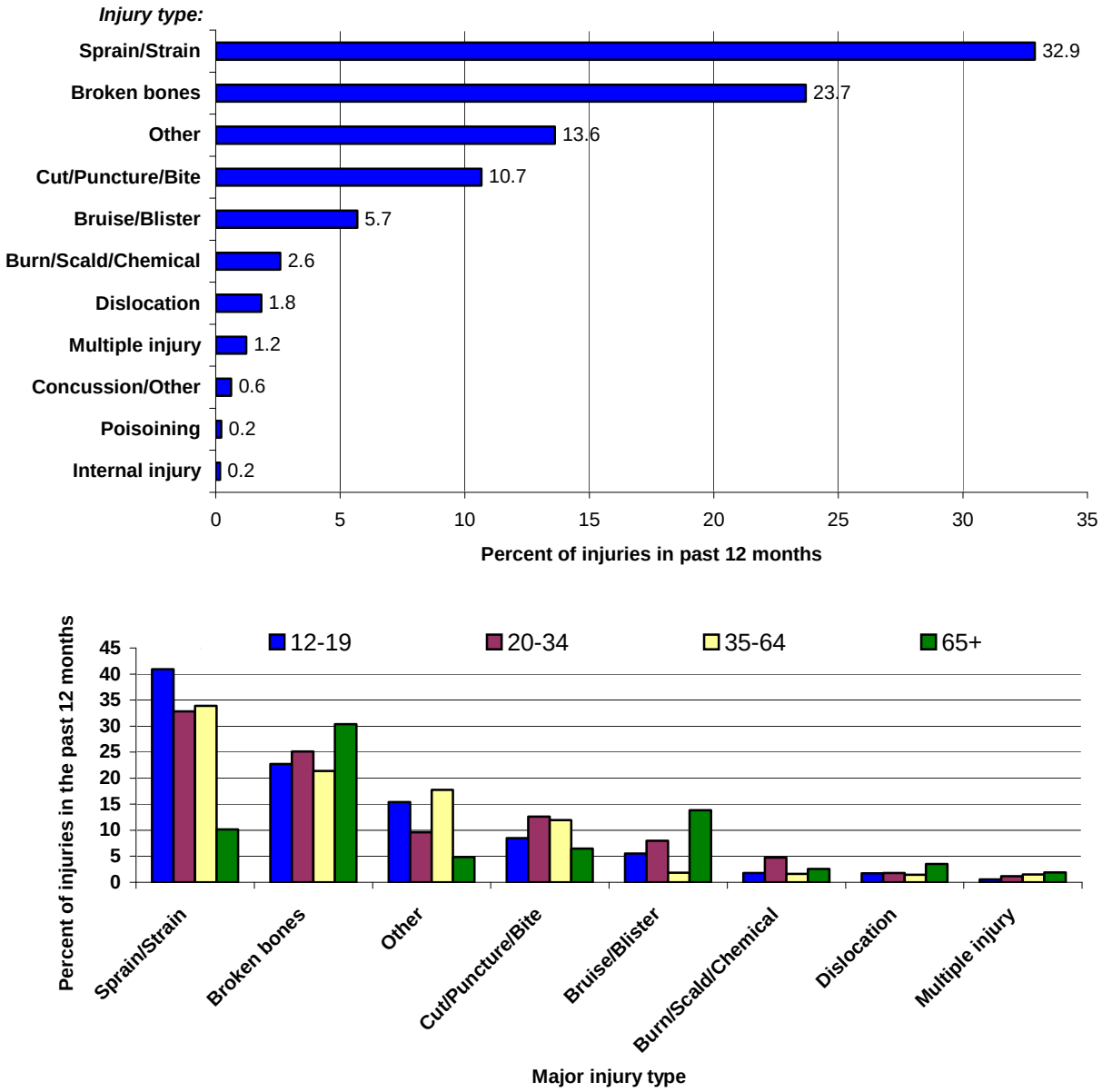


Figure 3.5. Percentage distributions of common injury types among injured persons (total, upper) over a 12-month period, by age-group (lower), Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, 'sprain/strain' was the most frequent type of injury (32.9%) followed by 'broken bones' (23.7%) among residents injured in past 12 months.

- The age-groups below 65 years had 'sprain/strain' and 'broken bones' as the first two most frequent types of injuries, while 'broken bones' and 'bruise/blisters' were the two most frequent injury types among seniors (65+ years).

3.2.4 Body Part Injured by Age-group

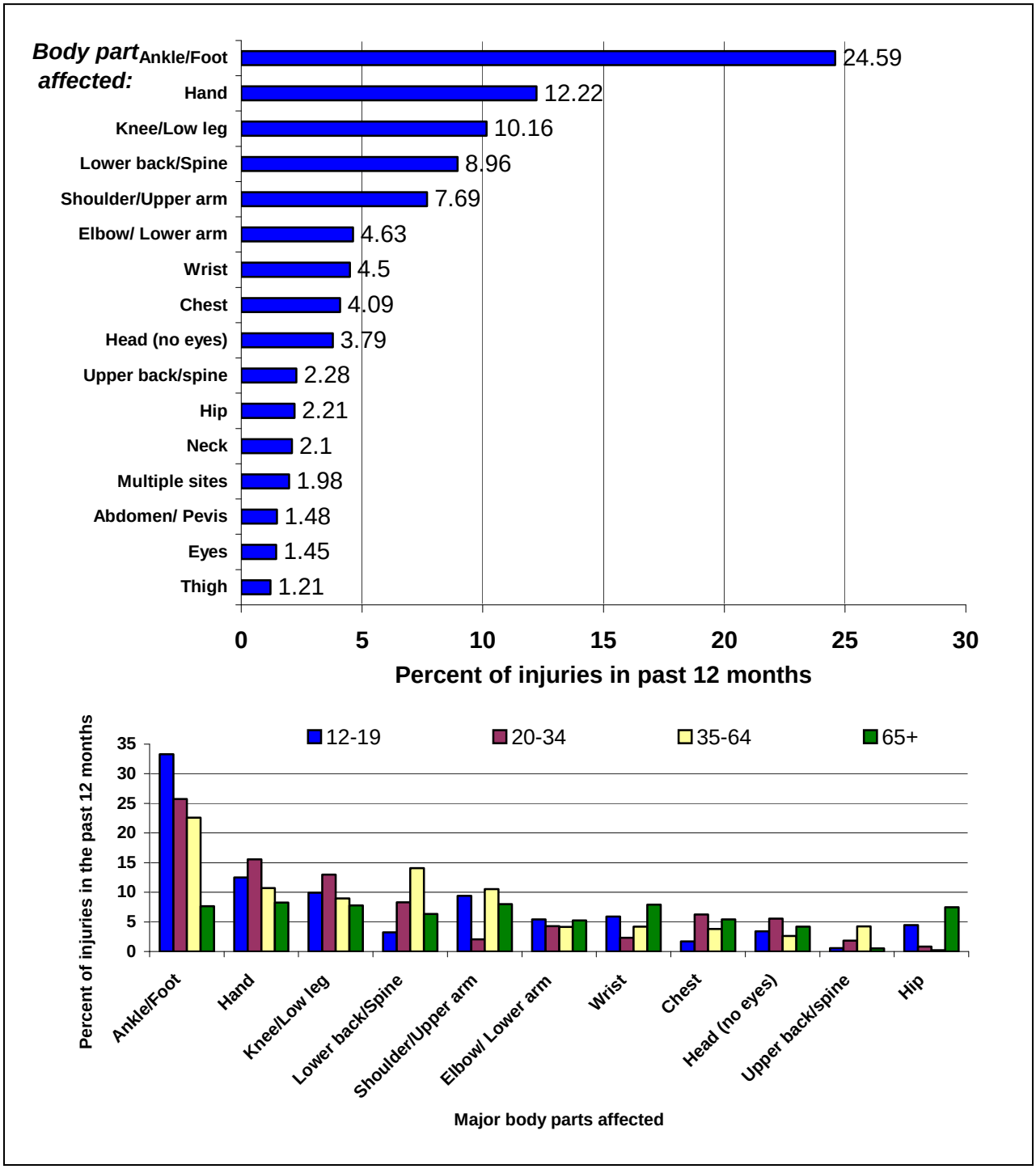


Figure 3.6. Percentage distributions of injuries across body parts among injured residents (total, upper) over a 12-month period, major body parts by age-group (lower), Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- As Figure 3.6 indicates, the 'Ankle/foot' was the body part most frequently injured in residents aged below 65 years, while the injuries were fairly well distributed across various body parts in seniors (65+ years).

3.2.5 Injury Place by Age-group

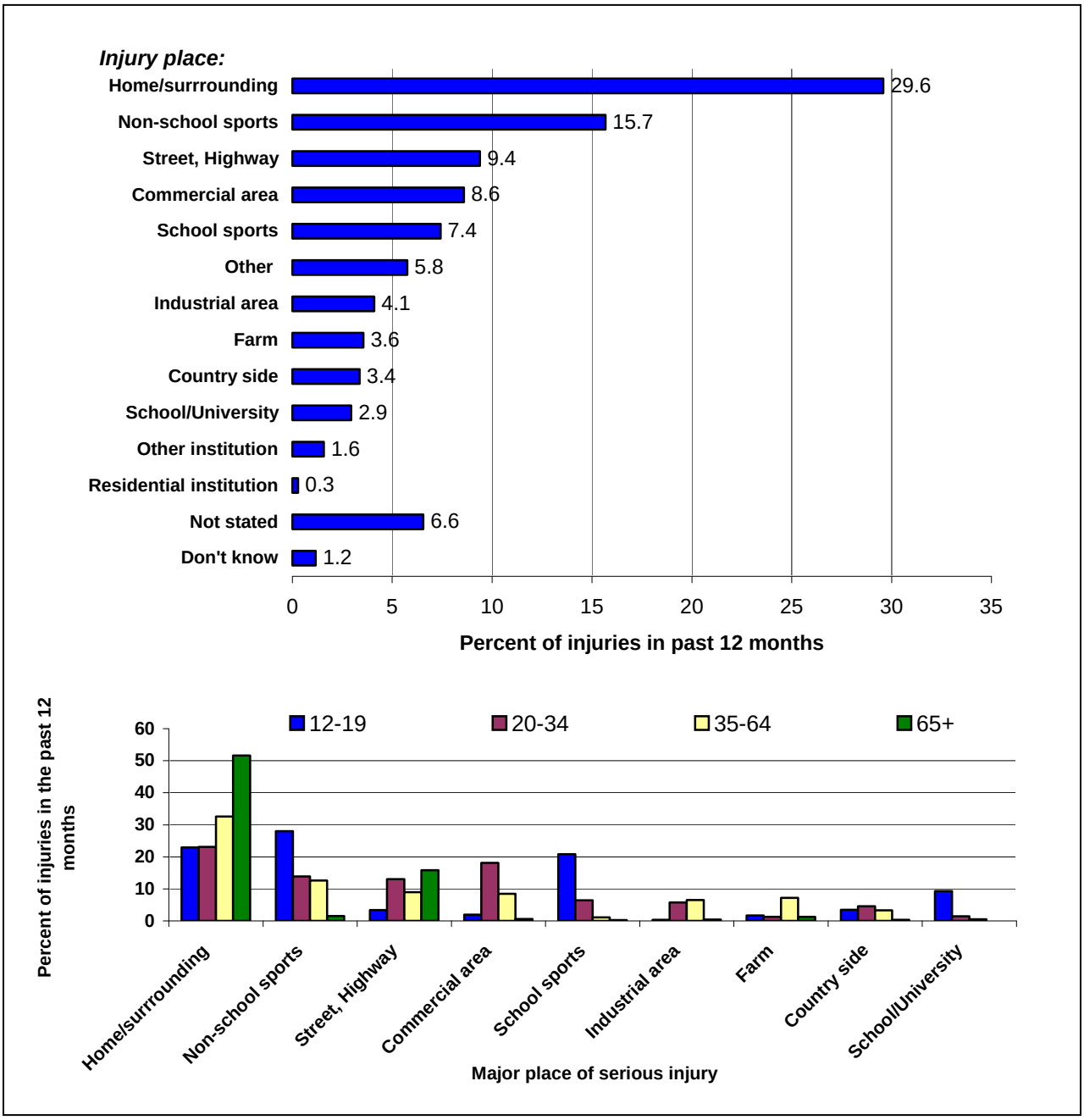


Figure 3.7. Percentage distributions of injury across places of incidents among injured residents (total, upper) over a 12-month period, major places of injury by age-group (lower), Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, 'home/surrounding' and 'non-school sports' were the first two most frequent places of injury accounting for 29.6% and 15.7% of residents injured, respectively.

- ‘Home/surrounding’ was the place where the highest percentage of injury occurred in all age-groups except 12-19 years, in which the ‘non-school sports’ had the highest percentage of injuries.

3.2.6 Injury Circumstance (Activity) by Age-group

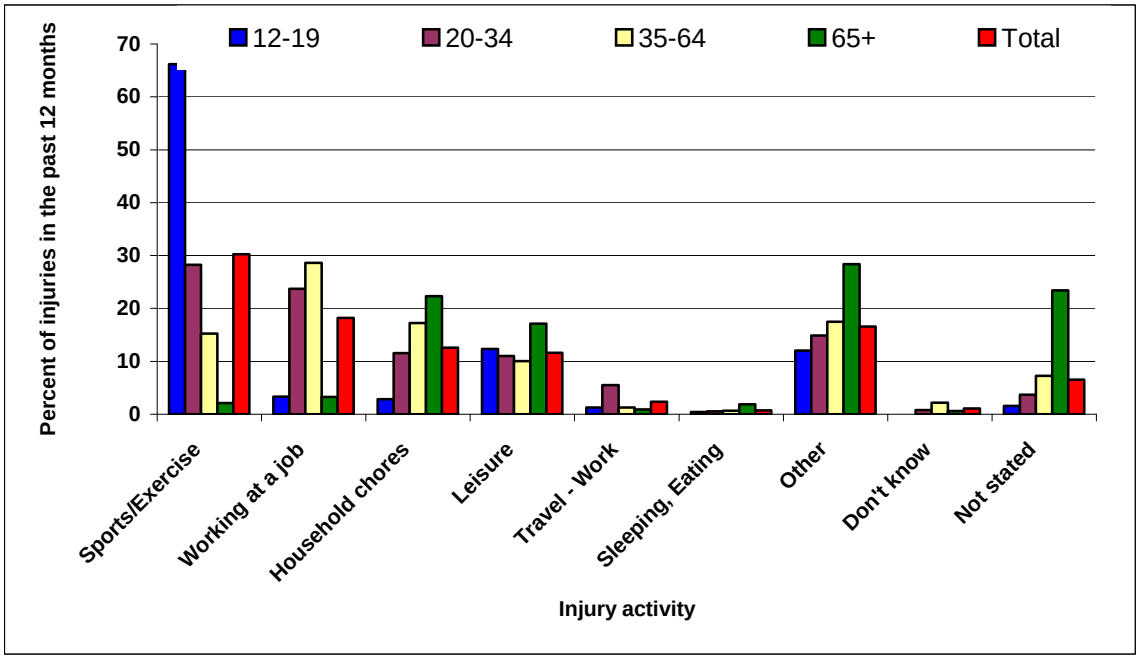


Figure 3.8. Percentage distributions of injuries across various activities over a 12-month period, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- ‘Sports/Exercise’ was the most frequent activity related to injury in 12-19 and 20-34 year age-groups (66.2% and 28.3%, respectively), while ‘working at job’ and ‘household chores’ had the most frequent injuries in 35-64 and 65+ year age-groups, respectively. [Figure 3.8]

- ‘Leisure’, ‘working at job’, ‘household chores’ and ‘leisure’ ranked the second highest in frequencies of injury activities in 12-19, 20-34, 35-64 and 65+ year age-groups, respectively.

3.2.7 Causes of Injury by Age-group

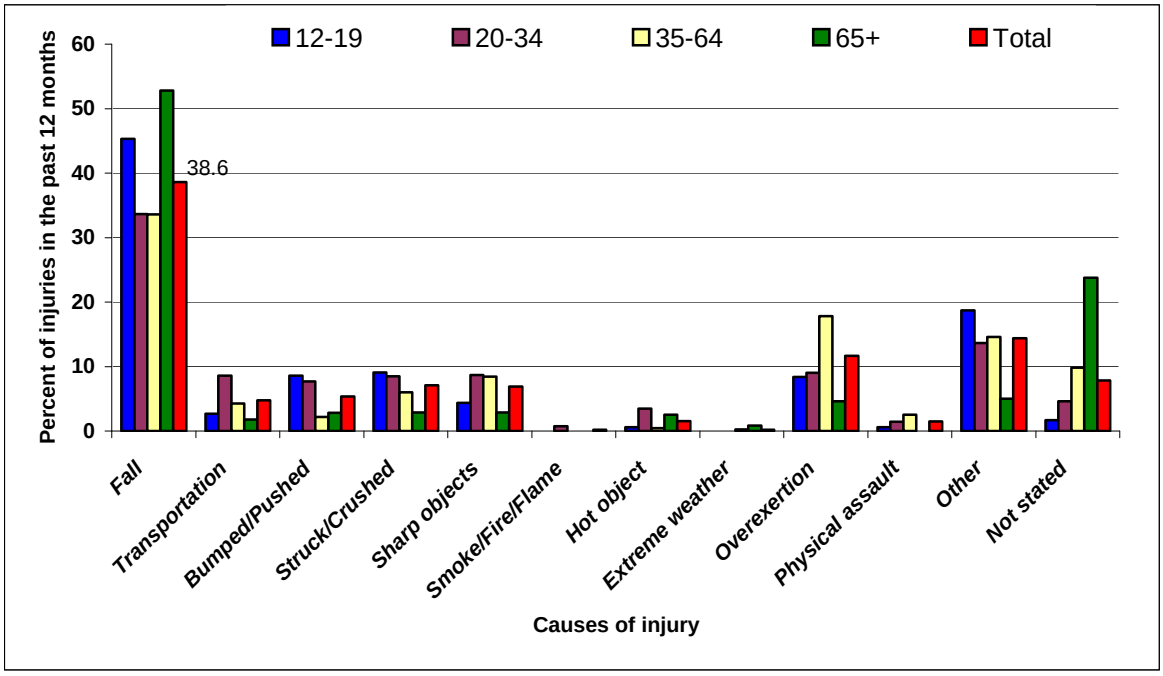


Figure 3.9. Percentage distributions of injuries across various causes of injury over a 12-month period, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, 'fall' was the most frequent cause of injury accounting for 38.6 % of injuries. This was true across all age-groups, with 52.8%, 45.3%, 33.7% and 33.6% of injuries being from fall among seniors (65+ years), children (12-19 years) and 20-34 and 35-64 year olds, respectively. [Figure 3.9]

- 'Overexertion' ranked second in 35-64 year age-group, while the causes such as 'transportation', 'bumped/pushed', 'struck/crushed', 'sharp objects' and 'overexertion' were important ones in 12-19 and 20-34 year old residents.

3.3 Self-Reported Injury by Sex

3.3.1 Single and Multiple Injuries by Sex

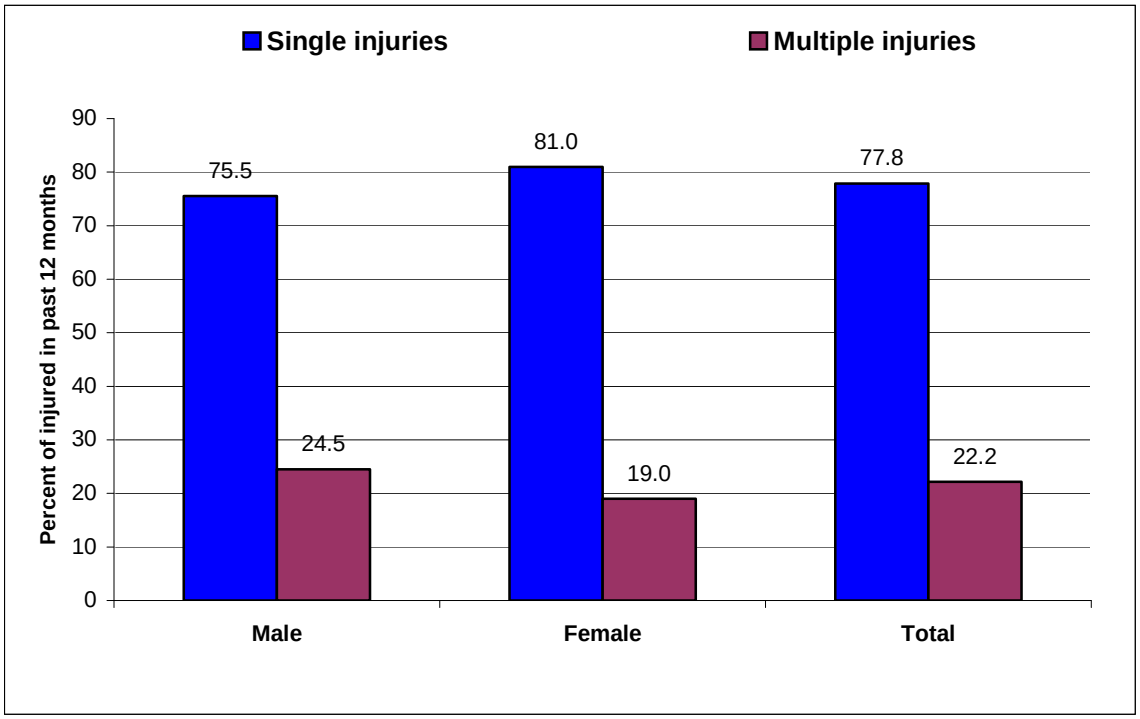


Figure 3.10. Percentages of single and multiple injuries reported over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Figure 3.10 illustrates that the percentage of single injuries was higher in female (81.0%) than in male (75.5%) residents.

3.3.2 Monthly Distribution of Injuries by Sex

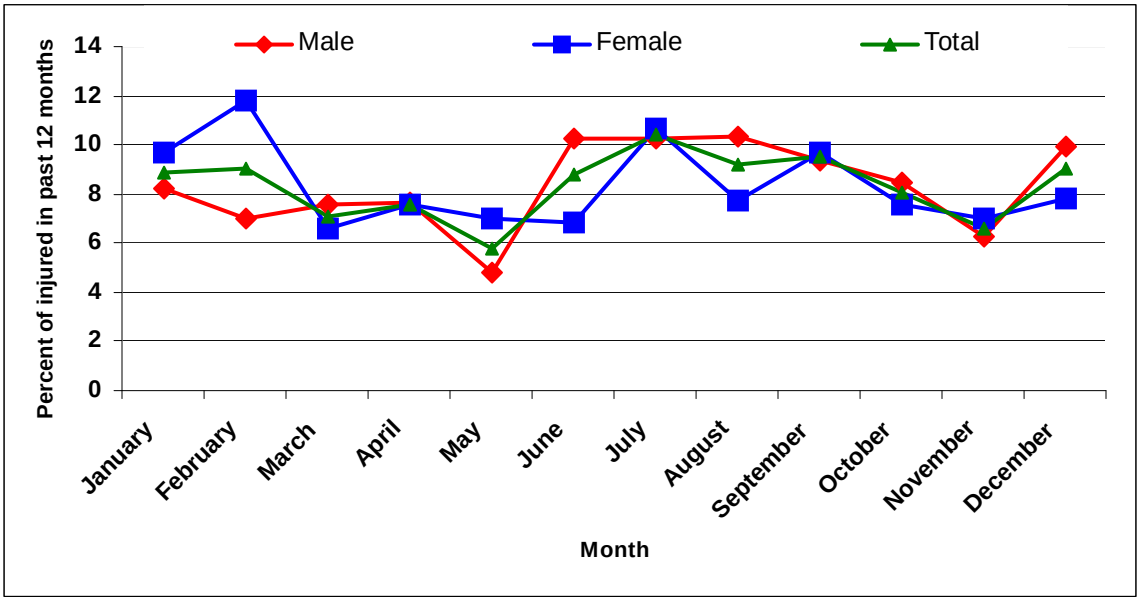


Figure 3.11. Monthly occurrence pattern of injuries reported over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, the occurrence of injury was higher during summer through fall. Both sexes followed more or less similar distribution patterns except that females experienced a winter rise in injury peaking in February. [Figure 3.11]

3.3.3 Types of Injury by Sex

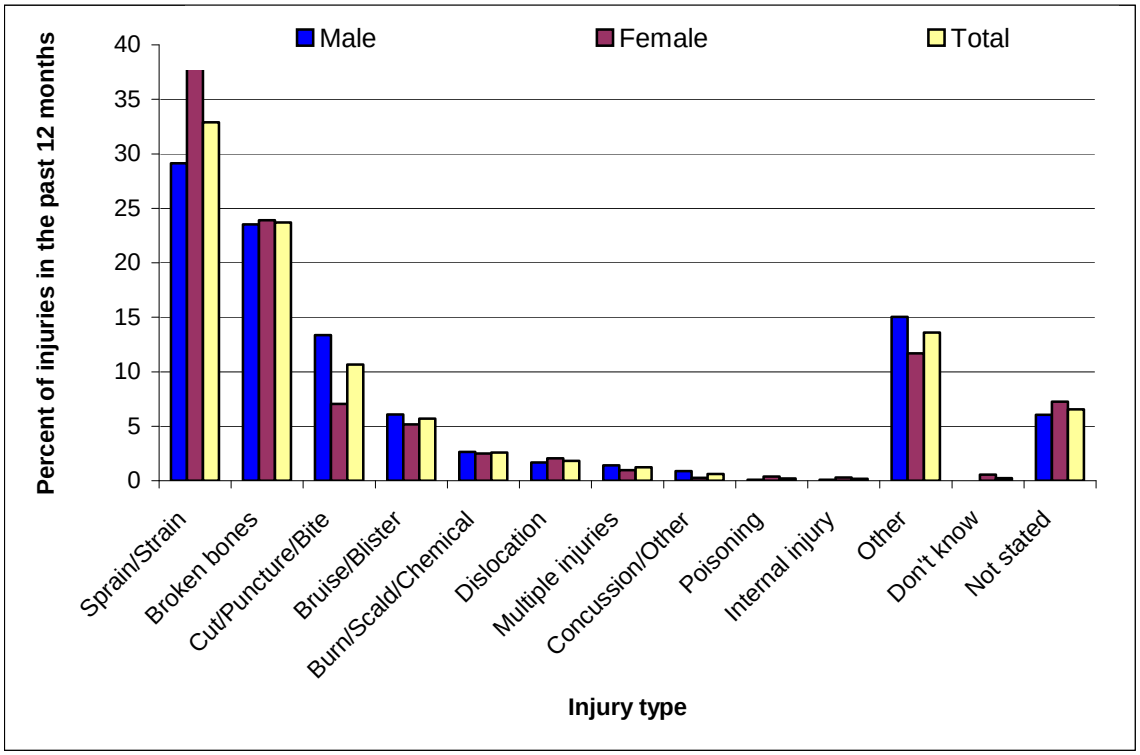


Figure 3.12. Percentage distributions of injury types among injured residents over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, 'sprain and strain' was the most frequent type of injury accounting for 32.9%, followed by 'broken bones' (23.7%). The percentage order of injury types in either of two sexes was consistent with the overall percentage. [Figure 3.12]

- The percentages of injury types were somewhat similar in both sexes except for the differences in frequency of the 'sprain/sprain' (37.9% in females vs. 29.1% in males) and 'cut/puncture/bit' (13.4% in males vs. 7.6% in females).

3.3.4 Body Part Injured by Sex

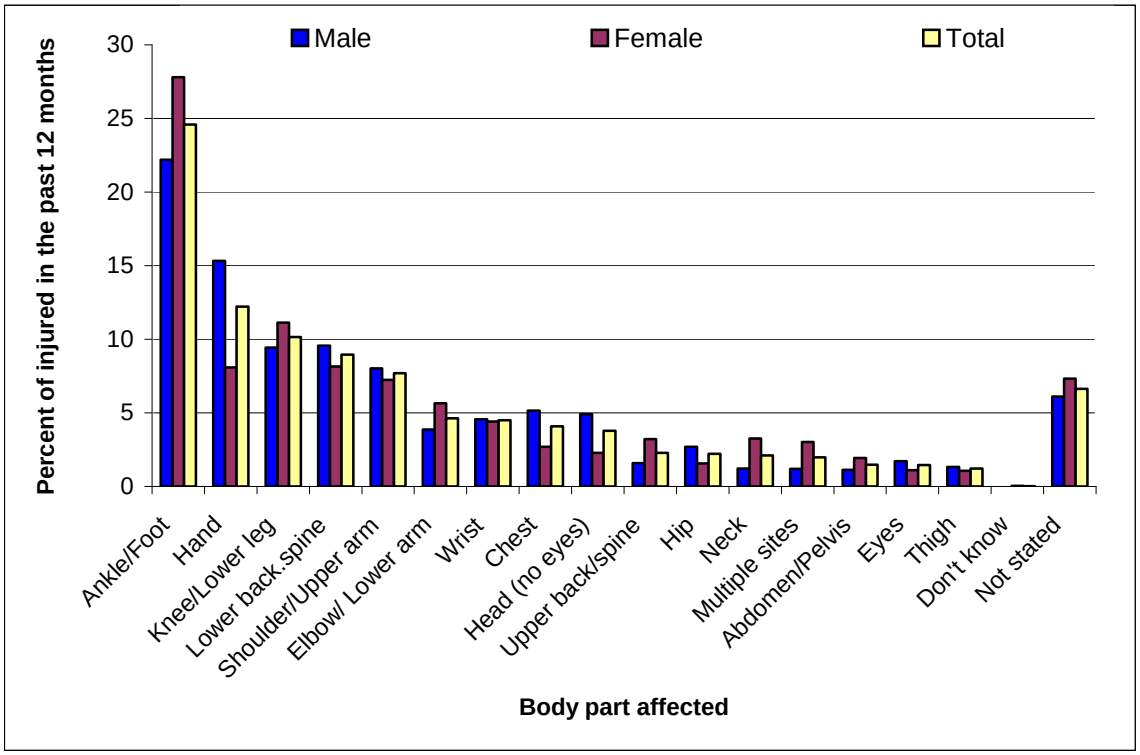


Figure 3.13. Percentage distributions of injuries across body parts over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- The 'Ankle/foot' was first body part most affected by injury in both sexes, accounting for 27.8% and 24.6% of injuries in females and males, respectively. [Figure 3.13]

- 'Hand' injuries ranked the second highest in males, while 'knee/lower leg' injuries ranked second in females.

3.3.5 Injury Place by Sex

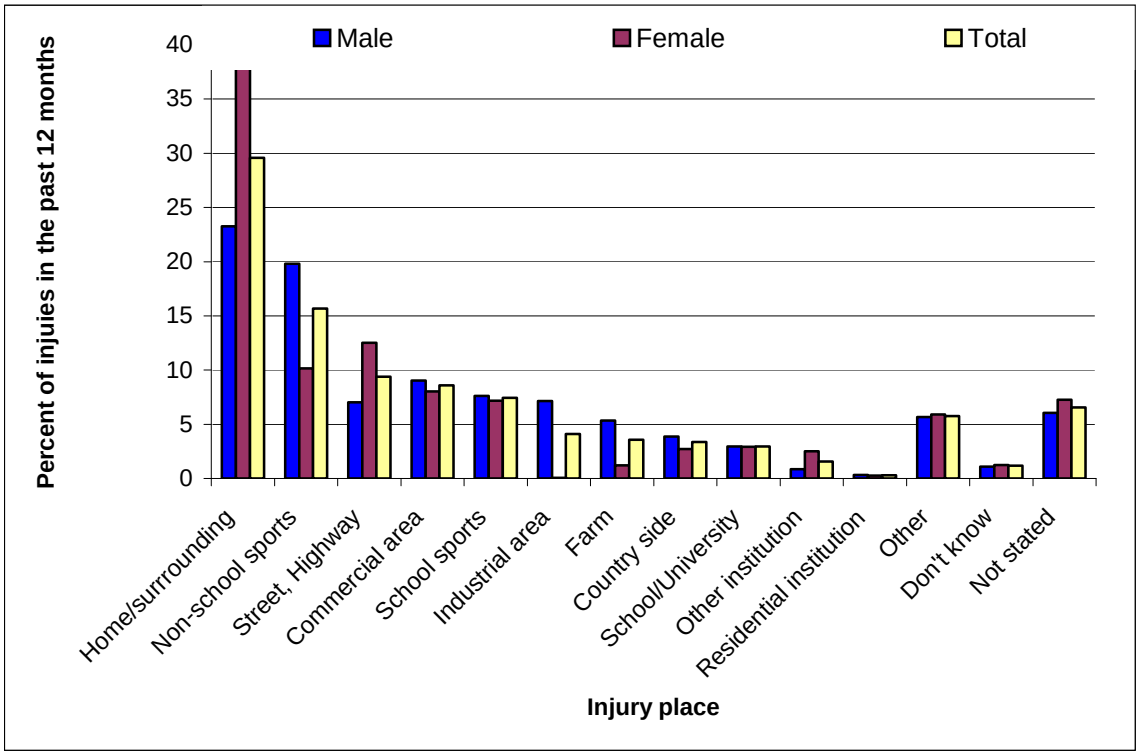


Figure 3.14. Percentage distributions of injury across places of incidents over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Home/surrounding' was the most frequent place of injury in either of the sexes, 38.1% in females and 23.3% in males. [Figure 3.14]

- 'Non-school sports' injuries ranked the second highest in males, while 'street/highway' injuries ranked second for females.

3.3.6 Injury Circumstance (Activity) by Sex

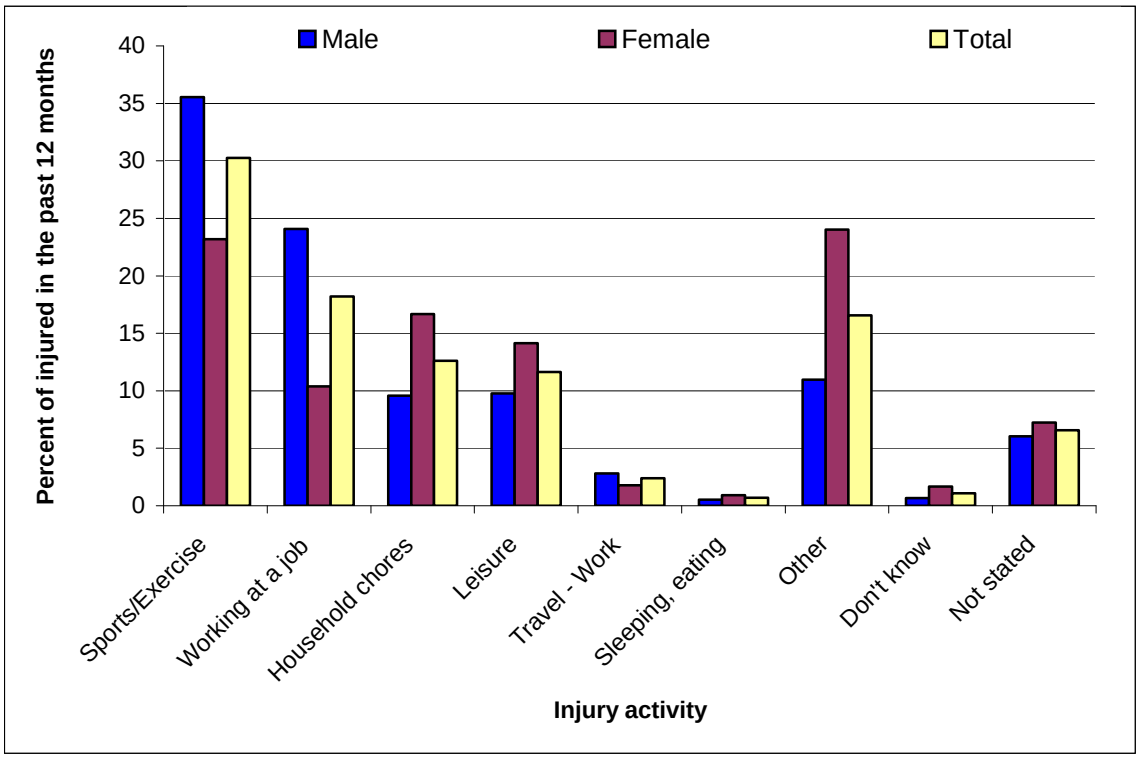


Figure 3.15. Percentage distributions of injury across various activities over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Both male and female residents had 'sports/exercise' as the most frequent activity of injury, which was consistent with the overall percentage. [Figure 3.15]

- 'Working at a job' ranked the second highest for injuries in males, while 'household chores' injuries ranked second for females.

3.3.7 Causes of Injury by Sex

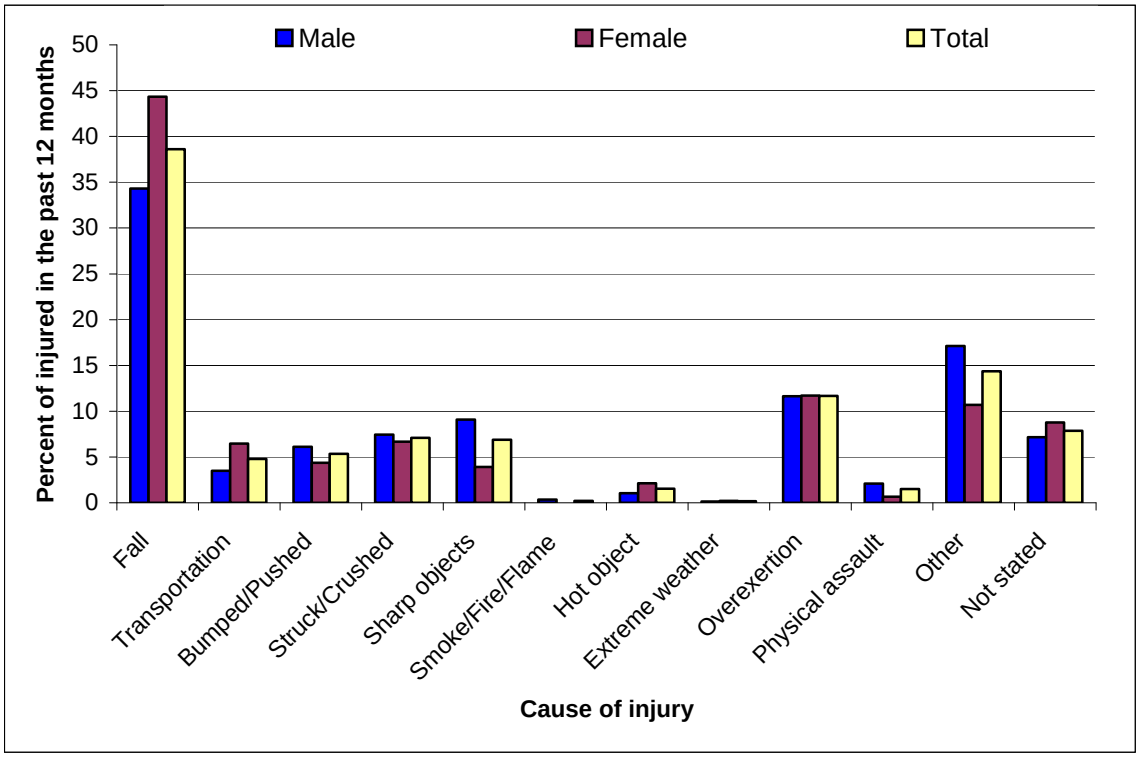


Figure 3.16. Percentage distributions of injury across various causes of injury over a 12-month period, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Fall' was the most frequent cause of injury in both sexes, accounting for 44.3% and 34.3% of total injuries in females and males, respectively, while 'overexertion' was the second most important cause. [Figure 3.16]

3.4 Self-Reported Injury by Health Region

3.4.1 Single and Multiple Injuries by Health Region

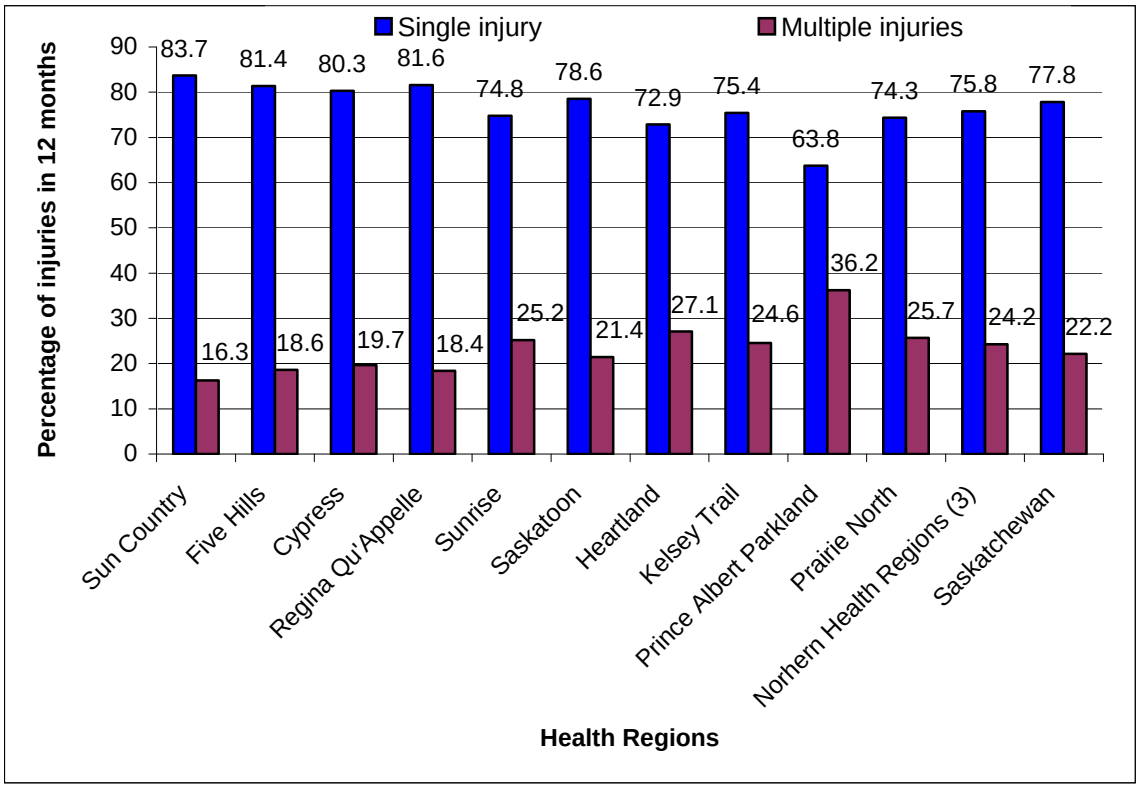


Figure 3.17. Percentages of single and multiple injuries reported over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Single injury constituted the most injuries in all health regions. [Figure 3.17]

- Prince Albert Parkland (36.2%), Heartland (27.1%), Sunrise (25.2%), Prairie North and three northern health regions (24.2%) were the health regions, which had higher percentage of multiple injuries than the provincial average of 22.2%.

3.4.2 Monthly Injuries by Health Region

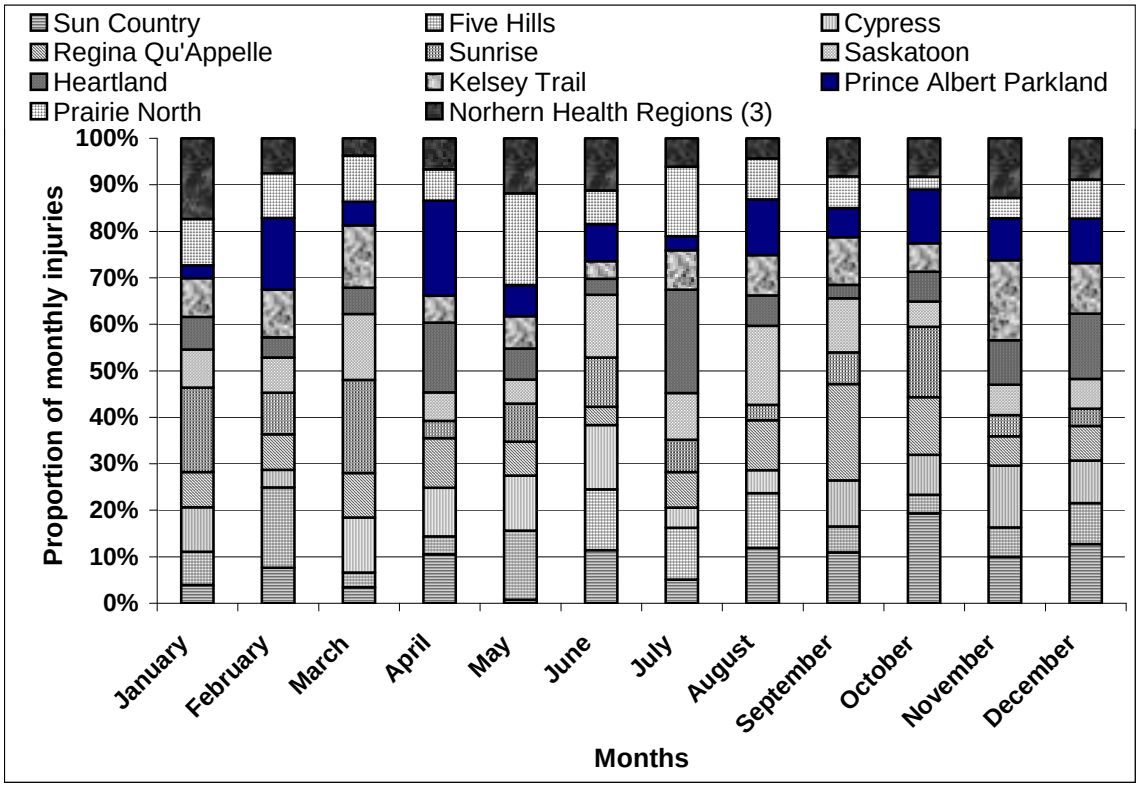


Figure 3.18. Monthly occurrence pattern of injuries reported over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- As Figure 3.18 indicates, the months of high occurrence of injuries varied considerably across health regions.

- The months of most frequent injuries were January in three northern health regions, February in Five Hills, March in Sunrise, April in Prince Albert Parkland, June in Cypress, July in Heartland and Prairie North, August in Saskatoon, September in Regina Qu'Appelle, October in Sun Country and November in Kelsey Trail.

3.4.3 Top Injury Types by Health Region

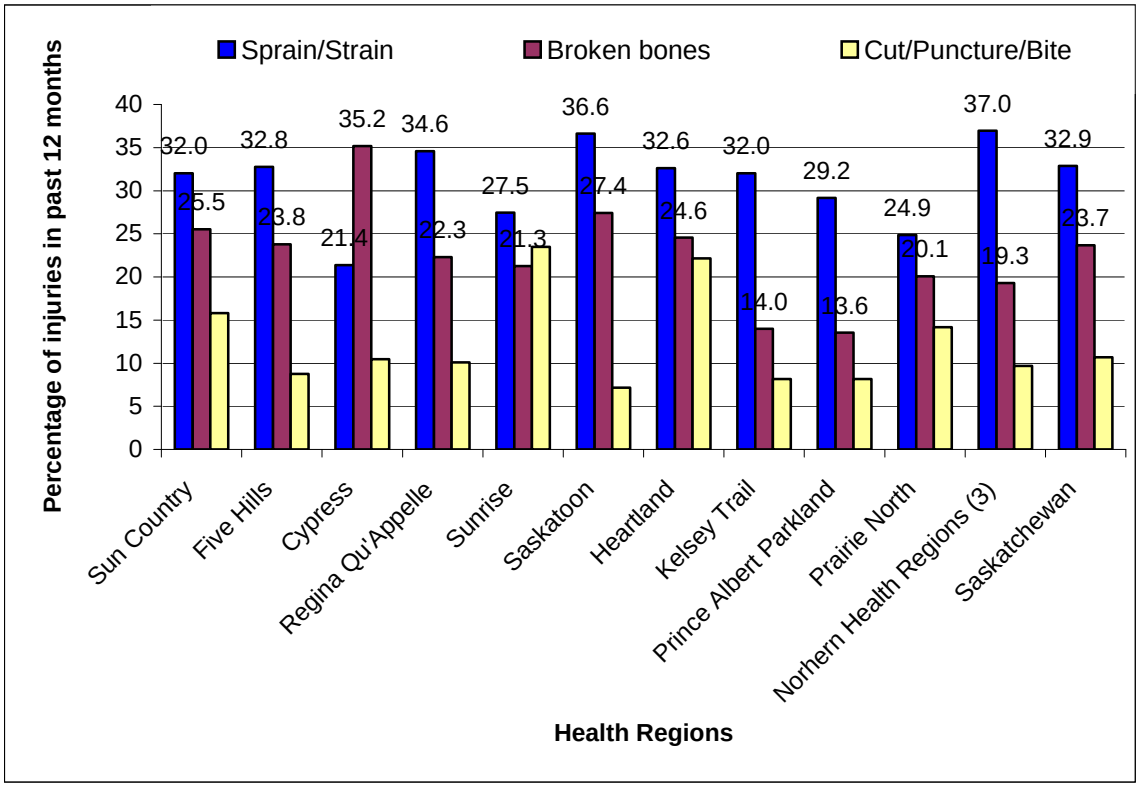


Figure 3.19. Percentage of top three injury types over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Sprain/strain' was the most frequent injury type in all health regions except Cypress where 'broken bones' ranked the highest (35.2%), followed by 'sprain/strain' category (22.3%). [Figure 3.19]

- 'Broken bones' ranked second in the top injuries types in all other health regions except Sunrise, which had 'cut/puncture/bite' as the second top injury type category.

3.4.4 Body Part Injured by Health Region

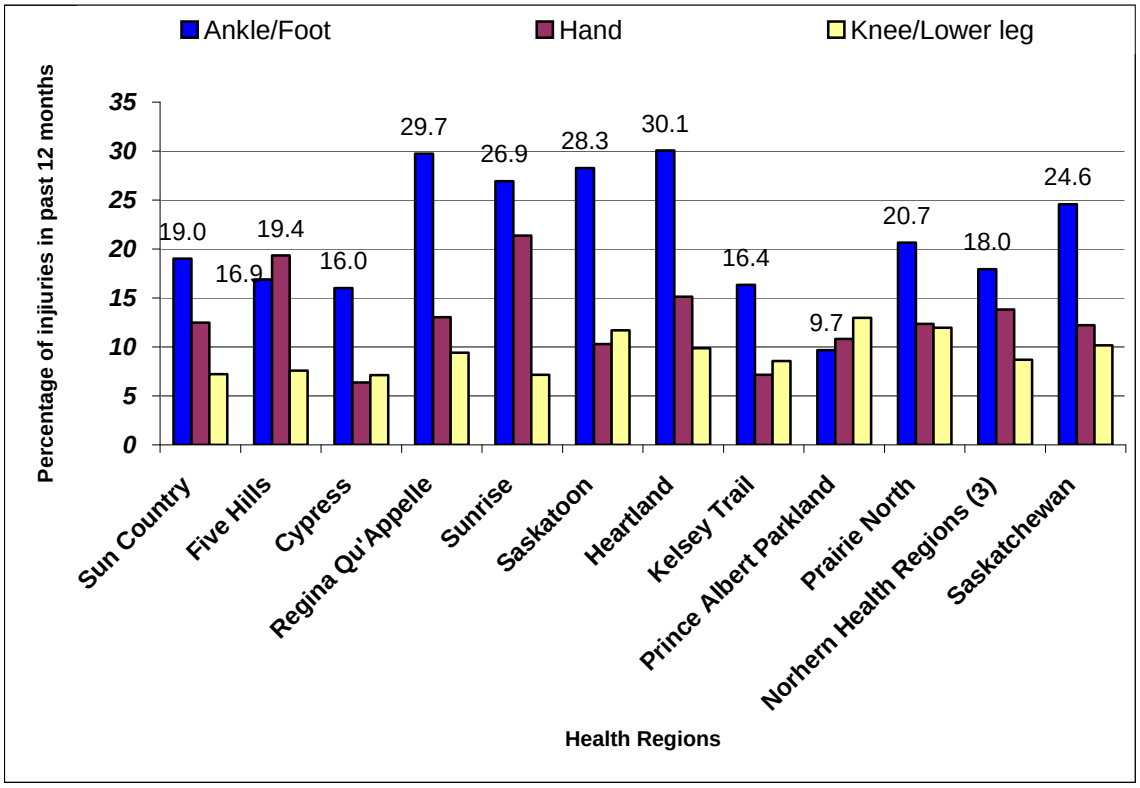


Figure 3.20. Percentage of injuries for top three body parts injured over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Ankle/foot' injury was the most frequent injury body-part in all health regions except Five Hills where 'hand' injury ranked the highest (19.4%), followed by 'ankle/foot' (16.9%). [Figure 3.20]

- 'Hand' injury ranked second most frequent among the injury body-parts in all other health regions except Cypress, Saskatoon, Kelsey Trail and Prince Albert Parkland where 'knee/lower leg' superseded 'hand' injury.

3.4.5 Injury Place by Health Region

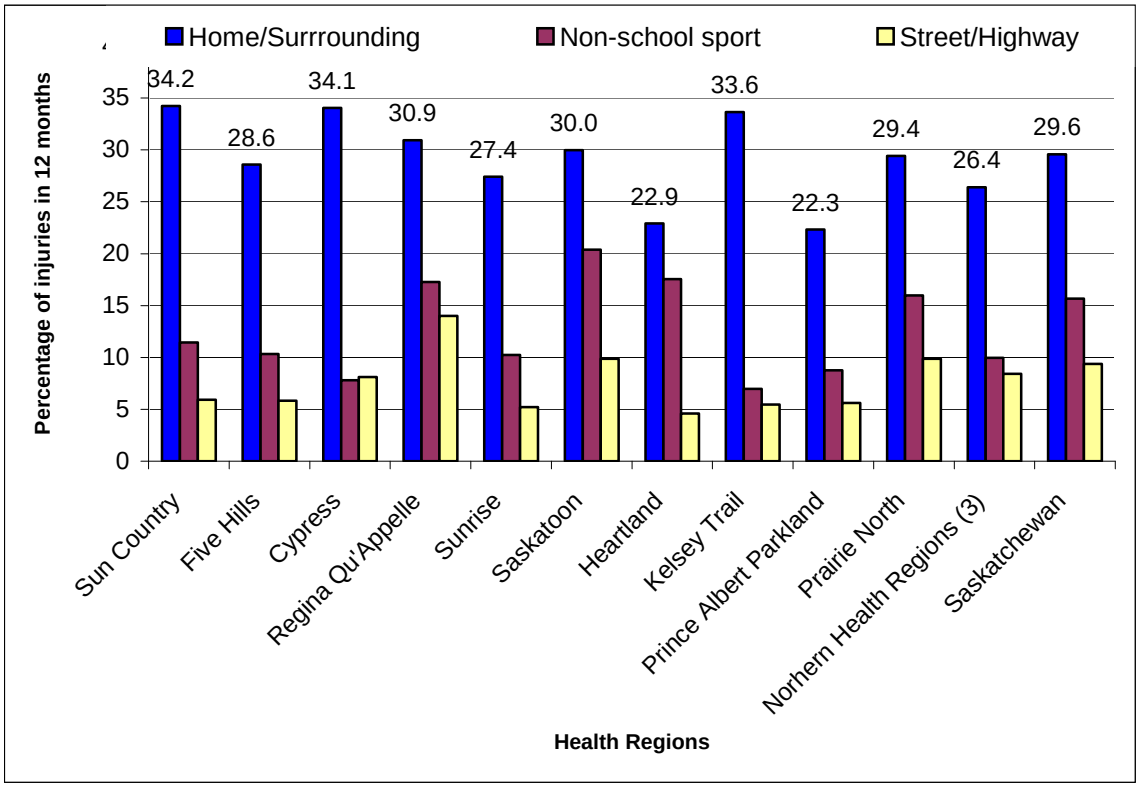


Figure 3.21. Percentage of injuries for top injury places over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Home/Surrounding' and 'non-school sports' were the first and second most frequent places of injury in all health regions except in Cypress, where 'street/Highway' injury slightly superseded 'non-school sports' injury. [Figure 3.21]

3.4.6 Injury Circumstance (Activity) by Health Region

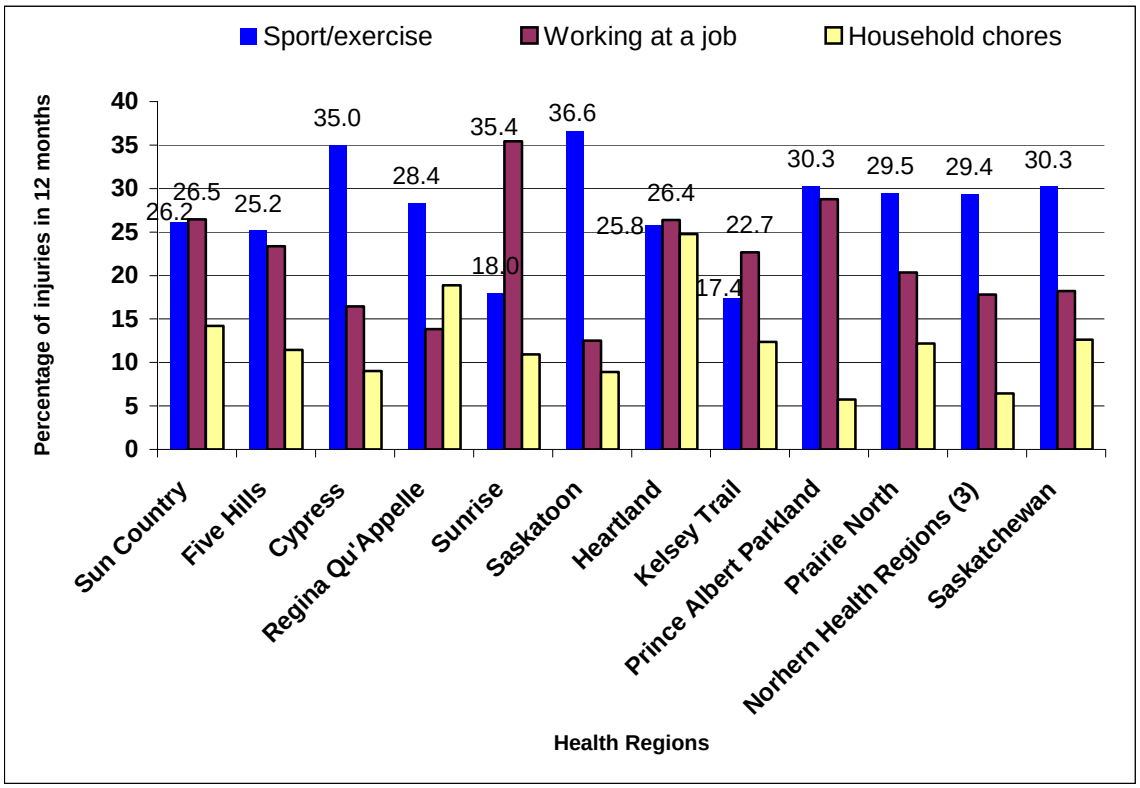


Figure 3.22. Percentage of injuries for top three circumstances (activities) over a 12-month period, by health region, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Sports/Exercise' was the most frequent activity of injury in almost all health regions except Sun Country, Sunrise, Heartland, Kelsey Trail, where 'working at a job' superseded 'sports/exercise' injury. [Figure 3.22]

- 'Working at a job' ranked second most frequent activity for injury in remaining health regions except Regina Qu'Appelle, where 'household chores' was the second most frequent activity for injury.

3.4.7 Causes of Injury by Health Region

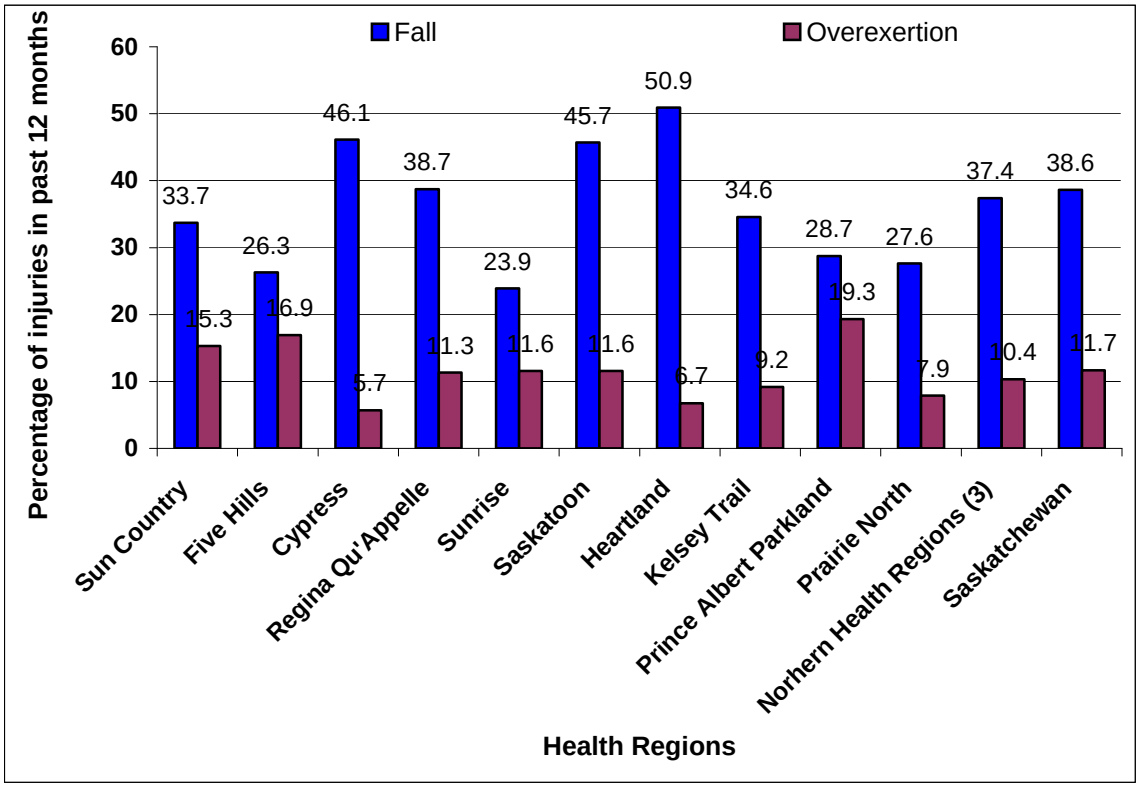


Figure 3.23. Percentage of top two causes of injuries over a 12-month period, by health regions, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- According to Figure 3.23, fall and overexertion were the first and second most frequent causes of injury in all health regions.

- Heartland, Saskatoon, Cypress and Regina Qu'Appelle health regions had the higher percentages of fall injury than the provincial average of 38.6%.

4.0 INJURY HOSPITALIZATIONS

The purpose of this chapter is to describe, in detail, hospitalizations with injury diagnoses in Saskatchewan from 1995/96-2004/05. The first section of the chapter outlines the main causes of injury hospitalization. Subsequently, the second and third sections examine the distribution of injury hospitalizations and hospitalized residents according to various demo-geographic factors such as age-group, sex, Registered Indian Status (RI Status), and health region. The fourth and fifth sections examine rates of injury hospitalizations and persons hospitalized for injury. The sixth section further explores hospitalization rates according to major causes of injury. The final two sections relate to injury hospitalization trends in 10 years from 1995/96 to 2004/05.

4.1 Major Categories of Causes of Injury Hospitalizations, Saskatchewan, 1995/96-2004/05

- Table 4.1 shows the ranking of major categories of external causes of injury hospitalizations among Saskatchewan residents for the period from 1995/96 to 2004/05.

- Overall, unintentional falls ranked as the highest category (57.2%), followed by motor vehicle transport incidents (traffic and non-traffic) (18.2%). Suicide attempts and self-harm (9.2%), assault and homicide (8.0%), poisoning (5.2%), and drowning, submersion and suffocation (2.0%) ranked third to sixth, consecutively.

- Across the age-groups, unintentional falls ranked first in 0-9, 10-14, 35-64 and 65+ years, while 15-19 and 20-34 year age-groups had motor vehicle transport incidents in the first rank of external cause of injury.

- For children aged 0-9 years, poisoning was the second most frequent cause, while the motor vehicle transport ranked second in 10-14, 35-64 and 65+ year age-groups. The older teenagers aged 15-19 years had suicide attempt and self inflicted harm as the second most frequent cause of hospitalization. The 20-34 year age-group had unintentional falls ranked as second.

Table 4.1. Ranking of major six categories of external causes of injury hospitalizations by age-group, Saskatchewan, 1995/96-2004/05.

Rank	Age-group, years						
	0-9	10-14	15-19	20-34	35-64	65+	Total
1	Falls (4773)	Falls (2337)	Motor transport incidents (2680)	Motor transport incidents (4055)	Falls (10075)	Falls (26827)	Falls (48744)
2	Poisoning (1491)	Motor transport incidents (1390)	Suicide & self harm (1650)	Falls (3279)	Motor transport incidents (4405)	Motor transport incidents (1806)	Motor transport incidents (15547)
3	Motor transport incidents (1211)	Suicide & self harm (535)	Falls (1453)	Assault & homicide (3170)	Suicide & self harm (2619)	Poisoning (888)	Suicide & self harm (7926)
4	Drowning, submersion & suffocation (629)	Assault & homicide (210)	Assault & homicide (1092)	Suicide & self harm (2852)	Assault & homicide (1886)	Drowning, submersion & suffocation (482)	Assault & homicide (6854)
5	Assault & homicide (313)	Poisoning (135)	Poisoning (250)	Poisoning (574)	Poisoning (1105)	Suicide & self harm (231)	Poisoning (4443)
6	Suicide & self harm (39)	Drowning, submersion & suffocation (83)	Drowning, submersion & suffocation (52)	Drowning, submersion & suffocation (132)	Drowning, submersion & suffocation (369)	Assault & homicide (183)	Drowning, submersion & suffocation (1747)

4.2 Distribution of 10-year Injury Hospitalizations by Age-group, Sex and RI Status, Saskatchewan, 1995/96-2004/05

- The highest proportion of injury hospitalizations was observed in the age-group of 65 years and over (31%), followed by 35-64 and 20-34 years (26% and 18%, respectively). The age-groups under 20 years, when combined, accounted for 24% of the total injury hospitalizations. [Figure 4.1]

- Males had a higher proportion of injury hospitalizations than females in the ratio of 54:46, respectively.

- Most of injury hospitalizations (81%) occurred in non-Registered Indian (RI) residents as compared to the RI Status residents (19%). However, the injury hospitalizations were proportionately higher in the RI population, in view of their population comprising only about 10% in Saskatchewan.

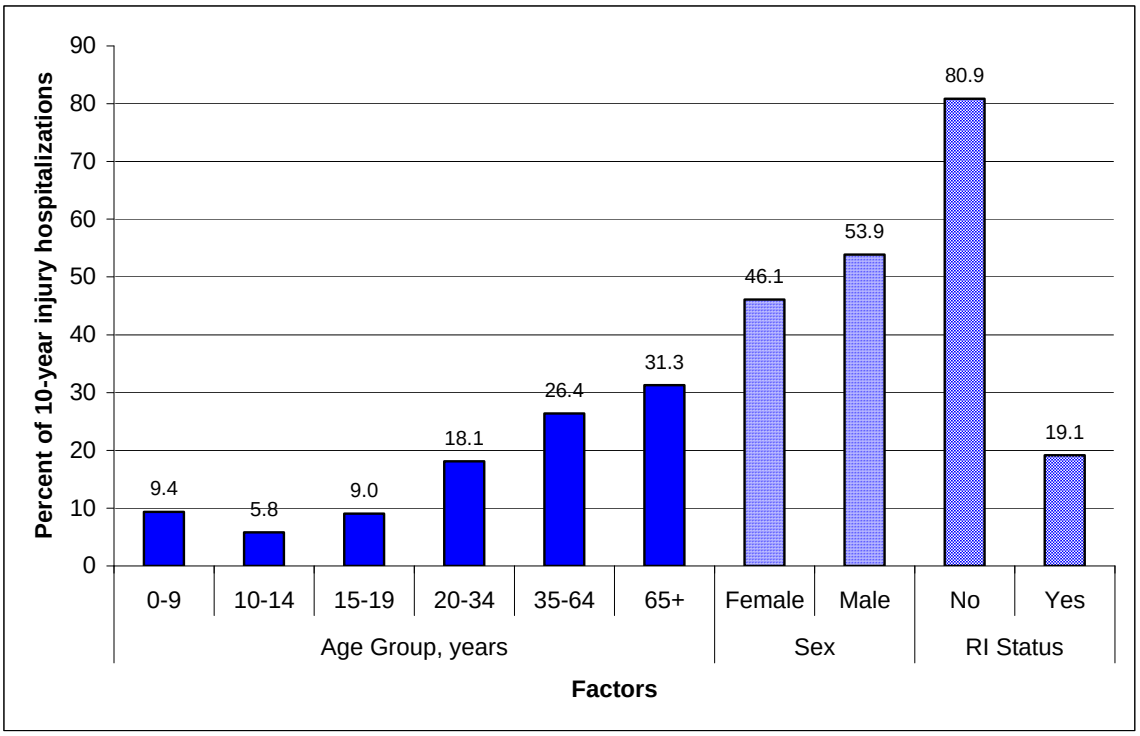


Figure 4.1. The percentage distribution of 10-year injury hospitalizations by age-group, sex and RI Status, Saskatchewan, 1995/96-2004/05.

Table 4.2. Annual distribution of total injury hospitalization counts by age-group, sex and RI Status, Saskatchewan, 1995/96-2004/05.

Factors Frequency		Year										Total
		1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	
Age-group, years	0-9	1432 *(11.2)*	1379 *(11.3)*	1333 *(10.9)*	1243 *(10.1)*	1192 *(9.1)*	1205 *(9.0)*	1120 *(8.7)*	1034 *(8.0)*	1036 *(8.1)*	984 *(7.7)*	11958 *(9.4)*
	10-14	786 *(6.2)*	691 *(5.7)*	764 *(6.2)*	734 *(5.9)*	796 *(6.1)*	778 *(5.8)*	781 *(6.1)*	737 *(5.7)*	700 *(5.4)*	659 *(5.2)*	7426 *(5.8)*
	15-19	1117 *(8.8)*	1065 *(8.7)*	1124 *(9.2)*	1116 *(9.0)*	1193 *(9.1)*	1223 *(9.1)*	1132 *(8.8)*	1192 *(9.2)*	1200 *(9.3)*	1150 *(9.0)*	11512 *(9.0)*
	20-34	2308 *(18.1)*	2164 *(17.7)*	2303 *(18.8)*	2277 *(18.4)*	2530 *(19.3)*	2484 *(18.5)*	2324 *(18.1)*	2220 *(17.2)*	2229 *(17.4)*	2260 *(17.8)*	23099 *(18.1)*
	35-64	3173 *(24.9)*	2978 *(24.4)*	3015 *(24.6)*	3150 *(25.5)*	3507 *(26.7)*	3646 *(27.2)*	3527 *(27.5)*	3549 *(27.5)*	3505 *(27.3)*	3522 *(27.7)*	33572 *(26.3)*
	65+	3926 *(30.8)*	3941 *(32.3)*	3734 *(30.4)*	3840 *(31.1)*	3903 *(29.7)*	4078 *(30.4)*	3960 *(30.8)*	4159 *(32.3)*	4175 *(32.5)*	4135 *(32.5)*	39851 *(31.3)*
Sex	Female	5957 *(46.8)*	5809 *(47.5)*	5636 *(45.9)*	5809 *(47.0)*	5998 *(45.7)*	6040 *(45.0)*	5772 *(44.9)*	5957 *(46.2)*	5828 *(45.4)*	5931 *(46.7)*	58737 *(46.1)*
	Male	6785 *(53.2)*	6409 *(52.5)*	6637 *(54.1)*	6551 *(53.0)*	7123 *(54.3)*	7374 *(55.0)*	7072 *(55.1)*	6934 *(53.8)*	7017 *(54.6)*	6779 *(53.3)*	68681 *(53.9)*
RI Status	No	10292 *(80.8)*	9858 *(80.7)*	9749 *(79.4)*	9861 *(79.8)*	10688 *(81.5)*	10939 *(81.5)*	10467 *(81.5)*	10562 *(81.9)*	10458 *(81.4)*	10150 *(79.9)*	103024 *(80.9)*
	Yes	2450 *(19.2)*	2360 *(19.3)*	2524 *(20.6)*	2499 *(20.2)*	2433 *(18.5)*	2475 *(18.5)*	2377 *(18.5)*	2329 *(18.1)*	2387 *(18.6)*	2560 *(20.1)*	24394 *(19.1)*
Overall for Saskatchewan		**12742** ***(100.0)***	**12218** ***(100.0)***	**12273** ***(100.0)***	**12360** ***(100.0)***	**13121** ***(100.0)***	**13414** ***(100.0)***	**12844** ***(100.0)***	**12891** ***(100.0)***	**12845** ***(100.0)***	**12710** ***(100.0)***	**127418** ***(100.0)***

The figures in the parentheses indicate the percentage breakdowns of injury hospitalizations for the levels of each factor in each year.

- Based on Table 4.2, the total number of injury hospitalizations during the study period was 127,418.

- The distribution patterns of injury hospitalizations by age-group, sex and Registered Indian status across the years of the study period were fairly consistent with the overall population pattern.

4.3 Distribution of 10-year Injury Hospitalizations across Health Regions, Saskatchewan, 1995/96-2004/05.

- Figure 4.2 illustrates the percent of 10-year injury hospitalizations that can be attributed to each health region. Three health regions with the highest populations, Saskatoon, Regina Qu'Appelle and Prince Albert Parkland respectively, when combined, accounted for 53% of the 10-year total injury hospitalizations in Saskatchewan.

- Regina Qu'Appelle Health Region had the highest proportion (23%) of injury hospitalizations, despite its second position in population size in the province. This was followed by Saskatoon Health Region (21%), which has the largest population.

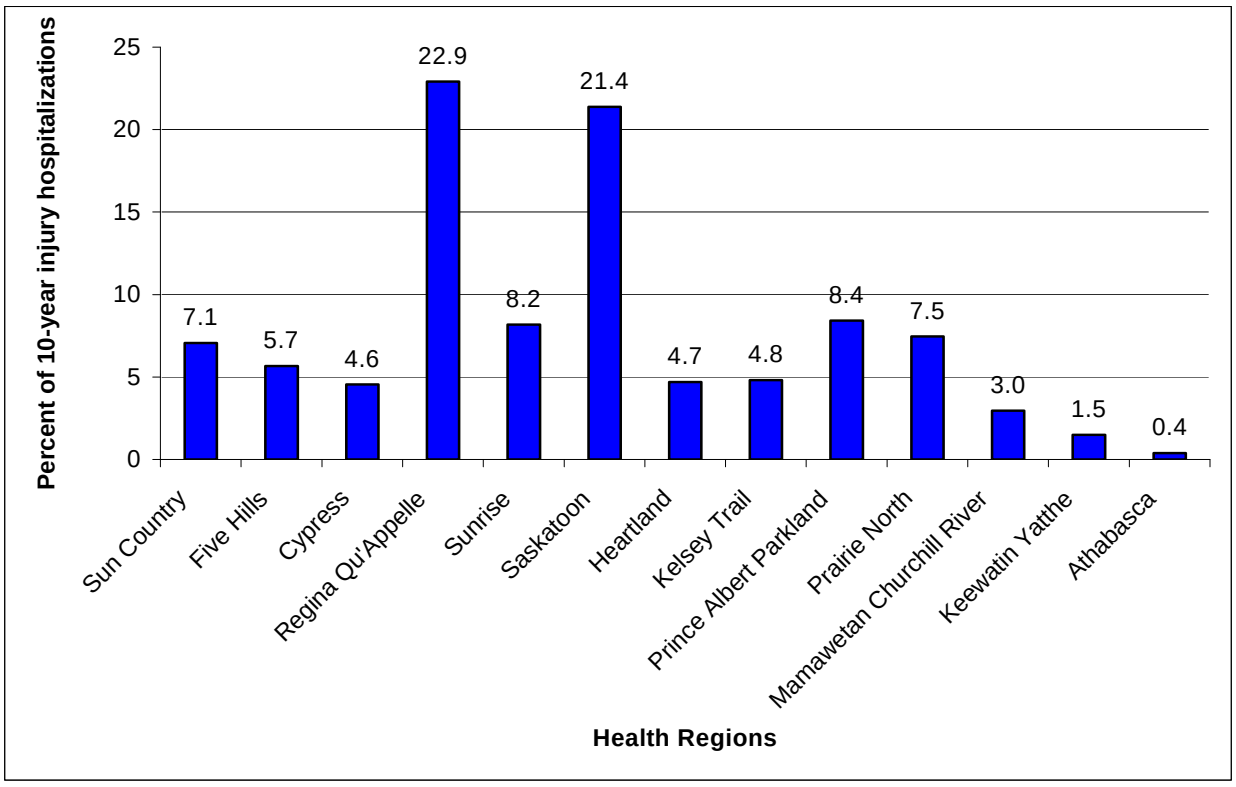


Figure 4.2. Percentage distribution of injury hospitalizations across health regions, Saskatchewan, 1995/96-2004/05.

- Overall, there were noticeable increases in injury hospitalizations among Saskatchewan residents between 1999/00 and 2000/01. In Saskatoon Health Region, the increase was 13% from 1998/99 to 1999/00, while two other regions, Prairie North (18%) and Sunrise (16%) had slightly higher increases. Mamawetan Churchill River recorded a 27% decline. [Table 4.3]

Table 4.3. Annual distribution of 10-year injury hospitalization counts across health regions by year, Saskatchewan, 1995/96-2004/05.

Health Regions Frequency:	Year										Total
	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	
Sun Country	879	931	908	910	862	951	892	895	893	874	8994
	(6.9)	*(7.6)*	*(7.4)*	*(7.4)*	*(6.6)*	*(7.1)*	*(6.9)*	*(6.9)*	*(7.0)*	*(6.9)*	*(7.1)*
Five Hills	763	623	645	650	669	694	771	843	839	718	7216
	(6.0)	*(5.1)*	*(5.3)*	*(5.3)*	*(5.1)*	*(5.2)*	*(6.0)*	*(6.5)*	*(6.5)*	*(5.6)*	*(5.7)*
Cypress	530	504	494	549	595	649	697	634	568	579	5797
	(4.2)	*(4.1)*	*(4.0)*	*(4.4)*	*(4.5)*	*(4.8)*	*(5.4)*	*(4.9)*	*(4.4)*	*(4.6)*	*(4.5)*
Regina Qu'Appelle	2965	2785	2705	2763	2863	3065	2993	3131	3097	2833	29200
	(23.3)	*(22.8)*	*(22.0)*	*(22.4)*	*(21.8)*	*(22.8)*	*(23.3)*	*(24.3)*	*(24.1)*	*(22.3)*	*(22.9)*
Sunrise	967	988	979	1036	1200	1255	1049	1011	975	968	10429
	(7.6)	*(8.1)*	*(8.0)*	*(8.4)*	*(9.1)*	*(9.4)*	*(8.2)*	*(7.8)*	*(7.6)*	*(7.6)*	*(8.2)*
Saskatoon	2604	2446	2600	2650	2991	3023	2786	2664	2806	2686	27257
	(20.4)	*(20.0)*	*(21.2)*	*(21.4)*	*(22.8)*	*(22.5)*	*(21.7)*	*(20.7)*	*(21.8)*	*(21.1)*	*(21.4)*
Heartland	631	540	589	560	598	614	589	627	594	648	5989
	(5.0)	*(4.4)*	*(4.8)*	*(4.5)*	*(4.6)*	*(4.6)*	*(4.6)*	*(4.9)*	*(4.6)*	*(5.1)*	*(4.7)*
Kelsey Trail	623	589	569	589	618	615	613	638	657	620	6130
	(4.9)	*(4.8)*	*(4.6)*	*(4.8)*	*(4.7)*	*(4.6)*	*(4.8)*	*(4.9)*	*(5.1)*	*(4.9)*	*(4.8)*
Prince Albert Parkland	1124	1150	1082	1026	1055	1044	1014	1047	1030	1162	10732
	(8.8)	*(9.4)*	*(8.8)*	*(8.3)*	*(8.0)*	*(7.8)*	*(7.9)*	*(8.1)*	*(8.0)*	*(9.1)*	*(8.4)*
Prairie North	1054	1003	901	900	1073	994	901	910	843	914	9494
	(8.3)	*(8.2)*	*(7.3)*	*(7.3)*	*(8.2)*	*(7.2)*	*(7.0)*	*(7.1)*	*(6.6)*	*(7.2)*	*(7.5)*
Mamawetan Churchill River	355	400	499	469	340	296	327	300	309	477	3773
	(2.8)	*(3.3)*	*(4.1)*	*(3.8)*	*(2.6)*	*(2.2)*	*(2.5)*	*(2.3)*	*(2.4)*	*(3.8)*	*(3.0)*
Keewatin Yatthé	208	211	243	215	214	169	177	150	159	152	1898
	(1.6)	*(1.7)*	*(2.0)*	*(1.7)*	*(1.6)*	*(1.3)*	*(1.4)*	*(1.2)*	*(1.2)*	*(1.2)*	*(1.5)*
Athabasca	39	47	57	44	44	44	37	41	75	80	508
	(0.3)	*(0.4)*	*(0.5)*	*(0.4)*	*(0.3)*	*(0.3)*	*(0.3)*	*(0.3)*	*(0.6)*	*(0.6)*	*(0.4)*
Overall for Saskatchewan	**12742**	**12218**	**12273**	**12360**	**13121**	**13414**	**12844**	**12891**	**12845**	**12710**	**127418**
	(100)	***(100)***	***(100)***	***(100)***	***(100)***	***(100)***	***(100)***	***(100)***	***(100)***	***(100)***	***(100)***

The figures in the parentheses indicate the percentage breakdowns of injury hospitalizations by health region in each year.

4.4 Age-Sex Adjusted Rates of Injury Hospitalizations, Saskatchewan, 1995/96-2004/05

- The overall provincial age-sex adjusted rate of injury hospitalizations was 125 per 10,000 population in Saskatchewan during 1995/96-2004/05 period. [Figure 4.3]

- The three Northern health regions (Athabasca, Mamawetan Churchill River and Keewatin Yatthé) had the highest rates, exceeding 199 per 10,000 population, followed by Sunrise (159/10,000 population).

- The lowest age-sex adjusted rate during the study period was in Saskatoon Health Region (98 per 10,000 population), followed by Regina Qu'Appelle, Five Hills, Cypress, and Heartland (121/10,000 population in all).

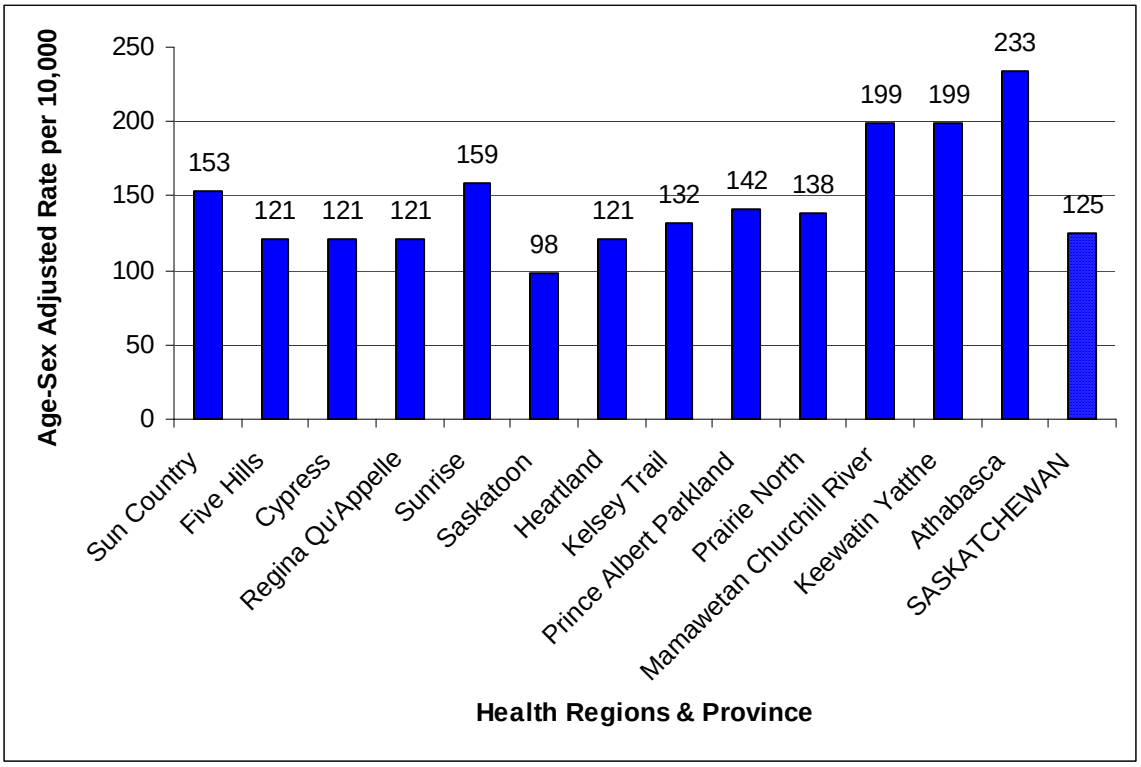


Figure 4.3. Age-sex adjusted rate of injury hospitalizations across health regions and province, Saskatchewan, 1995/96-2004/05.

- The average annual unadjusted rate of injury hospitalizations over the 10-year study period was lowest in the Saskatoon Health Region (95 per 10,000 population), while Athabasca, Mamawetan Churchill River, Sunrise and Keewatin Yatthé had the highest rates, 223, 182, 174 and 171 per 10,000 population respectively. [Table 4.4]

Table 4.4. Average annual unadjusted rates and age-sex specific rates of injury hospitalizations per 10,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**160.5**	**Male**	113.3	157.9	222.3	187.0	120.0	283.1
		Female	97.0	84.5	125.9	75.6	79.7	416.3
Five Hills	**127.6**	**Male**	109.8	156.2	192.1	134.1	97.0	222.1
		Female	85.3	74.5	94.2	57.0	57.9	311.1
Cypress	**127.0**	**Male**	98.5	121.8	172.6	118.5	101.0	222.4
		Female	66.5	73.9	81.7	52.9	64.3	359.4
Regina Qu'Appelle	**118.3**	**Male**	108.1	111.9	157.5	136.5	100.4	200.1
		Female	77.5	70.0	100.9	78.0	72.0	305.5
Sunrise	**174.1**	**Male**	133.7	169.1	218.6	168.0	140.5	288.3
		Female	100.2	77.5	102.1	88.7	100.2	385.4
Saskatoon	**95.2**	**Male**	69.1	93.1	149.4	121.8	86.5	174.4
		Female	53.4	55.9	91.1	55.2	52.9	238.7
Heartland	**128.7**	**Male**	82.0	116.2	193.7	136.5	101.7	228.2
		Female	50.8	66.0	95.2	62.1	62.5	344.2
Kelsey Trail	**137.1**	**Male**	91.6	110.6	171.3	159.5	110.8	223.2
		Female	72.3	79.6	113.0	97.4	88.0	312.5
Prince Albert Parkland	**139.3**	**Male**	122.4	130.8	207.6	189.9	131.3	204.3
		Female	93.3	70.3	95.1	96.4	87.7	310.7
Prairie North	**133.5**	**Male**	116.4	118.4	185.9	161.2	129.4	213.4
		Female	91.6	64.1	125.8	98.5	85.8	313.1
Mamawetan Churchill River	**182.2**	**Male**	145.6	119.4	290.6	268.0	176.2	317.7
		Female	115.8	133.0	188.6	218.2	132.5	337.9
Keewatin Yatthé	**171.1**	**Male**	115.4	133.3	198.3	307.3	188.2	361.0
		Female	104.1	61.3	173.6	165.6	120.1	406.5
Athabasca	**222.6**	**Male**	156.7	165.5	284.6	515.2	231.7	200.0
		Female	142.3	57.1	175.3	206.0	139.0	439.0
SASKATCHEWAN	**124.3**	**Male**	**100.3**	**117.7**	**177.4**	**148.3**	**106.5**	**216.1**
		Female	**76.2**	**69.3**	**103.6**	**77.0**	**71.0**	**310.2**

- Generally, age-sex specific rates of injury hospitalization for males in all age-groups younger than 65 years age was higher than females except that 10-14 year old females in Mamawetan Churchill River had a higher rate (133/10,000 population) than males (119/10,000 population). [Table 4.4]

- Among seniors aged 65 years or older, females had higher rates of injury hospitalizations than males.

4.5 Age-Sex Adjusted Rates of Persons with Injury Hospitalizations, Saskatchewan, 1995/96-2004/05

- The overall age-sex adjusted rate of persons hospitalized for injury was 112 per 10,000 population in Saskatchewan during 1995/96-2004/05 period. [Figure 4.4]

- The three Northern Health Regions (Athabasca, Mamawetan Churchill River and Keewatin Yatthé) recorded the highest rates (206, 171 and 171 per 10,000 population respectively), followed by Sunrise (139/10,000 population).

- The rate was lowest in Saskatoon Health Region (89/10,000 population), followed by Cypress, Heartland and Five Hills (107, 107 and 108 per 10,000 population respectively).

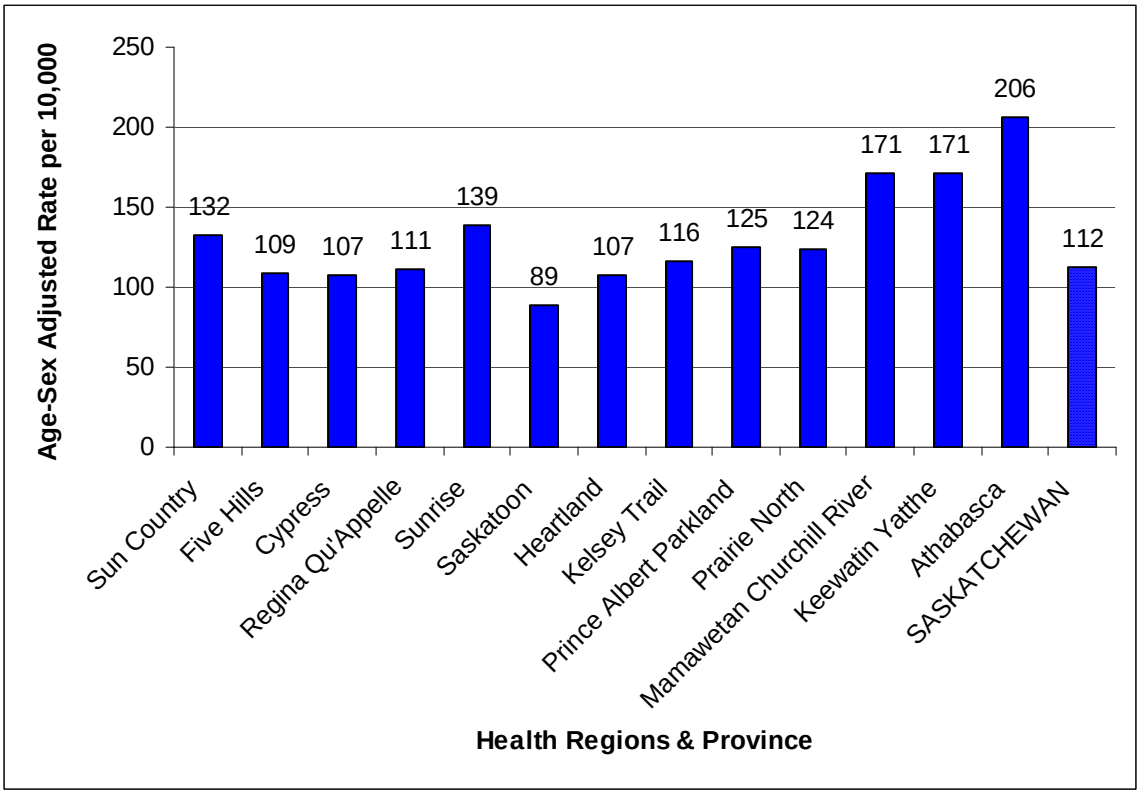


Figure 4.4. Age-sex adjusted rate of persons with injury hospitalizations across health regions and province, Saskatchewan, 1995/96-2004/05.

- Generally, age-sex specific rates of males with injury hospitalization in all age-groups below 65 years were higher than females except that the 10-14 year old females in Mamawetan Churchill River had higher rate (121/10,000 population) than males (109/10,000 population). However, this order was reversed with female seniors aged 65+ years who had higher rates than males. [Table 4.5]

- The average annual unadjusted rate of persons hospitalized for injury over the 10-year period was lowest in Saskatoon Health Regions (86/10,000 population), followed by Regina Qu'Appelle (108/10,000 population) and Five Hills (114/10,000 population).

Table 4.5. Average annual unadjusted rates and age-sex specific rates of persons with injury hospitalizations per 10,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**137.3**	**Male**	104.5	145.2	202.2	167.5	106.6	230.3
		Female	92.8	80.6	116.4	68.1	70.8	317.6
Five Hills	**114.2**	**Male**	104.1	143.5	177.0	119.7	86.2	193.3
		Female	82.6	71.4	86.1	48.9	52.9	271.8
Cypress	**112.2**	**Male**	90.4	109.4	160.4	107.3	90.3	194.6
		Female	63.9	67.8	74.9	48.0	58.2	300.1
Regina Qu'Appelle	**108.5**	**Male**	103.4	108.9	146.9	125.7	90.6	181.9
		Female	74.8	66.1	92.0	69.6	65.1	276.9
Sunrise	**151.3**	**Male**	125.0	159.0	195.5	149.0	124.6	242.3
		Female	94.9	73.2	93.1	78.6	88.8	317.4
Saskatoon	**86.4**	**Male**	66.8	87.4	138.5	109.3	77.7	153.0
		Female	51.7	51.8	83.6	49.6	48.0	214.8
Heartland	**113.3**	**Male**	77.7	108.6	174.6	120.6	89.3	194.8
		Female	49.7	63.3	87.5	56.2	55.5	292.6
Kelsey Trail	**120.6**	**Male**	84.7	102.2	156.1	140.6	96.8	191.6
		Female	68.6	72.5	105.3	86.0	74.7	270.6
Prince Albert Parkland	**123.2**	**Male**	117.0	121.0	186.7	167.9	113.6	176.8
		Female	88.7	63.5	86.2	84.4	76.0	268.0
Prairie North	**120.0**	**Male**	107.8	111.3	164.8	142.9	114.7	191.4
		Female	87.4	62.2	116.6	89.3	77.2	270.5
Mamawetan Churchill River	**159.5**	**Male**	134.4	108.6	259.6	237.2	147.7	262.1
		Female	106.1	121.0	171.5	183.6	111.1	291.2
Keewatin Yatthé	**152.3**	**Male**	109.2	114.5	180.9	276.3	156.8	303.2
		Female	100.0	59.8	163.7	149.9	106.4	325.2
Athabasca	**194.6**	**Male**	126.9	144.8	253.8	427.1	212.4	180.0
		Female	135.0	50.0	149.4	187.3	127.4	390.2
SASKATCHEWAN	**111.2**	**Male**	**94.9**	**110.3**	**162.4**	**133.2**	**94.6**	**187.9**
		Female	**73.0**	**64.9**	**95.0**	**68.5**	**63.5**	**268.2**

4.6 Rates of Persons with Injury Hospitalization by Major External Causes

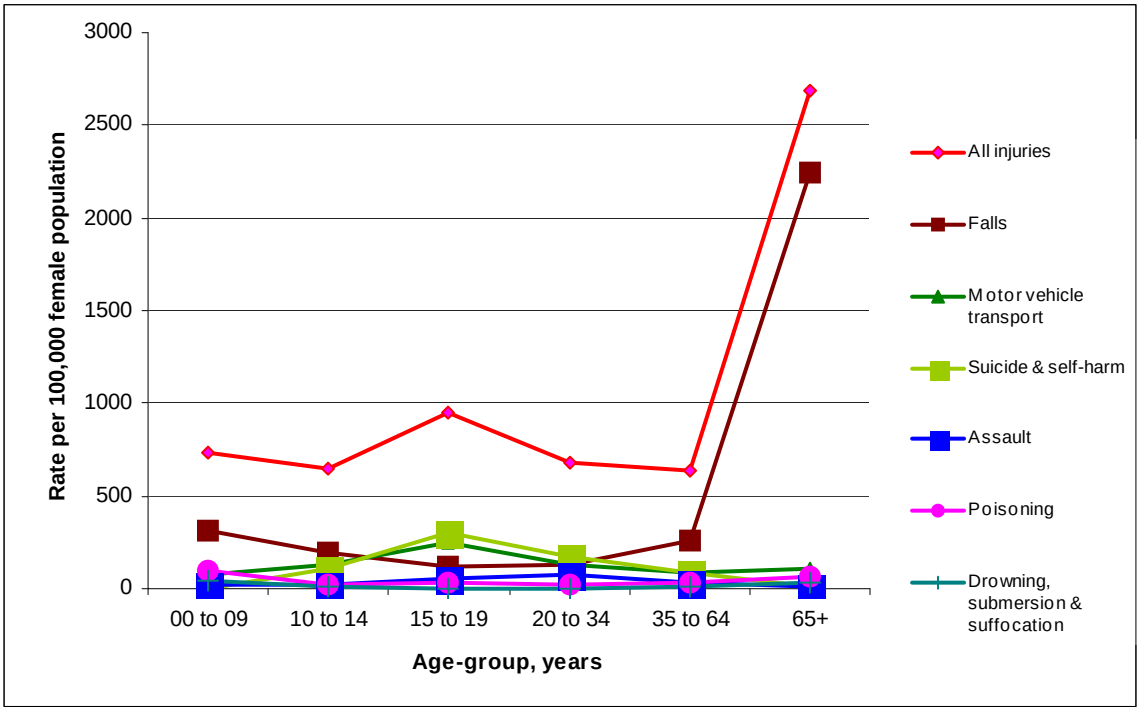


Figure 4.5. Age specific rates of injured female persons hospitalized, by causes of injuries, Saskatchewan, 1995/96-2004/05.

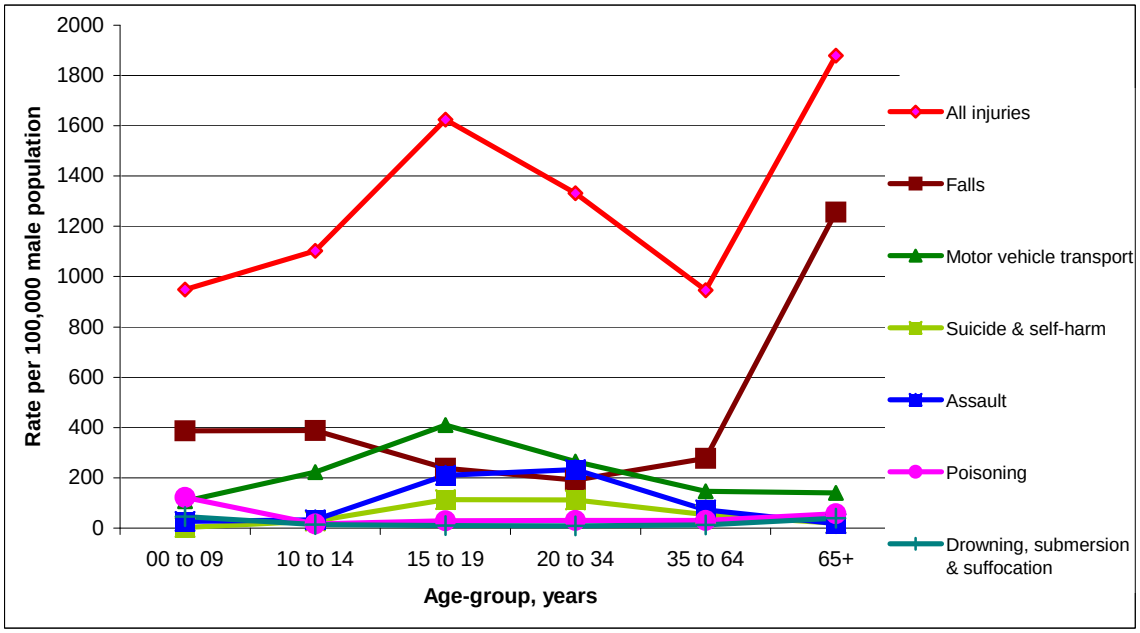


Figure 4.6. Age specific rates of injured male persons hospitalized, by causes of injuries, Saskatchewan, 1995/96-2004/05.

- Seniors aged 65+ years of both sexes had the highest rates of injuries among all age-groups for all injuries, and this could be largely attributed to the corresponding high rates for fall injuries. [Figures 4.5 and 4.6]

- All injury rates in both sexes tended to increase initially until they attained 15-19 year age-groups, followed by declining rates in subsequent age-groups until attaining 35-64 years. These trends were mainly attributed to declining rates for motor vehicle transport collisions, suicide and self-harm and assault. [Figures 4.5 and 4.6]

4.6.1 Age-sex adjusted rates of persons hospitalized with unintentional fall as a cause of injury, Saskatchewan, 1995/96-2004/05

- Figure 4.6.1 indicates the overall age-sex adjusted rate of persons hospitalized with unintentional fall injury was 487 per 100,000 population in Saskatchewan.

- All health regions except Saskatoon, Heartland and Kelsey Trail had higher age-sex adjusted rates than the provincial rate.

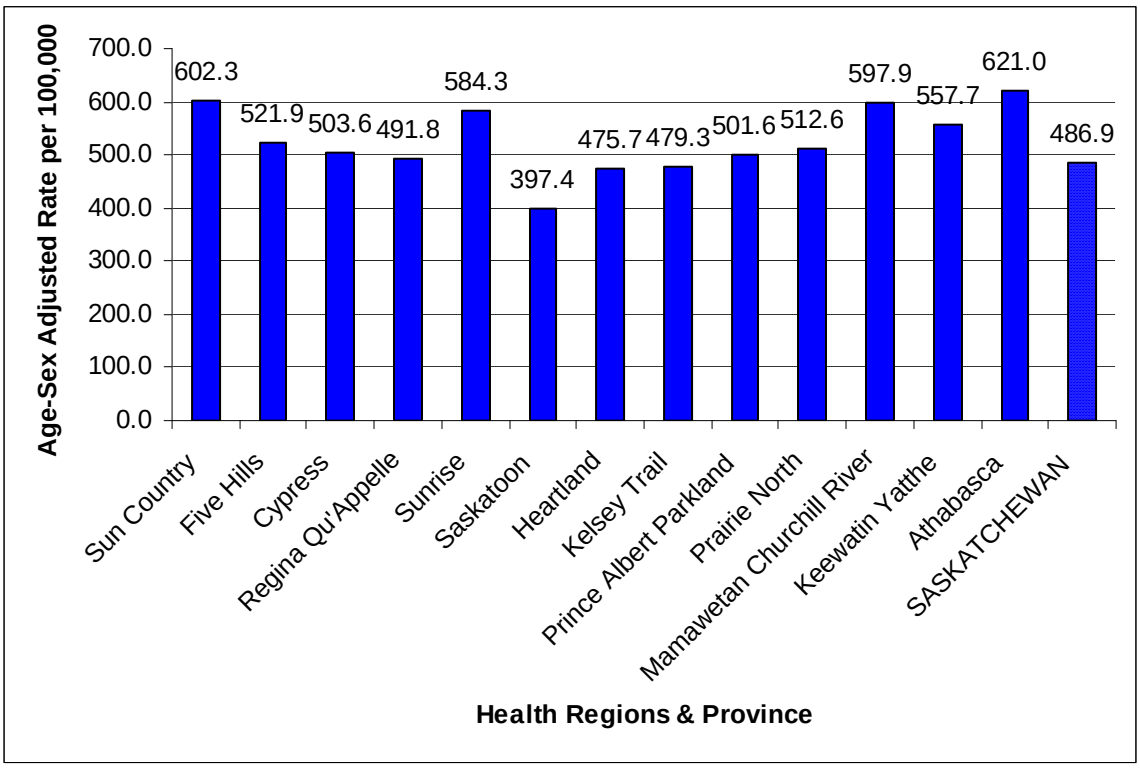


Figure 4.6.1. Age-sex adjusted rate of persons with unintentional falls as a cause of injury hospitalizations across health regions and province, Saskatchewan, 1995/96-2004/05.

- The age-sex specific rates of hospitalized persons with fall injury per 100,000 population across health regions were highest in 65 years or older seniors. Female seniors had higher rates than males. [Table 4.6.1]

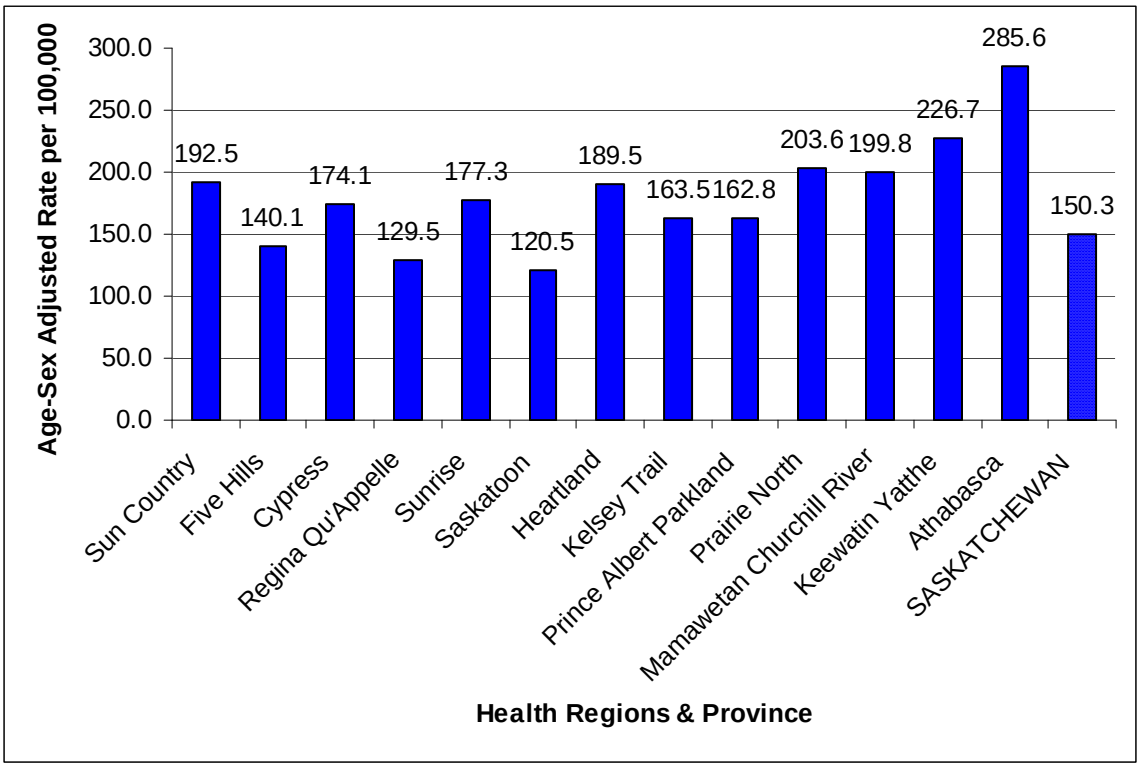
Table 4.6.1. Average annual unadjusted and age-sex specific rates of persons hospitalized with unintentional falls as a cause of injury per 100,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**651.6**	**Male**	494.2	439.8	366.6	236.5	356.2	1544.7
		Female	462.7	264.7	139.6	157.5	312.9	2675.3
Five Hills	**578.4**	**Male**	439.2	462.1	322.1	191.8	298.2	1393.7
		Female	355.7	261.6	109.8	108.5	247.1	2372.2
Cypress	**552.9**	**Male**	360.1	426.9	252.4	167.1	273.1	1293.6
		Female	267.7	215.8	106.3	121.9	242.6	2513.3
Regina Qu'Appelle	**461.1**	**Male**	397.0	383.0	212.8	187.4	269.8	1238.6
		Female	300.8	208.1	119.5	133.2	268.8	2315.4
Sunrise	**707.3**	**Male**	443.9	522.4	312.5	210.3	344.8	1472.9
		Female	399.8	252.4	134.6	189.7	327.4	2588.7
Saskatoon	**367.3**	**Male**	294.7	347.3	228.0	158.7	230.9	1061.1
		Female	251.1	162.9	92.1	92.5	197.3	1823.4
Heartland	**529.5**	**Male**	307.2	280.7	198.3	160.1	260.4	1307.1
		Female	213.0	174.0	95.7	100.8	228.3	2468.8
Kelsey Trail	**523.1**	**Male**	322.4	389.7	199.5	145.1	267.0	1248.9
		Female	314.9	205.2	110.5	133.4	295.2	2211.8
Prince Albert Parkland	**477.8**	**Male**	523.8	450.8	232.1	263.1	293.3	1138.6
		Female	378.8	179.6	103.8	131.5	281.1	2167.3
Prairie North	**456.5**	**Male**	392.8	359.5	215.8	226.7	319.9	1284.8
		Female	383.8	170.0	173.5	162.0	288.1	2240.7
Mamawetan Churchill River	**429.8**	**Male**	568.7	370.1	206.7	243.1	364.6	1569.7
		Female	400.6	276.7	151.0	306.0	461.4	2178.4
Keewatin Yatthé	**403.9**	**Male**	466.0	391.3	191.3	340.6	428.2	1696.8
		Female	405.0	224.2	119.8	259.0	251.6	1991.9
Athabasca	**411.9**	**Male**	298.5	551.7	153.8	305.1	540.5	800.0
		Female	474.5	0.0	259.7	299.6	501.9	2682.9
SASKATCHEWAN	**475.6**	**Male**	**387.0**	**388.8**	**238.3**	**191.0**	**277.4**	**1256.4**
		Female	**318.1**	**198.8**	**115.7**	**129.6**	**256.0**	**2241.2**

4.6.2 Age-sex adjusted rates of persons hospitalized with motor vehicle transport incident as the cause of injury, Saskatchewan, 1995/96-2004/05.

- The age-sex age adjusted rates of residents hospitalized with motor vehicle transport injury in three health regions, Saskatoon, Regina Qu'Appelle and Five Hills Health Regions were lower than the provincial rate (150/100,000 population). [Figure 4.6.2]

- All other regions had rates higher than the provincial rate, with Athabasca Regional Health Authority ranking the highest (286/100,000 population).



- **Figure 4.6.2.** Age-sex adjusted rate of residents hospitalized with injury due to motor vehicle transport across health regions and province, Saskatchewan, 1995/96-2004/05.

The age-group, 15-19 years, in both males and females, had the highest age-sex adjusted rate of persons hospitalized with motor vehicle transport injury, with their corresponding provincial rates, 410 and 245 per 100,000 population, respectively.

- The 20-34 year age-group had the second highest rate of hospitalization due to motor vehicle transport injury in both sexes, with 265 in male and 131 in female per 100,000 population.

Table 4.6.2. Average annual unadjusted and age-sex specific rates of persons with motor vehicle transport incident as the cause of injury hospitalizations per 100,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**193.0**	**Male**	102.7	333.4	622.3	395.0	163.6	162.5
		Female	91.1	171.5	404.1	120.8	107.0	113.8
Five Hills	**139.6**	**Male**	148.6	245.0	464.4	271.5	130.2	121.5
		Female	86.8	104.0	209.4	94.8	55.0	82.7
Cypress	**173.5**	**Male**	117.6	260.9	499.3	291.8	168.5	157.2
		Female	88.0	170.2	212.5	150.4	114.6	126.3
Regina Qu'Appelle	**130.6**	**Male**	101.2	211.3	312.1	223.8	127.3	112.2
		Female	72.6	119.8	206.2	110.2	75.6	94.1
Sunrise	**175.6**	**Male**	119.2	277.2	458.0	333.9	177.6	188.5
		Female	53.5	145.9	288.1	148.6	107.7	105.6
Saskatoon	**120.6**	**Male**	80.3	161.9	312.1	193.5	114.5	138.3
		Female	45.0	99.5	239.4	97.6	69.0	112.6
Heartland	**192.8**	**Male**	89.1	291.3	666.2	352.1	182.0	146.3
		Female	60.7	147.4	325.1	188.0	100.5	118.5
Kelsey Trail	**163.9**	**Male**	90.5	193.8	427.0	352.2	155.4	161.7
		Female	78.0	136.7	214.1	143.4	105.5	99.0
Prince Albert Parkland	**164.1**	**Male**	120.2	225.7	433.1	314.8	181.2	124.5
		Female	75.6	108.2	167.5	163.8	86.9	117.2
Prairie North	**208.4**	**Male**	136.1	301.1	483.1	331.1	223.7	143.6
		Female	100.7	168.5	317.0	198.3	136.4	137.7
Mamawetan Churchill River	**211.7**	**Male**	159.4	208.7	580.7	289.5	212.3	156.5
		Female	111.9	136.5	251.7	301.5	112.5	106.6
Keewatin Yatthé	**240.7**	**Male**	191.0	246.4	469.6	495.4	199.0	144.4
		Female	107.4	164.4	259.5	282.6	136.6	203.3
Athabasca	**328.7**	**Male**	186.6	275.9	923.1	678.0	347.5	200.0
		Female	255.5	285.7	259.7	187.3	154.4	0.0
SASKATCHEWAN	**151.7**	**Male**	**106.9**	**223.3**	**409.7**	**264.8**	**146.9**	**140.2**
		Female	**71.6**	**126.6**	**244.7**	**130.5**	**86.0**	**107.9**

4.6.3 Rates of persons hospitalized with injuries due to suicide attempt and self inflicted harm- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates, by Health Regions in Saskatchewan

- As Figure 4.6.3 shows, the highest age-sex adjusted rate of persons hospitalized with injury due to suicide attempt and self-inflicted harmful injury was observed in Mamawetan Churchill River Health Region (180/100,000 population), followed by Keewatin Yatthé (149/100,000 population) and Prince Albert Parkland (108/100,000 population).

- The provincial rate was 76 per 100,000 population, while the health regions that had the lowest age-sex adjusted rates in descending order were Saskatoon, Sun Country, Five Hills, Sunrise, Cypress and Heartland.

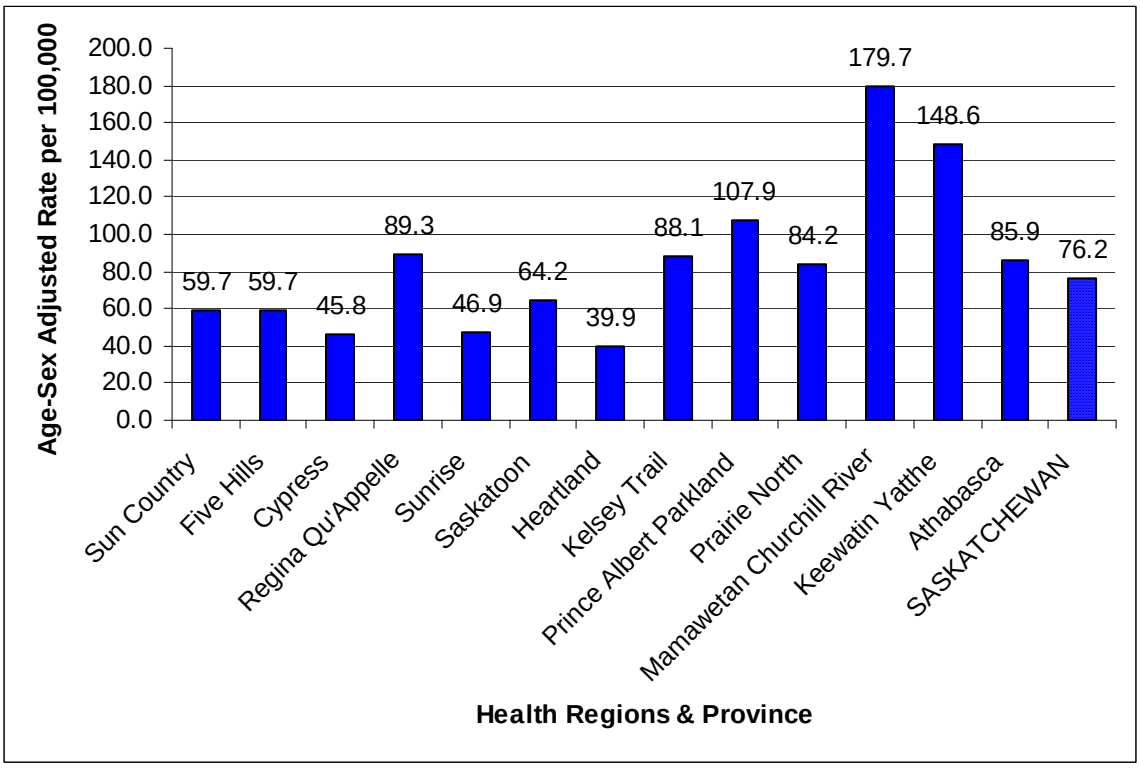


Figure 4.6.3. Age-sex adjusted rate of persons hospitalized with injuries due to suicide attempt and self inflicted harm across health regions and province, Saskatchewan, 1995/96-2004/05.

- Table 4.6.3 displays the age-specific rates of persons hospitalized with injuries due to suicide attempt and self-inflicted harmful injury. These rates were highest either in the 15-19 or 20-34 year age-groups across all health regions and both sexes.

Table 4.6.3. Average annual unadjusted and age-sex specific rates of persons hospitalized with injuries due to suicide attempt and self inflicted harm per 100,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**58.0**	**Male**	0.0	9.6	89.7	64.9	30.9	13.1
		Female	0.0	89.0	303.0	156.8	65.9	10.8
Five Hills	**59.3**	**Male**	0.0	14.1	65.9	103.0	51.8	28.6
		Female	0.0	72.1	238.1	131.9	53.4	13.4
Cypress	**45.3**	**Male**	0.0	5.9	76.0	64.9	37.9	19.3
		Female	0.0	66.9	215.3	77.8	50.3	6.5
Regina Qu'Appelle	**92.3**	**Male**	3.8	24.6	144.2	143.5	68.4	21.3
		Female	3.9	133.9	327.0	180.6	99.5	15.4
Sunrise	**44.9**	**Male**	0.0	15.2	57.6	86.2	27.3	20.3
		Female	3.3	45.3	166.8	104.7	57.3	8.1
Saskatoon	**66.1**	**Male**	1.0	28.2	94.9	90.0	49.5	21.2
		Female	2.7	89.4	251.2	120.3	76.8	15.1
Heartland	**39.4**	**Male**	0.0	5.5	52.7	42.2	29.6	13.2
		Female	0.0	49.4	191.7	86.6	49.9	6.4
Kelsey Trail	**84.2**	**Male**	0.0	42.5	85.2	88.3	40.9	10.9
		Female	0.0	130.8	471.4	249.6	103.2	6.8
Prince Albert Parkland	**108.6**	**Male**	12.0	69.0	187.6	160.4	66.2	27.6
		Female	7.0	156.4	319.3	251.6	128.9	15.9
Prairie North	**86.4**	**Male**	5.1	12.4	113.1	108.5	61.8	2.7
		Female	0.0	91.0	314.5	222.1	102.3	17.8
Mamawetan Churchill River	**198.3**	**Male**	4.0	92.3	254.7	220.0	81.8	0.0
		Female	12.2	379.1	719.3	544.9	191.3	0.0
Keewatin Yatthé	**158.7**	**Male**	7.6	29.0	191.3	270.9	102.5	0.0
		Female	0.0	104.6	638.7	400.3	136.6	40.7
Athabasca	**96.4**	**Male**	0.0	0.0	76.9	135.6	38.6	0.0
		Female	0.0	0.0	259.7	337.1	115.8	0.0
SASKATCHEWAN	**77.3**	**Male**	**2.9**	**27.7**	**112.8**	**111.4**	**53.1**	**19.1**
		Female	**2.9**	**109.8**	**297.8**	**169.7**	**85.8**	**12.9**

4.6.4 Rates of persons hospitalized with injuries due to assault- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates, by Health Region in Saskatchewan

- The highest age-sex adjusted rate of persons hospitalized with injuries due to assault was observed in Athabasca Regional Health Authority (400/100,000 population), followed by Mamawetan Churchill River (266/100,000) and Keewatin Yatthé (256/100,000 population). [Figure 4.6.4]

- The health regions with rates lower than the provincial rate of 65 per 100,000 population were Kelsey Trail, Sunrise, Saskatoon, Sun Country, Five Hills, Heartland and Cypress. These health regions had the lowest rates in descending order.

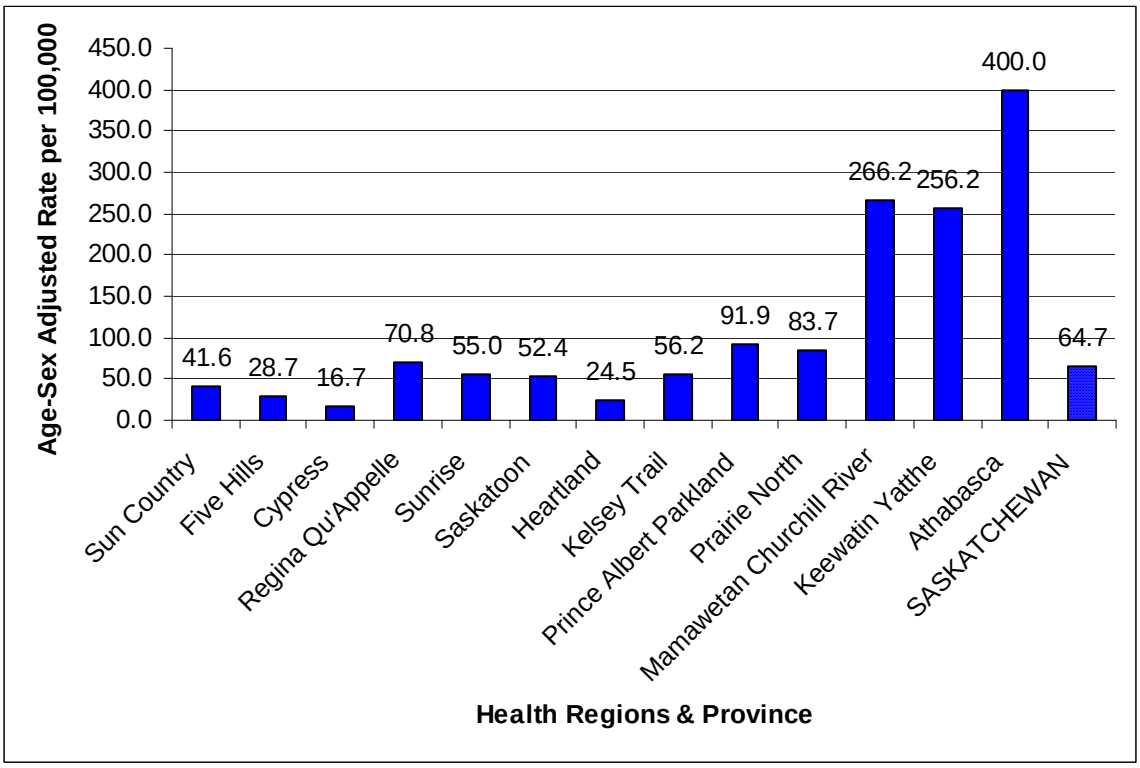


Figure 4.6.4. Age-sex adjusted rate of persons hospitalized with injuries due to assault across health regions and province, Saskatchewan, 1995/96-2004/05.

- Overall, the age-specific rates of both sexes hospitalized with injuries due to assault were highest in the 20-34 year age-group across most health regions. The exceptions were that the age-group 15 - 19 year males were hospitalized with most frequent injuries in Sun Country, Five Hills, Cypress and Sunrise, and females in Five Hills and Cypress. [Table 4.6.4]

Table 4.6.4. Average annual unadjusted and age-sex specific rates of persons hospitalized with injuries due to assault per 100,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age Groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**41.4**	**Male**	5.7	33.7	193.6	142.9	39.6	8.5
		Female	21.0	19.8	27.9	42.0	15.7	9.0
Five Hills	**28.3**	**Male**	25.3	33.0	135.3	103.4	31.1	2.2
		Female	0.0	10.3	27.2	16.1	7.6	3.4
Cypress	**16.4**	**Male**	0.0	11.9	103.1	57.4	16.1	8.3
		Female	0.0	6.1	11.2	10.4	8.2	0.0
Regina Qu'Appelle	**74.4**	**Male**	38.2	48.6	198.6	239.4	79.3	20.2
		Female	34.2	28.0	55.6	89.3	29.4	9.6
Sunrise	**51.1**	**Male**	38.7	53.8	208.2	169.6	44.7	16.9
		Female	36.8	25.1	49.4	75.4	20.9	5.4
Saskatoon	**55.5**	**Male**	15.6	24.2	186.0	193.9	69.0	12.5
		Female	11.0	11.6	41.4	48.8	19.2	4.2
Heartland	**25.0**	**Male**	7.3	5.5	89.9	102.4	23.9	15.8
		Female	0.0	22.0	13.8	16.3	8.5	8.5
Kelsey Trail	**55.4**	**Male**	10.8	30.3	207.7	194.0	50.3	19.1
		Female	7.1	23.8	29.6	84.5	32.7	9.0
Prince Albert Parkland	**93.6**	**Male**	33.6	40.8	293.8	344.1	106.6	25.5
		Female	22.8	12.9	61.7	103.7	42.7	9.8
Prairie North	**87.8**	**Male**	35.5	27.8	259.9	277.6	88.7	18.6
		Female	27.0	13.0	86.0	96.4	52.4	22.3
Mamawetan Churchill River	**273.1**	**Male**	73.7	35.8	654.0	875.9	351.7	201.2
		Female	32.6	51.2	271.9	329.6	90.3	137.3
Keewatin Yatthé	**251.5**	**Male**	30.6	58.0	469.6	828.2	331.7	180.5
		Female	16.5	0.0	199.6	251.2	215.7	122.0
Athabasca	**438.2**	**Male**	74.6	0.0	538.5	1762.7	501.9	200.0
		Female	0.0	214.3	194.8	486.9	231.7	0.0
SASKATCHEWAN	**66.9**	**Male**	**26.5**	**33.7**	**210.5**	**233.5**	**72.3**	**17.4**
		Female	**19.7**	**19.2**	**53.8**	**74.5**	**27.2**	**8.5**

4.6.5 Rates of persons hospitalized with poisoning as the cause of injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates, by Health Region in Saskatchewan.

- The highest age-sex adjusted rate of persons with poisoning as the cause of hospitalization was observed in Athabasca Regional Health Authority (78 per 100,000 population), followed by Mamawetan Churchill River and Sunrise health regions. [Figure 4.6.5]

- Prince Albert Parkland, Heartland and Saskatoon health regions had lower rates than the provincial rate of 44 per 100,000 population.

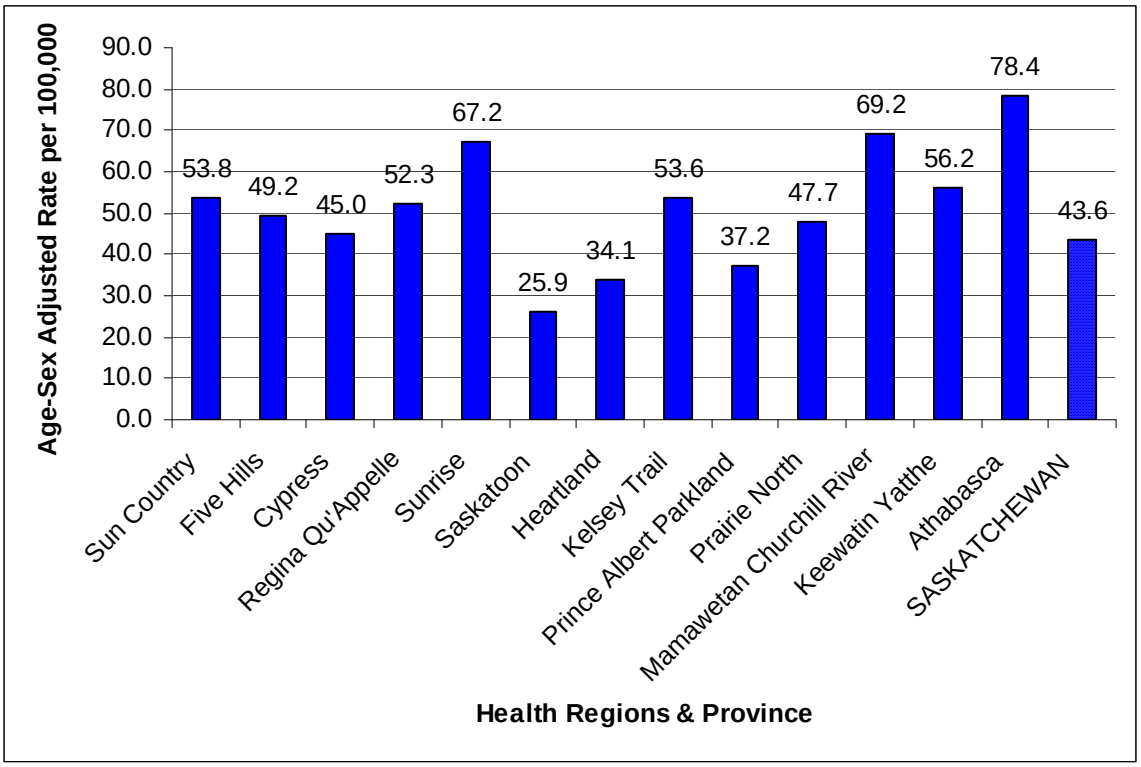


Figure 4.6.5. Age-sex adjusted rate of persons with poisoning as a cause of injury hospitalizations across health regions and province, Saskatchewan, 1995/96-2004/05.

- Table 4.6.5 displays that the age-sex specific rates of both males and females hospitalized with poisoning as the cause of hospitalization were generally higher in children, 0-9 year olds, compared to other age-groups. This was the case in the most health regions except in Heartland, Kelsey Trail, Keewatin Yatthé and Athabasca, where the females of 65 years and older had the highest rates of hospitalization due to poisoning.

Table 4.6.5. Average annual unadjusted and age-sex specific rates of persons with poisoning as the cause of injury hospitalizations per 100,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age Groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**54.5**	**Male**	145.0	19.2	38.9	66.6	37.0	74.0
		Female	130.8	9.9	23.3	16.8	26.1	88.2
Five Hills	**46.9**	**Male**	170.7	56.6	37.1	15.8	29.2	46.3
		Female	172.4	30.9	29.5	12.1	21.9	60.5
Cypress	**45.0**	**Male**	128.6	11.9	27.1	34.9	34.5	57.9
		Female	99.4	18.2	8.4	15.6	29.2	80.6
Regina Qu'Appelle	**51.1**	**Male**	159.4	15.0	32.2	36.5	35.6	67.8
		Female	113.1	19.0	37.1	37.8	35.5	63.5
Sunrise	**66.1**	**Male**	209.5	30.4	51.5	41.1	48.4	86.4
		Female	137.1	30.2	44.9	37.7	49.3	78.5
Saskatoon	**25.4**	**Male**	57.6	8.2	26.7	20.4	22.9	35.6
		Female	57.3	13.5	26.0	10.6	16.2	33.4
Heartland	**35.0**	**Male**	68.5	16.4	13.5	21.1	28.5	46.8
		Female	53.1	11.0	25.4	19.1	18.0	93.0
Kelsey Trail	**54.6**	**Male**	100.7	18.2	26.6	46.4	39.4	73.6
		Female	73.0	29.7	35.5	43.4	44.6	103.8
Prince Albert Parkland	**38.7**	**Male**	143.7	5.9	8.1	34.5	19.5	53.4
		Female	110.8	6.4	25.7	18.0	22.1	26.6
Prairie North	**49.1**	**Male**	143.5	18.5	34.2	26.8	29.3	61.2
		Female	97.1	13.0	39.3	41.9	33.0	64.6
Mamawetan Churchill River	**78.4**	**Male**	165.6	32.3	68.9	28.4	36.8	44.7
		Female	148.7	76.8	74.9	84.3	48.0	106.6
Keewatin Yatthé	**43.3**	**Male**	91.7	0.0	0.0	7.7	18.1	72.2
		Female	132.2	0.0	39.9	0.0	35.9	284.6
Athabasca	**74.5**	**Male**	149.3	0.0	76.9	67.8	38.6	0.0
		Female	146.0	0.0	0.0	74.9	77.2	243.9
SASKATCHEWAN	**43.4**	**Male**	**122.1**	**16.1**	**29.9**	**30.9**	**30.6**	**57.5**
		Female	**98.1**	**18.2**	**31.6**	**25.3**	**27.9**	**61.9**

4.6.6 Rates of persons hospitalized with drowning, submersion and suffocation as causes of injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates across health regions and province, Saskatchewan, 1995/96-2004/05

- The Athabasca Regional Health Authority had the highest age-sex adjusted rate at 78.4 per 100,000 population for drowning, submersion and suffocation as the causes of injury hospitalization, followed by Keewatin Yatthé with the rate of 56.2 per 100,000 population. [Figure 4.6.6]

- All health regions except Saskatoon, Heartland, and Prince Albert Parkland, with the rates 25.9, 34.1 and 37.2 respectively per 100,000 population, had higher rates than the provincial rates (43.6 per 100,000 population).

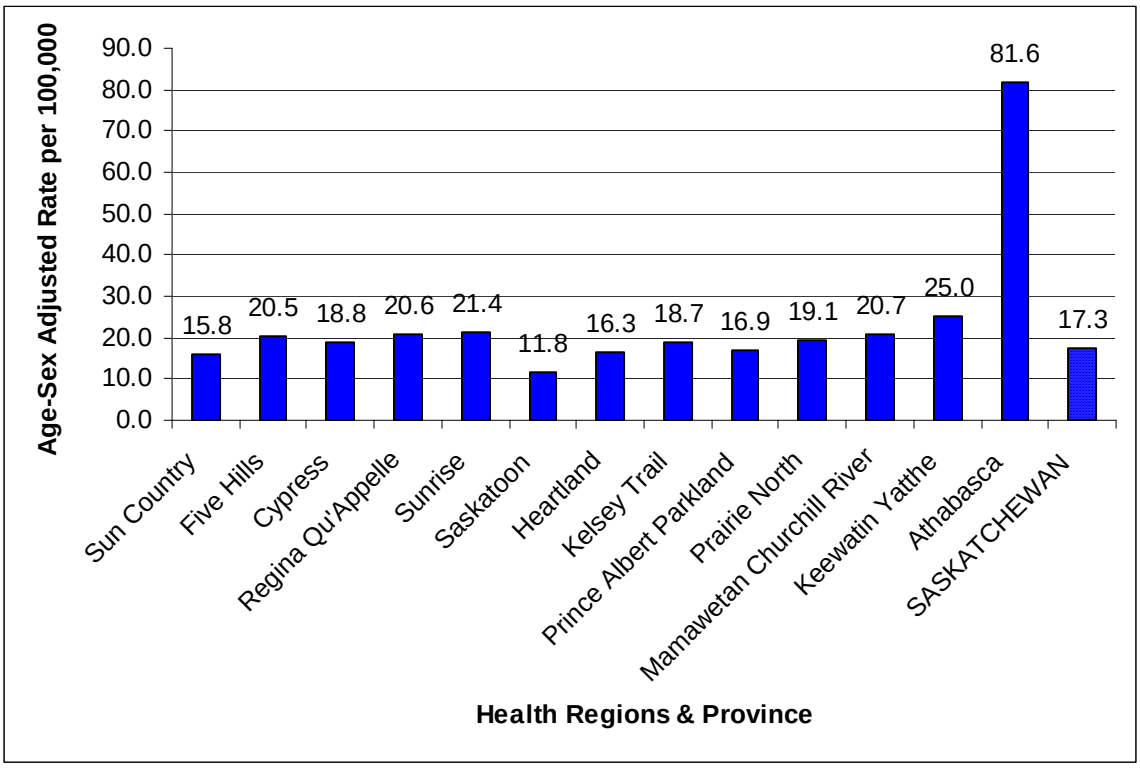


Figure 4.6.6. Age-sex adjusted rate of persons with drowning, submersion and suffocation as the causes of injury hospitalizations across health regions and province, Saskatchewan, 1995/96-2004/05.

- Overall, 0-9 year old children and senior residents (65 years and older) have the highest rates of persons with drowning, submersion and suffocation as the causes of injury hospitalization across health regions. However, the rates by sex and age-groups varied across the health regions. [Table 4.6.6]

Table 4.6.6. Average annual unadjusted and age-sex specific rates of persons with drowning, submersion and suffocation as a cause of injury hospitalizations per 100,000 population across health regions and province, Saskatchewan, 1995/96-2004/05.

Health Regions and Province	Average Annual Un-adjusted Rate	Sex	Age Groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
Sun Country	**16.1**	**Male**	42.8	14.4	9.0	14.9	6.7	39.6
		Female	47.9	0.0	0.0	6.3	5.7	23.4
Five Hills	**20.3**	**Male**	44.8	23.6	8.2	9.9	16.5	41.9
		Female	56.4	10.3	4.5	10.0	10.5	26.9
Cypress	**19.3**	**Male**	47.8	11.9	5.4	12.5	19.5	57.9
		Female	45.9	6.1	0.0	0.0	4.7	26.1
Regina Qu'Appelle	**19.7**	**Male**	57.6	17.1	13.2	12.3	15.0	43.3
		Female	50.7	10.1	2.2	4.8	6.5	38.2
Sunrise	**21.6**	**Male**	64.5	20.3	8.9	5.9	17.4	57.6
		Female	72.3	5.0	0.0	4.2	6.4	21.0
Saskatoon	**11.4**	**Male**	36.5	8.2	8.2	6.8	7.6	27.3
		Female	29.1	4.8	3.8	2.0	5.3	17.4
Heartland	**16.5**	**Male**	39.5	10.9	9.6	2.3	13.7	26.3
		Female	38.0	22.0	15.3	2.7	8.5	29.7
Kelsey Trail	**18.9**	**Male**	61.7	6.1	5.3	9.8	11.7	43.7
		Female	53.2	0.0	5.9	5.4	15.1	12.3
Prince Albert Parkland	**17.2**	**Male**	45.8	14.7	6.3	9.3	13.5	26.7
		Female	49.1	6.4	0.0	4.1	8.7	27.2
Prairie North	**18.5**	**Male**	32.1	6.2	15.3	10.7	13.8	47.9
		Female	50.3	9.8	0.0	1.4	6.8	50.8
Mamawetan Churchill River	**26.1**	**Male**	55.9	32.3	9.8	8.1	13.4	22.4
		Female	89.8	8.5	10.1	0.0	11.1	21.3
Keewatin Yatthé	**22.5**	**Male**	45.8	14.5	0.0	7.7	12.1	72.2
		Female	82.6	0.0	0.0	0.0	7.2	81.3
Athabasca	**35.1**	**Male**	37.3	69.0	0.0	0.0	38.6	200.0
		Female	0.0	0.0	0.0	0.0	77.2	487.8
SASKATCHEWAN	**17.0**	**Male**	**46.2**	**13.6**	**9.6**	**9.3**	**12.5**	**39.4**
		Female	**46.9**	**7.3**	**3.0**	**3.5**	**7.0**	**27.3**

4.7 Trends in Rates of Major External Causes of Injury Hospitalizations

- Generally, the age-sex adjusted rates of injury hospitalization of persons by various categories of their causes showed declining trends over the 10-year study period, 1994/95 to 2004/05. There were, however, some years showing increases for some causes. [Figure 4.7]

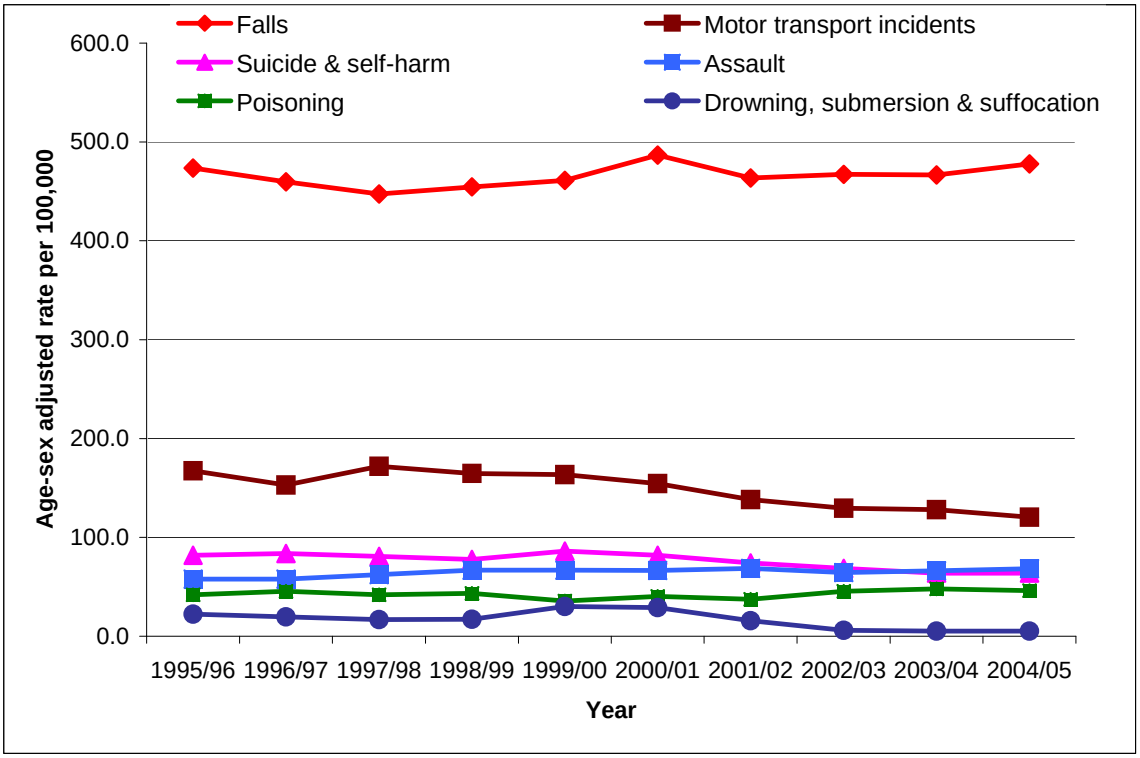


Figure 4.7. The age-sex adjusted rates of injured persons hospitalized per 100,000 population, by major causes of injury, Saskatchewan, 1995/96-2004/05.

4.7.1 Trends in rates of persons hospitalized with unintentional fall injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan through the years, 1995/96-2004/05.

- As Figure 4.7.1 depicts, the age-sex adjusted rates of persons with unintentional fall injury hospitalization tended to increase from 1995/96 to 2004/05.

- The highest age-sex adjusted rate, 487 per 100,000 population was observed in 2000/02, followed by 478/100,000 population in 2004/05, while the lowest rate of 447/100,000 population was in 1997/98.

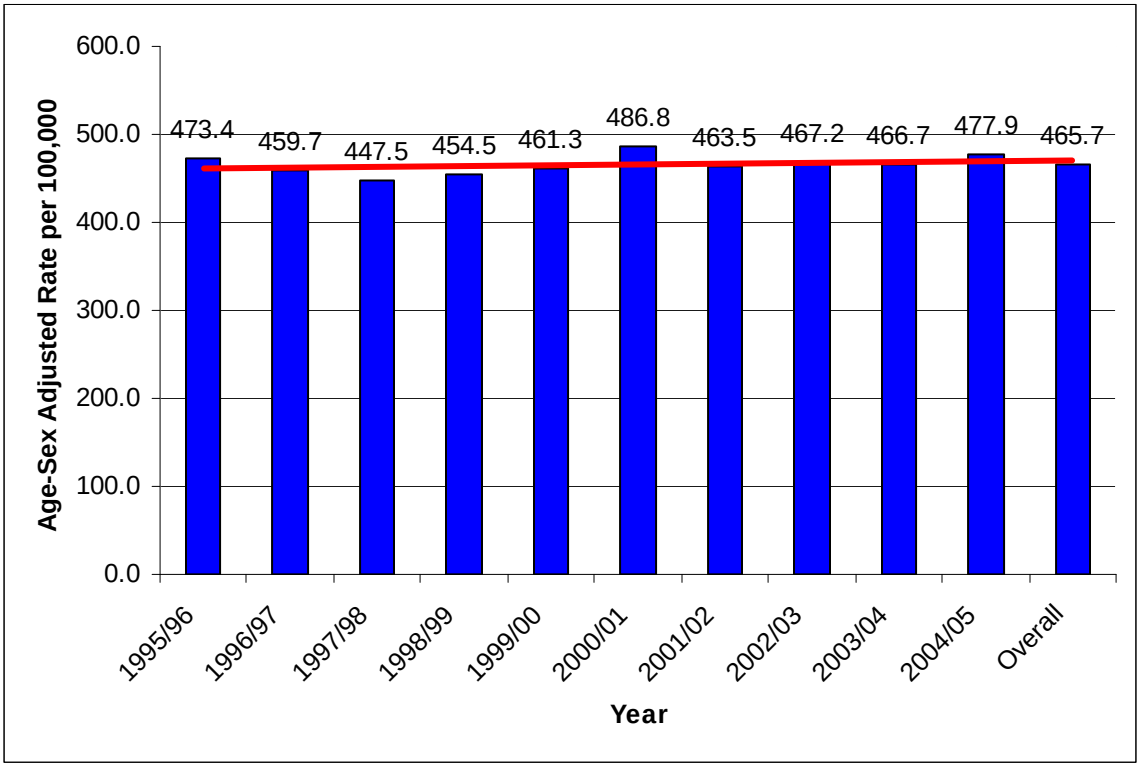


Figure 4.7.1. Age-sex adjusted rates of persons with unintentional falls as the cause of injury hospitalizations, Saskatchewan, 1995/96-2004/05.

- Senior residents aged 65 years or older of both sexes had the highest age-specific rates of fall injury hospitalization, These groups showed a small increase in rates across years from 1995/96 to 2003/04. [Table 4.7.1]

- Children in the 0-9 years age-group in both sexes had the second highest rates of unintentional fall injury hospitalization and only had minimally declining trends in the rates, especially towards the last three years until 2004/05.

Table 4.7.1. Trends in average annual unadjusted and age-sex specific rates of persons with unintentional falls as the cause of injury hospitalizations per 100,000 population, Saskatchewan, 1995/96-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
1995/96	**474.0**	**Male**	370.5	343.4	226.9	189.1	300.4	1198.9
		Female	290.7	198.0	104.7	127.3	298.0	2056.3
1996/97	**463.8**	**Male**	377.5	319.8	220.6	172.7	283.1	1218.3
		Female	308.2	160.6	81.0	128.0	252.0	2058.9
1997/98	**451.4**	**Male**	412.1	380.6	188.1	170.9	274.6	1125.2
		Female	313.0	139.3	109.5	125.4	250.3	1966.5
1998/99	**460.6**	**Male**	413.0	316.5	222.9	192.8	269.4	1132.0
		Female	324.3	220.6	138.5	108.7	260.1	1982.3
1999/00	**467.0**	**Male**	353.8	443.5	257.6	212.5	277.4	1093.5
		Female	316.7	206.1	136.8	155.3	250.2	2007.8
2000/01	**492.4**	**Male**	373.8	433.1	311.3	234.8	290.4	1214.7
		Female	360.2	220.6	126.3	136.3	262.8	2082.6
2001/02	**469.0**	**Male**	406.6	476.7	277.0	199.7	280.8	1132.3
		Female	324.1	243.9	95.9	117.2	240.0	2002.6
2002/03	**476.0**	**Male**	362.5	412.4	251.3	173.3	274.7	1186.0
		Female	313.9	179.9	129.6	121.2	251.6	2116.3
2003/04	**472.6**	**Male**	353.3	403.1	240.0	190.5	277.7	1223.6
		Female	296.6	229.6	121.0	114.4	252.2	2073.4
2004/05	**480.0**	**Male**	367.1	373.0	220.4	155.1	284.5	1302.4
		Female	275.0	201.4	129.2	138.9	281.4	2115.7

4.7.2 Trends in rates of persons hospitalized with motor vehicle transport incidents as the cause of injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan through the years, 1995/96-2004/05.

- A declining trend of the age-sex adjusted rates of persons with motor vehicle transport injury hospitalization from 168 in 1995/96 to 120 in 2004/05 per 100,000 population was observed. [Figure 4.7.2]

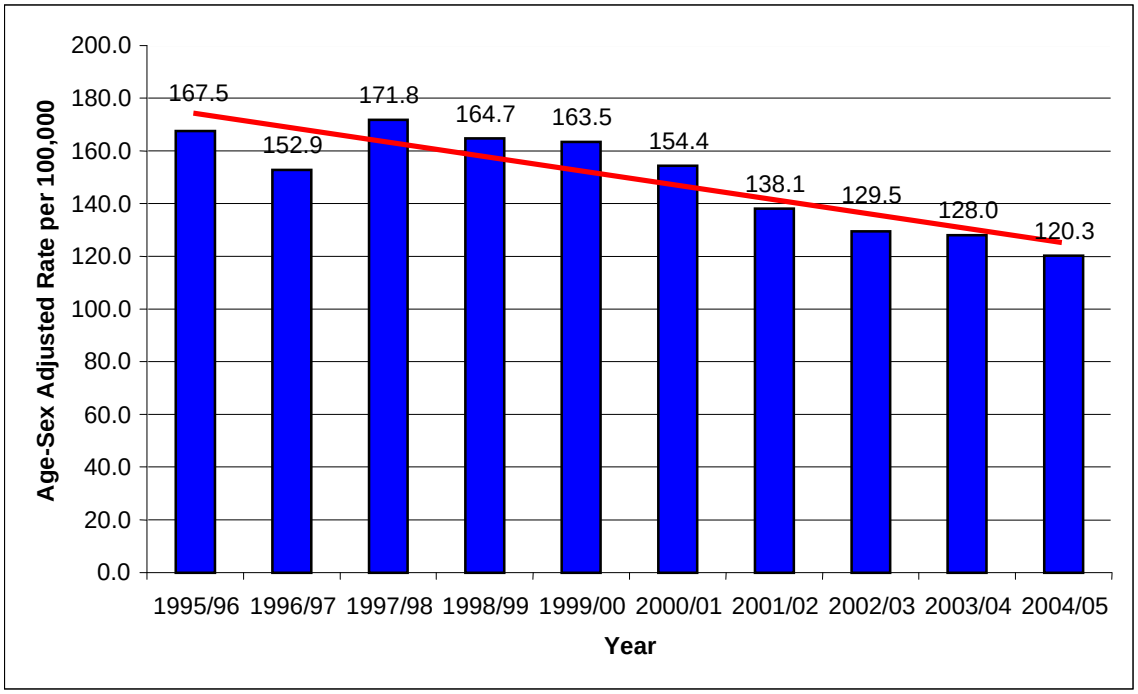


Figure 4.7.2. Age-sex adjusted rates of persons with motor vehicle transport incidents as the cause of injury hospitalizations, Saskatchewan, 1995/96-2004/05.

Table 4.7.2. Trends in average annual unadjusted and age-sex specific rates of persons with motor vehicle transport incidents as the cause of injury hospitalizations per 100,000 population, Saskatchewan, 1995/96-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
1995/96	**168.6**	**Male**	131.7	238.5	451.4	274.5	158.1	160.4
		Female	109.5	175.4	300.9	132.9	101.8	97.9
1996/97	**153.4**	**Male**	121.0	254.9	431.4	243.0	138.5	135.9
		Female	73.3	143.0	263.8	130.9	96.5	105.3
1997/98	**173.1**	**Male**	122.3	277.0	479.8	305.1	157.5	150.4
		Female	98.8	141.9	275.1	154.4	94.1	128.2
1998/99	**165.6**	**Male**	98.5	268.2	445.8	297.1	167.2	128.9
		Female	72.2	152.2	314.8	152.4	87.8	103.0
1999/00	**164.1**	**Male**	129.7	257.3	423.7	278.7	167.8	144.2
		Female	88.4	157.1	223.0	120.2	102.7	116.0
2000/01	**155.3**	**Male**	118.8	287.1	450.2	273.3	153.1	112.9
		Female	72.6	122.0	252.6	122.2	83.2	108.1
2001/02	**139.0**	**Male**	89.0	212.1	356.5	243.8	143.2	122.8
		Female	63.6	70.8	247.2	133.3	87.2	78.2
2002/03	**130.3**	**Male**	73.7	145.1	396.6	238.0	147.9	120.9
		Female	33.6	80.6	197.0	104.9	78.6	90.5
2003/04	**128.9**	**Male**	83.7	144.7	386.9	220.4	127.7	132.4
		Female	32.2	106.6	236.9	117.4	75.9	87.2
2004/05	**121.8**	**Male**	67.5	135.9	333.1	244.0	130.0	108.8
		Female	44.2	114.7	170.5	110.4	67.4	71.8

- In general, the age-sex specific rates of persons hospitalized with motor vehicle transport injuries followed a declining trend across years from 1995/96 to 2004/05. [Table 4.7.2]

4.7.3 Trends in rates of persons hospitalized with suicide attempts and self-harm as the cause of injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan through the years, 1995/96-2004/05.

- Overall, the age-sex adjusted rates of persons with suicide attempts and self-harm injury hospitalizations had a declining trend from 1995/96 to 2004/05. [Figure 4.7.3]

- The highest age-sex adjusted rate of 86 per 100,000 population was observed in 1999/00, while the rates were also slightly elevated in 1996/97 and 2000/01 from the beginning year, 1995/96.

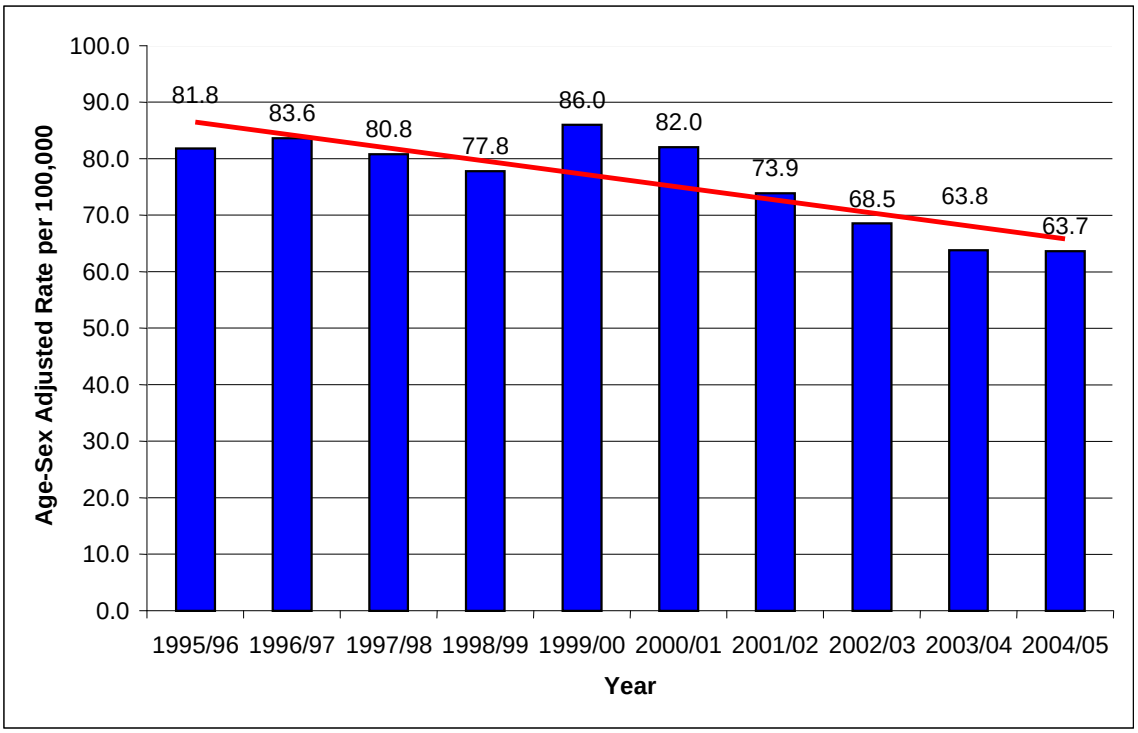


Figure 4.7.3. Age-sex adjusted rates of persons with suicide attempt and self-harm as the cause of injury hospitalizations, Saskatchewan, 1995/96-2004/05.

- Overall, the age-sex specific rates of persons hospitalized with suicide attempt and self-inflicted injury followed a declining trend from 1995/96 to 2004/05. [Table 4.7.3]

- The age-groups, 15-19 and 20-34 years showed declining rates from 1995/96 to 2004/05 in both sexes, with some fluctuations in the intervening years.

Table 4.7.3. Trends in average annual unadjusted and age-sex specific rates of persons with suicide and self-harm as the cause of injury hospitalizations per 100,000 population in Saskatchewan through the years, 1995/96-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
1995/96	**81.9**	**Male**	2.6	26.2	140.6	121.8	48.0	19.0
		Female	4.1	155.4	387.3	173.1	82.8	6.7
1996/97	**83.7**	**Male**	3.9	28.9	117.7	127.2	50.5	13.1
		Female	6.9	138.0	357.9	194.4	86.8	16.6
1997/98	**80.8**	**Male**	4.0	50.6	91.6	98.6	51.2	17.4
		Female	5.6	149.5	349.0	202.6	82.5	12.1
1998/99	**77.6**	**Male**	8.1	36.2	136.6	113.6	55.9	15.6
		Female	1.4	121.7	267.0	168.9	88.9	9.7
1999/00	**86.2**	**Male**	2.8	24.5	137.2	143.3	61.5	20.4
		Female	4.4	110.8	266.1	184.3	108.1	12.0
2000/01	**82.6**	**Male**	1.4	29.7	103.0	140.5	68.9	14.5
		Female	1.5	88.2	308.1	174.3	90.6	14.2
2001/02	**74.4**	**Male**	4.5	32.4	103.6	108.5	62.0	23.1
		Female	3.1	86.5	267.4	152.3	87.2	7.6
2002/03	**68.8**	**Male**	0.0	22.9	115.8	79.7	52.6	17.5
		Female	0.0	94.0	254.0	155.9	85.5	7.6
2003/04	**64.4**	**Male**	0.0	18.1	117.5	89.5	48.1	16.0
		Female	0.0	79.3	257.5	122.4	76.9	14.2
2004/05	**64.7**	**Male**	0.0	5.3	80.8	79.5	39.4	23.3
		Female	0.0	69.9	310.1	135.0	81.4	17.4

4.7.4 Trends in rates of persons hospitalized with assault as the cause of injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan through the years, 1995/96-2004/05.

- Overall, a rising trend in the age-sex adjusted rate of assault as the cause of injury hospitalization was observed from 1995/96 to 2004/05. [Figure 4.7.4]

- The highest age-sex adjusted rate of 68.5 per 100,000 population was observed in 2001/02, followed by the rate of 68.3 per 100,000 population in the year 2004/05. There were fluctuations in these rates in intermediate years.

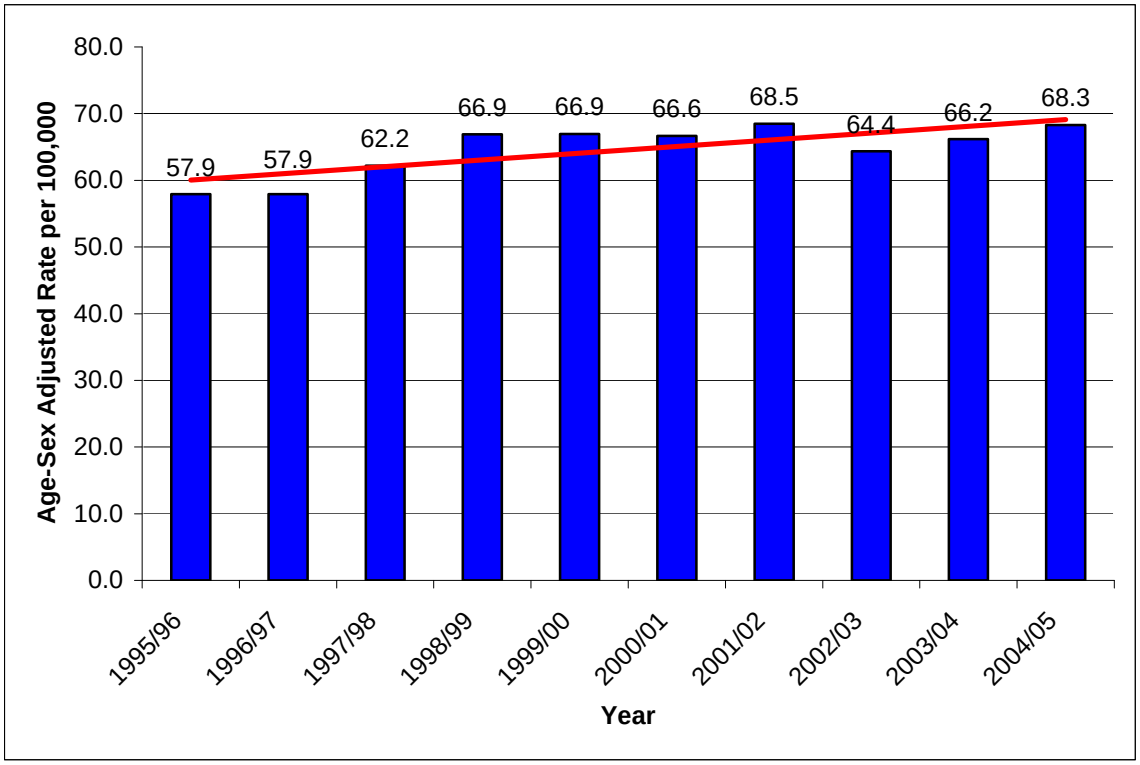


Figure 4.7.4. Age-sex adjusted rates of persons with assault as the cause of injury hospitalizations, Saskatchewan, 1995/96-2004/05.

- Overall, the age-sex specific rates of persons hospitalized with assault injury followed a rising trend from 1995/96 to 2004/05, with some fluctuations in the intermediate years. [Table 4.7.4]

- Males in the 15-19 and 20-34 year age-groups showed rising rates from 1995/96 to 2004/05, while for females, especially in the 15-19 year age-group, and some fluctuations in 20-34 year group, declining trends were observed.

Table 4.7.4. Trends in average annual unadjusted and age-sex specific rates of persons with assault as the cause of injury hospitalizations per 100,000 population across health regions in Saskatchewan, 1995/96-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
1995/96	**59.6**	**Male**	23.2	33.4	152.9	200.9	69.4	17.5
		Female	21.6	15.0	62.8	63.6	29.9	3.3
1996/97	**59.1**	**Male**	19.7	33.7	176.5	194.6	63.9	21.9
		Female	13.8	17.6	62.7	81.8	25.5	4.4
1997/98	**63.7**	**Male**	31.9	21.7	221.8	223.4	65.9	11.6
		Female	16.7	25.3	53.5	72.4	26.0	8.8
1998/99	**68.4**	**Male**	27.0	36.2	184.5	233.8	80.4	22.7
		Female	17.0	22.8	52.9	84.4	29.8	7.5
1999/00	**68.4**	**Male**	24.0	29.4	209.4	257.3	62.5	20.4
		Female	23.6	12.9	53.2	88.2	31.9	7.7
2000/01	**68.1**	**Male**	26.1	24.8	241.9	239.6	81.6	11.6
		Female	18.2	18.2	55.6	68.1	26.1	8.7
2001/02	**70.2**	**Male**	28.2	54.9	207.1	244.8	85.4	13.0
		Female	23.3	23.6	47.9	72.1	24.3	13.0
2002/03	**65.4**	**Male**	32.3	35.6	231.6	219.1	68.9	18.9
		Female	24.0	26.9	49.2	70.3	27.1	10.9
2003/04	**68.0**	**Male**	23.2	23.3	271.8	243.5	77.6	11.6
		Female	21.0	5.5	56.6	63.7	25.6	5.5
2004/05	**70.8**	**Male**	25.1	45.3	237.6	255.4	76.2	14.0
		Female	14.7	25.2	51.7	67.0	30.1	7.6

4.7.5 Trends in rates of persons hospitalized with poisoning- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan through the years, 1995/96-2004/05.

- Figure 4.7.5 shows a slight overall rise in the age-sex adjusted rate of persons hospitalized with poisoning from 1995/96 to 2004/05.

- The highest age-sex adjusted rate was 48 per 100,000 population in 2003/04, and there was slight drop in the rate from the year to 36 and 37 in 1999/00 and 2001/02 respectively.

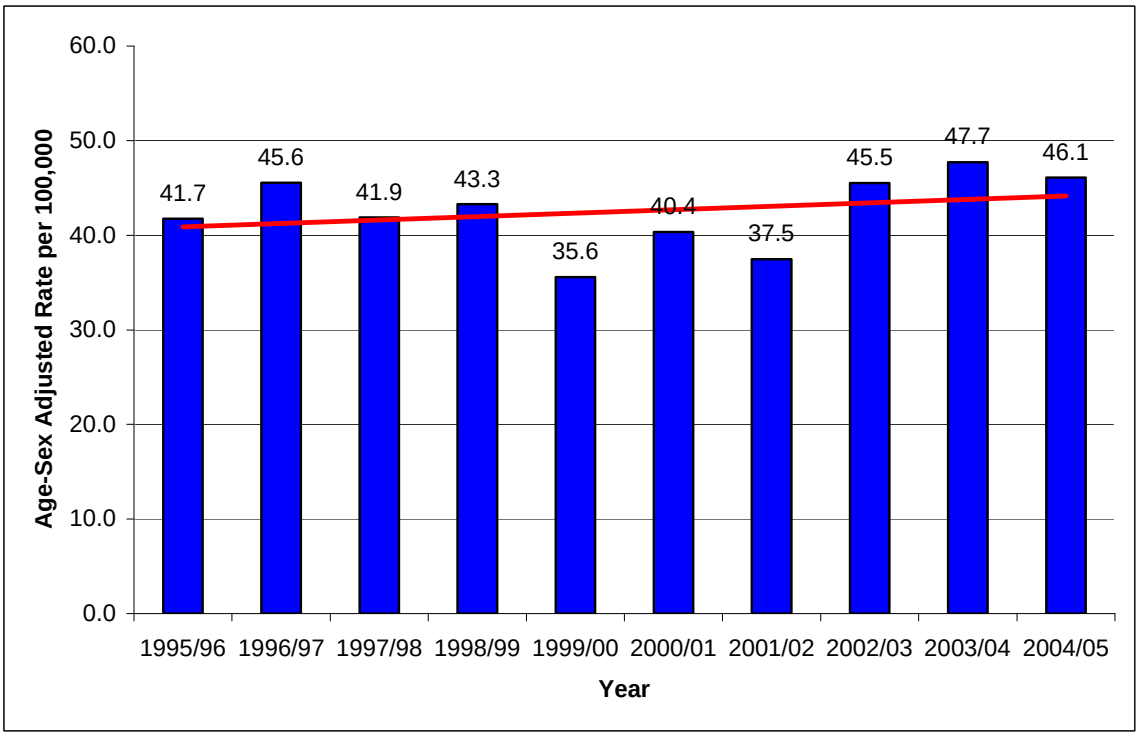


Figure 4.7.5. Age-sex adjusted rates of persons with poisoning as the cause of injury hospitalizations, Saskatchewan, 1995/96-2004/05.

- Generally, the age-sex specific rates of persons hospitalized with poisoning showed a fairly stable trend from 1995/96 to 2004/05, with some fluctuations in the intermediate years. [Table 4.7.5]

- The age-group, 0-9 years showed a greatly declining rate especially from 1996/97 to 2004/05 in both sexes. Seniors (65+ years) who comprised the second highest rate showed a rising trend from 1995/96 to 2004/05.

Table 4.7.5. Trends in average annual unadjusted and age-sex specific rates of persons with poisoning as the cause of injury hospitalizations per 100,000 population in Saskatchewan, 1995/96-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
1995/96	**43.1**	**Male**	169.1	16.7	32.1	24.5	26.0	45.2
		Female	105.5	7.5	23.6	15.0	23.0	52.3
1996/97	**47.0**	**Male**	163.1	21.6	24.5	30.4	28.0	54.1
		Female	150.7	20.1	36.6	15.4	22.1	41.0
1997/98	**42.8**	**Male**	136.9	16.9	24.1	33.8	24.0	47.7
		Female	128.0	27.9	28.0	18.3	24.4	40.5
1998/99	**43.9**	**Male**	129.6	21.7	31.2	25.1	27.7	42.5
		Female	109.0	20.3	15.1	23.3	27.1	75.1
1999/00	**35.8**	**Male**	95.8	9.8	28.9	20.5	25.1	48.1
		Female	95.8	12.9	20.3	14.0	20.5	60.2
2000/01	**40.3**	**Male**	134.7	9.9	28.7	26.9	26.3	43.4
		Female	90.8	10.4	30.3	25.0	23.5	61.1
2001/02	**37.3**	**Male**	97.9	12.5	21.7	29.8	34.4	49.1
		Female	60.5	15.7	22.7	26.0	29.1	44.5
2002/03	**45.4**	**Male**	95.2	20.4	34.5	43.8	36.8	62.7
		Female	62.5	40.3	46.6	29.5	34.5	61.0
2003/04	**47.5**	**Male**	85.2	18.1	44.1	35.6	39.3	81.5
		Female	77.4	8.2	59.2	39.8	35.6	64.3
2004/05	**45.9**	**Male**	70.6	13.3	34.3	35.9	40.9	68.4
		Female	67.1	19.6	38.8	43.4	42.0	64.1

4.7.6 Trends in rates of persons hospitalized with drowning, submersion and suffocation as the cause of injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan through the years, 1995/96-2004/05.

- Overall, a declining trend in the age-sex adjusted rates of persons hospitalized due to drowning, submersion or suffocation was observed from 1995/96 to 2004/05. [Figure 4.7.6]

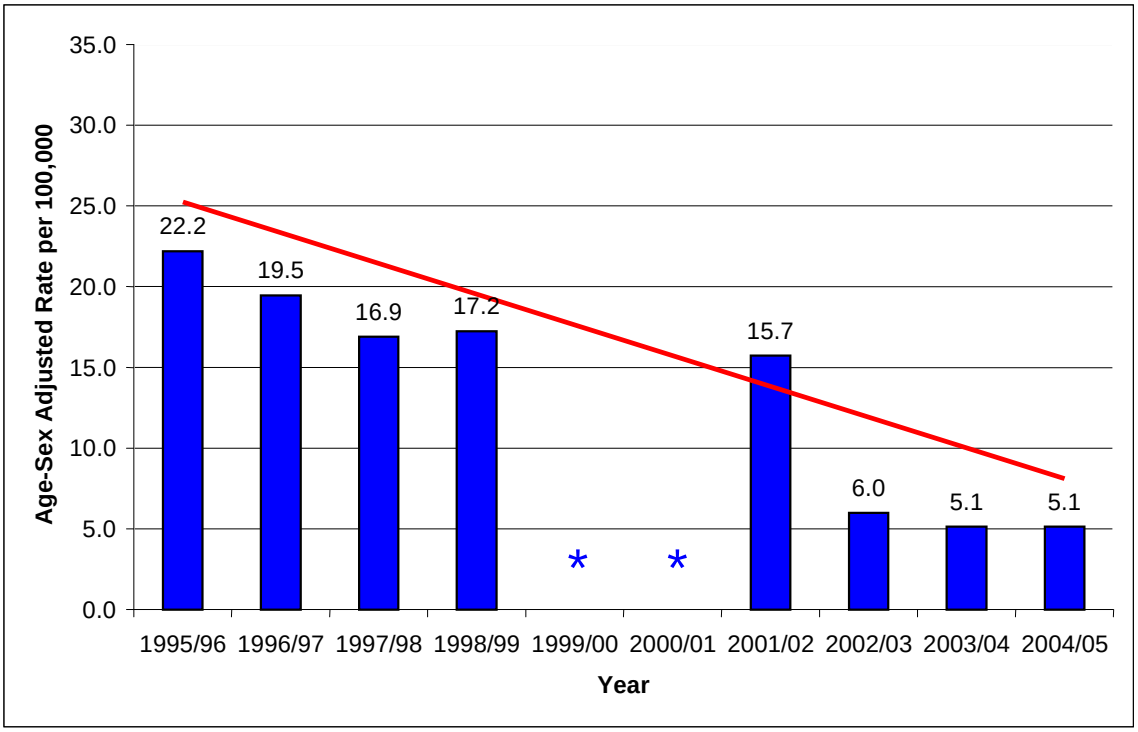


Figure 4.7.6. Age-sex adjusted rates of persons with drowning, submersion and suffocation as the cause of injury hospitalizations, Saskatchewan, 1995/96-2004/05.

*Data for the years 1999/00 and 2000/01 not shown due to ICD-9 coding problem (Revised on July 14, 2008).

- Table 4.7.6 describes an overall declining trend regarding the age-sex specific rates of persons hospitalized with drowning, submersion and suffocation injuries from 1995/96 to 2004/05, with some fluctuations in the intermediate years.

- Either children (0-9 years) or senior residents (65+ years) had the highest rates of drowning, submersion and suffocation injury hospitalization.

Table 4.7.6. Trends in average annual unadjusted and age-sex specific rates of persons with drowning, submersion and suffocation as the cause of injury hospitalizations per 100,000 population, Saskatchewan, 1995/96-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
1995/96		**Male**	49.1	26.2	17.3	11.8	16.4	51.0
	22.7	**Female**	63.5	15.0	7.9	3.7	8.1	32.3
1996/97		**Male**	64.5	16.8	7.4	4.7	9.5	43.8
	20.1	**Female**	63.6	5.0	2.6	4.8	9.1	28.8
1997/98		**Male**	59.8	7.2	9.6	5.6	10.9	30.4
	17.2	**Female**	45.9	0.0	2.5	4.8	9.4	27.4
1998/99		**Male**	49.9	12.1	9.6	7.5	13.3	31.2
	17.5	**Female**	52.4	10.1	5.0	2.9	7.0	25.7
2001/02		**Male**	35.6	17.5	7.2	9.6	14.6	43.3
	15.7	**Female**	31.0	5.2	0.0	4.0	4.8	28.2
2002/03		**Male**	7.7	5.1	4.9	4.0	1.6	23.3
	6.0	**Female**	19.2	5.4	0.0	2.0	1.1	12.0
2003/04		**Male**	13.9	0.0	4.9	2.9	4.1	14.5
	5.0	**Female**	16.1	0.0	0.0	0.0	2.1	6.5
2004/05		**Male**	11.0	2.7	2.4	0.9	6.7	17.1
	5.1	**Female**	3.3	5.6	2.6	1.0	1.6	9.8

Note: Data for the years, 1999/00 and 2000/01, not shown due to ICD-9 coding problem (Revised on July 14, 2008).

4.8 Trends in rates of hospitalizations for major injury types and residential areas of injury incidents

The age-sex adjusted rates of patients hospitalized with major types of injuries, such as fracture injuries, injuries to nerves and spinal cord and burns, were examined for a period of three years from 2002/03-2004/05 in order to present some indication of their trends. The overall average rates for the same 3-year period were also calculated. The age-sex specific rates of hospitalized patients for these major types of specific injuries are also presented for the same period.

Overall trends in injury hospitalizations are presented according to residential areas for the 10-year period from 1995/96-2004/05.

4.8.1 Rates of persons with fracture injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan, 2002/03-2004/05.

- Overall, there was a rising trend in the age-sex adjusted rate of Saskatchewan patients hospitalized with fracture injury from 2002/03 to 2004/05. The 3-year overall rate for the period was 628.8 per 100,000 population. [Figure 4.8.1]

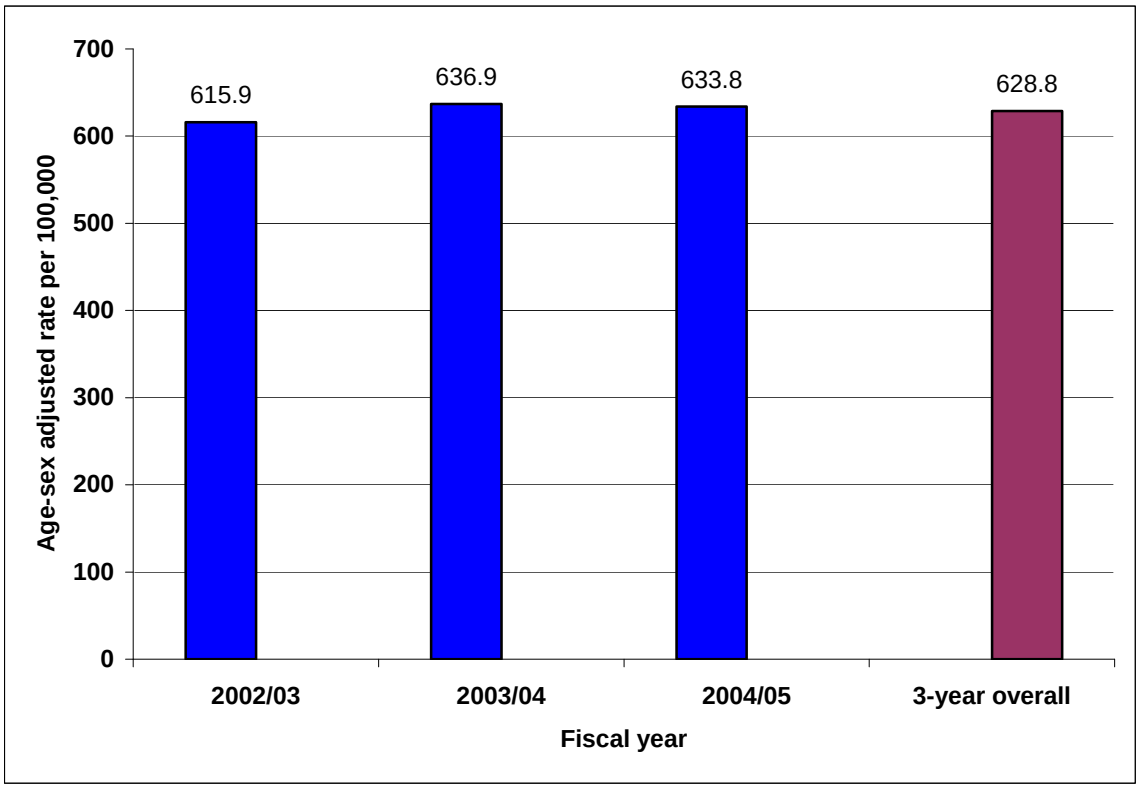


Figure 4.8.1. Age-sex adjusted rates of persons hospitalized for fracture injuries, Saskatchewan, by fiscal years and 3-year overall from 2002/03-2004/05.

- Overall, the age-sex specific rates of patients hospitalized with fracture injury from 2002/03 to 2004/05 showed declining trend in younger age below 20 years, but an increasing trend was found in older patients

- Females were more frequently hospitalized for fracture than the males in seniors aged 65 years or older, while the reversed order followed in all age-groups below 65 years. [Table 4.8.1]

Table 4.8.1. The age-sex specific rates of patients with injury hospitalization for fracture per 100,000 population, Saskatchewan, by fiscal years and 3-year overall from 2002/03-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
2002/03	**625.5**	**Male**	396.2	746.0	1002.6	664.2	475.7	1050.5
		Female	305.9	314.2	274.7	245.6	319.1	2046.6
2003/04	**644.9**	**Male**	440.1	731.2	940.4	694.8	496.0	1188.7
		Female	307.9	349.9	324.4	235.8	341.7	2032.0
2004/05	**639.8**	**Male**	389.1	644.7	947.9	668.7	484.1	1265.1
		Female	309.4	324.5	279.1	237.5	348.2	2084.2
3-year overall	**628.8**	**Male**	**408.5**	**708.1**	**963.6**	**676.0**	**485.3**	**1166.1**
		Female	**307.7**	**329.5**	**292.8**	**239.6**	**336.4**	**2054.3**

4.8.2 Rates of hospitalizations with injuries to nerves and spinal cord- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average Unadjusted Rates in Saskatchewan, 2002/03-2004/05.

- A slightly declining trend in the age-sex adjusted rate of Saskatchewan patients hospitalized with injuries to nerves and spinal cord was found from 2002/03 to 2004/05. The 3-year overall rate for the period was 20.4 per 100,000 population. [Figure 4.8.2]

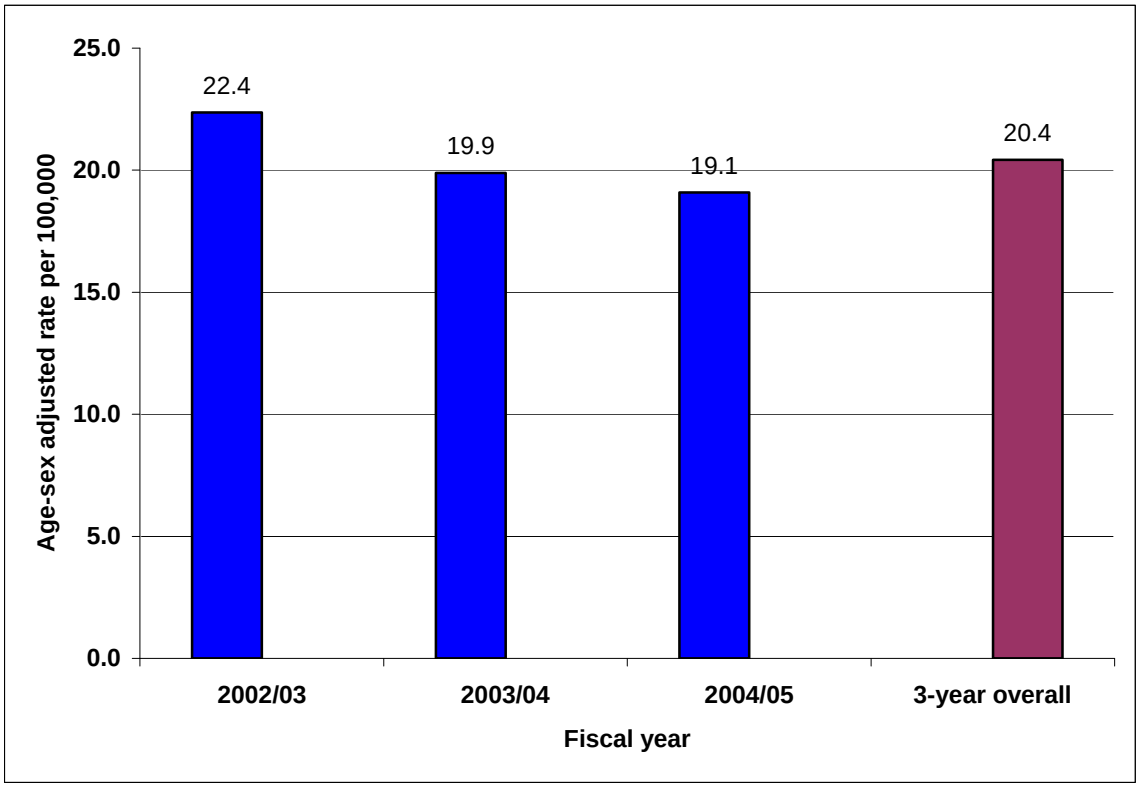


Figure 4.8.2. The age-sex adjusted rates of persons hospitalized with injury to nerves and spinal cord, Saskatchewan, by fiscal years and 3-year overall from 2002/03-2004/05.

- Overall, the age-sex specific rates of patients hospitalized with nerve and spinal cord injury were higher in 15-19 and 20-34 year age-groups compared to other age-groups. The rates showed declining trends from 2002/03 to 2004/05 among age-groups older than 19 years, while there were rising trends in younger age-groups, specially below 15 years.

- The rates for nerve and spinal injuries were higher in males than in females in all age-groups except younger children of 0 to 9 years of age [Table 4.8.2]

Table 4.8.2. The age-sex specific rates of hospitalizations with injury to nerves and spinal cord per 100,000 population in Saskatchewan, by fiscal years and 3-year overall from 2002/03-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
2002/03	**22.7**	**Male**	1.5	10.2	56.7	61.7	34.2	17.5
		Female	6.4	2.7	23.3	20.4	12.7	7.6
2003/04	**20.3**	**Male**	3.1	10.3	71.0	50.0	26.4	14.5
		Female	8.1	5.5	12.9	18.9	12.6	6.5
2004/05	**19.5**	**Male**	4.7	26.6	61.2	50.1	26.1	14.0
		Female	1.6	11.2	20.7	15.8	7.3	7.6
3-year overall	**20.8**	**Male**	**3.1**	**15.6**	**63.0**	**53.9**	**28.9**	**15.4**
		Female	**5.4**	**6.4**	**18.9**	**18.3**	**10.8**	**7.3**

4.8.3 Rates of patients with burn injury hospitalizations- Age-Sex Adjusted Rates, Age-Sex Specific Rates and Average unadjusted Rates in Saskatchewan, 2002/03-2004/05.

- There was a slight increase in the age-sex adjusted rate of patients with burn injury hospitalization from 2003/03 to 2004/05, with the 3-year overall age-sex adjusted rate of 20.8 per 100,000 population. [Figure 4.8.3]

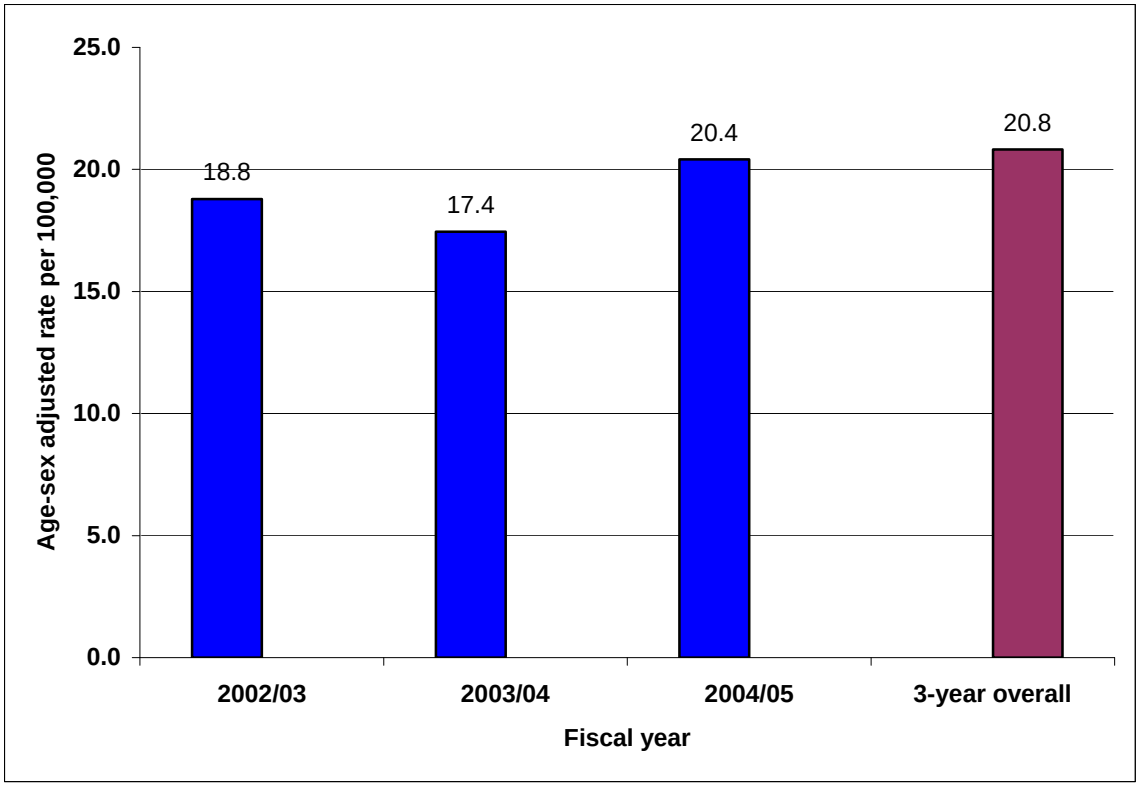


Figure 4.8.3. Age-sex adjusted rates of patients hospitalized for burns, Saskatchewan, by fiscal years and 3-year overall from 2002/03-2004/05.

- The age-sex specific rates of patients hospitalized with burn injury showed an increasing trend in younger children of 0-9 year age-group in both sexes from 2002/03 to 2004/05, while the rates tended to decline in both male and female seniors aged 65+ years. In other age-groups (10-14, 15-19 and 35-64 years), increasing trends in rates were found in males.

Table 4.8.3. The age-sex specific rates of burn injury hospitalizations per 100,000 population in Saskatchewan, by fiscal years and 3-year overall from 2002/03-2004/05.

Year	Average Annual Un-adjusted Rate	Sex	Age-groups, years					
			0 - 9	10 - 14	15 - 19	20 - 34	35 - 64	65+
2002/03	**16.7**	**Male**	26.1	7.6	14.8	28.9	18.9	30.6
		Female	20.8	13.4	13.0	4.1	6.4	20.7
2003/04	**18.8**	**Male**	26.3	31.0	26.9	30.8	23.3	23.3
		Female	27.4	2.7	12.9	11.9	5.2	17.4
2004/05	**17.3**	**Male**	31.4	24.0	29.4	21.8	23.0	24.9
		Female	32.7	2.8	7.8	11.8	3.6	10.9
3-year overall	**17.6**	**Male**	**27.9**	**34.6**	**27.2**	**32.0**	**28.5**	**24.8**
		Female	**26.9**	**23.6**	**8.8**	**8.4**	**7.3**	**16.3**

4.8.4 Trends in Age-Sex Adjusted Rates by Residential Areas Splits and Year, 1995/96 – 2004/05

- Census Metropolitan Area (CMA), Other Urban and Rural among area splits of residence had more or less similar trends in age- sex adjusted rate of injury hospitalization of persons from 1995/96 to 2004/05. [Figure 4.8.4]

- The Northern area had a peak elevation of age-sex adjusted rate of persons with injury hospitalization in 1996/97. After 1996/97, the rate declined until 2002/03 and then increased. The North had consistently higher rates than the three other residential areas over the 10-year period.

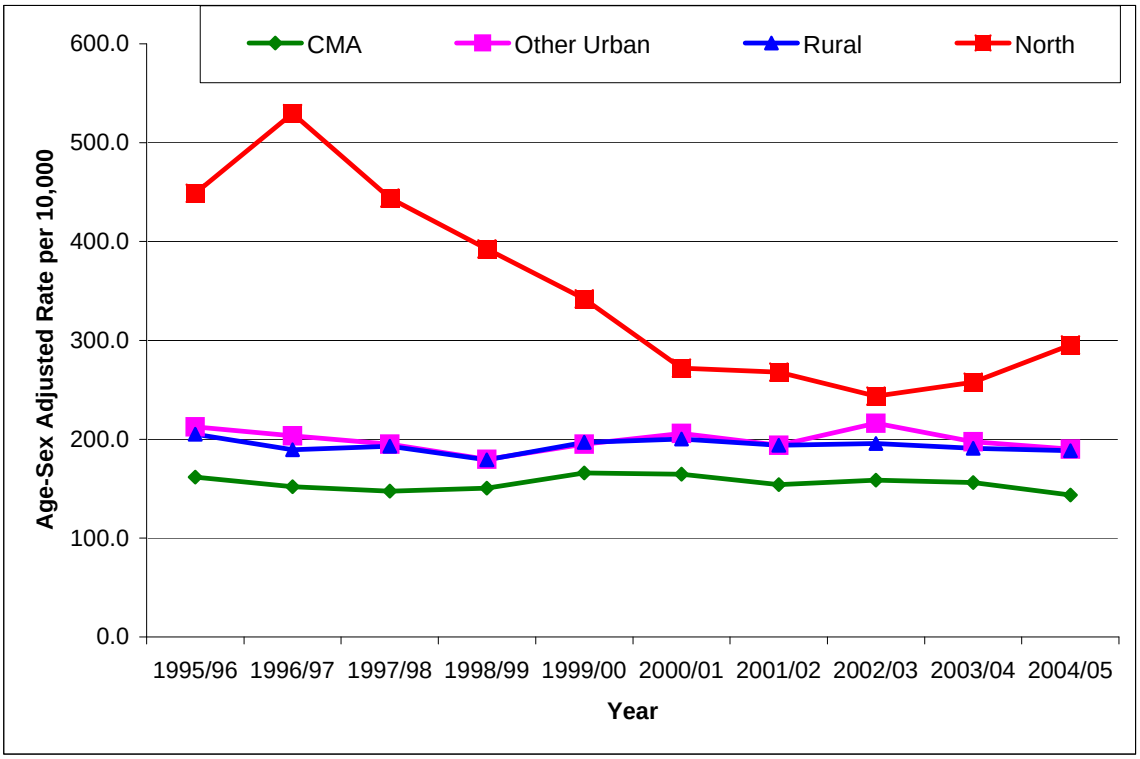


Figure 4.8.4. Age-sex adjusted rates of persons with injury hospitalizations per 10,000 population, by area splits of residence, Saskatchewan, from 1995/96 to 2004/05.

5.0 INJURY DEATHS

Injuries are a significant and preventable cause of death in Saskatchewan. Injury mortality is a serious and substantial public health concern. Injury is the fourth major cause of death in Saskatchewan, accounting for over 6% of all deaths in our study period. Most, if not all, of these deaths are preventable. It should be remembered, "for every injury-related death, there are 40 hospitalizations and an estimated 670 emergency room visits for treatment of injuries."[3] For these reasons, surveillance of Saskatchewan injury mortality is important to the health of the province.

Injury-related mortality rates vary by age-group, sex and health region. This chapter summarizes the results of analysis based on Saskatchewan Health Vital Statistics Mortality Data, highlighting the differences and similarities in these groupings.

Injury-related mortality was the number one major cause of death for the 10 - 14, 15 - 19, and 20 - 34 year age-groups. For the 0 - 9 and the 35 - 64 year age-groups, injury was the third major cause of death. Males were more than twice as likely to die of injuries as females. Regionally, Athabasca has the highest age-sex standardized death rate in Saskatchewan. Saskatoon has the lowest age-sex standardized death rate due to injury within the province. These differences will be explored in this section.

[3] www.phac_aspc.gc.ca/publication/meas_haut/mu_w_e.html; Measuring Up: A Health Story. Update on Canadian Child and Youth.

5.1 Major Causes of Death by Age-group, Saskatchewan, 1995 to 1999 and 2000 to 2004

- Table 5.1 displays the five major causes of death by age-group in Saskatchewan for the time period,1995 to 1999. The five major causes of death for the time period 2000 to 2005 are shown in Table 5.2.
- Injury is the fourth major cause of death in Saskatchewan in each of the two five-year time periods.
- For the total population in Saskatchewan, the major cause of death were diseases of the circulatory system in both of the two time periods, 1995 to 1999 and 2000 to 2004.
- When broken down by age-groups, for each time period, injury was the top most cause of death in the 10 - 14, 15 - 19 and 20 - 34 year age-groups.
- The major cause of death in the 0 - 9 year old group was certain conditions originating in the perinatal period.

Table 5.1. Ranking of top five major causes of death, by age-group, Saskatchewan, 1995 to 1999.

Rank	Age-groups, years						Total
	0-9	10-14	15-19	20-34	35-64	65+	
1	Certain conditions originating in the Perinatal Period 185	Injury 61	Injury 209	Injury 598	Neoplasms 2509	Diseases of the Circulatory System 15248	Diseases of the Circulatory System 16947
2	Congenital Anomalies 177	Neoplasms 11	Neoplasms 14	Neoplasms 94	Diseases of the Circulatory System 1620	Neoplasms 8370	Neoplasms 11028
3	Injury 127	Diseases of the Nervous System and Sense Organs 9	Diseases of the Nervous System and Sense Organs 10	Diseases of the Circulatory System 42	Injury 881	Diseases of the Respiratory System 4032	Diseases of the Respiratory System 4359
4	Symptoms, signs and Ill-defined Conditions 78	Congenital Anomalies 8	Diseases of the Circulatory System 9	Diseases of the Nervous System and Sense Organs 34	Diseases of the Digestive System 339	Diseases of the Nervous System and Sense Organs 1298	Injury 2769
5	Diseases of the Respiratory System 37	Diseases of the Respiratory System (<5)	Diseases of the Respiratory System 6	Infectious and Parasitic Diseases 30	Diseases of the Respiratory System 265	Endocrine, Nutritional and Metabolic Diseases 1188	Diseases of the Nervous System and Sense Organs 1572

Table 5.2. Ranking of top five major causes of death, by age-group, Saskatchewan, 2000 to 2004.

Rank	Age-groups, years						Total
	0-9	10-14	15-19	20-34	35-64	65+	
1	Certain conditions originating in the Perinatal Period 132	Injury 53	Injury 221	Injury 536	Neoplasms 2545	Diseases of the Circulatory System 14183	Diseases of the Circulatory System 15741
2	Congenital Malformations, Deformations and Chromosomal 96	Neoplasms 13	Neoplasms 15	Neoplasms 75	Diseases of the Circulatory System 1470	Neoplasms 8780	Neoplasms 11444
3	Injury 76	Diseases of the Nervous System 7	Diseases of the Nervous System 11	Diseases of the Circulatory System 60	Injury 898	Diseases of the Respiratory System 3532	Diseases of the Respiratory System 3837
4	Diseases of the Nervous System 31	Diseases of the Circulatory System (<5)	Diseases of the Circulatory System 8	Diseases of the Nervous System 28	Diseases of the Digestive System 357	Diseases of the Nervous System 1882	Injury 2858
5	Diseases of the Respiratory System 26	Diseases of the Respiratory System (<5)	Diseases of the Respiratory System 6	Mental and Behaviour Disorders 24	Endocrine, Nutritional and Metabolic Diseases 273	Endocrine, Nutritional and Metabolic Diseases 1583	Diseases of the Nervous System 2193

5.2 Major Causes of Injury Deaths by Age-group, Saskatchewan 1995 to 1999 and 2000 to 2004

- Tables 5.3 and 5.4 outline the causes of injury deaths by age-group and include the percent of total injury deaths attributable to those causes for the periods 1995 to 1999 and 2000 to 2004, respectively.

- From 1995 to 1999 the major cause of injury-related death was motor vehicle incidents (753), accounting for 26% of the deaths, followed by suicide (653), which accounted for 23%.

- From 2000 to 2004, the major cause of injury-related death was motor vehicle incidents (685), accounting for 24% of all injury deaths, followed by Intentional self harm (553), which accounted for 19%.

- In the 0 - 9 year age-group there were 126 injury-related deaths from 1995 to 1999. The top two causes of injury death were motor vehicle incidents (41) and submersion and suffocation (35).

- In the 0 - 9 year age-group there were 74 injury-related deaths from 2000 to 2004. The top two causes of injury death for this same age-group were motor vehicle incidents (19) followed by drowning and submersion (13).

- In the 10 - 14 year age-group, there were 62 injury-related deaths from 1995 to 1999. The top two causes of death in this age-group were motor vehicle incidents (32) and suicide (10).

- From 2000 to 2004, in the 10 - 14 year age-group, there were 55 injury-related deaths. The leading causes of injury-related death were motor vehicle incidents (24) and intentional self-harm (12).

- There were 209 deaths in 1995 to 1999 for the 15 - 19 year age-group. From 1995 to 1999, the major injury-related deaths for this age-group were motor vehicle incidents (109) and suicide (57)

- There were 220 deaths from 2000 to 2004 for the 15 - 19 year age-group. From 2000 to 2004, the top two causes of death for 15 - 19 year olds were motor vehicle incidents (104) and intentional self-harm (58).

- In the 20 - 34 year age-group there were 598 injury-related deaths from 1995 to 1999. The top two causes of injury-related death in 1995 to 1999 were suicide (207) and motor vehicle incidents (196).

- In the 20 - 34 year age-group there were 536 injury-related deaths from 2000 to 2004. The top two causes of injury death for this same age-group were motor vehicle transport incidents (185) and intentional self-harm (156).

- For 35 - 64 year olds, there were 881 injury-related deaths from 1995 to 1999. The top two causes of death in this age-group were suicide (294) and motor vehicle incidents (239).

- For 35 - 64 year olds, there were 897 injury-related deaths from 2000 to 2004. The leading causes of injury-related death were intentional self-harm (266) and motor vehicle incidents (214).

- In the 65 plus year age-group, there were 893 injury-related deaths from 1995 to 1999. From 1995 to 1999, the major causes of injury-related deaths for this age-group were falls (428) and motor vehicle incidents (136).

- In the 65 plus year age-group, there were 1072 injury-related deaths from 2000 to 2004. The top two injury-related causes of death for 65 year and older group were exposure to unspecified factors (337) and falls (324).

Table 5.3. Ranking of top five causes of injury-related deaths, by age-group, Saskatchewan, 1995 to 1999.

Rank	Age-groups, years						Total
	0-9	10-14	15-19	20-34	35-64	65+	
1	Motor Vehicle Incidents 41	Motorl Vehicle Incidents 32	Motor Vehicle Incidents 109	Suicide 207	Suicide 294	Falls 428	Motor Vehicle Incidents 753
2	Submersion or suffocation 35	Suicide 10	Suicide 57	Motor Vehicle Incidents 196	Motor Vehicle Incidents 239	Motor Vehicle Incidents 136	Suicide 653
3	Fires 21	Other Incidents 6	Homicide 10	Homicide 56	Poisoning – Drugs and others 81	Suicide 84	Falls 475
4	Other Incidents 8	Submersion or suffocation (<5)	Submersion or suffocation 7	Poisoning – Drugs and others 35	Other Incidents 54	Submersion or suffocation 76	submersion or suffocation 191
5	Homicide 6	Poisoning – Drugs and others (<5)	Incidents in Nature 6	Submersion or suffocation 26	Submersion or suffocation 43	Other Incidents 36	Poisoning – Drugs and others 142

Table 5.4. Ranking of top five causes of injury-related deaths, by age-group, Saskatchewan, 2000 to 2004.

Rank	Age-groups, years						Total
	0-9	10-14	15-19	20-34	35-64	65+	
1	Motor Vehicle Incidents* 19	Motor Vehicle Incidents* 24	Motor Vehicle Incidents* 104	Motor Vehicle Incidents* 185	Intentional self-harm 266	Exposure to other and unspecified factors 337	Motor Vehicle Incidents 685*
2	Drowning and submersion 13	Intentional self-harm 12	Intentional self-harm 58	Intentional self-harm 156	Motor Vehicle Incidents* 214	Falls 324	Intentional self-harm 553
3	Other threats to breathing 10	Exposure to smoke, fire and flames (<5)	Assault 12	Assault 58	Poisoning and exposure to other noxious substances 106	Motor Vehicle Incidents* 139	Falls 406
4	Exposure to smoke, fire and flames 8	Poisoning and exposure to other noxious substances (<5)	Poisoning and exposure to other noxious substances 11	Poisoning and exposure to other noxious substances 49	Falls 62	Intentional self-harm 61	Exposure to other and unspecified factors 364
5	Falls 7	Assault (<5)	Drowning and submersion 7	Exposure to smoke, fire and flames 15	Assault 54	Other threats to breathing 53	Poisoning and exposure to other noxious substances 194

* Note: This chart has been revised on July 14, 2008 based on the adjustment in ICD-10 codes included for Motor Vehicle Incidents. The ICD-10-codes V01-V09, V10-V19, V20-V29, V30-V39, V41-V49, V50-V59, V60-V69, V70-V87 are included.

5.3 Injury-related Death Rates, by Sex and Health Region, for 1995 to 1999 and 2000 to 2004

- Saskatchewan's rate of injury-related deaths is 53.9 deaths per 100,000 for 1995 to 1999 [Figure 5.1] and 55.6 deaths per 100,000 population for 2000 to 2004 [Figure 5.2].

- In Saskatchewan, the rate of injury-related deaths was twice as high for males (74.2 per 100,000) as for females (37.1 per 100,000 population) in the period 1995 to 1999. Similarly, in 2000 to 2004, the rate for males (74.9 per 100,000 population) was twice as high as the female rate (33.1 per 100,000 population).

- In the period 1995 to 1999, Keewatin Yatthé had the highest rate of injury-related deaths at 100.3 per 100,000 population in Saskatchewan. In the period 2000 to 2004, Athabasca Health Authority had the highest rate of injury-related deaths at 127.1 per 100,000 population in the province.

- In the period 1995 to 1999, the lowest injury-related death rate in Saskatchewan was found in the Saskatoon Health Authority at 42.7 per 100,000 population. In the 2000 to 2004 period, Cypress had the lowest rate of injury-related deaths at 47.7 per 100,000 population.

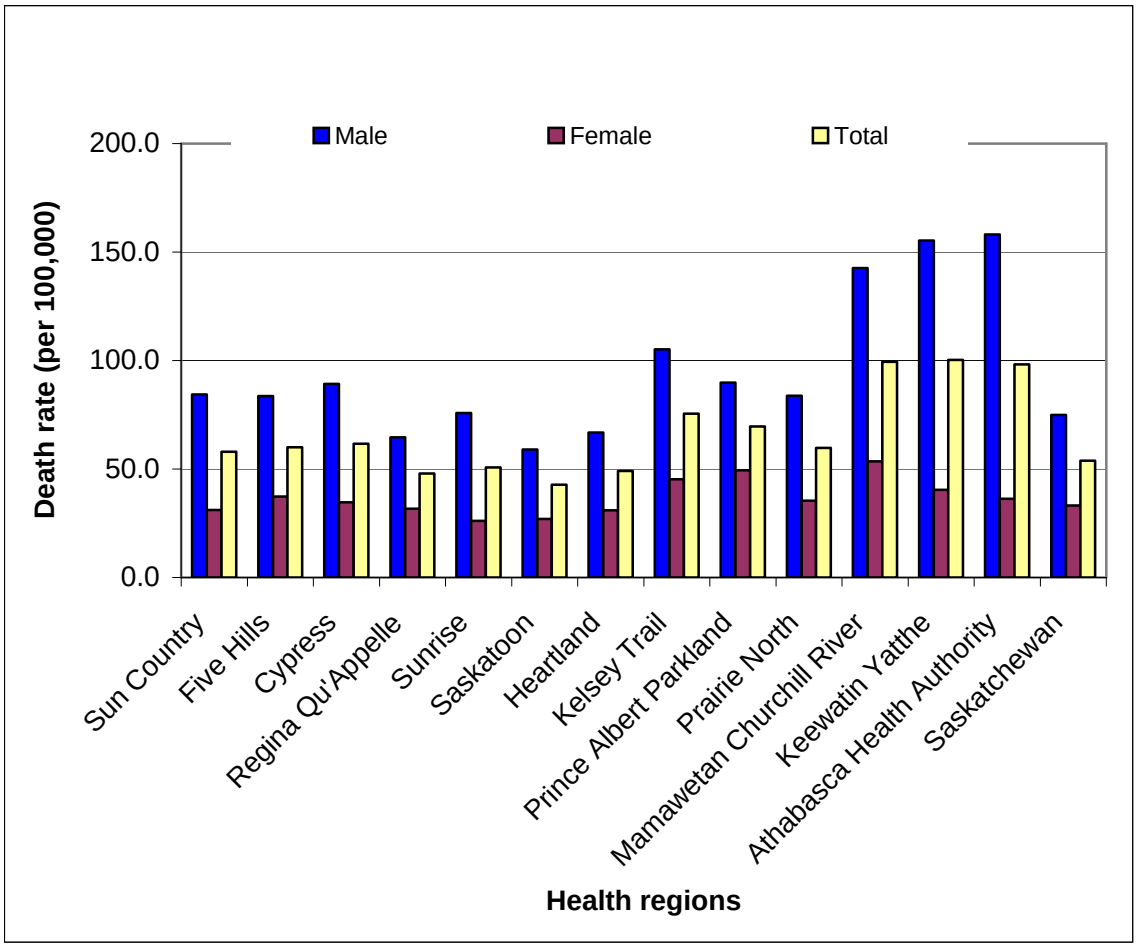


Figure 5.1. Injury-related five-year average death rates, by health regions and sex, Saskatchewan, 1995 – 1999.

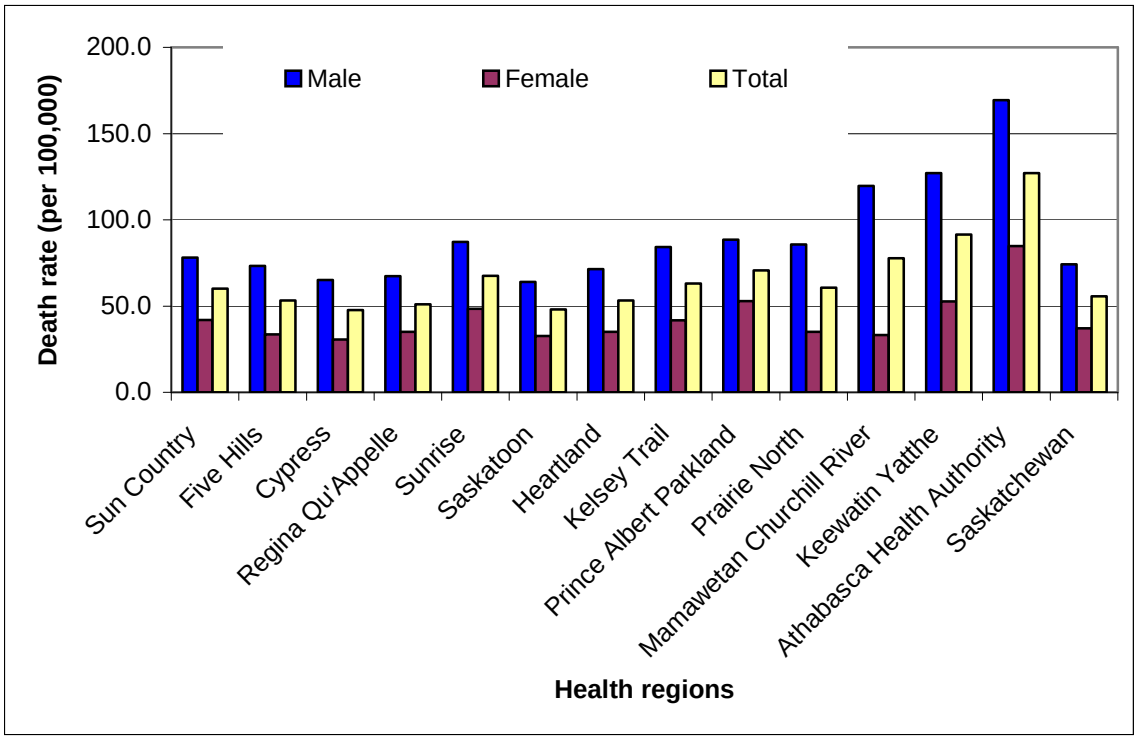


Figure 5.2. Injury-related five-year average death rates, by health regions and sex, Saskatchewan, 2000 – 2004.

5.4 Injury-related Age-Sex Adjusted Death Rates, by Health Region, 1995 - 2004

- The Figure 5.3 displays age-sex adjusted injury-related death rates taking into consideration differences in the age and sex composition of different populations of health regions for 10 year period, 1995 to 2004. Age-sex adjustment in the rates allows for a more equitable comparison between health regions, by eliminating differences in their populations.

- The highest age adjusted injury-related death rates were found in Athabasca Health Region at 166.6 deaths per 100,000 population.

- The lowest age-sex adjusted injury-related death rates are found in Saskatoon Health Region at 60.5 per 100,000 population.

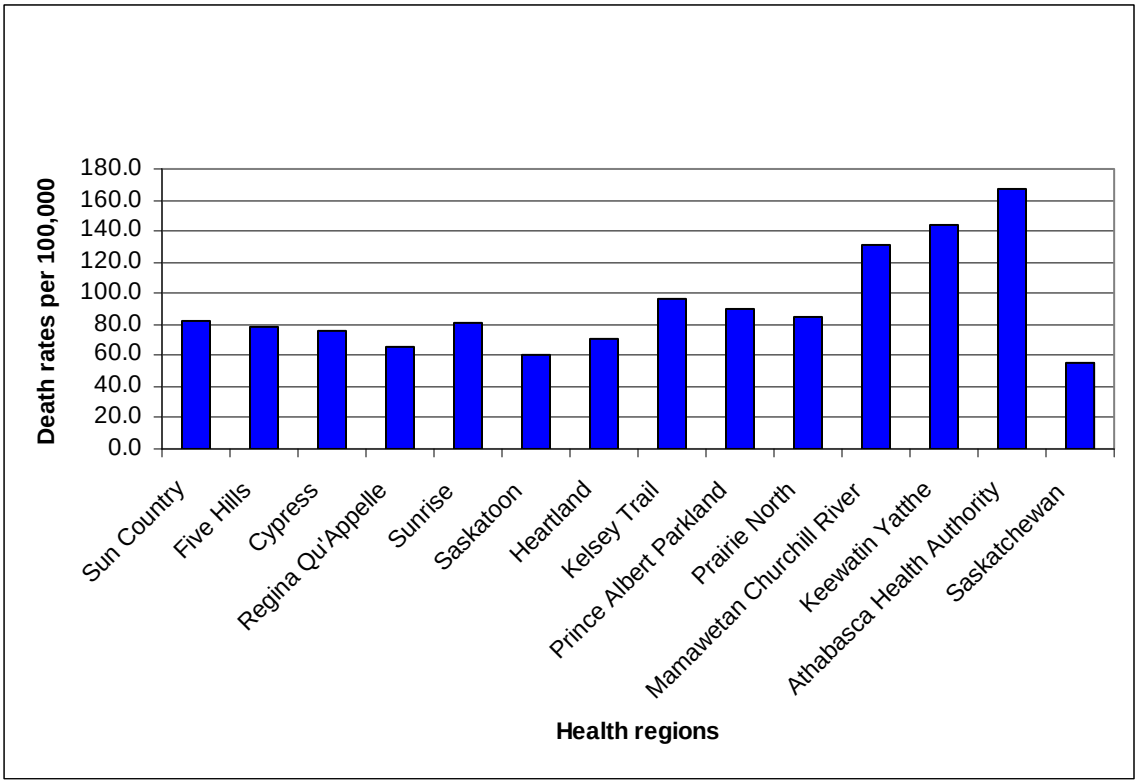


Figure 5.3. Age-sex standardized death rates, 10-year average, by health regions, Saskatchewan, 1995 to 2004.

6.0 FALLS IN SENIORS

This chapter presents a comprehensive analysis of fall injuries among seniors (age 65 years and older) in Saskatchewan. A fall is generally defined as “a sudden and unintentional change in position resulting in an individual landing at a lower level such as on an object, the floor, or the ground, with or without injury”[4] The epidemiological evidence presented in this chapter is from two sources: seniors’ self-report on falls in the Canadian Community Health Survey (CCHS Cycle 3.1, 2005) and the Canadian Institute of Health Information’s Discharge Abstract Data (from 1995/96-2004/05).

The section with CCHS data displays the frequencies of self-reported fall injuries in Saskatchewan by type, month, place and activity of fall injuries among the injured people aged 65 years or older across age-groups, sex and health regions.

The hospitalization rates of fall injuries are presented, stratifying them by age-groups (65-74; 75-84; 85 and older), sex, and health region. Average length of hospital stay due to fall injury is also presented by year, sex, age-group, and health region.

[4] http://www.phac-aspc.gc.ca/seniors-aines/pubs/seniors_falls/pdf/seniors-falls_e.pdf Report on Seniors’ Falls in Canada, Public Health Agency of Canada, 2005

6.1 Seniors' Self-Reported Fall Injuries (CCHS Cycle 3.1, 2005)

- A total of 134,044 Saskatchewan seniors age 65 years and older were represented in the CCHS cycle 3.1 (2005). Of them, 9,919 (7.4%) reported injuries, and 6,840 (5.1%) reported fall injuries over a period of 12 months prior to the survey.

6.1.1 Self-Reported Fall Injuries in Seniors by Age-group and Sex

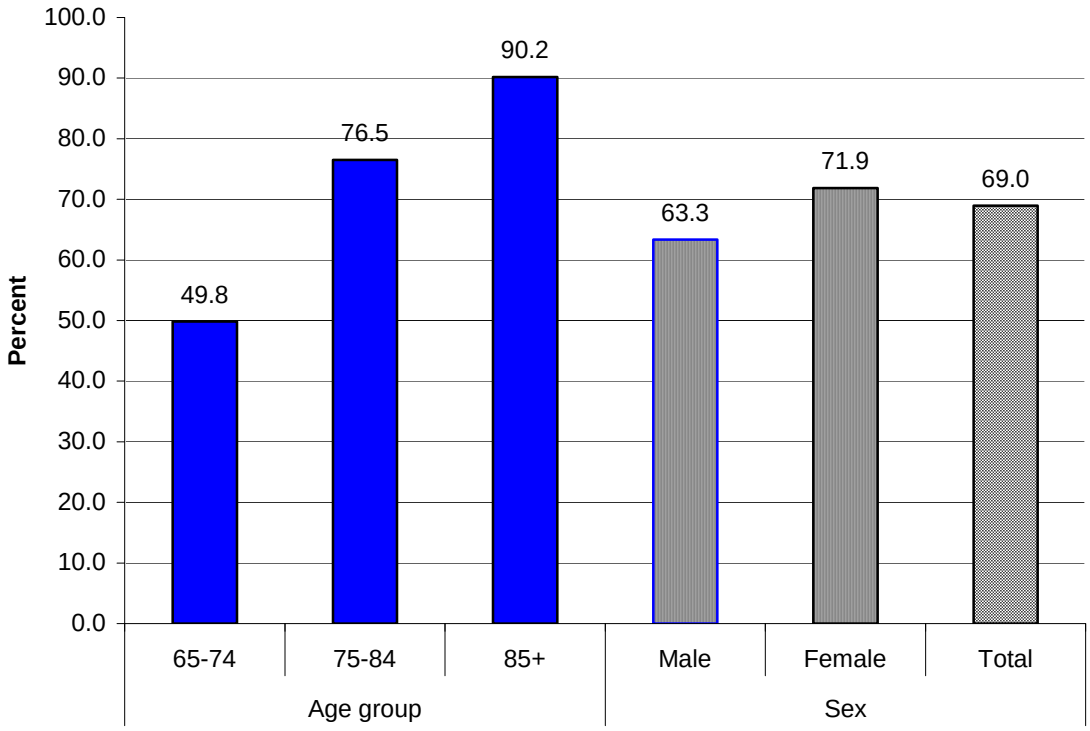


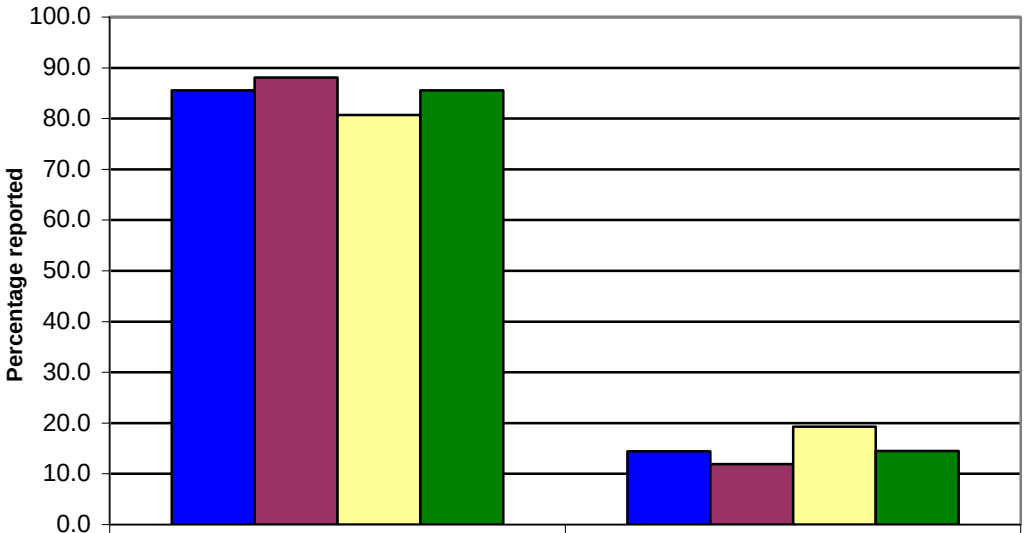
Figure 6.1.1. Percentage of injured seniors who reported falls as the cause of serious injury, by age-group and sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Overall, the proportion of Saskatchewan seniors (65 years or older) citing a fall as a cause of injury, serious enough to limit normal activities, was 69%. [Figure 6.1.1]

- The percentage of seniors reporting falls as the cause of serious injury increased with age-group. In the 65-74 year age-group, 49.8% reported falls, compared to 76.5% of 75-84 year olds and 90.2% of those over age 85.

- Female seniors (71.87%) were more frequent to have a fall as the cause of serious injury than male (63.3 %).

6.1.2 Single vs Multiple Fall Injuries in Seniors by Age-group



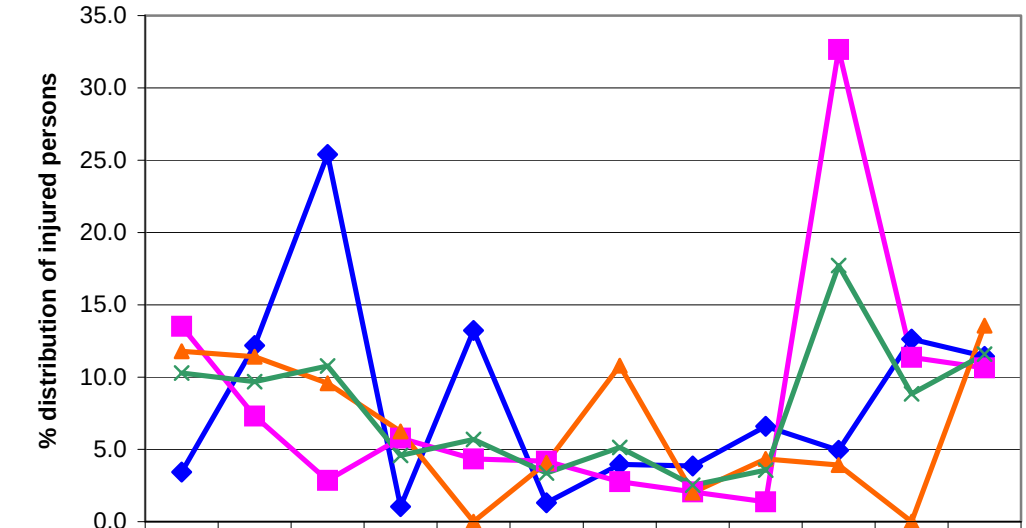
	Single injury	Multiple injuries
65-74	85.6	14.5
75-84	88.1	11.9
85+	80.7	19.3
Total	85.5	14.5

Figure 6.1.2. Percentage of injured seniors who reported single and multiple injuries by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Seniors injured in a fall reported a single injury much more frequently than multiple injuries. This was true of all age-groups: between 80 and 90% of injured seniors reported a single injury across all age-groups, while between 10 and 20% reported multiple injuries across age-groups. [Figure 6.1.2]

- Seniors aged 85 years or older reported multiple injuries more frequently (19%), compared to age-groups below 85 years.

6.1.3 Distribution of Injurious Falls in Seniors across the months by Age-group



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
65-74	3.4	12.2	25.4	1.0	13.2	1.3	4.0	3.8	6.6	4.9	12.6	11.4
75-84	13.5	7.3	2.9	5.8	4.3	4.2	2.8	2.1	1.4	32.7	11.4	10.6
85+	11.8	11.4	9.6	6.2	0.0	4.1	10.8	2.0	4.3	3.9	0.0	13.6
Total	10.3	9.7	10.8	4.6	5.7	3.4	5.1	2.5	3.6	17.7	8.9	11.6

Month

Figure 6.1.3. Monthly occurrence pattern of fall injuries reported by seniors for a 12-month period, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Considerable variation across age-groups was observed in terms of monthly patterns of fall injury occurrence over the course of the year. [Figure 6.1.3]
- For those aged 65-74 years, the peak period of injury occurred in March, with about one-quarter of injury occurrences reported that month.
- For those aged 75-84 years, approximately one-third of injuries occurred in October.
- Finally, for those over 85 years, there was somewhat less variation between months than in the other age-groups. December was the month with the highest proportion of reported injuries, with about 14% of those seniors reporting injuries that month.

6.1.4 Type of Fall Injury in Seniors by Age-group

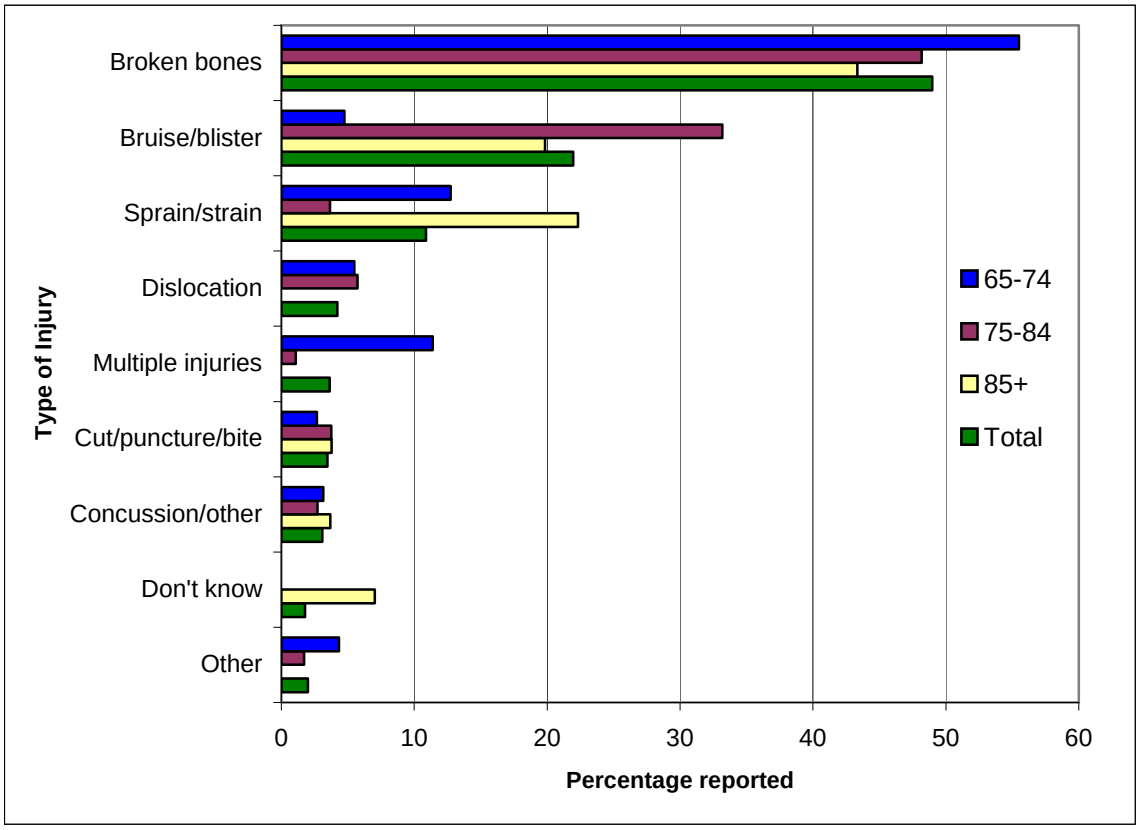


Figure 6.1.4. Percentage of injured seniors who reported type of serious injuries, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- 'Broken bones' were by far the most commonly reported serious injury type across age-groups. Interestingly, the younger age-groups more frequently reported 'broken bones'. Approximately 56% of those seniors aged 65-74 and 48% of those between ages 75-84 reported 'broken bones', while 43% of seniors aged 85 years and older reported 'broken bones' as the type of serious injury. [Figure 6.1.4]

- 'Bruising/blistering' was the next most reported injury type in those aged 75-84 years (about 34%), while 'sprains/strains' were next most common in those aged 65-74 years (about 13%) and aged 85 and over (about 23%).

6.1.5 Place of Fall Injury in Seniors by Age-group

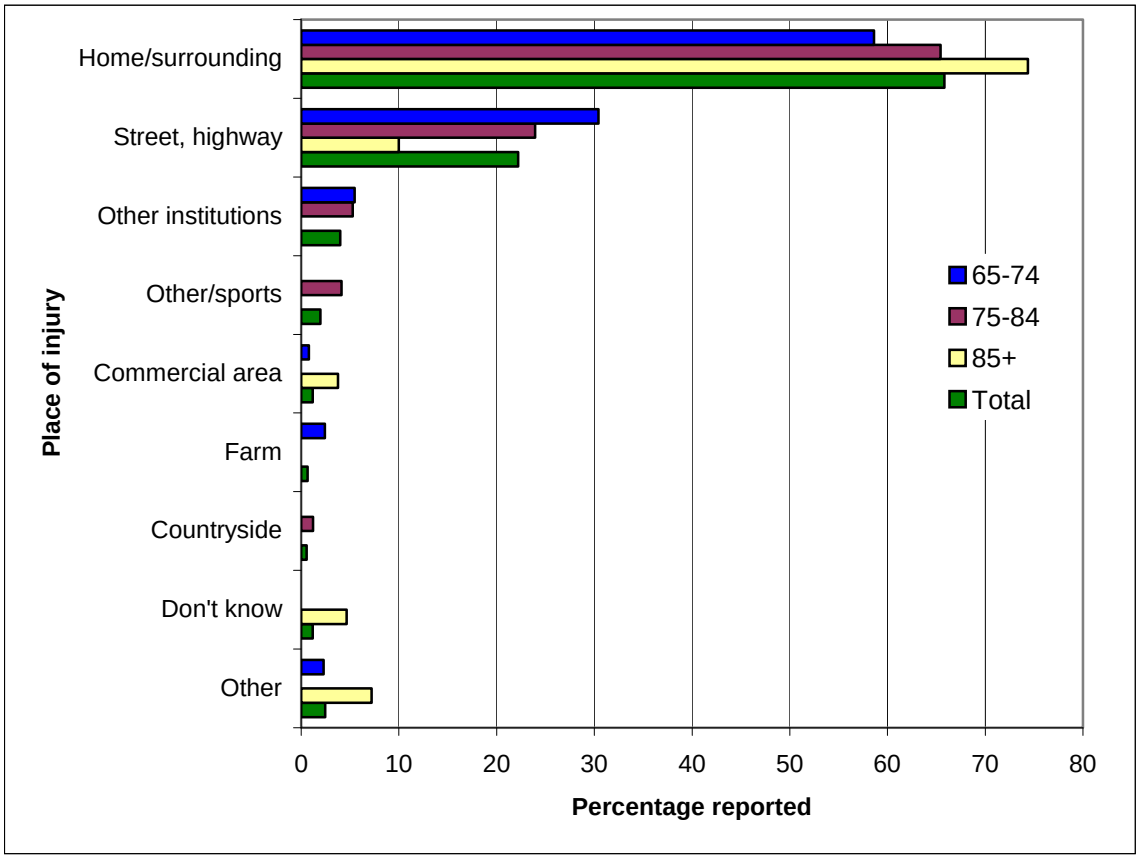


Figure 6.1.5. Percentage of injured seniors who reported place of serious fall injuries, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

Notes on survey categories: 1 In a home or its surrounding area, 2 Residential institution, 3 School, college, university (exclude sports areas), 4 Sports or athletics area of school, college, university, 5 Other sports or athletics area (exclude school sports areas), 6 Other institution (e.g., church, hospital, theatre, civic building), 7 Street, highway, sidewalk, 8 Commercial area (e.g., store, restaurant, office building, transport, terminal), 9 Industrial or construction area, 10 Farm (exclude farmhouse and its surrounding area), 11 Countryside, forest, lake, ocean, mountains, prairie, etc., 12 Other – Specify.

- Figure 6.1.5 reveals that serious fall injuries were most often reported to occur in the 'home/surrounding' area in all age-groups.

- Injury in the 'home/surrounding' area was most often the case for those aged 85 and older (about 75%). Approximately 58% of those seniors between 65-74 years and roughly 65% of those between 75-84 years experienced an injury in the same area.

- Seniors aged 65-74 years (about 30%) more frequently reported injury occurring on 'street, highways' than those aged 75-84 years (about 23%) or 85 and older (approximately 10%).

6.1.6 Type of Seniors' Activity when Injured from a Fall by Age-group

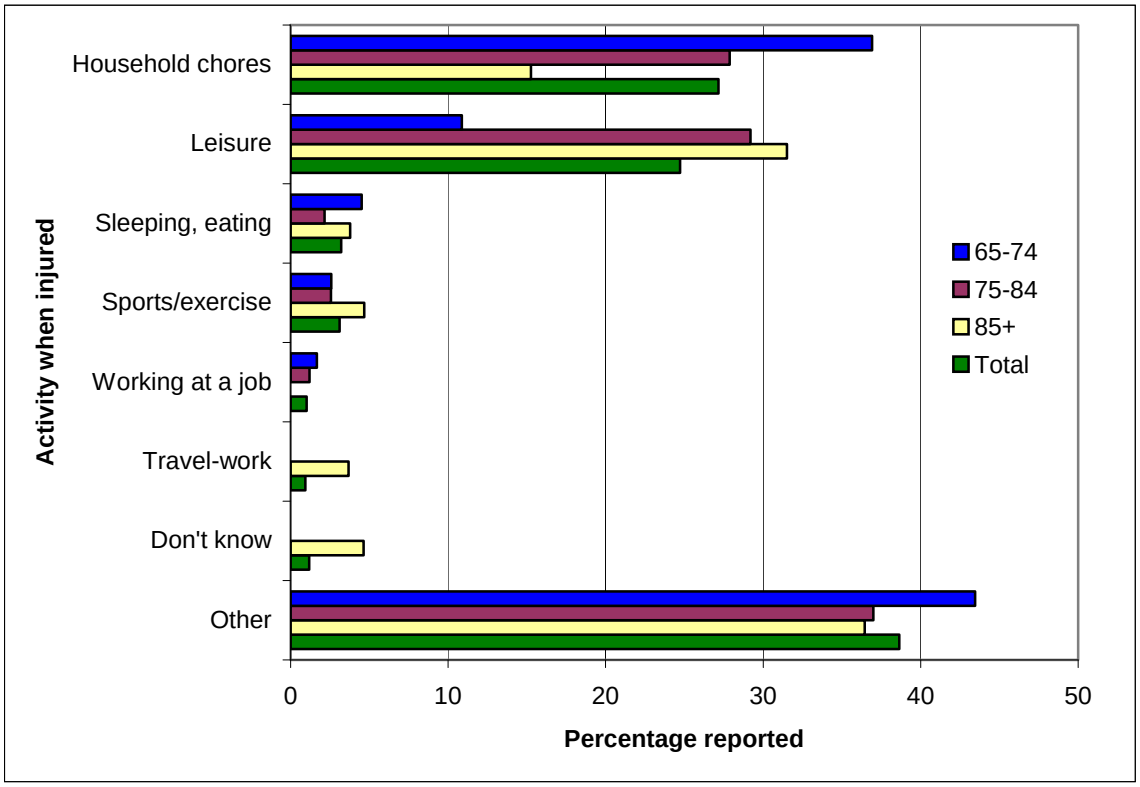
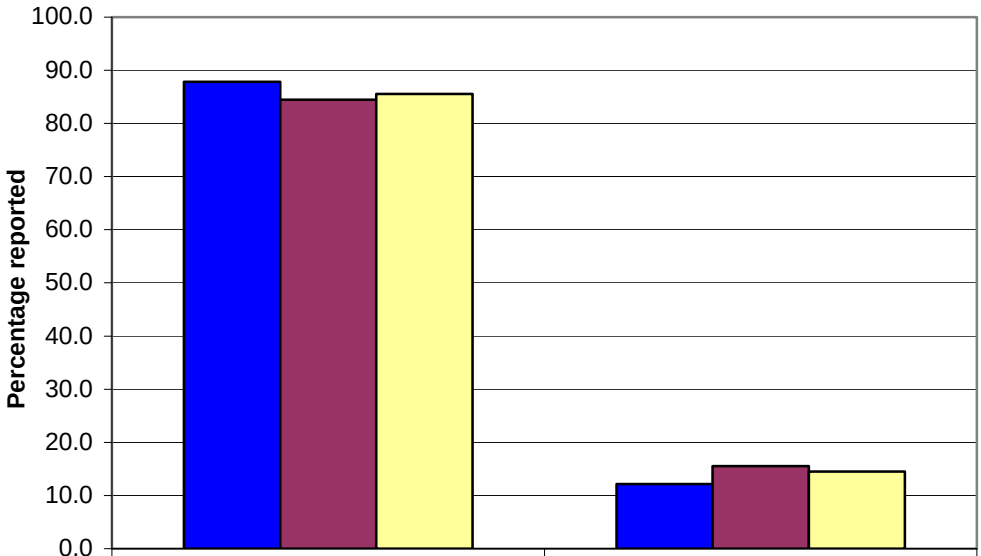


Figure 6.1.6. Percentage of injured seniors who reported activity of most serious fall injuries, by age-group, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005). **Notes on survey categories:** 1 Sports or physical exercise (include school activities), 2 Leisure or hobby (include volunteering), 3 Working at a job or business (exclude travel to or from work), 4 Travel to or from work, 5 Household chores, other unpaid work or education, 6 Sleeping, eating, personal care, 7 Other - Specify

- Most seniors in each age-group reported sustaining a fall injury while doing an activity that fell in 'other' category. About 44% of those between 65 and 74 years, about 37% between 75 and 84 years, and approximately 37% of those 85 years or older reported doing an activity in 'other' category. [Figure 6.1.6]

- 'Household chores' were the second most commonly reported activity for those between 65 and 74 years (about 37%), while 'leisure' was the second most commonly reported activity for those 75-84 years (approximately 29%) and 85 years and over (32%).

6.1.7 Single and Multiple Injuries Resulting from Falls by Sex

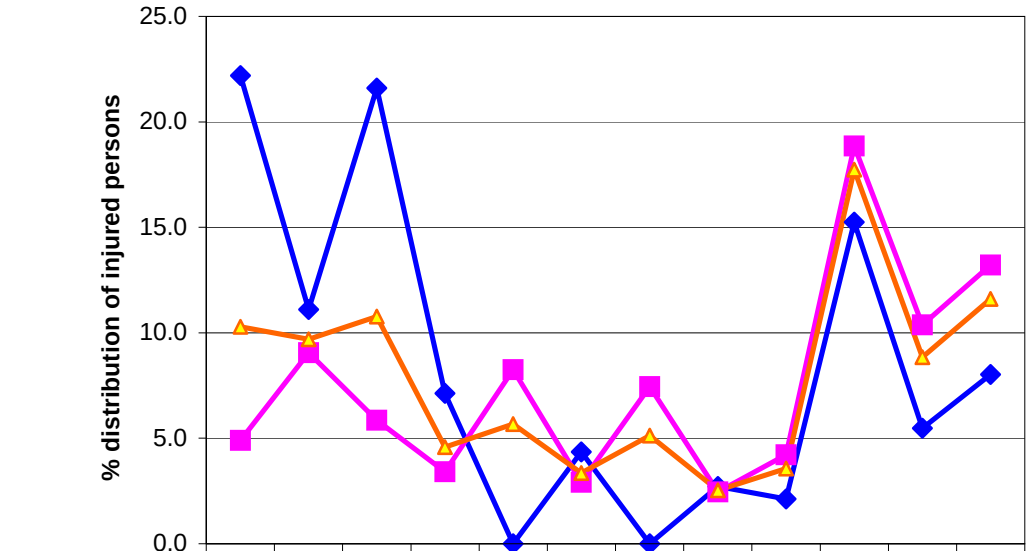


	Single injury	Multiple injuries
Female	87.8	12.2
Male	84.5	15.5
Both sexes	85.5	14.5

Figure 6.1.7. Percentage of injured seniors who reported single and multiple fall injuries, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Both women and men were much more likely to report sustaining a single injury than multiple injuries from a fall. However, women were slightly more frequent to report sustaining a single injury than men (about 87.8% compared to about 84.5%, respectively), while men reported slightly more frequently as sustaining a multiple injury than women (about 12.2% compared to about 15.5%, respectively). [Figure 6.1.7]

6.1.8 Distribution of Injurious Falls over the Year by Sex



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Female	22.2	11.1	21.6	7.1	0.0	4.4	0.0	2.7	2.1	15.3	5.5	8.0
Male	4.9	9.1	5.9	3.4	8.3	2.9	7.5	2.5	4.2	18.9	10.4	13.2
Both sexes	10.3	9.7	10.8	4.6	5.7	3.4	5.1	2.5	3.6	17.7	8.9	11.6

Month

Figure 6.1.8. Monthly occurrence pattern of fall injuries reported by seniors over a 12-month period preceding the year 2005, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Figure 6.1.8 displays the pattern of reported fall injuries according to time of year. Women reported a much higher incidence of fall injury than men in the months of January (about 22.5% compared to 5%, respectively) and March (approximately 22% compared to about 6%, respectively). However, both women (about 15%) and men (approximately 19%) showed a spike in reported fall injuries in October.

6.1.9 Type of Injury resulting from a Fall by Sex

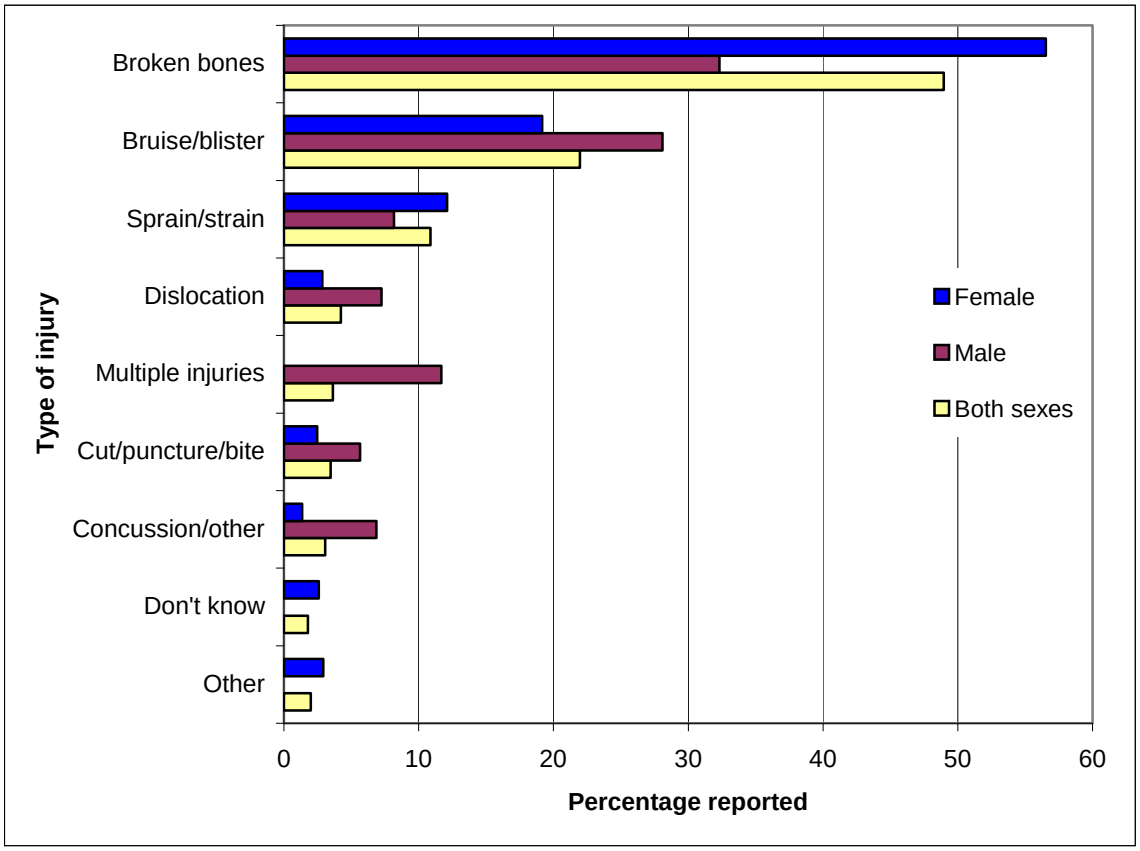


Figure 6.1.9. Percentage of injured seniors who reported type of serious injuries from falls, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).

- Both women and men reported 'broken bones' as the most common type of injury; however, women (approximately 57%) reported this type of injury much more frequently than men (about 32%). [Figure 6.1.9]

- 'Bruise/blister' was the second most common type of injury reported for both groups, with men (28%) more frequently reported than women (19%).

6.1.10 Place of Injury resulting from a Fall, by Sex

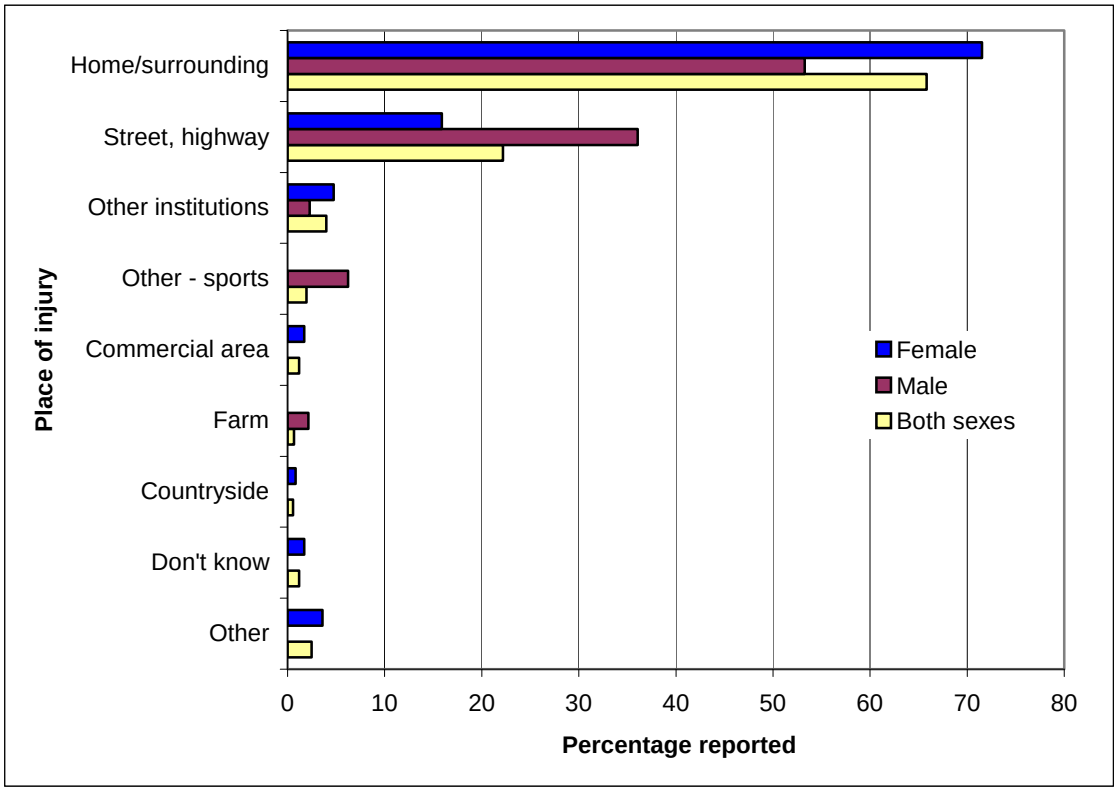


Figure 6.1.10. Percentage of injured seniors who reported place of serious fall injuries, by sex, Saskatchewan, (CCHS Cycle 3.1, 2005).

Notes on survey categories: 1 In a home or its surrounding area, 2 Residential institution, 3 School, college, university (exclude sports areas), 4 Sports or athletics area of school, college, university, 5 Other sports or athletics area (exclude school sports areas), 6 Other institution (e.g., church, hospital, theatre, civic building), 7 Street, highway, sidewalk, 8 Commercial area (e.g., store, restaurant, office building, transport, terminal), 9 Industrial or construction area, 10 Farm (exclude farmhouse and its surrounding area), 11 Countryside, forest, lake, ocean, mountains, prairie, etc., 12 Other – Specify.

- According to Figure 6.1.10, serious injuries from falls were most often reported to occur in the 'home/surrounding' area for both women (71%) and men (53%).

- Men (36%) reported a serious injury on the 'street, highway', more frequently than women (16%).

6.1.11 Type of Activity when Injured from a Fall, by Sex

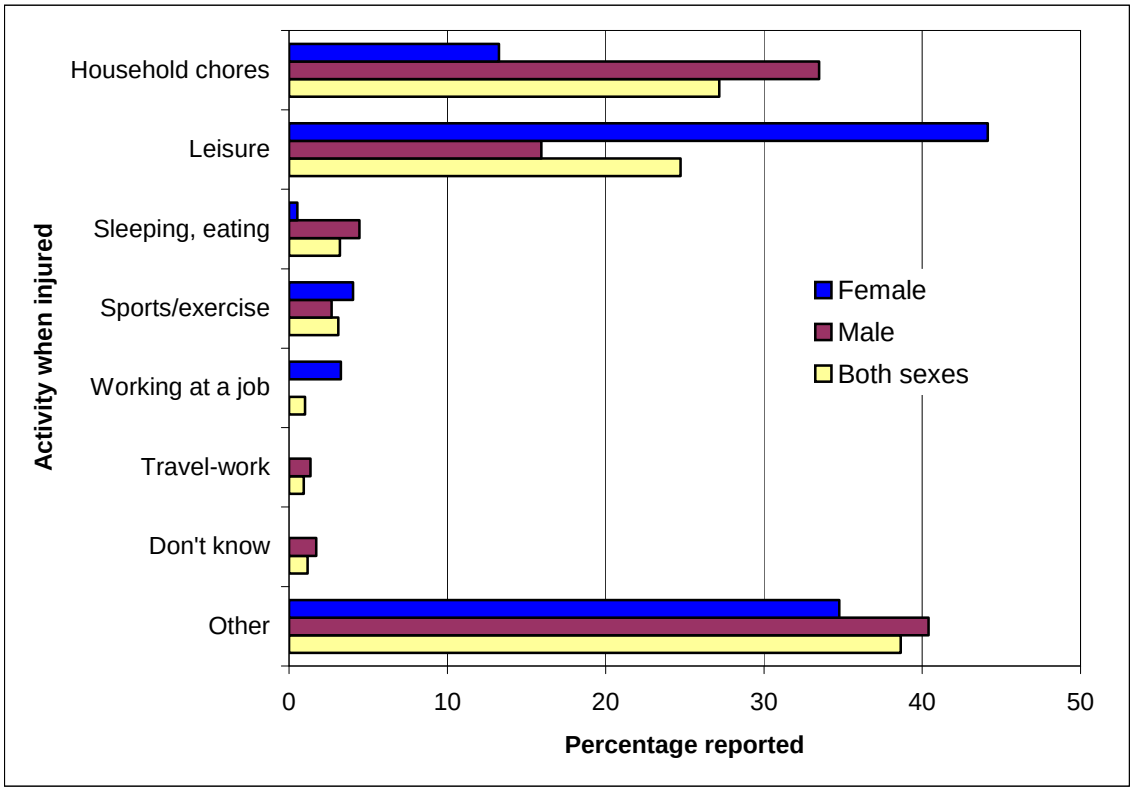


Figure 6.1.11. Percentage of injured seniors who reported activity of serious injuries from falls, by sex, Saskatchewan, 2005 (CCHS Cycle 3.1, 2005).
Notes on survey categories: 1 Sports or physical exercise (include school activities), 2 Leisure or hobby (include volunteering), 3 Working at a job or business (exclude travel to or from work), 4 Travel to or from work, 5 Household chores, other unpaid work or education, 6 Sleeping, eating, personal care, 7 Other - Specify

- Most men (41%) reported sustaining a fall injury while doing an activity of 'other category', while most women (44%) reported sustaining a fall injury during 'leisure' activities. [Figure 6.1.11]

- Household chores were the second most commonly reported activity for men (34%) and other activities not listed ranked as second most commonly reported in women (35%).

6.2 Injury Hospitalizations for Falls in Seniors, Saskatchewan, 1995/96-2004/05

6.2.1 Injury Hospitalizations by Age-group and Sex

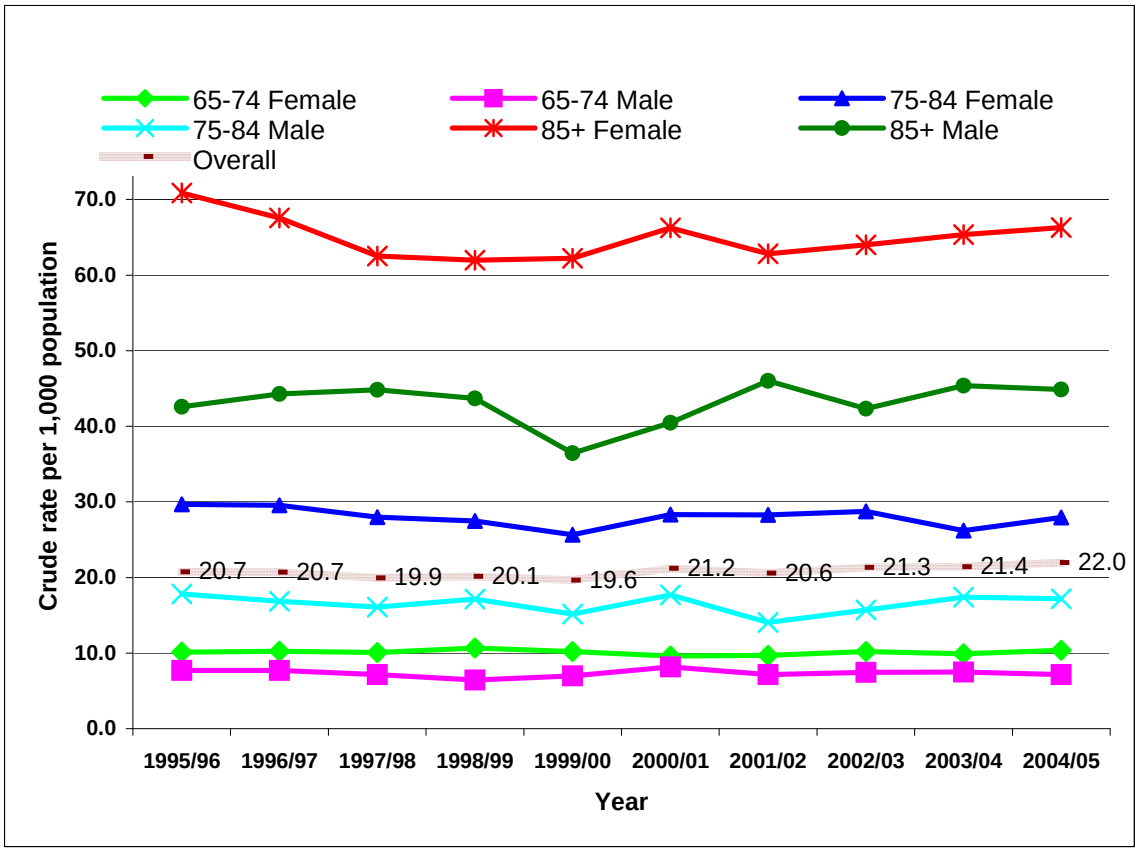


Figure 6.2.1. Age-sex specific rates of seniors hospitalized with fall injury per 1,000 population, Saskatchewan, 1995/96-2004/05.

- Overall, the trend in the unadjusted rates was fairly stable for hospitalization of seniors due to fall injury at around 20-22 per 1,000 population over the 10-year period. [Figure 6.2.1]

- In the 65-74 year age-group of both sexes, the rates remained stable between 1995/96 and 2004/05; with women having slightly higher hospitalization rates compared to men.

- For female seniors (75-84 years), the rates fluctuated between 26 to 30 per 1,000 population, while for males in the same age-group, the rates fluctuated between 14 and 18 per 1,000 population. The rates had a slightly declining trend in both sexes for this age-group.

- In the 85 year and older age-group, the rates for females declined from 71 to 66 per 1,000 population with some fluctuations, while the rates for males fluctuated between 36 and 46 per 1,000 population with an overall stable trend.

6.2.2 Injury Hospitalizations by Health Region

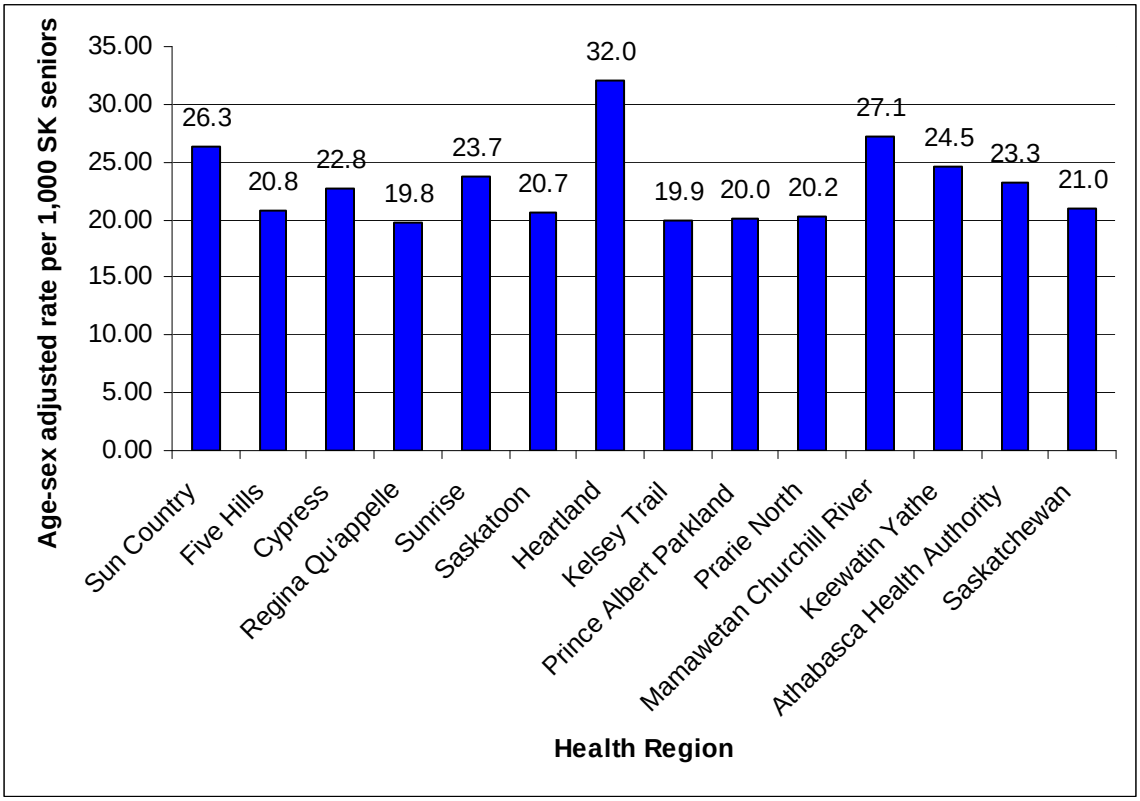


Figure 6.2.2. Age-sex adjusted rate of seniors hospitalized with fall injury per 1,000 population, by health region, Saskatchewan, 1995/96-2004/05.

- Seniors in the Heartland region had the highest rate of hospitalization due to a fall injury, with a rate of 32 per 1,000 population during 1995/96 to 2004/05. [Figure 6.2.2]

- The Mamawetan Churchill River and Sun Country regions had the second (27.1/1,000 population) and third (26.3/1,000 population) highest rates, respectively, while the remaining regions ranged from 20 to 25 per 1,000 population.

6.2.3 Injury Hospitalizations by Age-group and Health Region for Men

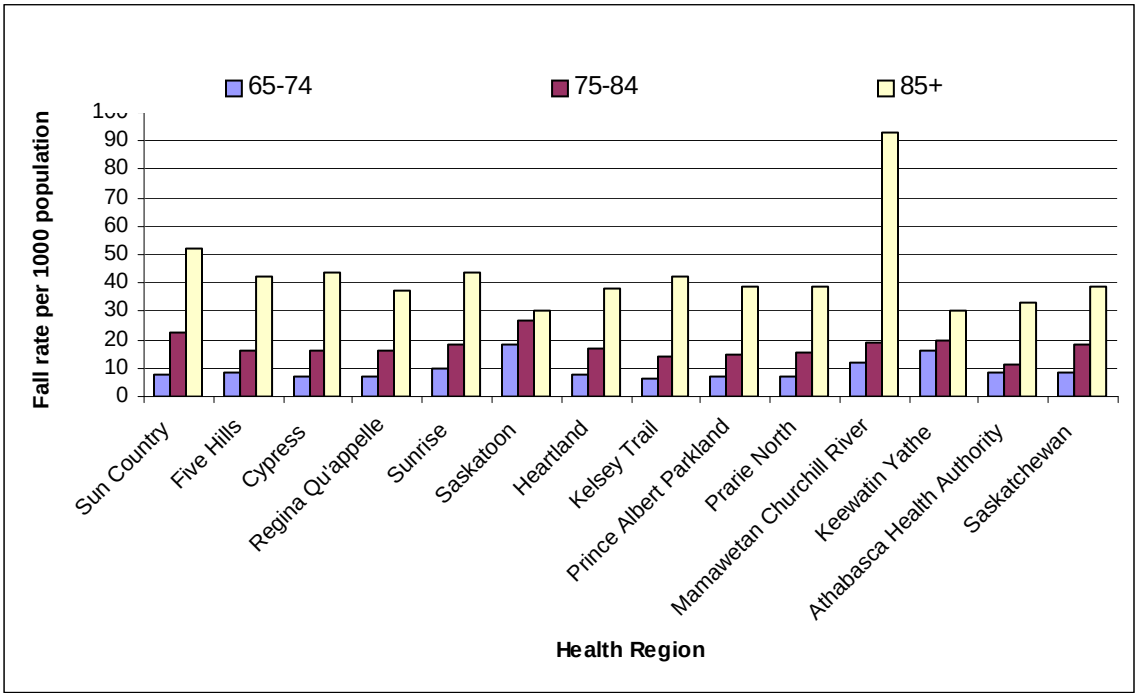


Figure 6.2.3. Rates of male seniors hospitalized with fall injury hospitalization cases per 1,000 population, by age-group and health region, Saskatchewan, 1995/96-2004/05.

- For men in every region, increasing age was associated with a much higher likelihood of being hospitalized due to a fall- related injury. [Figure 6.2.3]

- In Mamawetan Churchill River, those males aged 85 or older were much more likely to be hospitalized than in other regions (about 92 per 1,000 population, compared to about 30-52 per 1,000 population, respectively).

6.2.4 Injury Hospitalizations by Age-group and Health Region for Women

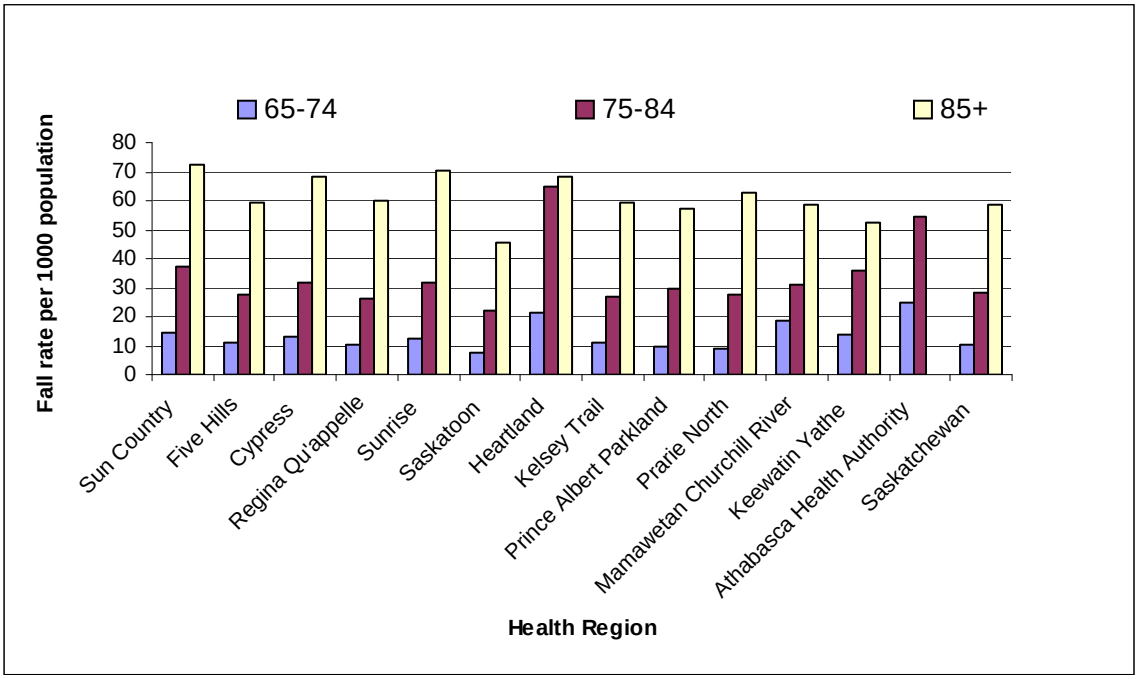


Figure 6.2.4. Rates of female seniors hospitalized with fall injury hospitalization cases per 1,000 population, by age-group and health region, Saskatchewan, 1995/96-2004/05.

- Similar to males, female seniors had increasing rates of hospitalization due to fall injuries as age increased. Females 85 years and older had the highest rates of hospitalization. In one region, Heartland, both 75-84 year olds and 85 year olds had high rates of fall injury hospitalization (65/1,000 population and 68/1,000 population, respectively). [Figure 6.2.4]

- The highest rate of fall injury hospitalization among those 85 and older (about 72/1,000 population) occurred in the Sun Country region.

6.2.5 Average Length of Stay by Year

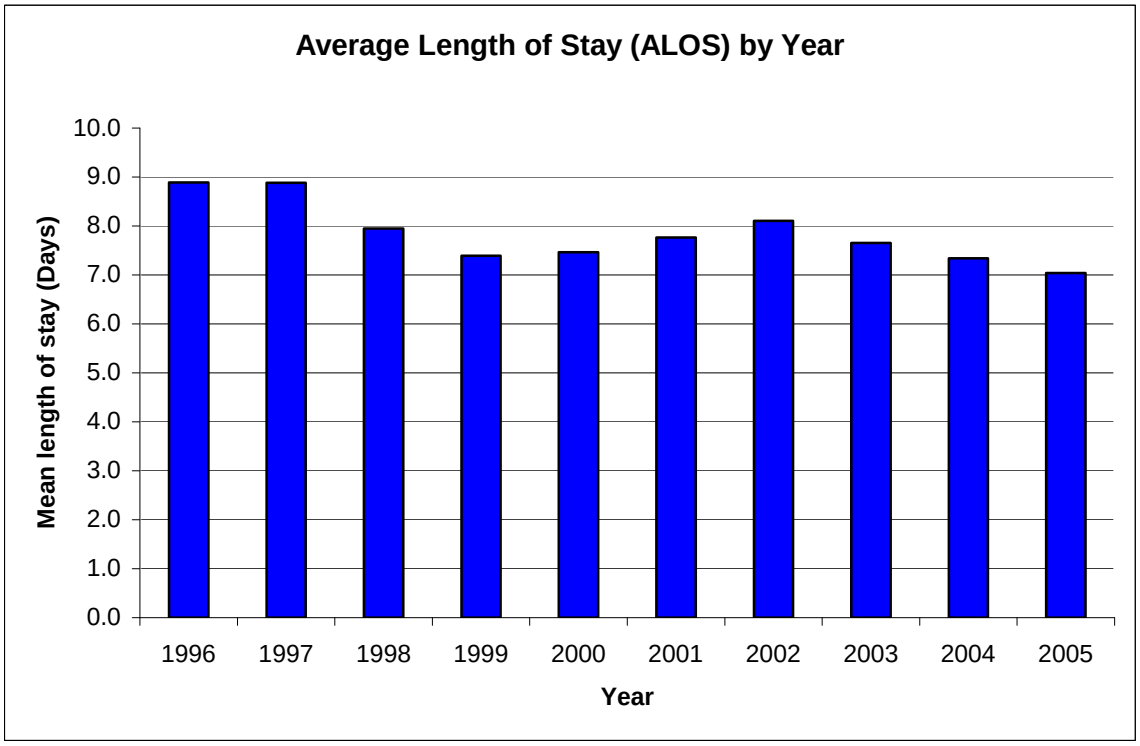


Figure 6.2.5. Trends of average length of stay (ALOS) in hospitalization of seniors with fall injury, Saskatchewan, 1995/96-2004/05.

- Overall, average length of stay in hospital due to fall injury declined between 1995/96 and 2004/05, declining from about 8.9 days in 1995/96 to about 7.0 days in 2004/05. [Figure 6.2.5]

6.2.6 Average Length of Stay by Sex and Age-group

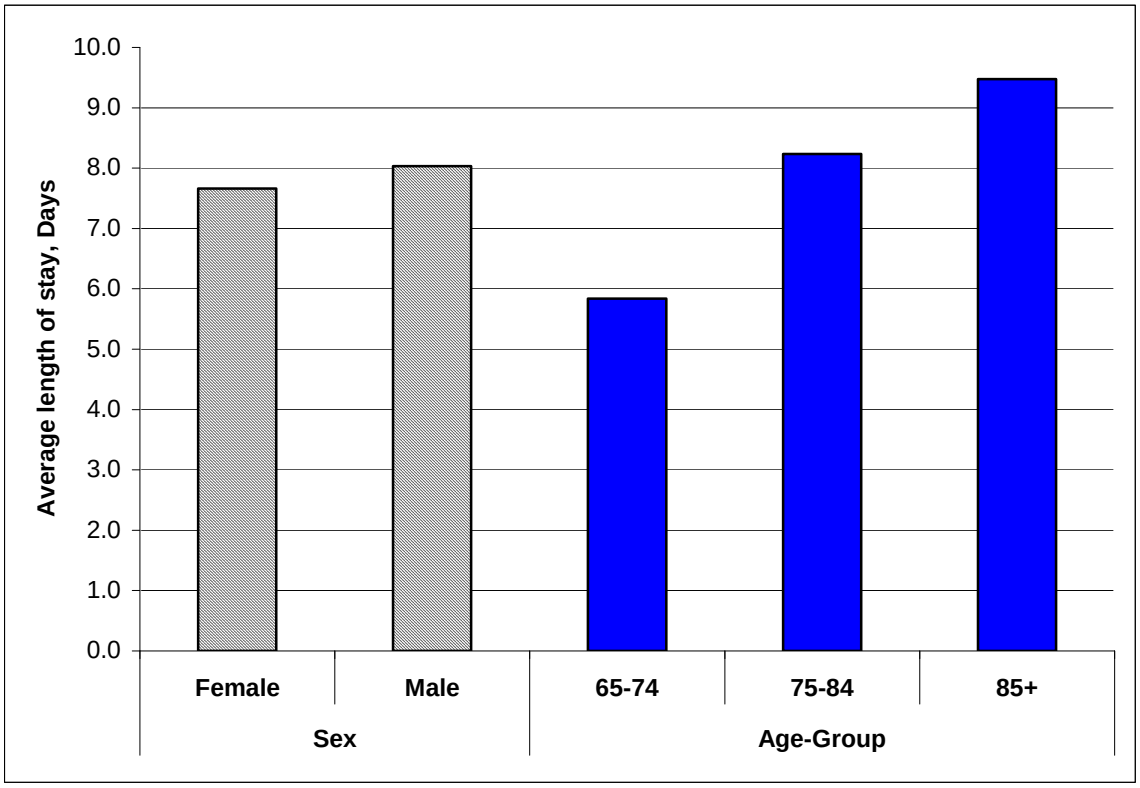


Figure 6.2.6. Average length of stay (ALOS) in hospitalization of seniors with fall injury, by sex and age-group, Saskatchewan 1995/96-2004/05.

- Average length of stay (including day surgeries) in hospital due to fall injury was shorter for women (7.7 days) than men (8.0 days) between 1995/96 and 2004-05. [Figure 6.2.6]

- A increasing ALOS in hospital from 1995/96 to 2004/05 was observed with increasing age, as seniors between 65-74 years stayed about 6.9 days, compared to 8.1 days for those between 75-84 and 9.4 days for those 85 years and older.

6.2.7 Average Length of Stay by Health Region

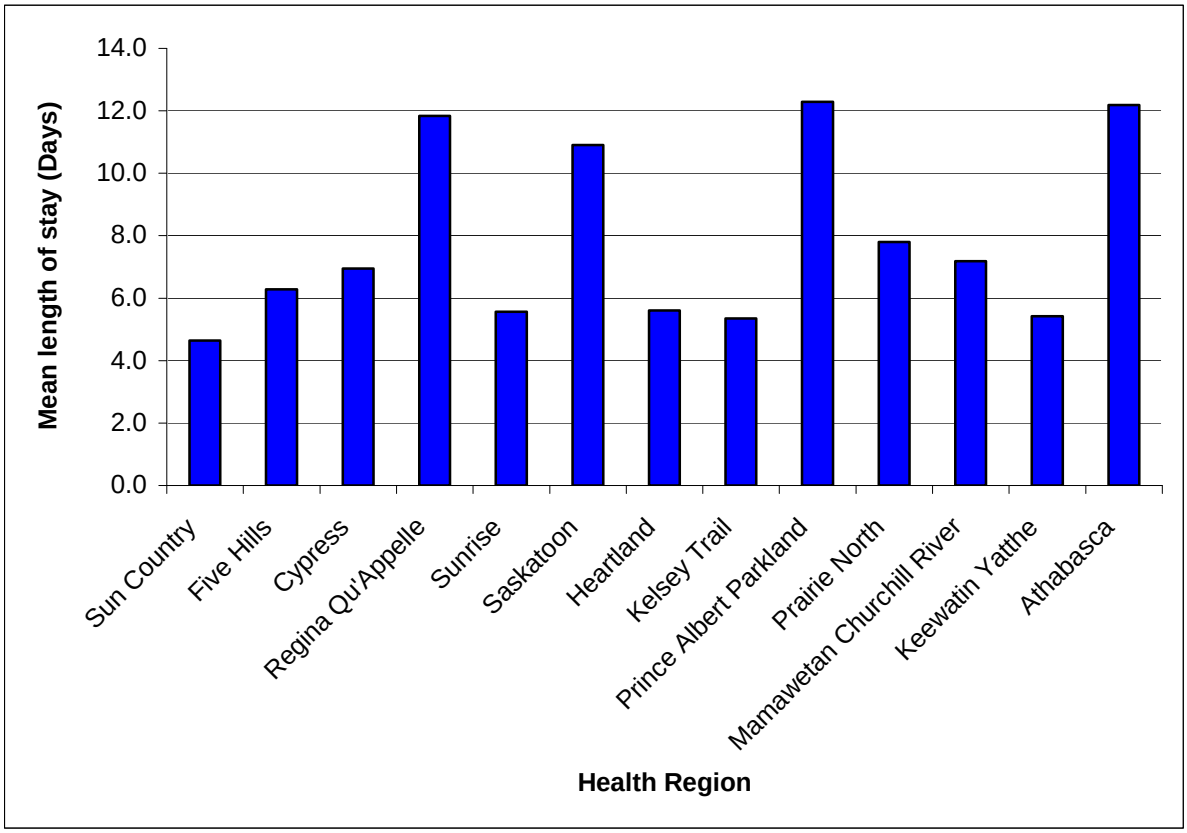


Figure 6.2.7. Average length of stay (ALOS) in hospitalization of seniors with fall injury, by health region, Saskatchewan, 1995/96-2004/05.

- Seniors in the health regions, namely, Regina Qu'Appelle (11.9 days), Saskatoon (11.0 days), Prince Albert Parkland (12.1 days), and Athabasca (12.1 days), had much longer average stays than the remaining regions, which ranged between 4.8 days in Sun Country to 7.9 days in Prairie North. [Figure 6.2.7]

7.0 CHILD AND YOUTH INJURIES

Injury is the leading threat to the health of children and youth aged 1 to 19. This chapter examines injury-related hospitalizations and deaths of Saskatchewan children and youth under 20 years of age. The information is reported according to the main causes of injury for this age-group. In some sections, analysis is also provided by specific categories such as age-group, sex and health region. The provision of information at this level may offer communities the opportunity to determine injury prevention and control strategies for their particular area.

- Every 4.5 days a child or youth dies and 38 are hospitalized due to injury in Saskatchewan.

7.1 Overview of Child and Youth Injury Hospitalizations in Saskatchewan, 1995/96-2004/2005

This section discusses injury hospitalizations for Saskatchewan children and youth under 20 years of age.

- The top six categories of external causes of injury hospitalizations for each age-group are displayed in Table 7.1.1.
- For the period of 1995/96 to 2004/05, the total number of injury-related hospitalizations for children and youth under 20 years of age was 30,896. [Table 7.1.2]
- The most common cause of injury-related hospitalizations for children and youth under 15 was falls. Falls accounted for 28.8% of total hospitalizations.
- Male children and youth accounted for 62% of these injury-related hospitalizations, while the majority of hospitalizations occurred in the 15 - 19 age-group.

Table 7.1.1. Ranking of major six categories of external causes of injury hospitalizations for children and youth aged 0-19, by age-group, Saskatchewan, 1995/96-2004/05.

Rank	Age-group, years					
	Under 1	1-4	5-9	10-14	15-19	Total
1	Falls (334)	Falls (1748)	Falls (2875)	Falls (2424)	Motor transport incidents (2904)	Falls (8904)
2	Drowning, submersion & suffocation (124)	Poisoning (1269)	Motor transport incidents (857)	Motor transport incidents (1467)	Suicide & self harm (1793)	Motor transport incidents (5615)
3	Assault & homicide (116)	Drowning, submersion & suffocation (372)	Drowning, submersion & suffocation (157)	Suicide & self harm (572)	Falls (1523)	Suicide & self harm (2405)
4	Poisoning (103)	Motor transport incidents (361)	Poisoning (144)	Assault & homicide (217)	Assault & homicide (1164)	Poisoning (1905)
5	Motor transport incidents (26)	Assault & homicide (150)	Assault & homicide (63)	Poisoning (136)	Poisoning (253)	Assault & homicide (1710)
6	Fire & Flames (6)	Fire & Flames (56)	Fire & Flames (53)	Drowning, submersion & suffocation (85)	Fire & Flames (85)	Drowning, submersion & suffocation (791)

Table 7.1.2. Number of hospitalizations by injury cause, sex and age-group for children and youth aged 0-19, Saskatchewan, 1995/96-2004/05.

Causes of injury	Age-groups, years															Total		
	Under 1			1 - 4			5 - 9			10 - 14			15 - 19					
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Assault, Homicide and injury purposely inflicted by other persons	68	48	116	94	56	150	30	33	63	141	76	217	941	223	1164	1274	436	1710
Drowning, submersion	58	66	124	193	179	372	82	75	157	56	29	85	40	13	53	429	362	791
Falls	186	148	334	952	796	1748	1642	1233	2875	1630	794	2424	1050	473	1523	5460	3444	8904
Fire and Flames	(--)*	(--)*	6	33	23	56	38	15	53	69	10	79	71	14	85	215	64	279
Motor vehicle transports	12	14	26	221	140	361	527	330	857	951	516	1467	1851	1053	2904	3562	2053	5615
Poisoning	58	45	103	708	561	1269	86	58	144	65	71	136	127	126	253	1044	861	1905
Suicide, Self inflected harm	(--)*	(--)*	(--)*	10	10	20	10	7	17	117	455	572	507	1286	1793	645	1760	2405
Other causes of injury	202	145	347	819	573	1392	886	479	1365	1728	718	2446	2824	913	3737	6459	2828	9287
Total	**589**	**470**	**1059**	**3030**	**2338**	**5368**	**3301**	**2230**	**5531**	**4757**	**2669**	**7426**	**7411**	**4101**	**11512**	**19088**	**11808**	**30896**

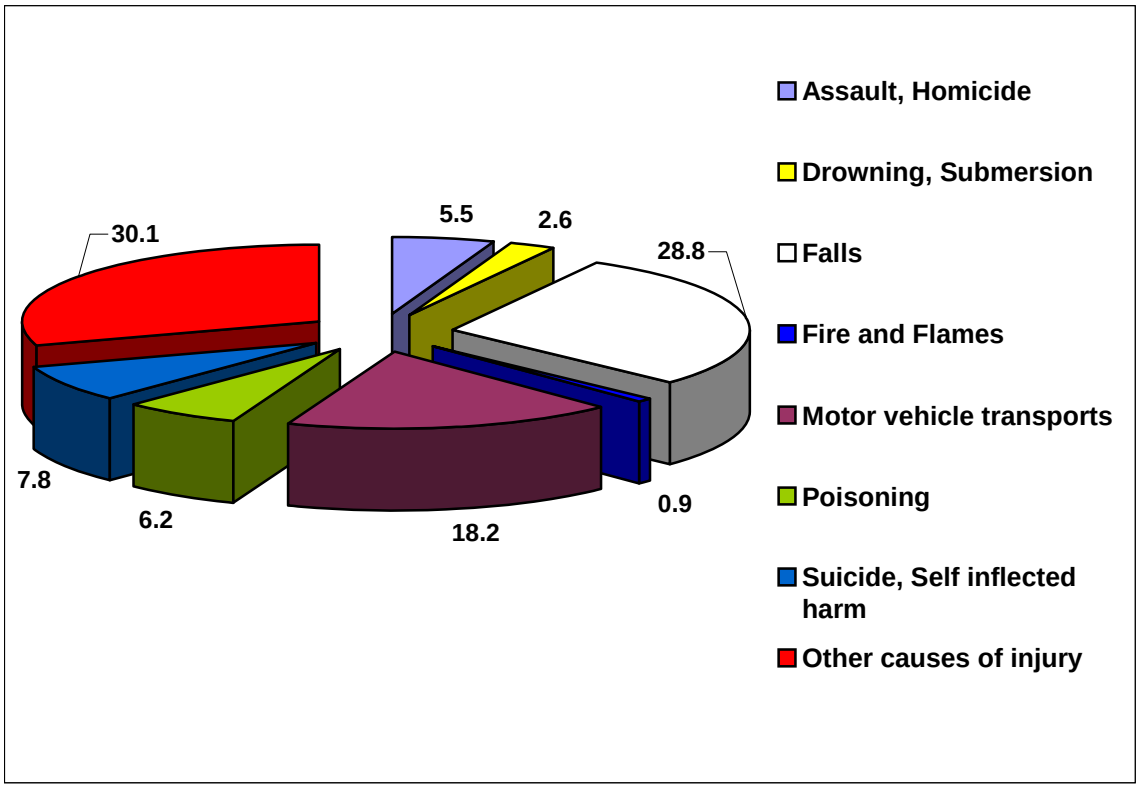


Figure 7.1.1. Percentage frequencies of main causes of hospitalization due to injury for children and youth aged 0-19, Saskatchewan, 1995/96-2004/05.

- Falls were the leading cause of injury hospitalization in 0-19 year olds (28.8%). Motor vehicle transport-related injuries were the second leading cause of hospitalization (18.2%), followed by suicide/self-inflicted harm (7.8%), poisoning (6.2%), assault, homicide, and injury purposely inflicted by other persons (5.5%), drowning, submersion and suffocation (2.6%), and fire and flames (0.9%). Other causes of injury category (30.%) comprises several minor causes. [Figure 7.1.1]

Table 7.1.3. Causes of injury hospitalization in children and youth by age-group, Saskatchewan, 1995/96-2004/05 (%).

Cause	Age-groups, years					Total
	Under 1	1 - 4	5 - 9	10 - 14	15 - 19	
Assault, Homicide and injury purposely inflicted by other persons	11	2.8	1.1	2.9	10.1	5.5
Drowning, submersion	11.7	6.9	2.8	1.1	0.5	2.6
Falls	31.5	32.6	52	32.6	13.2	28.8
Fire and Flames	0.6	1	1	1.1	0.7	0.9
Motor vehicle transports	2.5	6.7	15.5	19.8	25.2	18.2
Poisoning	9.7	23.6	2.6	1.8	2.2	6.2
Suicide, Self inflected harm	0.3	0.4	0.3	7.7	15.6	7.8
Other causes of injury	32.8	25.9	24.7	32.9	32.5	30.1

- As Table 7.1.3 indicates, the leading causes of injury hospitalizations vary by age-group.
- For children under age 1, leading causes were: falls (31.5%); drowning, submersion (11.7%); assault (11.0%).
- Falls (32.6%), poisoning (23.6%), drowning, submersion (6.9%) were the leading causes of hospitalization for the 1-4 age-group.
- The leading causes in the 5-9 age-group were: falls (52.0%); motor vehicle transports (15.5%); drowning, submersion (2.8%).
- For 10-14 year olds, falls (32.6%), motor vehicle transports (19.8%), suicide, self inflicted harm (7.7%) were the most frequent causes of hospitalization.
- The 15-19 year age-group were hospitalized most frequently due to motor vehicle transports (25.2%), suicide, self inflicted harm (15.6%) and falls (13.2%).

7.1.1 Causes of Child and Youth Injury Hospitalizations, by Health Region, Saskatchewan, 1995/96-2004/05

Geographic specific information by cause of injury hospitalization can assist health regions to devise and implement plans for injury prevention and control. The ten year rate per 100,000 population for 1995/96-2004/05 for each of the main causes of injury-related hospitalizations appears in Table 7.1.4.

- There is considerable variation between health regions regarding the rates of the main causes of injury-related hospitalization. For example, in the case of assault, homicide, and injury purposefully inflicted, the rates vary from 5.58/100,000 population in Cypress to 53.05/100,000 population in Athabasca. [Table 7.1.4]

- For the three Northern health regions, (Mamawetan Churchill River, Keewatin Yatthé, and Athabasca) the injury hospitalization rates for all causes tend to be greater than the Saskatchewan rate.

- The highest rate (per 100,000 population) of injury hospitalization averaged over this 10 year period can be attributed to falls. The three health regions with the highest rates of injury hospitalization due to falls were Mamawetan Churchill River, Sun Country, and Athabasca. The health regions with the lowest rates for falls were Heartland, Saskatoon, and Kelsey Trail.

Table 7.1.4. Main causes of injury-related hospitalizations for children and youth aged 0-19 by health region, Saskatchewan, 1995/96-2004/05 (Counts and Age-sex adjusted rates per 100,000 population).

Health Region	Assault, Homicide, and injury purposefully inflicted		Drowning submersion		Falls		Fire and Flame		Motor vehicle transports		Poisoning		Suicide, self harm		Other causes of injury		Total	
	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Athabasca	18	53.1	(--) *	8.5	39	110.0	5	14.5	39	113.3	9	24.7	5	14.8	59	167.9	177	506.8
Cypress	24	5.6	31	7.9	369	90.3	10	2.4	276	65.6	74	18.8	69	16.0	384	92.2	1234	298.0
Five Hills	59	11.0	43	9.2	522	105.4	12	2.3	327	62.6	145	30.9	99	18.4	551	104.8	1757	344.4
Heartland	30	6.3	32	7.5	301	65.1	16	3.4	349	73.7	48	11.3	60	12.3	450	97.6	1284	279.8
Keewatin Yatthe	48	31.3	18	10.5	177	106.9	12	7.3	114	72.2	30	17.5	55	36.9	157	98.5	611	381.0
Kelsey Trail	60	14.0	36	8.6	353	83.9	17	4.0	234	55.2	68	16.3	132	31.5	388	91.7	1288	305.3
Mamawetan Churchill River	139	49.4	44	13.1	387	121.1	18	6.0	205	70.4	105	32.3	168	62.7	366	123.0	1434	478.7
Prairie North	168	21.3	59	7.2	767	95.1	31	3.9	579	73.2	173	21.2	183	23.5	811	101.3	2770	346.5
Prince Albert Parkland	175	21.7	65	7.8	869	105.9	44	5.4	448	55.4	167	20.1	259	32.4	834	102.6	2861	351.2
Regina Qu'Appelle	454	19.5	214	9.4	1994	86.5	40	1.7	1109	47.5	532	23.3	663	20.1	2045	88.0	7050	303.9
Saskatoon	359	13.1	156	5.8	1986	72.8	44	1.6	1180	42.9	296	10.9	531	19.2	1966	71.7	6519	238.0
Sun Country	75	14.5	36	7.2	614	121.0	17	3.3	428	82.6	117	23.4	114	21.7	586	113.8	1986	387.2
Sunrise	102	20.4	56	12.3	528	109.8	13	2.7	327	64.4	144	31.1	68	12.9	687	138.9	1924	392.2
Sask	**1711**	**21.6**	**793**	**8.8**	**8906**	**98.2**	**279**	**4.5**	**5615**	**67.6**	**1908**	**21.7**	**2406**	**25.4**	**9284**	**107.1**	**30895**	**354.8**

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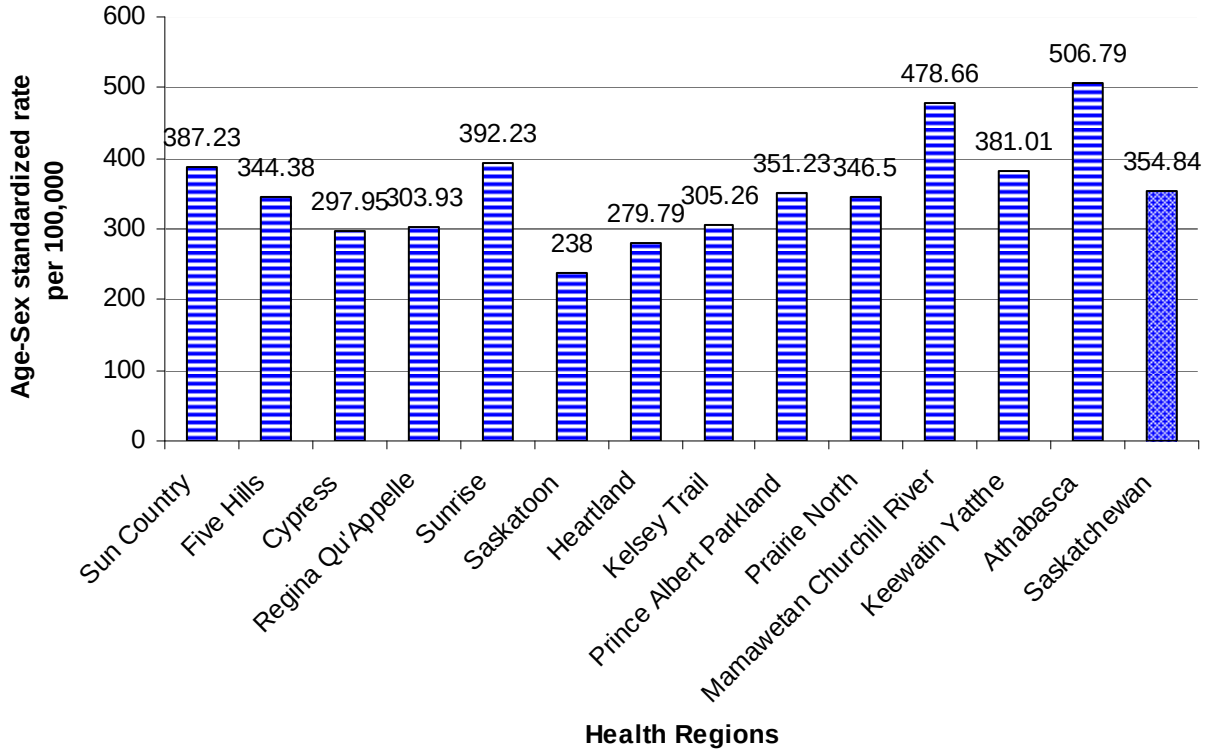


Figure 7.1.2. Age-sex adjusted rates for all causes of injury hospitalizations in children and youth aged 0-19 years, by health region, Saskatchewan, 1995/96-2004/05.

- Figure 7.1.2 illustrates the high rate of injury hospitalizations in the Northern health regions. The figure also indicates that two of the southern health regions, Sunrise and Sun Country, have a rate of injury hospitalizations that is higher than the provincial rate. Table 7.1.4 depicts Sun Country's rates of falls and motor vehicle transport-related injuries as substantively higher than provincial rates.

7.1.2 Child and Youth Injury Hospitalizations: Average Length of Stay (ALOS)

Table 7.1.5 shows the average length of stay in days (ALOS) in hospital for Saskatchewan children and youth by injury cause, sex and age-group from 1995/96 to 2004/05. The table also provides the ALOS for each health region.

- Fire and flame-related injuries account for the longest ALOS in hospital for children and youth.
- Males have slightly longer ALOS than females.
- Children under age 1 tend to stay the longest in hospital after injury.

Table 7.1.5. Average length of stay (ALOS) for injury hospitalization in children and youth aged 0-19, Saskatchewan, 1995/96-2004/05.

Health Region	ALOS	Standard Error
Athabasca	5.13	0.72
Cypress	4.85	0.28
Five Hills	4.56	0.24
Heartland	4.73	0.29
Keewatin Yatthe	4.63	0.37
Kelsey Trail	5.17	0.27
Mamawetan Churchill River	4.87	0.25
Prairie North	4.61	0.2
Prince Albert Parkland	5.04	0.19
Regina Qu'Appelle	5.20	0.14
Saskatoon	5.16	0.15
Sun Country	3.86	0.23
Sunrise	4.51	0.24
Sex		
Male	4.85	0.14
Female	4.73	0.13
Age-group		
Under 1	6.01	0.31
1-4	4.73	0.16
5-9	4.31	0.16
10-14	4.10	0.15
15-19	4.83	0.14
Cause		
Assault	3.96	0.21
Drowning, submersion	2.89	0.29
Falls	3.05	0.12
Fire/Flames	10.06	0.47
Motor vehicles	6.22	0.14
Poisoning	2.33	0.21
Self harm/suicide	5.05	0.20
Year		
1995/96	4.65	0.19
1996/97	5.14	0.19
1997/98	4.17	0.19
1998/99	4.51	0.19
1999/00	4.36	0.19
2000/01	4.98	0.19
2001/02	4.76	0.20
2002/03	5.09	0.21
2003/04	5.11	0.21
2004/05	5.17	0.22

7.2 Overview of Child and Youth Injury Deaths, Saskatchewan, 1995-2005

This section discusses injury-related deaths by cause for Saskatchewan children and youth under 20 years of age.

Table 7.2.1. Number and percentage of total deaths by injury cause of children and youth aged 0-19, Saskatchewan, 1995-2005.

Cause	Number of Injury Deaths	% of Total Injury Deaths
Motor Vehicle	318	39.2
Self-Injury	155	19.1
Drowning	70	8.6
Fire and Flame	42	5.2
Assaults	41	5.0
Pedestrian	31	3.8
Poisoning	31	3.8
Undetermined	16	2.0
Falls	15	1.8
Cycle	12	1.5
All other causes	81	10.0
Total	**812**	**100**

- Table 7.2.1 displays both injury deaths and percentage of total injury deaths by cause in descending order.

- A total of 812 Saskatchewan children and youth died due to injury in the period of 1995 to 2005.

- Motor vehicle-related injuries account for the largest proportion of all injury-related deaths (39.2%), followed by self-injury (19.1%), and drowning (8.6%).

Table 7.2.2. Percentage of deaths by injury cause of children and youth by age-group, Saskatchewan, 1995-2005.

	Age-group, years				
Cause	**<1**	**1 - 4**	**5 - 9**	**10 - 14**	**15 - 19**
Assaults	10.8	4.0	3.8	2.6	5.6
Cycle	0.0	3.0	1.3	1.7	1.3
Drowning	29.7	20.8	24.4	3.4	3.1
Falls	2.7	6.9	1.3	0.0	1.3
Fire	5.4	18.8	14.1	5.1	0.8
Motor Vehicle	13.5	18.8	34.6	43.6	45.1
Pedestrian	0.0	5.9	6.4	4.3	3.1
Poisoning	2.7	4.0	1.3	6.0	3.8
Self-Injury	0.0	0.0	1.3	19.7	27.3
Undetermined	10.8	3.0	0.0	0.9	1.7
All other causes	24.3	14.9	11.5	12.8	6.9

- In all age categories, the greatest number of injury deaths occurred in males.
- Table 7.2.2 portrays the number of injury deaths by age-group according to main causes of death.
- For children under age 1: drowning (29.7%), motor vehicle (13.5%), and assault (10.8%) were the leading causes of injury death.
- In the age-group 1 – 4 years: drowning (20.8%), fire and flame-related incidents (18.8%), and motor vehicle incidents (18.8%) were the primary causes of death.
- Motor vehicle incidents (34.6%), drowning (24.4%), and fire and flame-related injuries (14.1%) were the chief causes of death in the 5 - 9 year age-group.
- In the 10 - 14 year age-group: motor vehicle incidents (43.6%), self-injury (19.7%), and fire and flame-related injuries (5.1%) caused the greatest percentage of fatalities.
- In the oldest age-group, ages 15 – 19 years: motor vehicle incidents (45.1%), self-injury (27.3%), and assaults (5.6%) were the leading causes of death.

7.2.1 Child and Youth Injury Deaths by Health Region, Saskatchewan, 1995-2005

The total number of deaths due to injury for Saskatchewan children and youth were compared across health regions [see Figures 7.2.1 and 7.2.2].

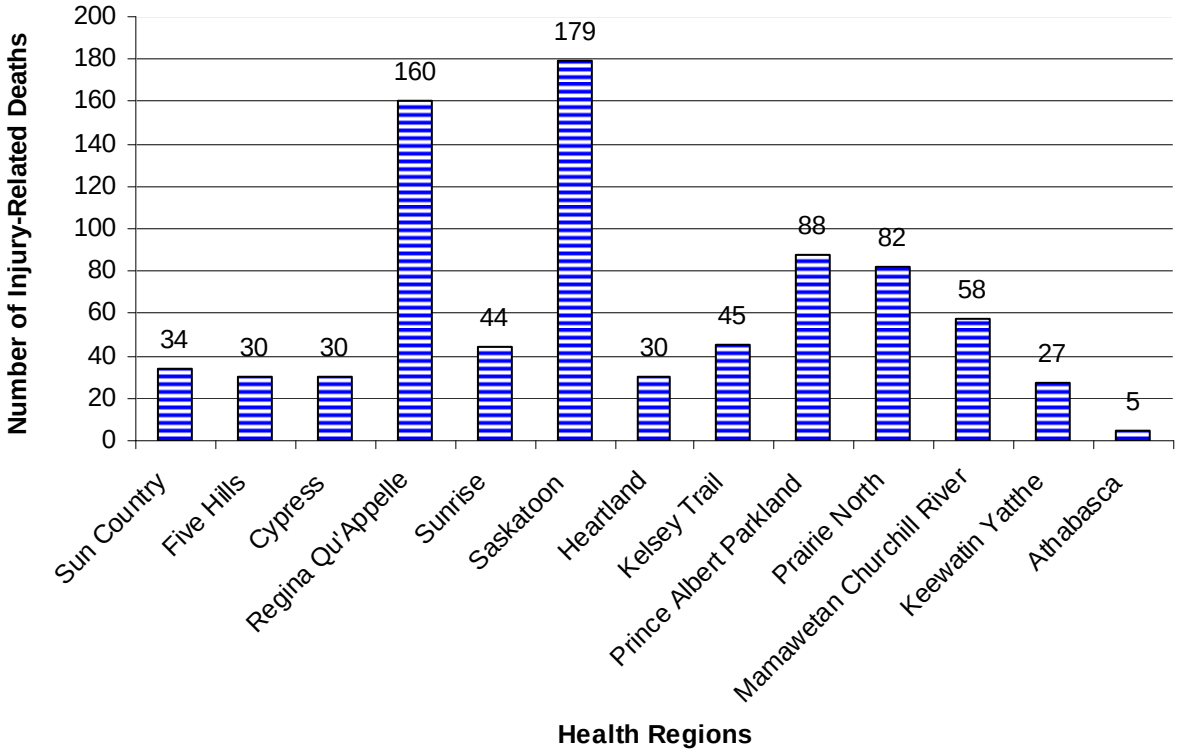


Figure 7.2.1. Total number of deaths due to injury for children and youth aged 0 to 19, by health region, Saskatchewan, 1995-2005.

- An expected finding is the health regions that comprise the cities of Saskatoon and Regina had the highest number of deaths due to injury, 179 and 160 respectively. [Figure 7.2.1]

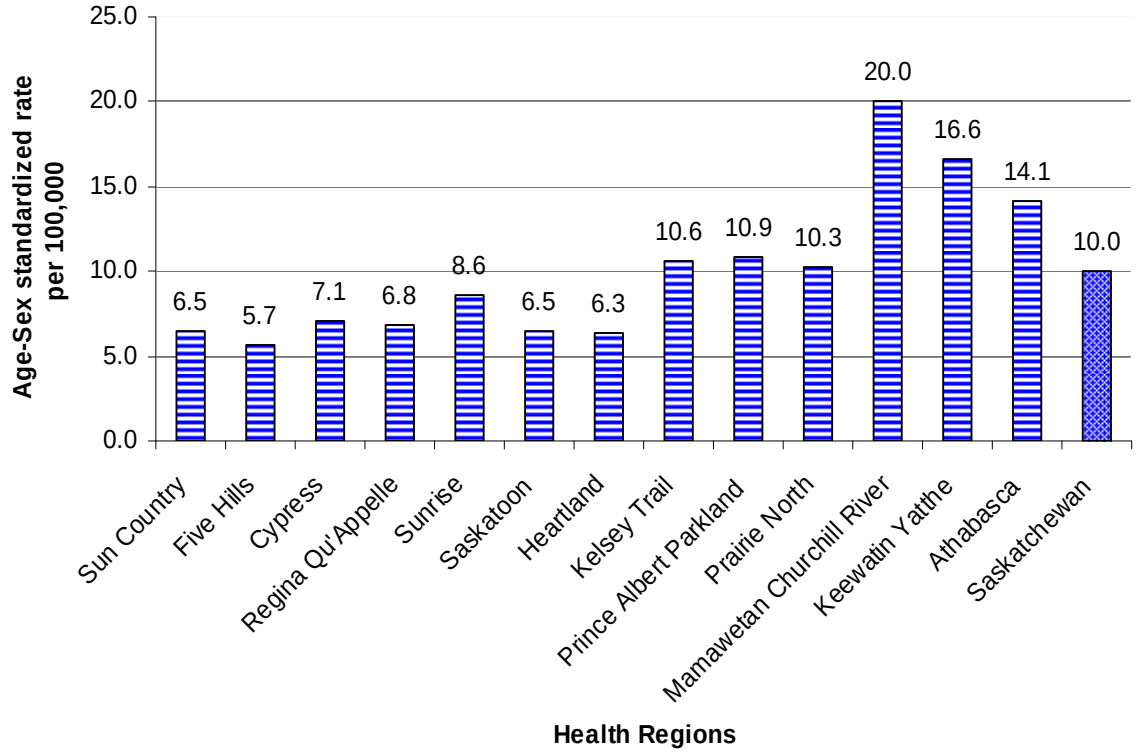


Figure 7.2.2. Age-sex adjusted rates for all causes of injury deaths in children and youth aged 0-19, by health region, Saskatchewan, 1995-2005.

- The Northern health regions had the highest rates of injury-related deaths in the province. The north-central regions (Kelsey Trail, Prince Albert Parkland, and Prairie North) had injury-related rates of death that were slightly higher than the provincial rate. [Figure 7.2.2]

8.0 MOTOR VEHICLE INJURIES AND FATALITIES

SGI attempts to capture information on all passengers involved in injury or fatal collisions. Traffic Accident Information System (TAIS) records only collisions on public roads. Therefore, many of the collisions involving snowmobiles and off-highway vehicles are not included in these numbers. Bicycle collisions are recorded only if the collision occurs with a motor vehicle on the roadway.

8.1 Trends in Casualty Collisions

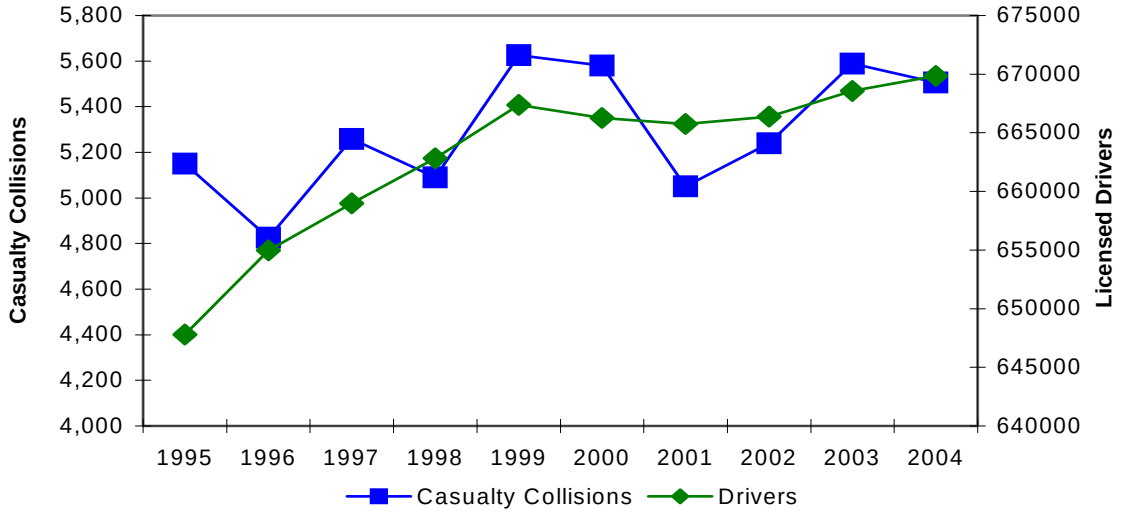
8.1.1 Casualty Collisions, 1995-2004

- There were 5,150 casualty collisions in 1995 and 5,506 in 2004, indicating a 6.9 per cent net increase during this ten-year period, despite fluctuations in some years. [Table 8.1.1]

Table 8.1.1. Casualty collisions and casualties by severity, Saskatchewan, 1995-2004.

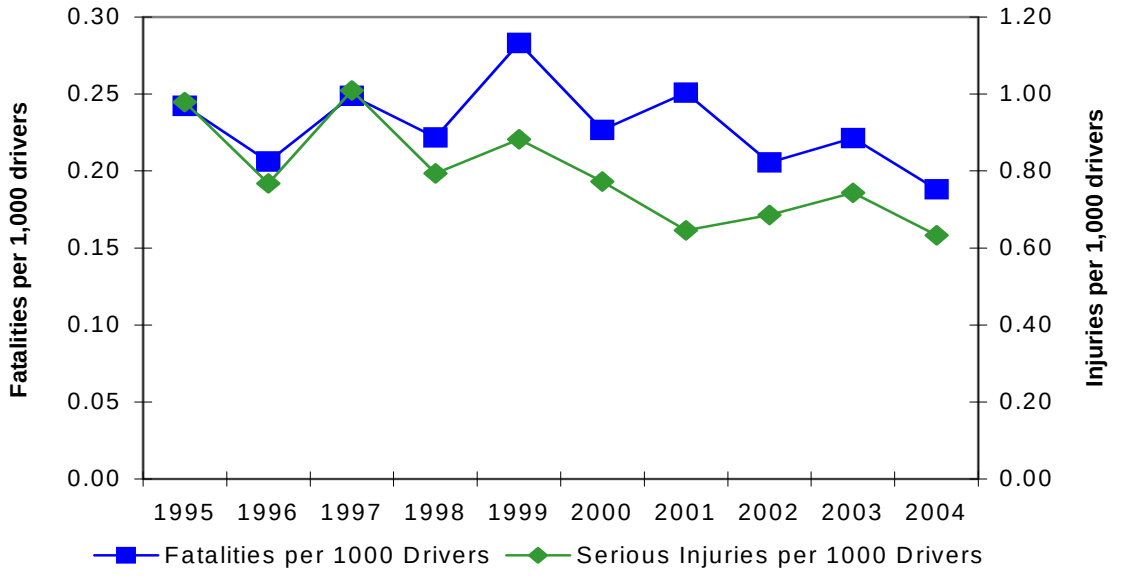
	Casualty Collisions			*Casualties*	
	Personal Injury Collisions	*Fatal Collisions*	*Total*	*Injuries*	*Fatalities*
1995	5,015	135	5,150	7,472	157
1996	4,719	106	4,825	6,833	135
1997	5,128	130	5,258	7,619	164
1998	4,963	127	5,090	7,226	147
1999	5,476	150	5,626	8,035	189
2000	5,443	137	5,580	7,861	151
2001	4,911	140	5,051	6,964	167
2002	5,117	123	5,240	7,312	137
2003	5,454	136	5,590	7,684	148
2004	5,401	105	5,506	7,541	126
Total	**51,627**	**1,289**	**52,916**	**74,547**	**1,521**

Figure 8.1.1. Trends in licensed drivers and casualty collisions, Saskatchewan, 1995-2004.



- As Figure 8.1.1 indicates, the rate of serious injuries per 1,000 licensed drivers has declined from 1995 to 2004 with fluctuations in some years, while the fatality rate fluctuating in initial years has been declining after peaking in 1999.

Figure 8.1.2. Fatality and serious injury rates per 1,000 licensed drivers, Saskatchewan, 1995-2004.



- As Figure 8.1.2 indicates, the number of casualty collisions increased from 1995 to 2004, despite fluctuations in some years, while the number of licensed drivers in Saskatchewan has been steadily increasing since 1995.

8.1.2. Casualty Collisions by Year and Road System, 1995 to 2004

- Injury collisions on urban roads and "other" roads increased slightly from 1995 to 2004, while those on rural roads and highways have remained fairly consistent with slight fluctuations in some years. [Table 8.1.2]

Table 8.1.2. Injury collisions by year and road system, Saskatchewan, 1995-2004.

	Urban	*Rural*	*Highway*	*Other**	*Total*
1995	3,129	600	1,196	90	5,015
1996	2,917	565	1,129	108	4,719
1997	3,016	740	1,231	141	5,128
1998	3,272	564	999	128	4,963
1999	3,550	605	1,142	179	5,476
2000	3,567	610	1,074	192	5,443
2001	3,067	621	1,066	157	4,911
2002	3,279	582	1,084	172	5,117
2003	3,607	628	1,069	150	5,454
2004	3,494	532	1,221	154	5,401
Total	**32,898**	**6,047**	**11,211**	**1,471**	**51,627**

* Other roads refer to Indian Reserve roads, Northern forest roads and Federal/Provincial lands roads (any road other than a Provincial Highway serving as a public access or internal road to Federal or Provincial land such as parks).

- Fatal collisions on urban roads, rural roads, highways and "other" roads decreased over a span of the ten years (1995 to 2004), however, with slight fluctuations in some years. [Table 8.1.3]

Table 8.1.3. Fatal collisions by year and road system, Saskatchewan, 1995-2004.

	Urban	*Rural*	*Highway*	*Other**	*Total*
1995	24	28	72	11	135
1996	19	18	63	6	106
1997	20	32	70	8	130
1998	17	35	71	4	127
1999	24	29	89	8	150
2000	21	29	77	10	137
2001	18	42	68	12	140
2002	17	29	70	7	123
2003	18	34	76	8	136
2004	16	22	64	3	105
Total	**194**	**298**	**720**	**77**	**1,289**

* Other roads refer to Indian Reserve roads, Northern forest roads and Federal/Provincial lands roads (any road other than a Provincial Highway serving as a public access or internal road to Federal or Provincial land such as parks).

- During the period, 1995 to 2004, the majority (63.7%) of injury collisions in Saskatchewan occurred on urban roads, while a much smaller proportion (21.7%) occurred on highways. [Figure 8.1.3]

- In contrast, fatal collisions occurred on highways (55.9%) much more than on rural or urban roads. This may be attributed to the severity of collisions due to the speed of travel.

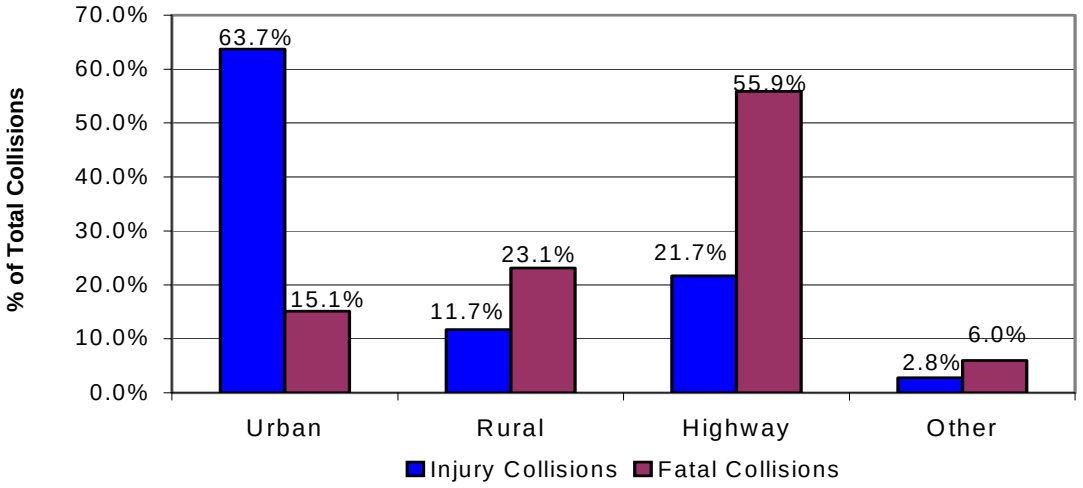


Figure 8.1.3. Proportion of casualty collisions by severity and road system, Saskatchewan, 1995-2004.

8.2 Major Contributing Factors in Traffic Deaths and Injuries

"Contributing factors" are those factors arising out of circumstances that have directly contributed to the collision or its severity. SGI's Traffic Safety Department recognizes that a collision usually results from many causal factors. The collision data system accepts up to four contributing factors for each vehicle involved in a collision. Factors can be selected from four categories: human condition (eg. driver inattention, driving with impairment), human action (eg. fail to yield, following too closely), vehicle condition (eg. defective breaks, vehicle overloaded) or driving environment (eg. animal action, road condition).

8.2.1 Contributing Factors in Traffic Deaths, 1995 to 2004

- Overall, alcohol consumption, a factor of driver's condition, was the most prevalent factor in traffic deaths in Saskatchewan from 1995 to 2004. There were 585 occurrences of alcohol in fatal collisions during this time period. [Table 8.2.1]

- Driver's inattention or distraction (driver's condition) most often resulted in fatal collisions that involved the death of either a child between one and 14 years or a person over 64. There were 170 occurrences of driver's inattention/distraction for these age-groups from 1995 to 2004.

- Between 1995 and 2004, 42 children, 1 - 14 years of age, died in collisions involving an inattentive driver. Of them, twenty-nine were vehicle passengers while the remaining were pedestrians (7), cyclists (3) and occupants of other vehicles (3).

- In fatal collisions where those fatally injured were 15 - 64 years of age, alcohol influence was the factor that occurred most often.

- Driver condition accounted for over 42% of all factors reported in fatal collisions, followed by driver action at over 35%. [Figure 8.2.1]

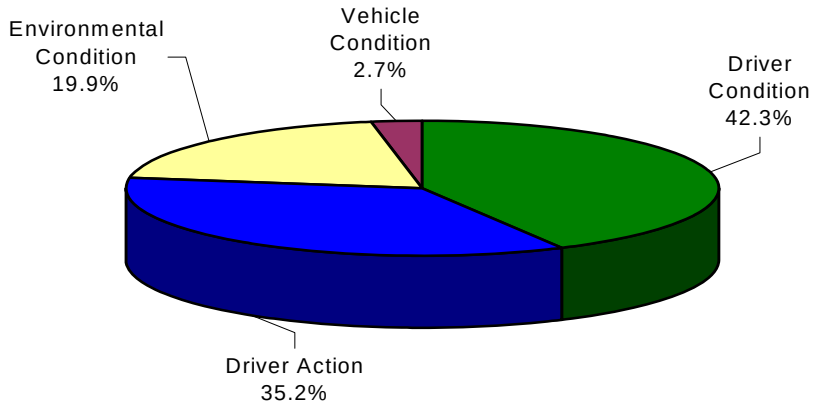


Figure 8.2.1. Major contributing factors in fatal collisions, Saskatchewan, 1995-2004.

Table 8.2.1. Contributing factors in traffic deaths, Saskatchewan, 1995-2004.

Rank	Age-group, Years						
	1-9	10-14	15-19	20-34	35-64	65+	Total
1	Driver inattention/ distraction (35)	Driver inattention/ distraction (22)	Alcohol (115)	Alcohol (227)	Alcohol (201)	Driver Inattention/ Distraction (113)	Alcohol (585)
2	Fail to yield or disregard traffic control (18)	Driver inexperience confusion (18)	Speeding or driving too fast for conditions (75)	Speeding or driving too fast for conditions (118)	Driver inattention/ distraction (132)	Fail to yield or disregard traffic control (110)	Driver inattention/ distraction (463)
3	View obstruction limited (13)	Speeding or driving too fast for conditions (14)	Driver inexperience confusion (49)	Driver inattention/ distraction (112)	Speeding or driving too fast for conditions (107)	Road condition, surface or structure (41)	Speeding or driving too fast for conditions (345)
4	Pedestrian action (9)	Fail to yield or disregard traffic control (11)	Driver inattention / distraction (48)	Road condition, surface or structure (59)	Road condition, surface or structure (90)	View obstruction limited (33)	Fail to yield or disregard traffic controls (296)
5	Other human action (8)	Road condition, surface or structure (9)	Road condition, surface or structure (35)	Fail to yield or disregard traffic control (51)	Weather conditions (75)	Weather conditions (33)	Road condition, surface or structure (244)
6	Driver inexperience confusion (6)	Alcohol (7)	Fail to yield or disregard traffic control (32)	Careless driving or stunting (49)	Fail to yield or disregard traffic control (70)	Alcohol (26)	Weather conditions (175)

The number in parenthesis indicates the number of times the contributing factor was attributed to deaths in traffic collisions. The numbers do not add up, as there were multiple occurrences (up to four) per vehicle involved in a collision.

8.2.2 Contributing factors in traffic injuries, Saskatchewan, 1995 to 2004

- Table 8.2.2 indicates that the human condition of driver inattention or distraction occurred most often, with total of 29,214 occurrences in Saskatchewan, between 1995 and 2004 across all the age categories in traffic collisions that involved one or more injured persons. [Table 8.2.2]

- Failing to yield or disregarding traffic controls was the number two contributing factor in all injury collisions other than those involving the injury of a 15 - 19 year olds. For the 15 - 19 year age-group, the number two contributing factor was driver inexperience or confusion.

- Between 1995 and 2004, 2,290 children aged 1 - 14 years were injured in a traffic collision due to driver distraction. Of these, 1,653 were occupants of passenger vehicles, 373 were cyclists and 221 were pedestrians while the remaining were occupants of other types of vehicles. [Data not shown in the table]

Table 8.2.2. Occurrence of contributing factors in traffic injuries, by age-groups, Saskatchewan, 1995-2004.

	Age-group, Years						
Rank	1-9	10-14	15-19	20-34	35-64	65+	Total
1	Driver inattention/ distraction (1,299)	Driver inattention/ distraction (1,172)	Driver inattention/ distraction (5,698)	Driver inattention/ distraction (8,316)	Driver inattention/ distraction (9,005)	Driver inattention/ distraction (2,664)	Driver inattention/ distraction (29,214)
2	Fail to yield or disregard traffic control (858)	Fail to yield or disregard traffic control (636)	Driver inexperience confusion (3,393)	Fail to yield or disregard traffic controls (4,679	Fail to yield or disregard traffic controls (5,007)	Fail to yield or disregard traffic controls (2,000)	Fail to yield or disregard traffic controls (16,656)
3	Road condition, surface or structure (563)	Road condition, surface or structure (539)	Speeding or driving too fast for conditions (3,305)	Road condition, surface or structure (4,673)	Road condition, surface or structure (4,922)	Road condition, surface or structure (952	Road condition, surface or structure (15,303)
4	Pedestrian Action (424)	Driver inexperience confusion (495)	Road condition, surface or structure (3,242)	Alcohol (3,599)	Speeding or driving too fast for conditions (2,192)	View obstruction limited (375)	Speeding or driving too fast for conditions (10,120)
5	Speeding or driving too fast for conditions (263)	Speeding or driving too fast for conditions (418)	Fail to yield or disregard traffic controls (2,910)	Speeding or driving too fast for conditions (3,238)	Weather conditions (2,026)	Weather conditions (364)	Alcohol (8,819)
6	Driver inexperience confusion (242)	Weather conditions (236)	Alcohol (2,336)	Weather conditions (1,547)	Alcohol (1,970)	Speeding or driving too fast for conditions (358)	Driver inexperience confusion (7,028)

The number in parenthesis indicates the number of the contributing factor occurrences attributed to injuries in traffic collisions. The numbers do not add up, as there were multiple occurrences (up to four) per vehicle involved in a collision.

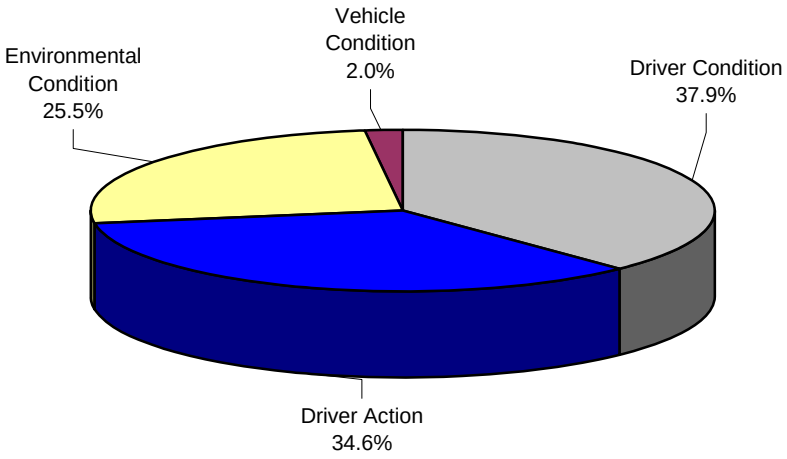


Figure 8.2.2. Major contributing factors in injury collisions, Saskatchewan, 1995-2004.

- Driver condition accounted for 37.9% of all factors reported in injury collisions, followed by driver action at 34.6% and environmental condition (25.5%). [Figure 8.2.2]

8.3 Victims and Safety Restraints

In September 2004, Transport Canada conducted an observational survey of seatbelt use in rural communities across Canada. The survey was undertaken due to evidence indicating that the majority of motor vehicle fatalities in rural areas involve people who were not wearing seatbelts. The survey reported a national average of 86.9% and a Saskatchewan rate of 87.6%.

8.3.1 Casualties by Road User Class, 1995 to 2004

- Of the 1,521 traffic collision fatalities between 1995 and 2004, one-half (51.2%) of them were drivers of vehicles. [Table 8.3.1]
- Injuries follow a similar trend with 55.9% of the 74,547 people injured being drivers. [Table 8.3.2]
- The three-year average of motorcycle injuries from 1995 to 1997 was 121 per year. This number jumps to a three-year average of 156 from 2002 to 2004. [Data not shown in the table]

Table 8.3.1. Fatalities by road user class, Saskatchewan, 1995-2004.

	*Drivers **	*Passen-gers **	*Ped's*	*Bicyclists*	*Motor-cyclists*	*Snow Mobilist*	*Atv*	*Const / Farm Eq*	*Veh Type not Stated*
1995	73	54	15	4	5	4	0	2	0
1996	67	42	16	1	4	3	2	0	0
1997	75	63	14	2	4	1	0	2	3
1998	76	46	17	0	3	1	3	1	0
1999	91	72	14	4	2	3	1	2	0
2000	80	48	18	1	2	1	1	0	0
2001	93	49	15	3	3	3	0	1	0
2002	70	43	17	2	3	0	1	1	0
2003	87	34	16	0	4	2	2	3	0
2004	66	37	14	4	2	1	1	1	0
Total	**778**	**488**	**156**	**21**	**32**	**19**	**13**	**13**	**3**

* Vehicle occupant is a driver or passenger of an automobile, truck, van, sports utility vehicle, power unit, bus, emergency vehicle or motor home that normally would have occupant-restraining devices.

Table 8.3.2. Injuries by road user class, Saskatchewan, 1995-2004.

	*Drivers **	*Passen-gers **	*Ped's*	*Bicyclists*	*Motor-cyclists*	*Snow Mobilist*	*Atv*	*Const / Farm Eq*	*Veh Type not Stated*
1995	3,922	2,752	365	236	121	52	8	9	7
1996	3,678	2,404	356	198	125	42	12	16	2
1997	4,121	2,736	368	217	118	29	16	8	6
1998	3,907	2,524	363	228	128	54	9	11	2
1999	4,486	2,791	359	198	120	60	12	6	3
2000	4,436	2,642	370	207	145	38	16	4	3
2001	3,913	2,302	367	191	132	29	13	7	10
2002	4,235	2,360	365	166	127	27	23	9	0
2003	4,525	2,388	328	216	176	23	18	8	2
2004	4,443	2,409	282	187	165	19	16	13	7
Total	**41,666**	**25,308**	**3,523**	**2,044**	**1,357**	**373**	**143**	**91**	**42**

* Vehicle occupant is a driver or passenger of an automobile, truck, van, sports utility vehicle, power unit, bus, emergency vehicle or motor home that normally would have occupant-restraining devices.

8.3.2 Casualties by Age-group, 1995 to 2004

- Figures 8.3.1 and 8.3.2 display traffic fatalities and injuries respectively, according to age-group. Tables 8.3.3 and 8.3.4 show the similar information by year.

- Between 1995 and 2004, 121 children under the age of 15 were fatally injured in a motor vehicle collision while 8,632 were injured.

- Young people tend to be over represented in motor vehicle collisions. Of the 1,521 people fatally injured between 1995 and 2004, 223, or 14.7% were between the ages of 15 and 19. Only about 7%[5] of the province's population are within this age-group.

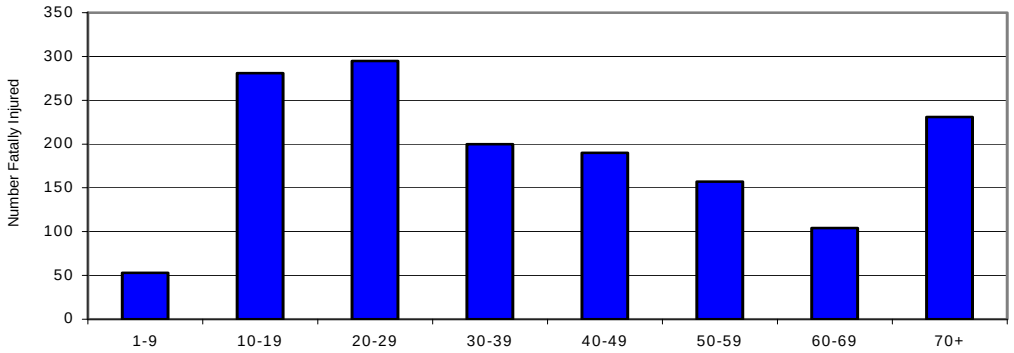


Figure 8.3.1. Traffic collision fatalities by age-group, Saskatchewan, 1995-2004.

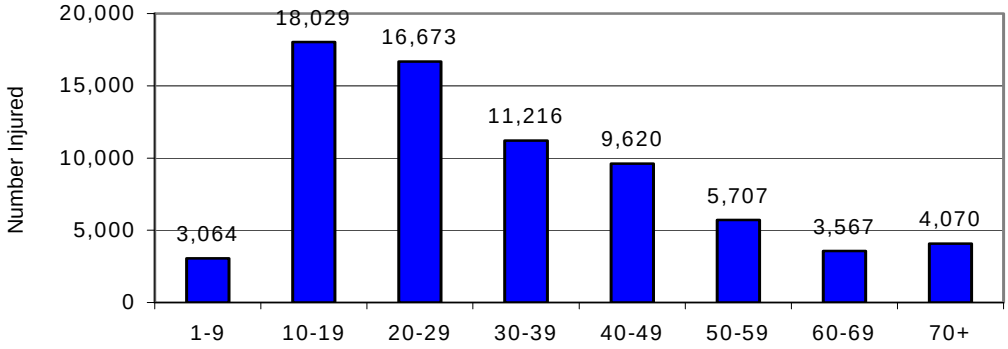


Figure 8.3.2. Traffic collision injuries by age-group, Saskatchewan, 1995-2004.

[5] Based on the average population count in the 1996 and 2001 censuses. Provided by Saskatchewan Bureau of Statistics, "Saskatchewan 1996 & 2001 Census Population by Five Year Age-group".

Table 8.3.3. Traffic collision fatalities by age-group, Saskatchewan, 1995-2004.

	1-9	10-14	15-19	20-34	35-64	65+
1995	12	10	27	41	43	24
1996	6	6	13	35	39	36
1997	15	11	21	40	51	26
1998	4	2	23	43	44	31
1999	11	6	27	51	61	33
2000	8	6	23	33	46	35
2001	3	2	24	51	62	25
2002	4	7	17	41	37	31
2003	0	4	32	34	54	24
2004	0	4	16	41	44	21
Total	**63**	**58**	**223**	**410**	**481**	**286**

- The number of collision fatalities in age-groups below 20 years in Saskatchewan tended to decline from 1995 to 2004, while they were fairly consistent in other age-groups.

Table 8.3.4. Traffic collision injuries by age-group, Saskatchewan, 1995-2004.

	1-9	10-14	15-19	20-34	35-64	65+
1995	714	329	1,526	2,368	1,985	550
1996	637	285	1,360	2,087	1,976	488
1997	669	343	1,576	2,288	2,128	615
1998	581	321	1,486	2,188	2,117	533
1999	733	307	1,600	2,362	2,457	576
2000	589	325	1,602	2,291	2,450	604
2001	478	245	1,493	2,036	2,163	549
2002	439	275	1,505	2,087	2,406	600
2003	413	262	1,534	2,313	2,517	645
2004	414	273	1,382	2,288	2,628	554
Total	**5,667**	**2,965**	**15,064**	**22,308**	**22,827**	**5,714**

- The number of collision injuries in age-groups below 35 years in Saskatchewan tended to decline from 1995 to 2004, while they tended to increase in 35-64 and 65+ year age-groups.

8.3.3 Casualties by Restraint Use, 1995 to 2004

- The proportion of fatally injured vehicle occupants who were unbelted varied between 37.0% and 52.1%, with a slight net increase, during the 10-year under study. [Table 8.3.5]

- Table 8.3.6 shows the proportion of injured occupants using restraints indicating declining trend from 1995 to 2004.

- Figure 8.3.3 shows the relationship between the severity of injury to vehicle occupants and seatbelt use. The severity of injury is much lower for victims using safety restraints. Ninety-one per cent of those using safety restraints sustained minor or moderate injuries. Those occupants not using safety restraints were severely or fatally injured 26.4% of the time, compared to 8.6% of those using restraints.

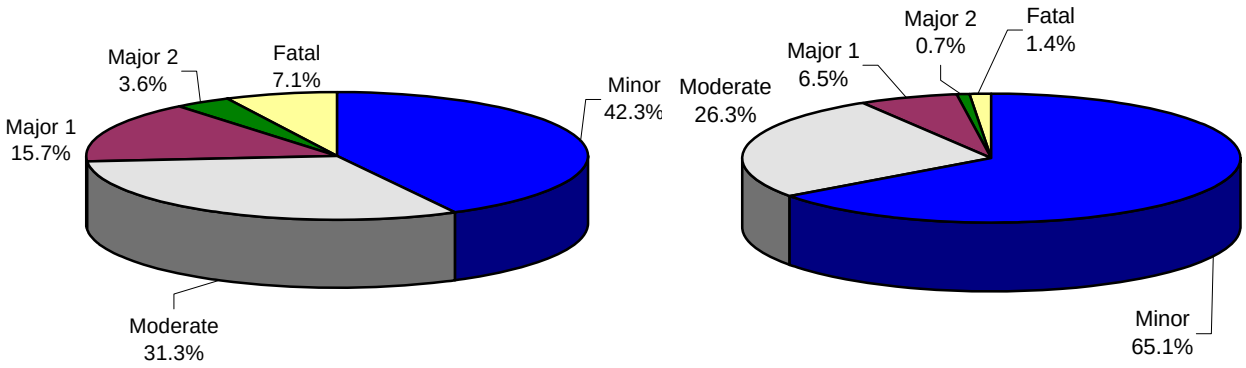


Figure 8.3.3. Restraint use and injuries/fatalities, Saskatchewan, 1995-2004.

Note: The totals used to calculate the percentages in Figure 8.3.3 do not include occupants who were not injured or occupants where seatbelt use was “not stated”. Major 1 is an injury other than a fatal injury, which prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred. Major 2 is an injury from which the victim enters into unconsciousness at, or when taken from, the collision scene.

Table 8.3.5. Vehicle occupant fatalities by seatbelt use, Saskatchewan, 1995-2004.

	Total	Seat Belts Used	% of Total	Seat Belts Not Used	% of Total	Use Not Known	% of Total
1995	127	70	55.1	47	37.0	10	7.9
1996	109	52	47.7	42	38.5	15	13.8
1997	138	46	33.3	60	43.5	32	23.2
1998	122	53	43.4	58	47.5	11	9.0
1999	163	70	42.9	85	52.1	8	4.9
2000	128	49	38.3	60	46.9	19	14.8
2001	142	58	40.8	74	52.1	10	7.0
2002	113	55	48.7	45	39.8	13	11.5
2003	121	63	52.1	51	42.1	7	5.8
2004	103	45	43.7	46	44.7	12	11.7

- The proportion of vehicle occupant fatalities without seatbelt use had increased slightly from 1995 to 2004. [Table 8.3.5]

Table 8.3.6. Vehicle occupant injuries by seatbelt use, Saskatchewan, 1995-2004.

	Total	Seat Belts Used	% of Total	Seat Belts Not Used	% of Total	Use Not Known	% of Total
1995	6,674	5,344	80.1	801	12.0	529	7.9
1996	6,082	4,900	80.6	635	10.4	547	9.0
1997	6,857	5,421	79.1	883	12.9	553	8.1
1998	6,431	5,098	79.3	744	11.6	589	9.2
1999	7,277	5,541	76.1	832	11.4	904	12.4
2000	7,078	5,283	74.6	805	11.4	990	14.0
2001	6,215	4,910	79.0	641	10.3	664	10.7
2002	6,595	5,178	78.5	609	9.2	808	12.3
2003	6,913	5,804	84.0	526	7.6	583	8.4
2004	6,861	5,817	84.8	519	7.6	525	7.7

- The proportion of vehicle occupant injuries without seatbelt use showed declining trend from 1995 to 2004. [Table 8.3.6]

8.4 Alcohol and Traffic Collisions

Drinking and driving remains the number one contributing factor in fatal collisions in Saskatchewan. SGI is continuously working on solutions to help resolve this serious traffic safety issue. There are serious consequences for drinking and driving. See Appendix B for descriptions of some of these consequences.

8.4.1 Collisions Involving a Drinking Driver, 1995 to 2004

- Figure 8.4.1 below indicates the trend in collisions involving a drinking driver. After a drop from 1995 to 1996 and then peaking in 1998, the number of collisions showed a steadily declining trend to a low of 1,113 collisions in 2004.

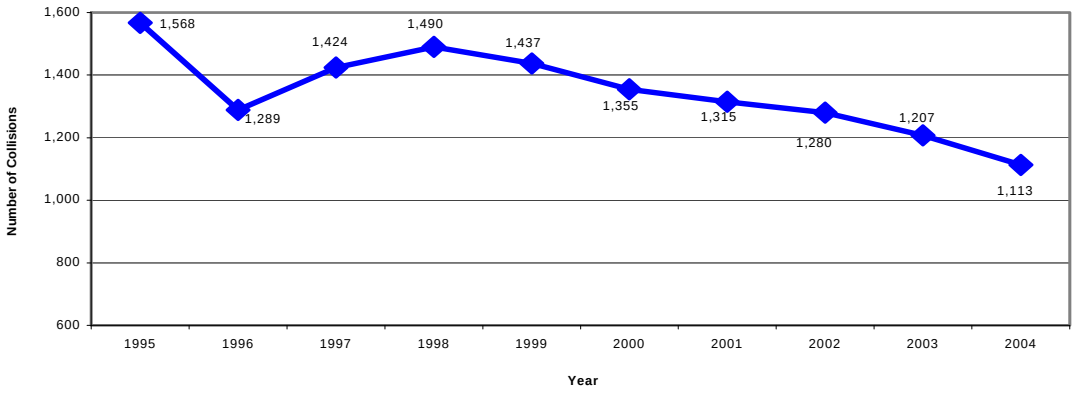


Figure 8.4.1. Collisions involving a drinking driver, Saskatchewan, 1995-2004.

- Figure 8.4.2 shows the relationship between drinking drivers and driver age. The highest number of drinking drivers (5,902) was in 16-24 year age-group, while after this age-group, the number of drinking drivers continuously declined with the increasing age.

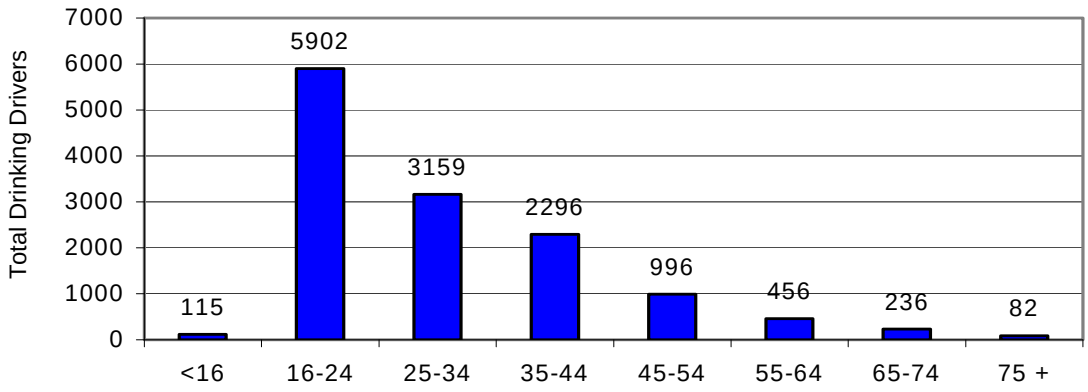


Figure 8.4.2. Drinking drivers by driver age-group, Saskatchewan, 1995-2004.

Table 8.4.1. Collisions involving a drinking driver, Saskatchewan, 1995-2004.

	Number of Collisions		Number of Victims	
	Personal Injury	Fatal	Injured	Killed
1995	541	53	971	58
1996	493	34	886	43
1997	553	44	1,050	55
1998	555	46	1,000	54
1999	530	61	968	83
2000	531	36	929	44
2001	448	63	816	74
2002	490	43	800	46
2003	451	53	776	58
2004	446	40	780	49

- The number of injured people due to a motor vehicle collision involving a drinking driver follows a similar trend to the trends of collisions themselves. In 1997, 1,050 people were injured in a collision. Then, this number drops to 780 people in 2004. [Table 8.4.1]

9.0 WORKPLACE INJURIES

The information contained in this chapter is offered by the Saskatchewan Workers' Compensation Board (WCB). Data related to both workplace injuries and workplace fatalities are provided. Causes of workplace injuries and fatalities are detailed according to age-group. Workplace injuries are presented in relation to the part of the body injured. Age-group and sex for injuries and fatalities are outlined. Occupation by workplace injury is also summarized.

A description of WCB appears in Appendix C.

9.1 Workplace Injuries

A work injury is the result of a work-related event that causes a need for medical treatment and/or time away from work.

A Time Loss Claim is an injury that requires time away from work. Of total time loss claims, 80 to 85% are short term with the worker returning to work within four weeks.

A No Time Loss Claim is an injury that requires medical attention but does not result in time away from work. These no time loss injuries account for approximately 60% of all WCB claims.

9.1.1 Workplace Injury Rates

The workplace injury rate is the number of time loss injuries per 100 workers covered by the WCB.

The WCB focuses significant efforts on assisting Saskatchewan employers in addressing injury prevention in their workplaces, and this emphasis has seen the province's injury rate fall from a 25-year high of 4.95% in 2002 to 4.25% in 2005 – a decrease of more than 14% in three years. However, in comparison to other Canadian provinces, Saskatchewan posts the second highest injury rate. The WCB's goal is to reduce the injury rate to 3.5% by 2010.

Injury rates for all WCB rate codes are outlined in Table 10.1.1.

Rate codes with the highest injury rates in Saskatchewan are:

- M72 - Processing Meat, Poultry and Fish;
- F11 - Conventional Logging Operations
- M94 - Iron and Steel Fabrication.

Rate codes with the lowest injury rates in Saskatchewan are:

- S11 - Legal Office, Financial, Drafting;
- S12 - Offices, Professionals
- S41 - Engineering, Testing & Surveying.

Table 9.1.1. Workplace injury rates by rate code, Saskatchewan, 1999-2005.

Rate Code	Description	% of Workers Injured with Time Loss						
		1999	2000	2001	2002	2003	2004	2005
All Class**		**4.30%**	**4.71%**	**4.79%**	**4.95%**	**4.81%**	**4.40%**	**4.25%**
A11	Light Agricultural Operations	9.18%	10.47%	10.47%	12.44%	11.37%	8.98%	12.62%
A21	Farming & Ranching	5.22%	6.03%	6.54%	4.79%	4.59%	3.70%	5.02%
A31	Grain Elevators & Inland Terminals	1.67%	1.43%	1.41%	1.17%	1.05%	1.18%	0.95%
B11	Construction Trades	7.12%	8.51%	9.19%	8.72%	10.04%	8.67%	9.28%
B12	Residential Construction	9.61%	12.02%	9.81%	11.30%	10.95%	9.45%	9.84%
B13	Commercial, Industrial Construction	11.00%	12.26%	10.70%	10.92%	10.95%	9.09%	7.93%
C12	Light Commodity Marketing	1.22%	1.63%	1.35%	1.36%	1.53%	1.36%	1.52%
C32	Grocery, Department Stores, Hardware	2.84%	3.58%	4.02%	3.54%	3.22%	3.38%	3.11%
C33	Wholesale, Chain Stores	5.99%	6.59%	6.66%	7.44%	6.87%	6.16%	7.31%
C41	Co-operative Associations	3.98%	3.65%	4.10%	4.11%	4.45%	4.17%	4.71%
C51	Lumber Yard, Builders Supplies	6.05%	6.11%	6.24%	6.48%	6.83%	5.66%	5.62%
C61	Automotive, Implement Sales & Service	3.01%	3.27%	3.23%	3.21%	2.81%	2.47%	2.82%
C62	Automotive Service Shops, Towing	4.54%	5.64%	4.72%	4.80%	4.84%	4.39%	4.71%
D11	Open Seam Mining	1.53%	1.34%	0.91%	0.83%	1.30%	0.96%	0.63%
D12	Mining Coal	4.20%	3.69%	4.37%	5.22%	6.29%	0.99%	0.58%
D21	Conventional Potash Mining, Refining	0.93%	1.89%	2.20%	2.64%	1.91%	1.58%	1.32%
D32	Operation of Oilwells	1.75%	1.41%	1.04%	0.87%	1.12%	1.11%	0.89%
D41	Oilwell Servicing	7.66%	7.88%	7.91%	6.75%	6.50%	5.43%	5.53%
D51	Service Rigs, Water Well Drilling	9.80%	11.49%	8.42%	8.38%	6.89%	5.42%	3.65%
D52	Drilling, Seismic	3.66%	5.45%	5.80%	2.42%	4.68%	2.46%	2.56%
D61	Mining Exploration	2.39%	6.37%	8.53%	3.02%	4.94%	4.41%	5.99%
D62	Underground Mining and Maintenance	3.48%	6.29%	4.11%	4.42%	7.48%	4.07%	2.12%
D63	Diamond Drilling	5.53%	7.56%	3.62%	5.20%	11.66%	7.59%	4.29%
F11	Conventional Logging Operations	24.24%	26.12%	16.92%	16.89%	30.89%	8.54%	21.66%
F12	Mechanical Logging Operations	2.80%	5.98%	4.87%	3.66%	5.29%	3.18%	4.24%
F13	Log/Pulpwood Hauling	6.52%	6.04%	7.07%	7.74%	11.73%	5.50%	5.15%
F22	Planing, Sawing, Mills, Waferboard	7.36%	9.73%	10.79%	6.68%	4.54%	4.68%	4.56%
F31	Pulp and Paper Mills	1.36%	2.68%	2.50%	2.70%	1.26%	1.08%	0.85%
G11	Universities and Regional Colleges	1.43%	1.51%	1.65%	1.50%	1.64%	1.58%	1.47%
G12	School Divisions, Housing Authorities	2.90%	3.54%	3.33%	4.00%	3.97%	3.82%	3.99%
G22	Health Districts, Hospitals, Care Homes	5.70%	6.11%	6.78%	6.85%	7.20%	6.83%	6.59%
G31	Cities, Town, Villages, RMs	5.36%	5.49%	6.32%	6.89%	6.04%	6.01%	5.64%
G51	Government of Saskatchewan & Departments	3.41%	3.20%	3.32%	4.11%	4.21%	3.73%	3.54%
M31	Manufacturing, Pipeline Operations	1.03%	1.60%	1.71%	1.34%	0.84%	1.38%	1.20%
M33	Refineries and Upgrader	1.75%	1.83%	1.10%	1.39%	1.41%	1.18%	1.14%
M41	Dairy Products, Soft Drinks	12.45%	9.28%	15.32%	13.70%	12.87%	14.05%	12.93%
M42	Bakeries, Food prep & packaging	5.58%	6.74%	7.12%	6.20%	3.52%	3.81%	3.21%
M62	Mills, Semi Medium Manufacturing	10.70%	11.02%	11.19%	12.98%	12.78%	11.37%	11.47%
M72	Processing Meat, Poultry and Fish	33.73%	35.19%	33.09%	30.21%	30.05%	20.05%	12.95%
M81	Metal Foundries & Mills	3.25%	4.52%	4.78%	4.77%	3.89%	3.93%	4.49%
M91	Agricultural Equipment	14.03%	15.57%	17.19%	18.32%	15.59%	12.75%	10.77%
M92	Machine Shops, Manufacturing	14.49%	16.12%	16.52%	16.38%	14.50%	12.80%	14.32%
M94	Iron and Steel Fabrication	23.08%	23.65%	18.90%	23.37%	21.47%	19.16%	16.99%
R11	Road Construction and Earthwork	4.80%	5.44%	5.45%	4.96%	5.96%	5.74%	5.67%
S11	Legal Offices, Financial, Drafting	0.30%	0.36%	0.31%	0.24%	0.30%	0.29%	0.39%
S12	Offices, Professionals	0.63%	0.75%	0.60%	0.73%	0.97%	0.78%	0.86%
S21	Hostels, Independent Services	1.36%	1.66%	1.73%	1.85%	1.74%	1.94%	2.18%
S22	Restaurants, Catering, Dry Cleaning	2.83%	3.09%	3.10%	3.00%	2.62%	2.33%	2.24%
S23	Hotels, Motels, Taxis	3.15%	2.84%	3.21%	2.96%	3.21%	3.15%	2.58%
S32	Service Clubs	2.65%	3.17%	2.93%	3.16%	3.06%	3.06%	3.58%
S33	Caretaking, Park Authorities	4.00%	4.40%	4.98%	4.08%	4.55%	6.17%	4.56%
S41	Engineering, Testing & Surveying	0.73%	0.92%	1.10%	0.87%	1.11%	0.76%	0.68%
T42	Transportation, Courier, Commercial Bus	10.03%	10.62%	10.09%	10.13%	9.74%	8.82%	8.53%
T51	Operation of Railways	1.60%	1.69%	2.64%	2.83%	3.19%	2.64%	1.74%
T61	Commercial Air Transportation	3.96%	3.04%	2.59%	3.30%	2.34%	7.38%	3.67%
U11	Telecommunications	1.53%	1.61%	1.16%	1.86%	2.52%	1.90%	1.46%
U31	Electric Systems	1.81%	2.37%	2.06%	3.19%	2.63%	2.82%	2.31%

** All Class Injury Rate includes Government of Canada (Deposit Account)

9.1.2 Accepted Time Loss Claims by Industry

- As Table 9.1.2 outlines, there were an average of 14,373 accepted total time loss claims per year, from 1999 to 2005.
- In 2005, there were 13,904 accepted time loss claims, which is 3.26% below the seven-year average.
- Consistently over the seven-year period, the Government and Municipal industry had the highest burden of accepted time loss claims in terms of their number. This is also shown by Figure 9.1.1.
- Utility Operations had the lowest burden of accepted time loss claims between 1999 and 2005.

Table 9.1.2. Accepted time loss claims by industry, Saskatchewan, 1999-2005.

	Time Loss							
Industry	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Average**
Federal Government *	255	293	390	411	446	442	338	368
Agriculture	276	305	357	306	276	232	279	290
Building Construction	1170	1198	1051	1269	1235	1030	1110	1152
Commodity-Wholesales-Retail	2076	2363	2387	2576	2482	2467	2568	2417
Development-Mineral Resources	380	491	478	400	456	375	394	425
Forestry	221	259	243	197	157	131	140	193
Government and Municipal	3374	3695	4079	4264	4390	4355	4040	4028
Manufacturing and Processing	2564	2826	2907	2999	2707	2476	2129	2658
Road Construction	251	253	225	183	239	212	253	231
Service Industry	1482	1629	1613	2298	2207	2267	1605	1872
Transportation, Warehousing	968	1024	976	172	198	233	924	642
Utility Operations	91	97	80	99	83	109	112	96
Unassigned							12	12
Total	13,108	14,433	14,786	15,174	14,876	14,329	13,904	14,373

*Federal Government is not an actual industry but includes all the Federal Government workers employed in Saskatchewan.

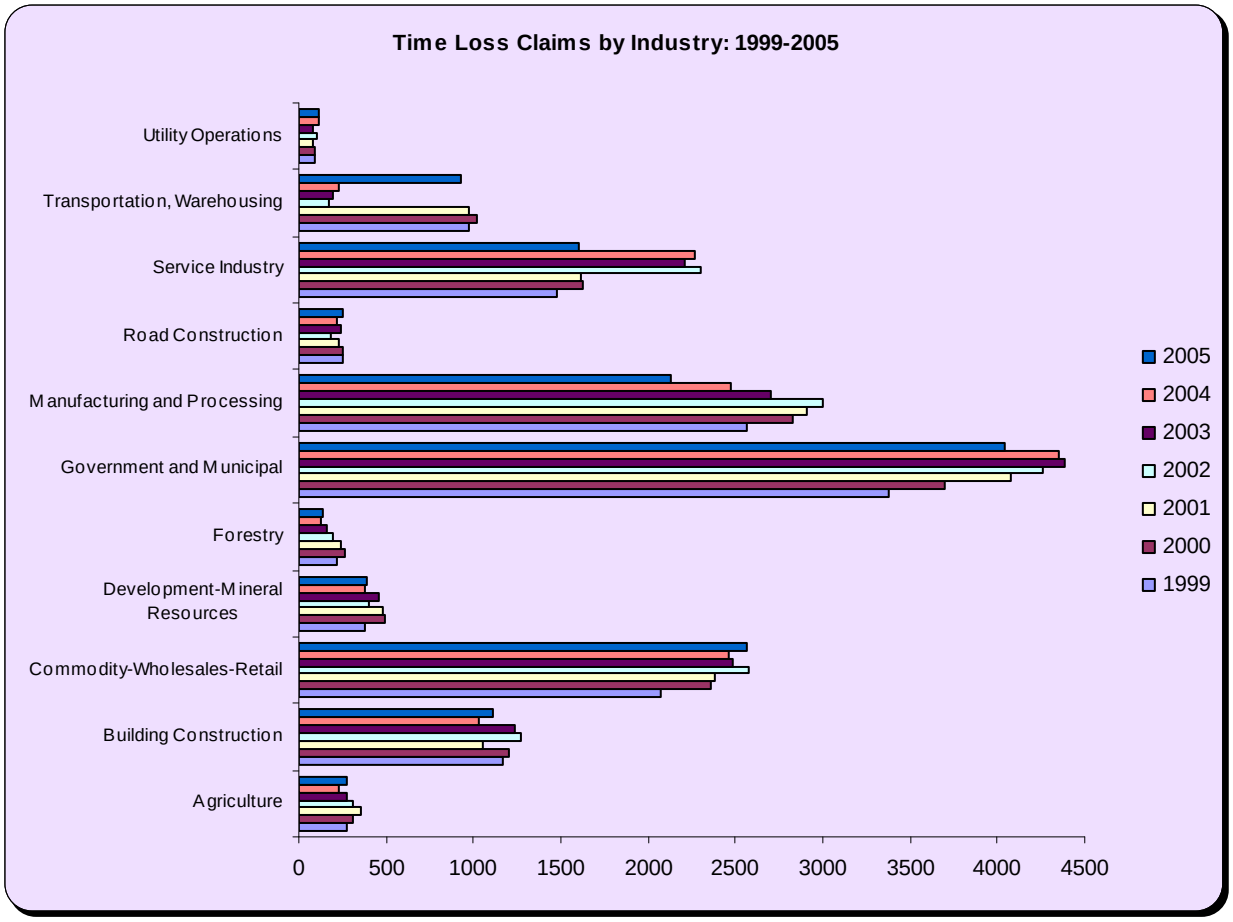


Figure 9.1.1. Accepted time loss claims by industry, Saskatchewan, 1999-2005.

9.1.3 Part of Body Injured at Workplace

- Table 9.1.3 below outlines the frequency of the top five body parts injured for all claims (time loss, no time loss and fatalities) accepted by WCB from 1999 to 2005.

- Between 1999 and 2005, the back was consistently the most frequently injured body part for all accepted claims.

- On average between 1999 and 2005, back injuries accounted for 6,017 of all accepted claims per year, 15.4% more than the next highest body part injured, fingers.

Table 9.1.3. Top 5 body parts injured for all accepted claims, Saskatchewan, 1999-2005**.**

	Number of Claims							
Body	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Average**
Back	5,730	6,062	6,318	6,230	5,591	5,911	6,276	6,017
Finger	5,355	5,476	5,416	5,232	4,721	5,069	5,258	5,218
Eyes	2,615	2,569	2,717	2,638	2,364	2,533	2,541	2,568
Shoulder	1,460	1,759	1,778	1,802	1,763	1,852	2,053	1,781
Hand	1,855	1,881	1,871	1,903	1,780	1,823	1,984	1,871

* All claims reported and accepted.

9.1.4. Part of Body Injured at Workplace by Age-group

- The top body part injured for workers aged 20 years and over was the back. [Table 9.1.4]

- The highest number of back injuries occurred in the 40 - 49 year age-group with a total of 3,666 accepted time loss claims.

Table 9.1.4. Top 6 body parts injured for accepted time loss claims by age-group, Saskatchewan, 2003-2005.

	Top Body Parts Injured by Age Group: 2003 - 2005									
	Age Group at Injury Date									
Rank	Unknown	14 and under	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 and over	Total
1	Back (4)	Hand (4)	Hand (694)	Back (2773)	Back (2918)	Back (3666)	Back (2012)	Back (360)	Back (24)	Back (12166)
2	Other (3)	Other (2)	Back (409)	Hand (1693)	Leg (1262)	Leg (1431)	Leg (873)	Leg (174)	Other (19)	Leg (5484)
3	Arm (3)	Multi (2)	Leg (332)	Leg (1390)	Hand (1041)	Arm (1150)	Multi (628)	Other (121)	Head (18)	Hand (5102)
4	Leg (3)	Leg (2)	Arm (249)	Arm (955)	Arm (894)	Other (1117)	Arm (627)	Arm (120)	Leg (17)	Arm (4007)
5	Eye (2)	Shoulder (1)	Other (174)	Other (897)	Other (879)	Hand (1016)	Shoulder (598)	Multi (113)	Arm (9)	Other (3716)
6	Hand (2)	Head (1)	Shoulder (126)	Shoulder (642)	Shoulder (748)	Multi (967)	Hand (541)	Shoulder (107)	Hand (7)	Shoulder (3178)

9.1.5 Workplace Injuries by Occupation

- Table 9.1.5 illustrates the five occupations with the highest number of accepted time loss claims from 1999 to 2005.

- Occupations in Labouring and Other Elemental Work had the highest number of injuries with an average of 1092 accepted time loss claims per year between 1999 and 2005, which was 42.4% higher than the next highest occupation. Claimants in this occupation group are employed in a wide range of retail services and other establishments primarily providing services such as meter reader, car attendant, toll booth attendant, etc.

- In 2005, Truck Drivers had highest number of accepted time loss claims with 890.

Table 9.1.5. Top 5 occupations for accepted time loss claims, Saskatchewan, 1999-2005.

	Accepted Time Loss Claims							
Occupations	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Average**
Truck Drivers	738	732	787	755	703	765	890	767
Nursing Aides And Orderlies	676	687	689	714	721	812	815	731
Occupations In Labouring And Other Elemental Work	882	1,301	1,334	1,227	1,039	1,068	794	1,092
Salesmen And Salespersons, Commodities	412	426	498	491	489	581	596	499
Welders And Flame Cutters	507	540	548	486	416	456	439	485

9.1.6 Causes of Workplace Injuries

- Table 9.1.6 shows the most common types of incidents that resulted in a time loss claim from 1999 to 2005.
- In 2005, the most frequent cause of injuries involved bodily reaction and exertion with 6,461 accepted time loss claims. These types of causes included repetitive motion injuries, injuries while tripping, climbing, bending, etc.
- On average, bodily reaction and exertion accounted for 6,412 time loss claims per year between 1999 and 2005.

Table 9.1.6. Causes for accepted time loss claims, Saskatchewan, 1999-2005.

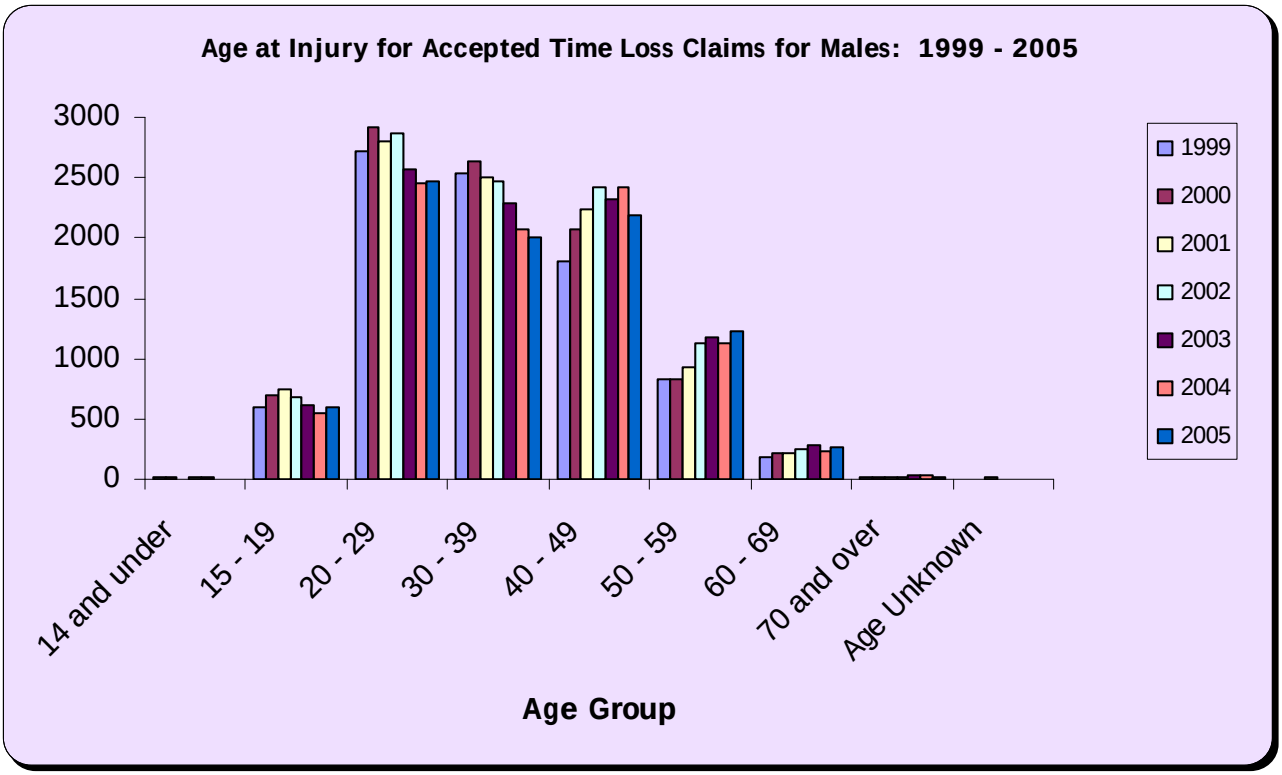
	Accepted Time Loss Claims							
Type of Accidents	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Average**
Bodily Reaction And	5,682	6,360	6,794	7,016	5,981	6,587	6,461	6,412
Contact With Objects And	3,513	3,825	3,806	3,533	2,941	3,195	3,390	3,458
Falls	1,800	1,964	1,975	1,940	1,816	2,015	2,097	1,944
Exposure To Harmful Substances Or	666	656	776	696	769	748	649	709
Transportation	311	336	387	359	343	453	382	367
Fires And	23	23	34	26	25	23	21	25
Assaults And Violent	176	220	271	302	297	268	321	265
Other	937	1,049	743	1,302	2,704	1,040	583	1,194

9.1.7 Age-group and Sex at Date of Workplace Injury

- Table 9.1.7 displays the age-group and sex at injury date for accepted time loss claims between 1999 and 2005.
- Males had almost double the number of time loss claims than females.
- The average number of total time loss claims per year for males was 9,191 versus 4,851 for females.
- The age-group with the highest time loss claims for males was the 20 - 29 year range. [Figure 9.1.2]
- For females, the age-group with the highest number of time loss claims was the 40 - 49 year range. [Figure 9.1.3]
- The trend indicates that males consistently had more time loss claims than females at every age. [Figure 9.1.4]

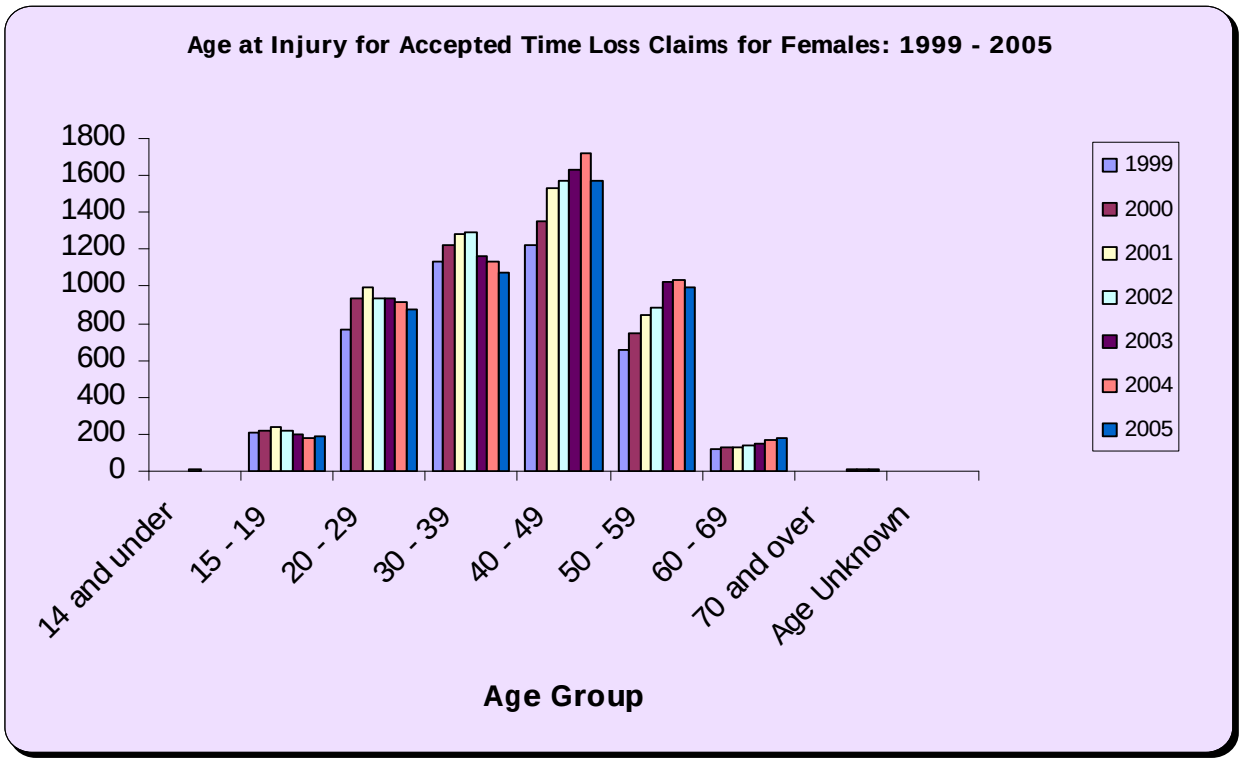
Table 9.1.7. Age-group and sex at injury for accepted time loss claims, Saskatchewan, 1999-2005.

Age at Injury	1999		2000		2001		2002		2003		2004		2005		Average	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
14 and under	10	3	14	4	5	4	10	6	10	3	5	4	8	4	9	4
15 - 19	598	204	701	216	748	236	674	220	612	197	552	182	598	189	640	206
20 - 29	2718	763	2909	932	2806	990	2867	936	2576	937	2460	918	2465	874	2686	907
30 - 39	2531	1130	2635	1225	2498	1285	2470	1292	2284	1163	2078	1132	2007	1070	2358	1185
40 - 49	1810	1226	2066	1356	2238	1530	2421	1568	2322	1629	2414	1721	2180	1571	2207	1514
50 - 59	824	653	834	742	920	846	1124	883	1181	1025	1120	1039	1231	996	1033	883
60 - 69	188	116	217	128	221	134	244	137	288	152	228	167	263	176	236	144
70 and over	13	0	13	3	9	3	9	0	27	6	29	11	16	6	17	4
Age Unknown	1	2	3	0	13	3	7	4	7	2	4	4	0	0	5	2
Age & Sex Unknown	318		435		297		302		455		261		250		331	
Total by Sex	8693	4097	9392	4606	9458	5031	9826	5046	9307	5114	8890	5178	8768	4886	9191	4851
Total by Year	13108		14433		14786		15174		14876		14329		13904		14373	



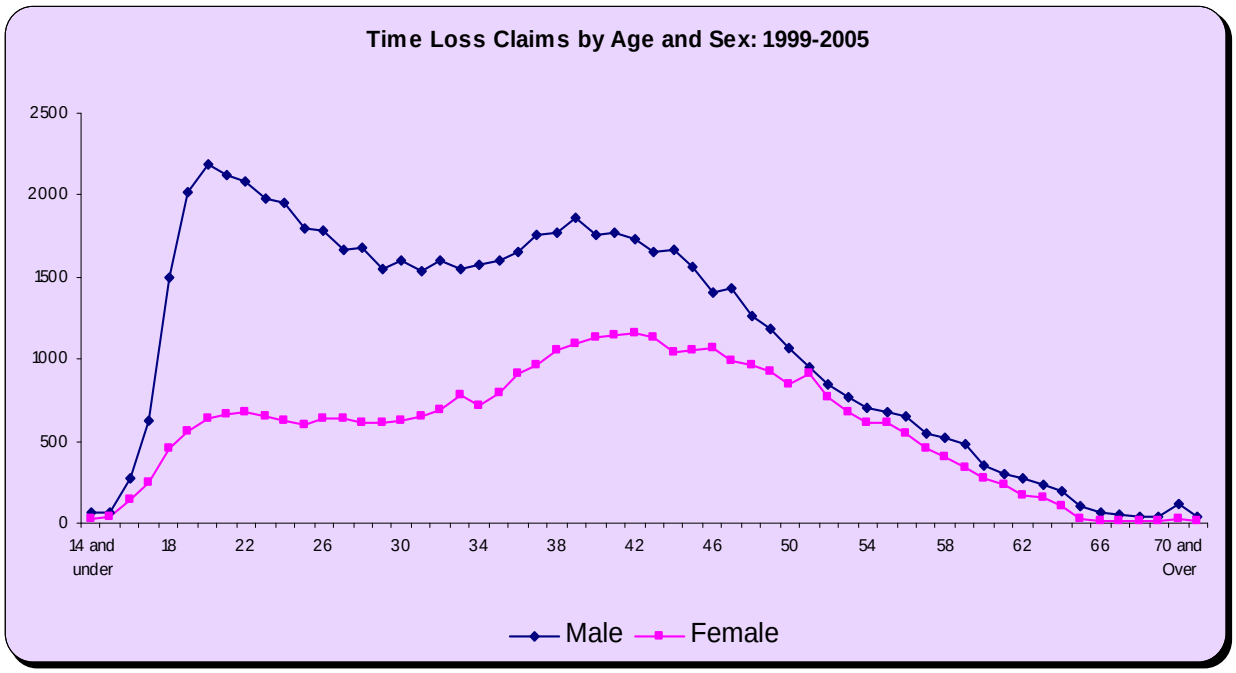
Note: Does not include time loss claims where sex and age are unknown.

Figure 9.1.2. Age-group at injury for accepted time loss claims for males, Saskatchewan, 1999-2005.



Note: Does not include time loss claims where sex and age are unknown.

Figure 9.1.3. Age-group at injury for accepted time loss claims for females, Saskatchewan, 1999-2005.



Note: Does not include time loss claims where sex and age are unknown.

Figure 9.1.4. Accepted time loss claims by age-group and sex, Saskatchewan, 1999-2005.

9.1.8 Injury Cause and Age-group at Workplace Injury Date

- Table 9.1.8 below ranks the top six causes of injuries by age-group between 2003 and 2005.
- The most frequent cause of injury involved bodily reaction and exertion with a total of 19,053.
- The 40 - 49 year age-group accounted for 5851 or 30.71% of the accepted time loss claims for bodily reaction and exertion.

Table 9.1.8. Top 6 causes of injuries for accepted time loss claims by age-group: Saskatchewan, 2003-2005.

	Top Accident Events by Age Group: 2003 - 2005									
	Age Group at Injury Date									
Rank	Unknown	14 and under	15 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 and over	Total
1	Bodily Reaction & Exertion (9)	Contact with Objects & Equipment (6)	Contact with Objects & Equipment (1006)	Bodily Reaction & Exertion (4301)	Bodily Reaction & Exertion (4551)	Bodily Reaction & Exertion (5851)	Bodily Reaction & Exertion (3155)	Bodily Reaction & Exertion (502)	Falls (38)	Bodily Reaction & Exertion (19053)
2	Other Events or Exposures (6)	Transportation Accidents (2)	Bodily Reaction & Exertion (660)	Contact with Objects & Equipment (3051)	Contact with Objects & Equipment (2099)	Contact with Objects & Equipment (2066)	Falls (1223)	Falls (331)	Bodily Reaction & Exertion (22)	Contact with Objects & Equipment (9536)
3	Contact with Objects & Equipment (3)	Bodily Reaction & Exertion (2)	Falls (275)	Falls (1134)	Falls (1249)	Falls (1684)	Contact with Objects & Equipment (1099)	Contact with Objects & Equipment (196)	Other Events or Exposures (19)	Falls (5936)
4	Assults & Violent Acts (2)	Other Events or Exposures (2)	Exposure to Harmful Substances or Environments (215)	Other Events or Exposures (1059)	Other Events or Exposures (1013)	Other Events or Exposures (1260)	Other Events or Exposures (572)	Other Events or Exposures (132)	Exposure to Harmful Substances or Environments (18)	Other Events or Exposures (4276)
5	Falls (2)	-	Other Events or Exposures (213)	Exposure to Harmful Substances or Environments (616)	Exposure to Harmful Substances or Environments (462)	Exposure to Harmful Substances or Environments (507)	Exposure to Harmful Substances or Environments (286)	Exposure to Harmful Substances or Environments (67)	Contact with Objects & Equipment (10)	Exposure to Harmful Substances or Environments (2172)
6	Transportation Accidents (1)	-	Transportation Accidents (52)	Transportation Accidents (257)	Transportation Accidents (305)	Transportation Accidents (315)	Transportation Accidents (198)	Transportation Accidents (43)	Transportation Accidents (7)	Transportation Accidents (1180)

9.2. Workplace Fatalities

A fatality is a claim where the worker dies due to a workplace injury or dies while at their place of employment.

9.2.1 Accepted Fatality Claims

- Table 9.2.1 shows the number of accepted fatality claims that occurred for each of the years from 1999 to 2005.
- From 1999 to 2005, there was an average of 26 accepted fatality claims per year.
- In 2005, there were 20 accepted fatality claims, which is 23.5% below the seven-year average.
- Transportation and Warehousing industry had 13 fatalities in 2000, which was the highest across industries during the seven-year period. [Figure 9.2.1]
- Overall, the Development-Mineral Resources industry had the highest average number of fatalities between 1999 and 2005.

Table 9.2.1. Accepted fatality claims by industry, Saskatchewan, 1999-2005.

Industry	Fatality							
	1999	2000	2001	2002	2003	2004	2005	Average
Federal Government*	1	1	2	0	1	1	3	1
Agriculture	5	0	0	0	1	0	2	1
Building Construction	2	4	5	2	4	7	5	4
Commodity-Wholesales-Retail	2	0	2	2	1	3	3	2
Development-Mineral Resources	5	8	7	4	6	3	1	5
Forestry	0	2	1	1	0	0	1	1
Government and Municipal	3	1	2	1	1	3	0	2
Manufacturing and Processing	1	2	0	4	5	2	0	2
Road Construction	1	3	3	0	1	0	0	1
Service Industry	2	1	0	1	5	6	4	3
Transportation, Warehousing	9	13	5	0	1	0	1	4
Utility Operations	0	0	2	1	0	1	0	1
Total	31	35	29	16	26	26	20	26

*Federal Government is not an actual industry but includes all the Federal Government workers employed in Saskatchewan.

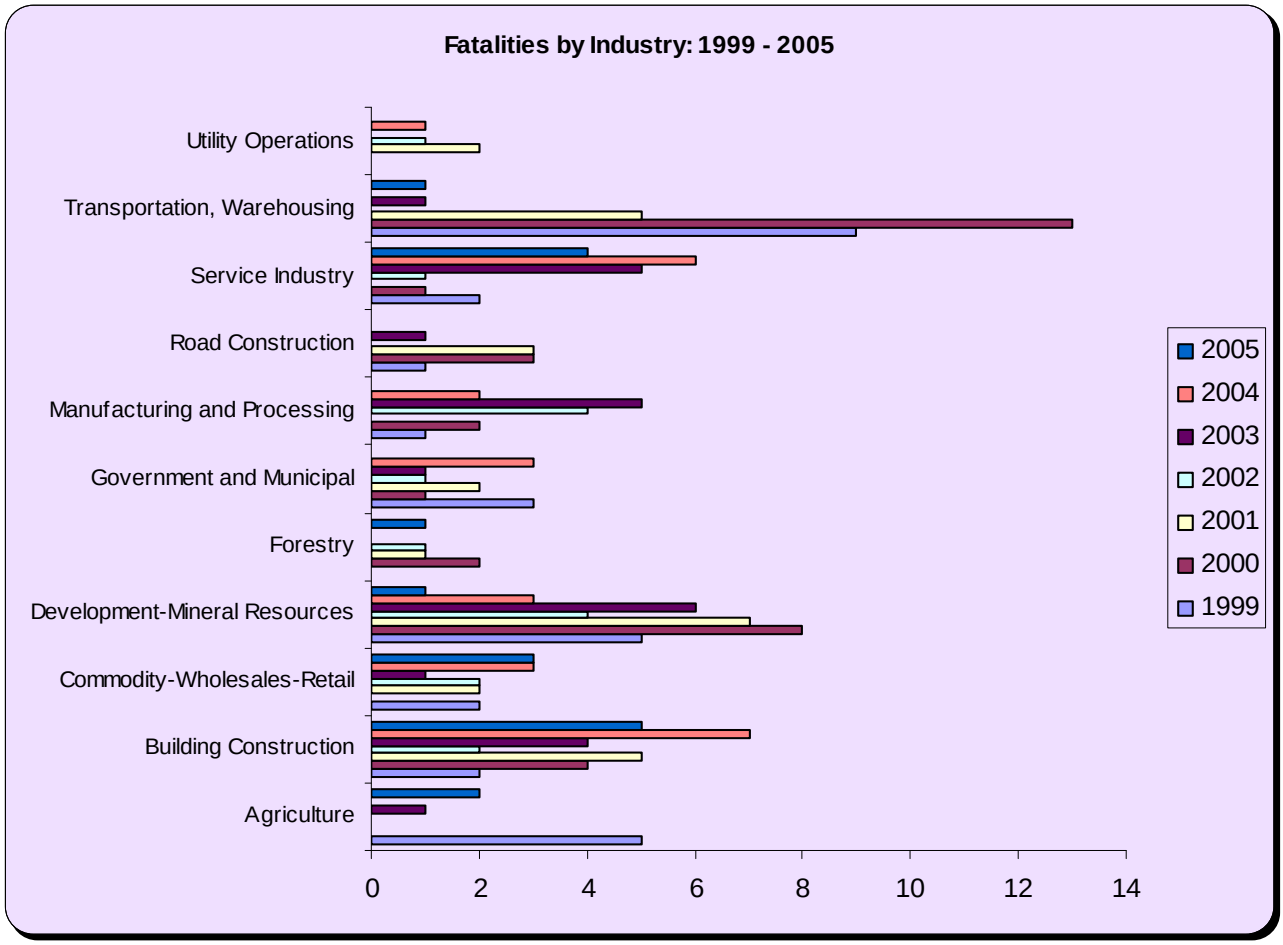


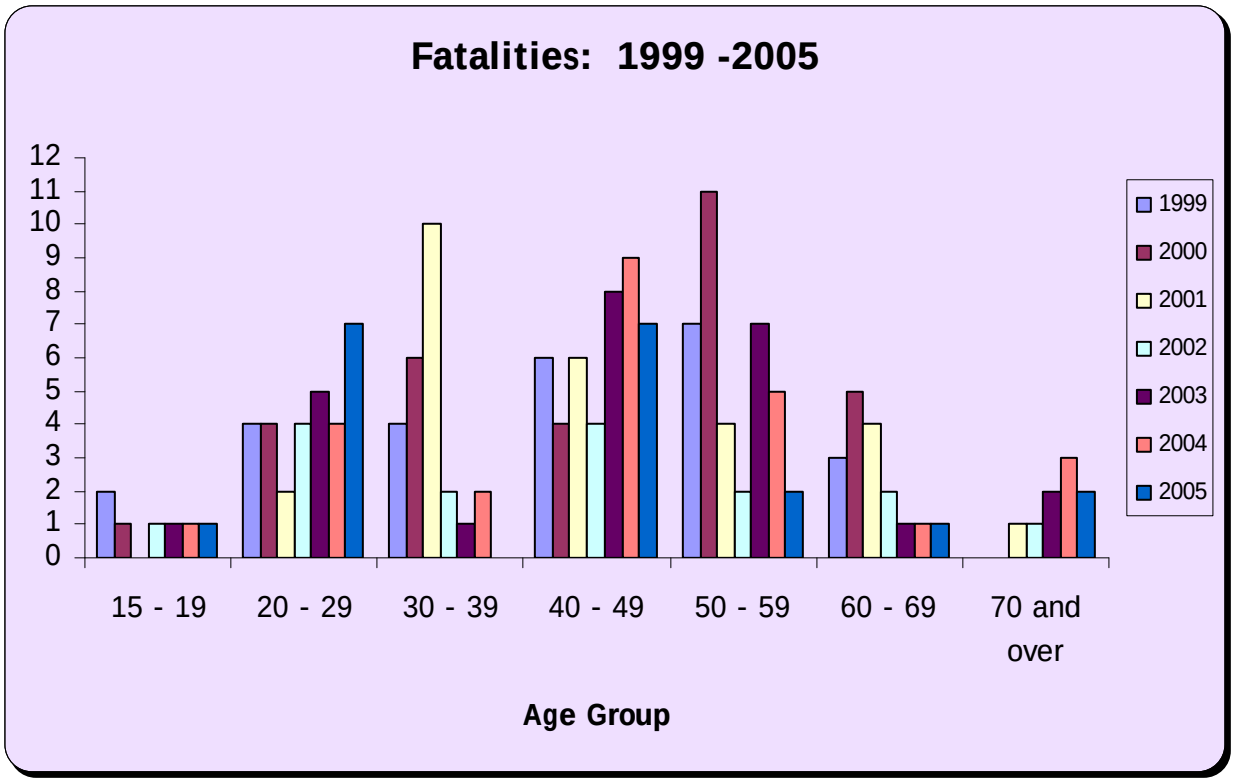
Figure 9.2.1. Accepted fatality claims by industry code, Saskatchewan, 1999-2005.

9.2.2 Accepted Fatalities by Age-group and Sex

- Table 9.2.2 shows the age-group and sex for accepted fatalities between 1999 and 2005.
- Males had significantly more fatalities than females in every age-group.
- The 40 - 49 year age-group had the highest fatality rates for males. [Figure 9.2.2]
- Females averaged one fatality per year.

Table 9.2.2. Accepted workplace fatalities by age-group and sex, Saskatchewan, 1999-2005.

Age at Fatality	1999		2000		2001		2002		2003		2004		2005		Average	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15 - 19	2	0	1	0	0	0	1	0	1	0	1	0	1	0	1	0
20 - 29	4	0	4	0	2	0	3	1	5	0	4	0	7	0	4	0
30 - 39	4	0	6	0	10	0	2	0	1	0	2	0	0	0	4	0
40 - 49	6	0	4	0	6	0	4	0	8	0	9	0	6	1	6	0
50 - 59	6	1	11	0	4	0	2	0	6	1	5	0	2	0	5	0
60 - 69	3	0	4	1	3	1	2	0	1	0	1	0	1	0	2	0
70 and over	0	0	0	0	1	0	1	0	2	0	3	0	2	0	1	0
Age Unknown	3	0	2	0	2	0	0	0	0	0	0	0	0	0	1	0
Sex & Age Unknown	2		2						1		1				2	
Total by Sex	28	1	32	1	28	1	15	1	24	1	25	0	19	1	24	1
Total by Year	31		35		29		16		26		26		20		26	



Note: Does not include fatalities reported where age is unknown.

Figure 9.2.2. Workplace fatalities for males, Saskatchewan, 1999-2005.

9.2.3 Accepted Fatalities by Cause and Age-group

- Transportation incidents and Other Events or Exposures (which includes unknown causes, lost at sea, etc.) were the top causes of fatalities overall with a total of 18 fatalities each in the period between 2003 and 2005. [Table 9.2.3]

- The 40 - 49 age-group had the highest fatality rate between 2003 and 2005 with a total of 24.

- The top causes of fatalities within the 40 - 49 age-group were Transportation incidents and Other Events or Exposures, with eight fatalities each.

Table 9.2.3. Top causes for accepted workplace fatalities, Saskatchewan, 2003-2005.

Top Accident Events Causing Fatalities by Age Group: 2003 -								
	Age Group at Fatality							
Rank	19 and under	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 and over	Total
1	Contact with Objects & Equipment (1)	Contact with Objects & Equipment (6)	Contact with Objects & Equipment (1)	Other Events or Exposures (8)	Other Events or Exposures (6)	Contact with Objects & Equipment (1)	Exposure to Harmful Substances or Environments (6)	Other Events or Exposures (18)
2	Other Events or Exposures (1)	Transportation Accidents (2)	Transportation Accidents (1)	Transportation Accidents (8)	Transportation Accidents (6)	Transportation Accidents (1)	Falls (1)	Transportation Accidents (18)
3	Fires & Explosions (1)	Other Events or Exposures (2)	Other Events or Exposures (1)	Contact with Objects & Equipment (3)	Falls (2)	Exposure to Harmful Substances or Environments (1)	-	Contact with Objects & Equipment (13)
4	Exposure to Harmful Substances or Environments (1)	Exposure to Harmful Substances or Environments (2)	-	Falls (3)	Contact with Objects & Equipment (1)	-	-	Exposure to Harmful Substances or Environments (12)
5	-	Falls (2)	-	Exposure to Harmful Substances or Environments (2)	-	-	-	Falls (8)
6	-	Assaults & Violent Acts (1)	-	-	-	-	-	

10.0 FARM INJURIES

Injuries that occur within a farm setting are the focus of this chapter. In particular, data related to fatal farm injuries and hospitalized farm injuries are presented. Information is offered according to age-group, sex, year, and mechanism of injury. A description regarding the identification of fatal farm injuries and hospitalized farm injuries can be found in Appendix D.

10.1 Fatal Farm Injuries

In this section fatal farm injuries are discussed in terms of leading mechanism by age-group, annual fatality rate by year, age-specific rates by age-group, distribution of fatalities by age-group and sex, and distribution by mechanism of injury. The study period comprised 1995-2004.

Table 10.1. Leading mechanism of fatal injury by age-group, Saskatchewan, 1995-2004 (n=204).

0-19 years	20-39 years	40-59 years	60+ years
Machinery rollover (15)	**Pinned/struck by machine component (8)**	**Entangled in moving machinery parts (12)**	**Dismounted machinery operator runover by machine (16)**
Passenger fell from machine then runover (7)	**Machinery rollover (7)**	**Machinery rollover (10)**	**Machinery runover of bystander (11)**
Machinery runover of bystander (7)	**Contact with toxic substance (6)**	**Machinery vs traffic collision (10)**	**Animal-related (10)**
Animal-related (5)	**Machinery vs traffic collision (5)**	**Dismounted machinery operator runover by machine (10)**	**Pinned/struck by machinery component (10)**
Drowning (5)	**Animal-related (4)**	**Contact with toxic substance (5)**	**Machinery rollover (8)**
All other codes (19)	**All other codes (24)**	**All other codes (33)**	**All other codes (24)**

- Table 10.1 indicates that machinery rollover was the most common mechanism of fatal injury for age-group 0-19, and the second most common mechanism for age-groups 20-39 and 40-59.

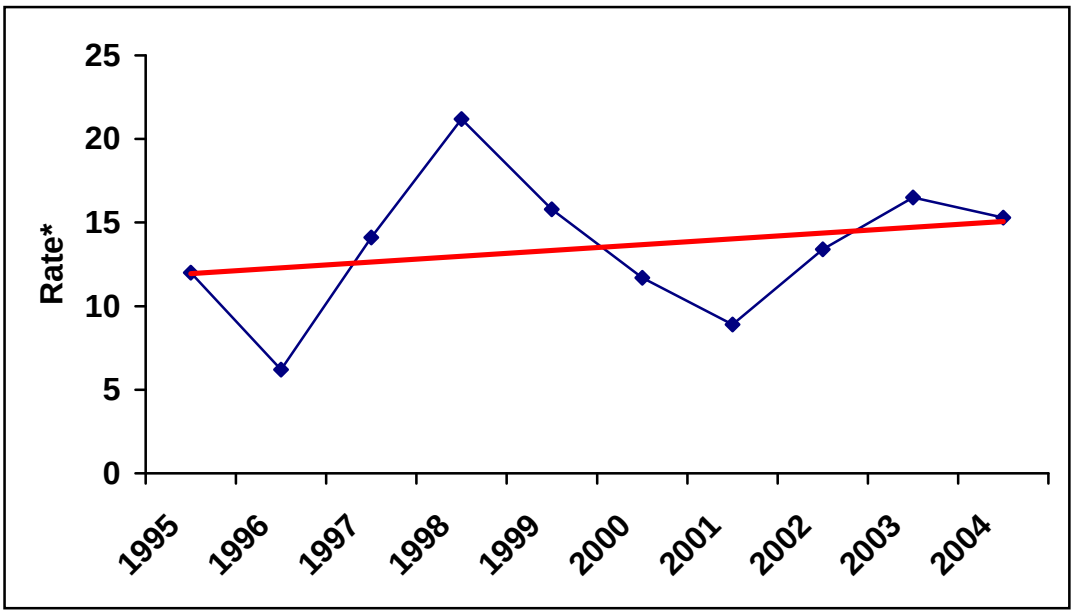


Figure 10.1.1. Annual unadjusted fatality rate* from farm injury by year, Saskatchewan, 1995-2004. *Unadjusted rate per 100,000 farm population, 1996 and 2001 Population Census and Census of Agriculture, Statistics Canada

- The annual unadjusted fatality rates should be viewed with caution due to the small number of fatalities per year.

- There appears to be a small and statistically insignificant increase in the rate of fatal farm injuries during the period. [Figure 10.1.1]

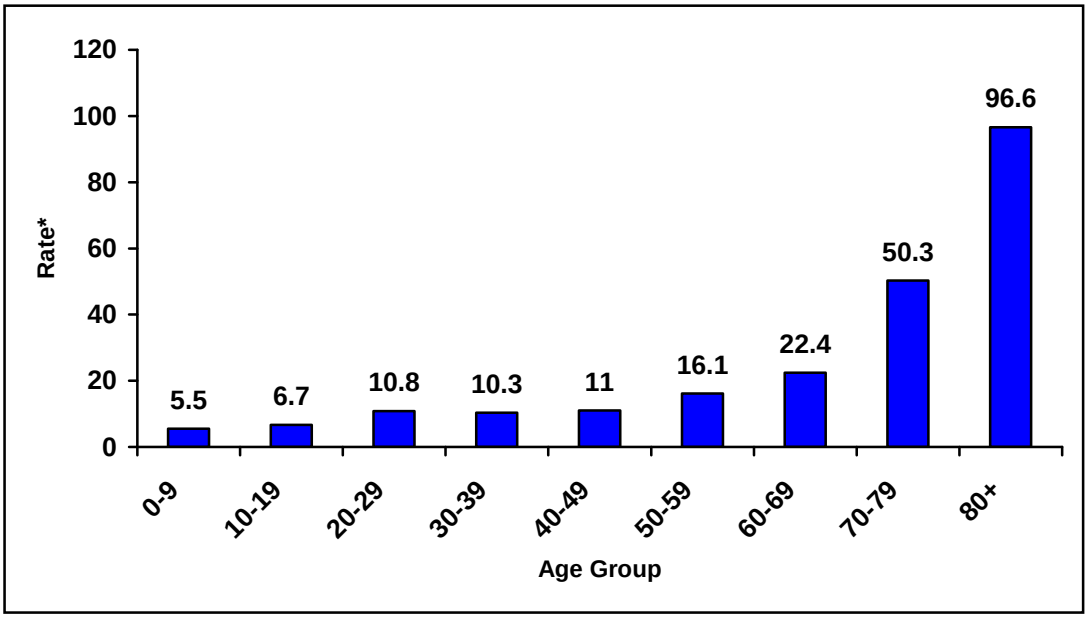


Figure 10.1.2. Average annual age-specific rate* of fatal farm injury by age-group, Saskatchewan, 1995-2004. *Average annual age-specific rate per 100,000 farm population, 2001 Population Census and Census of Agriculture, Statistics Canada

- The average annual age-specific rates of fatal farm injuries should be viewed with caution due to the small number of fatalities annually.

- The average annual rate of fatal farm injuries increases with increasing age. There is a sharp increase observed for persons 70 years and older. [Figure 10.1.2]

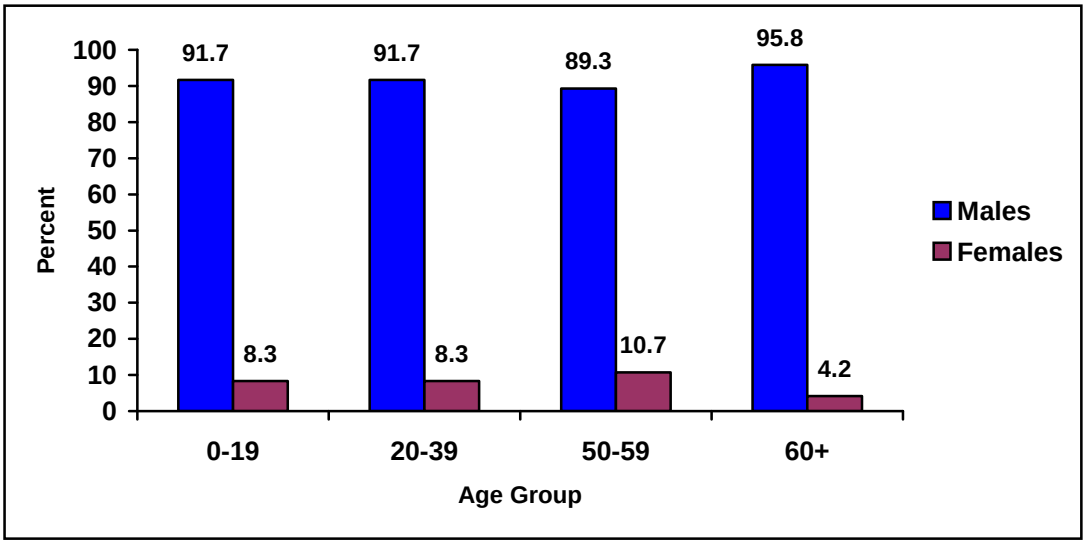


Figure 10.1.3. Distribution of fatal farm injuries by age-group and sex, Saskatchewan, 1995-2004.

- As Figure 10.1.3 indicates, fatal farm injuries occur primarily among males. The overall male to female ratio is 12.6 males to 1 female.

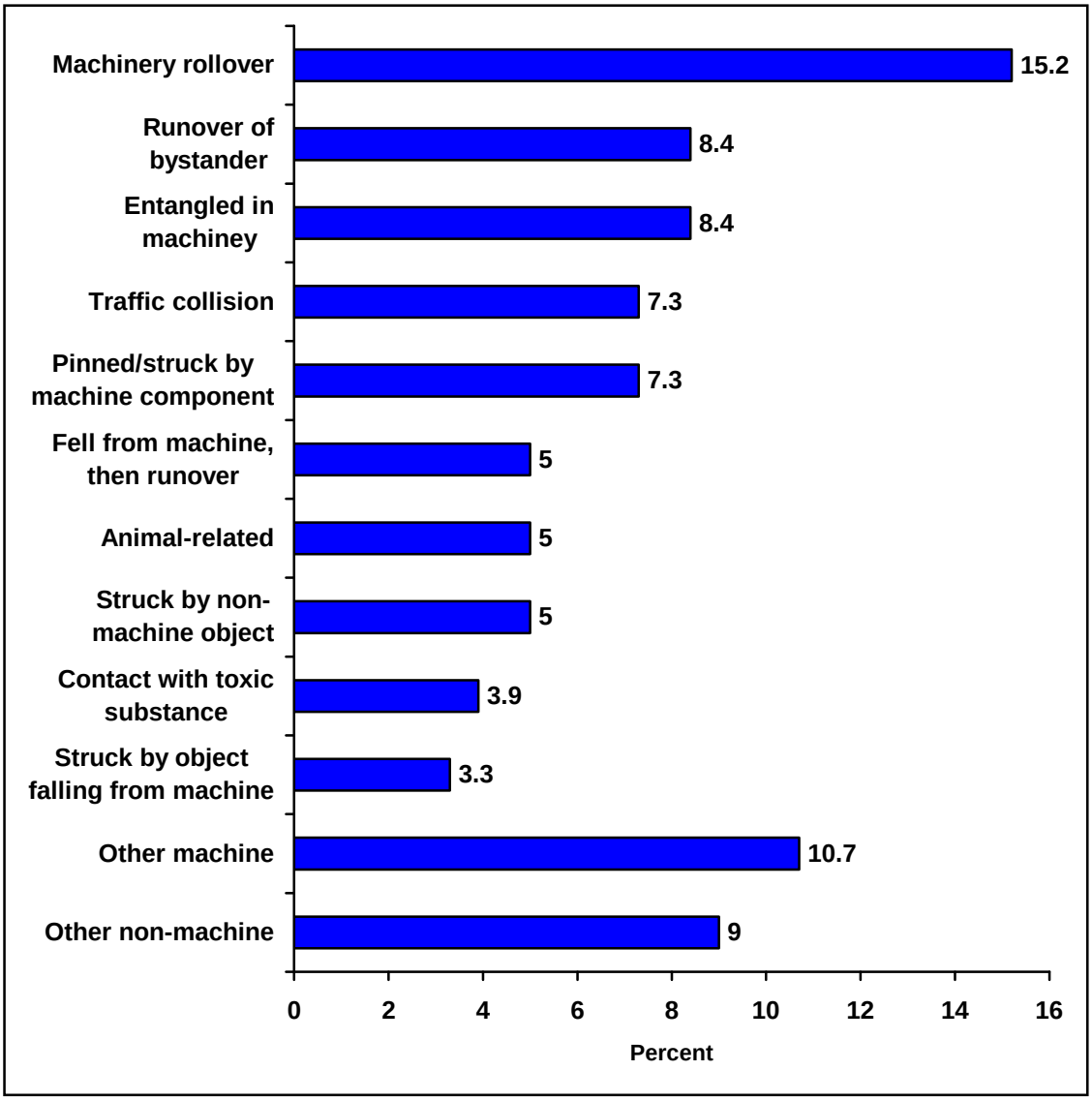


Figure 10.1.4. Distribution of fatal farm work-related injuries by mechanism of injury, Saskatchewan, 1995-2004 (n=177).

- Fatal injury events where the agent of injury was a farm machine accounted for 77% of the total. [Figure 10.1.4]

- Machinery rollover events primarily involved tractors during transport and grain trucks during transport.

- Runover of bystanders most frequently involved children younger than 6 years of age and persons older than 60 years of age.

- Machinery entanglements occurred most frequently among persons ages 20 - 59. The machines most frequently involved were balers, combines and power take offs.

10.2 Hospitalized Farm Injuries

Hospitalized farm injuries are examined in three subsections. First, an overview displays data on leading mechanisms of injury by age-group, injury rate by fiscal year, age-specific rates, and injury distributions by age-group, sex, month of a year and mechanism of injury. The first section also outlines primary diagnosis and distribution by health region. The second section discusses machinery-related farm injuries by machinery entanglements, falls from machines, or being pinned or struck by machines. The final portion of the chapter summarizes non-machinery related farm injuries. These injuries include animal-related and fall-related injuries.

10.2.1 Overview of Hospitalized Farm Injuries

Table 10.2.1. Leading mechanism of injury by age-group, Saskatchewan, April 1, 1995-March 31, 2004 (n=2225).

0-19 years (n=298)	20-39 years (n=438)	40-59 years (n=826)	60+ years (n=663)
Animal-related (64)	Animal-related (90)	Animal-related (165)	Animal-related (113)
Machinery Entanglement (43)	Machinery Entanglement (78)	Fall from Height or On the Same Level (non-machine) (130)	Fall from Machine (101)
Fall from Height or On the Same Level (non-machine) (35)	Pinned or Struck by Machine (44)	Machinery Entanglement (114)	Fall from Height or On the Same Level (non-machine) (99)
Fall from Machine (21)	Struck by Object (44)	Pinned or Struck by Machine (77)	Machinery Entanglement (85)
Pinned/struck by Machine (17)	Fall from Height or On the Same Level (non-machine) (42)	Fall from Machine (67)	Pinned or Struck by Machine (50)
All Other Codes (123)	All Other Codes (144)	All Other Codes (280)	All Other Codes (237)

- The leading mechanism of injury for all age-groups was animal-related. [Table 10.2.1]

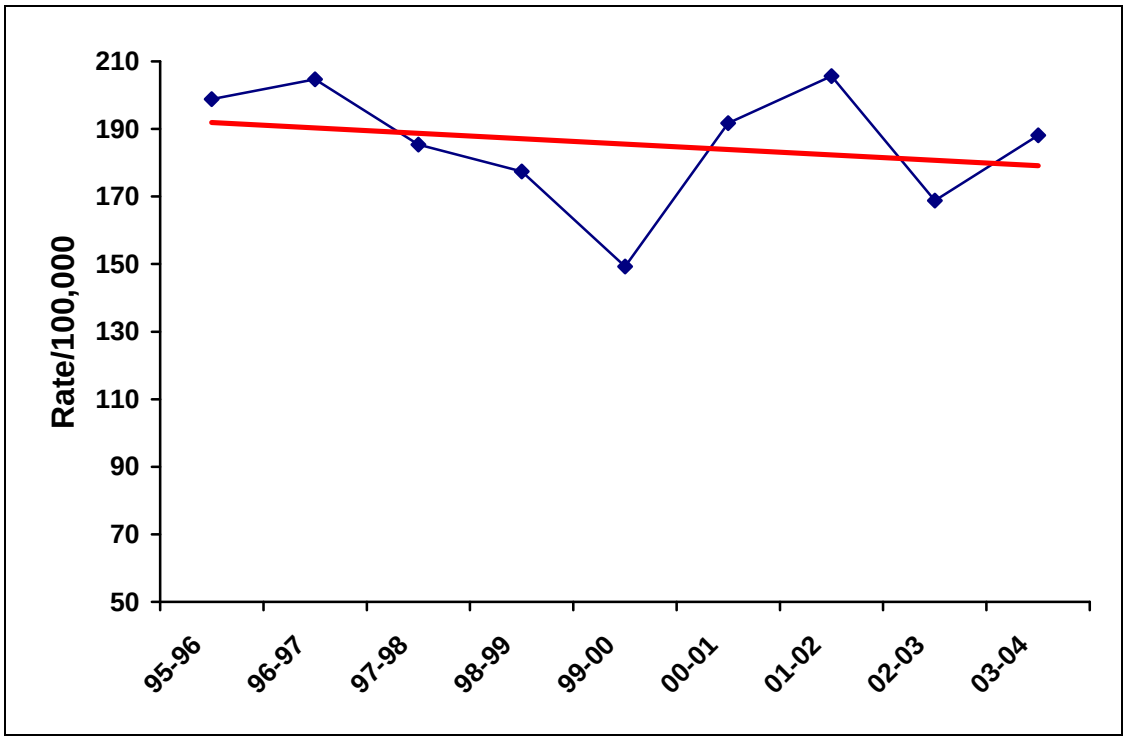


Figure 10.2.1. Annual unadjusted rate* of farm-related hospitalized injuries by fiscal year, Saskatchewan, April 1, 1995 to March 31, 2004 (n=2225). (*Unadjusted rate per 100,000 farm population, 1996 and 2001 Population Census and Census of Agriculture, Statistics Canada. Annual farm population imputed from Census data.)

- A small statistically insignificant reduction in the rate of hospitalized farm injuries is observed during the period under observation, although there were small fluctuations from year to year. [Figure 10.2.1]

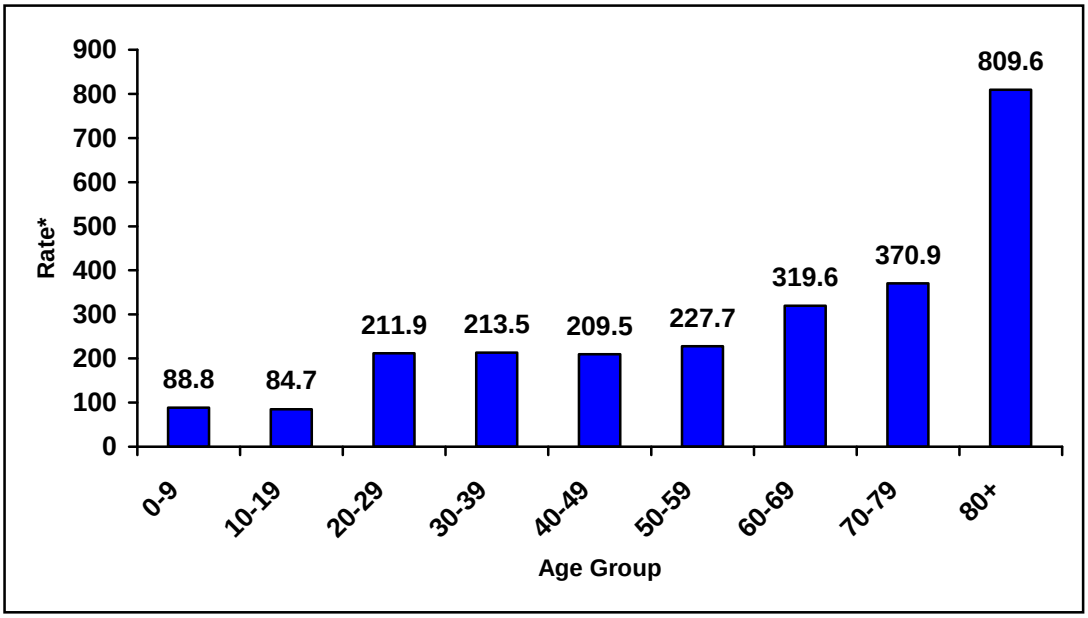


Figure 10.2.2. Average annual age-specific rate for farm-related hospitalized injuries, Saskatchewan, April 1, 1995 to March 31, 2004 (n=2225). (*Average annual age-specific rate per 100,000 Farm Population, 2001 Population Census and Census of Agriculture, Statistics Canada.)

- Figure 10.2.2 shows the average annual rate of hospitalized farm injuries increases with increasing age. There is a sharp increase observed for persons 80 years and older.

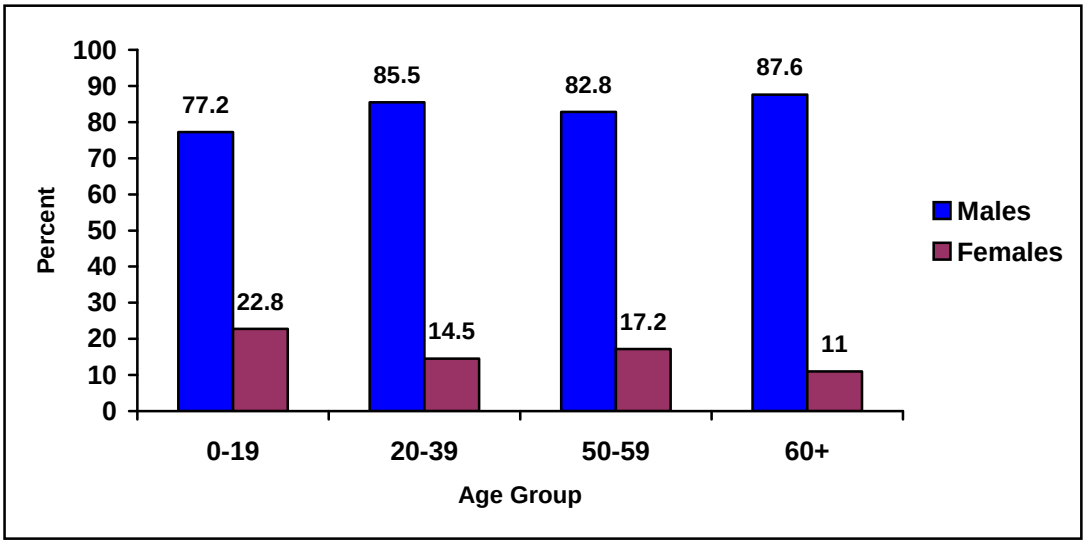


Figure 10.2.3. Distribution of hospitalized farm injuries by age-group and sex, Saskatchewan, April 1, 1995 to March 31, 2004 (n=2225).

- Hospitalized farm injuries occur primarily among males. The overall male to female ratio is 5.4 males to 1 female. [Figure 10.2.3]

- This difference may be the result of the types of work hazards males are exposed to compared to females and also to the frequency of exposure to work hazards among males compared to females.

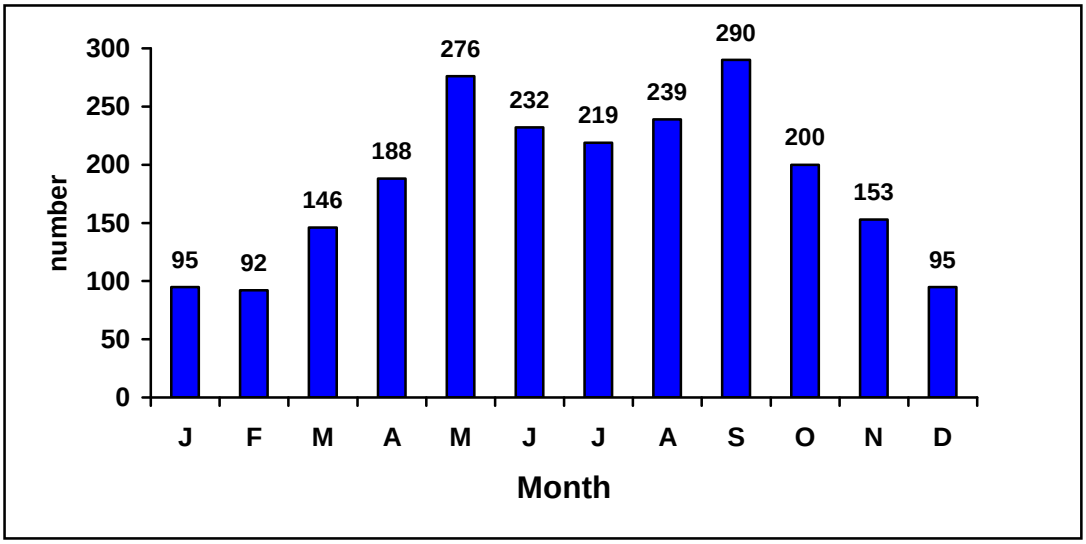


Figure 10.2.4. Distribution of hospitalized farm injuries by month of a year, Saskatchewan, April 1, 1995 to March 31, 2004 (n=2225).

- An increase in the frequency of farm injuries can be observed during the busy growing season with peaks in the months of May and September corresponding with seeding and harvest activities. [Figure 10.2.4]

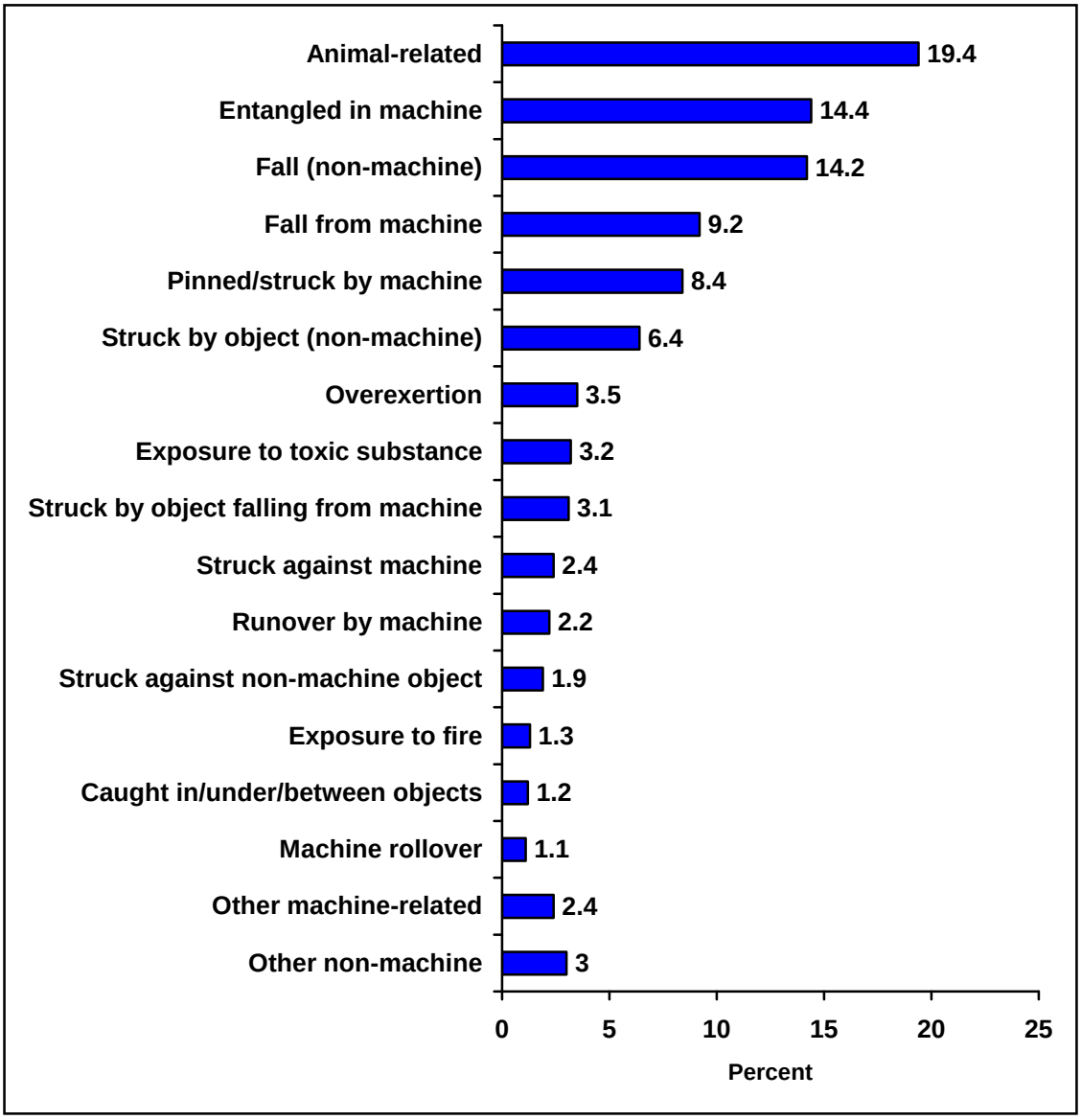


Figure 10.2.5. Distribution of hospitalized farm-related Injuries by mechanism of injury, Saskatchewan, April 1,1995 to March 31, 2004 (n=2225).

- Figure 10.2.5 depicts that overall machinery related injuries account for 46% of hospitalized farm injuries. This compares to 74% of fatal injuries.

- Animal-related injuries, machinery entanglements and falls account for 57% of all hospitalized farm injuries. A wide variety of other mechanisms account for the remainder.

Table 10.2.2. Distribution of hospitalized farm-related injuries by primary diagnosis and age-group, Saskatchewan, April 1,1995 to March 31, 2004 (n=2225).

PRIMARY DIAGNOSIS	Total n=2225 (%)	0-19 n=298 (%)	20-39 n=438 (%)	40-59 n=826 (%)	60 + n=663 (%)
Head Injuries (including skull fracture)	163 (7)	**32 (10)**	36 (8)	55 (6)	14 (2)
Fracture: spine and trunk	**217 (10)**	11 (4)	28 (6)	**90 (11)**	**88 (13)**
Fracture: upper limb	**304 (14)**	**59 (20)**	**74 (17)**	**107 (13)**	**64 (10)**
Fracture: lower limb	**363 (16)**	**38 (13)**	**52 (12)**	**140 (17)**	**133 (20)**
Dislocation	63 (3)	6 (2)	16 (4)	25 (3)	16 (2)
Sprains/strains of joints and adjacent muscle	85 (4)	<5	18 (4)	39 (5)	24 (4)
Internal injury of chest, pelvis and abdomen	54 (2)	9 (3)	9 (2)	20 (2)	16 (2)
Open wound: head, neck, and trunk	64 (3)	17 (6)	10 (2)	16 (2)	21 (3)
Open wound: upper limb	202 (9)	27 (9)	**46 (10)**	74 (9)	55 (8)
Open wound: lower limb	74 (3)	10 (3)	20 (4)	29 (3)	15 (2)
Injury to blood vessels	9 (.04)	<5	<5	<5	<5
Superficial injury	42 (2)	7 (2)	7 (1)	19 (2)	9 (1)
Crushing Injury	67 (3)	<5	13 (3)	14 (2)	10 (1)
Contusion with intact skin	38 (2)	12 (4)	11 (2)	21 (2)	21 (3)
Burns	73 (3)	14 (5)	13 (3)	24 (3)	22 (3)
Injury to nerves and spinal cord	17 (1)	<5	<5	8 (1)	5 (1)
Toxic effects of substances chiefly nonmedicinal	50 (2)	9 (3)	15 (3)	15 (2)	11 (2)
Certain traumatic complications and unspecified injuries	118 (5)	14 (5)	29 (7)	39 (5)	37 (5)
Other	211 (9)	23 (8)	34 (8)	81 (10)	78 (11)
Unknown	11 (.04)	<5	<5	6 (1)	<5
Total	**2225**	**298**	**438**	**826**	**663**

- The three leading types of injury are highlighted in each age-group and overall. Persons in the 0-19 year age-group experience an excessive number of fractures of the upper limb and head injuries compared to the group overall. Persons in the 60 years and older age-groups experience an excessive number of fractures of the lower limb compared to the group overall. [Table 10.2.2]

Table 10.2.3. Distribution of hospitalized farm injury cases, by resident health regions, Saskatchewan, April 1, 1995 to March 31, 2004 (n=2225).

	Number	Percent
HEALTH REGION		
Sun Country	280	12.6
Five Hills	174	7.8
Cypress	190	8.5
Regina Qu'Appelle	264	11.8
Sunrise	297	13.3
Saskatoon	301	13.5
Heartland	192	8.6
Kelsey Trail	149	6.7
Prince Albert Parkland	160	7.2
Prairie North	205	9.2
Other	13	0.01
Total	**2225**	**100.00**

- Table 10.2.3 illustrates that the greatest proportion of hospitalized farm injuries took place in Saskatoon, Sunrise, and Sun Country health regions.

- It was not possible to compute rates for each health region because the farm population census data were not provided for that area breakdown. However, areas with a sparse farm population would expect to have fewer injuries.

10.2.2 Machinery-related Farm Injuries

Machinery-related farm injuries are discussed in four sections: a general overview displaying mechanism of injury and type of machine; machinery entanglements by type of machine and age-group; falls from machines by type of machine and age-group; and being pinned or struck by a machine by type of machine and age-group.

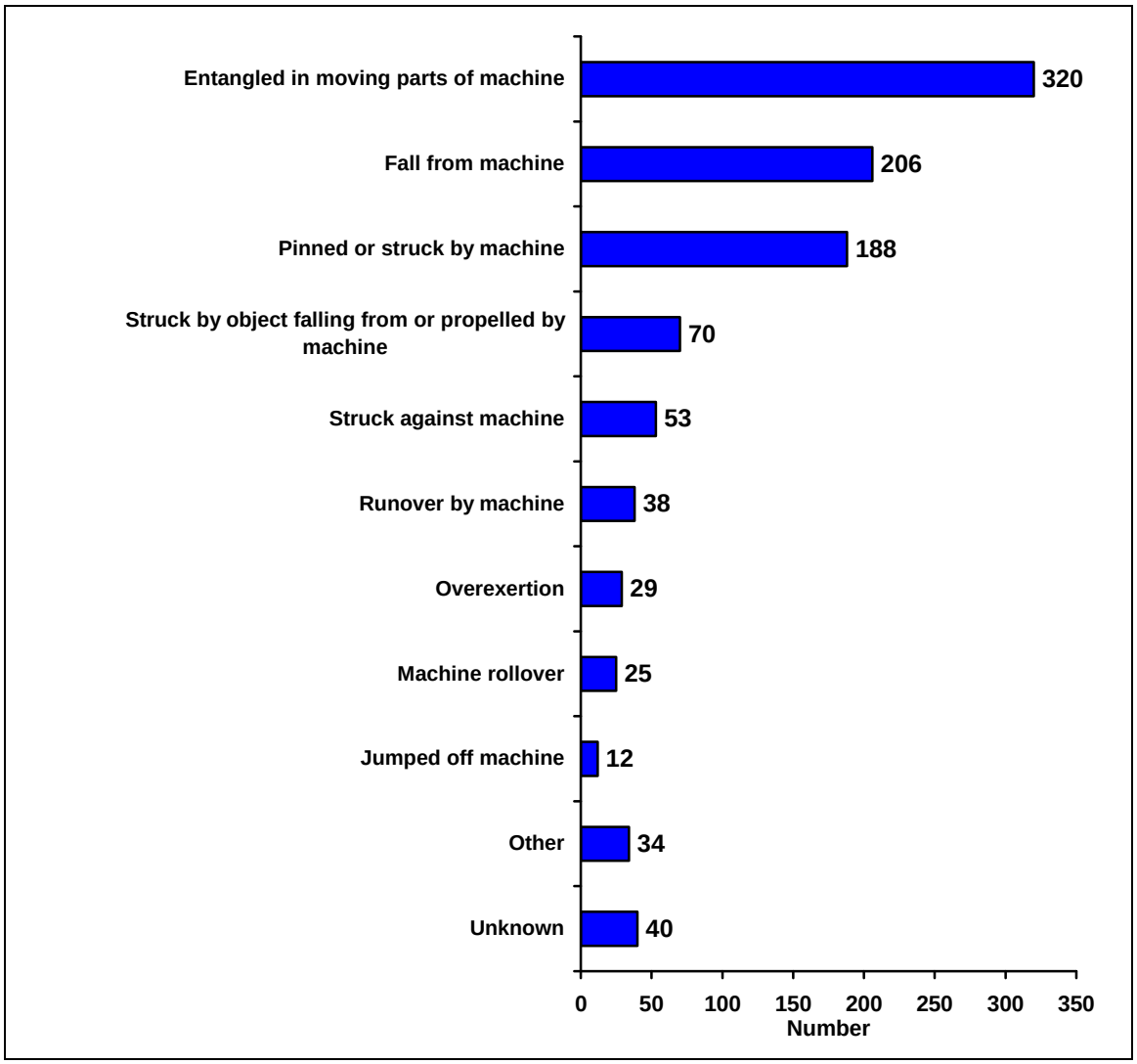


Figure 10.2.6. Machinery-related farm injuries by mechanism of injury, Saskatchewan, April 1, 1995 to March 31, 2004 (n=1015).

- Entanglement in moving parts of machines, falls from machines and being pinned or struck by a machine accounted for 70% of all machinery related farm injury hospitalizations. This pattern of mechanism of injury was different than that observed for fatal injuries. The severity of the outcome of a machinery related injury can be predicted in part by the mechanism of injury. [Figure 10.2.6]

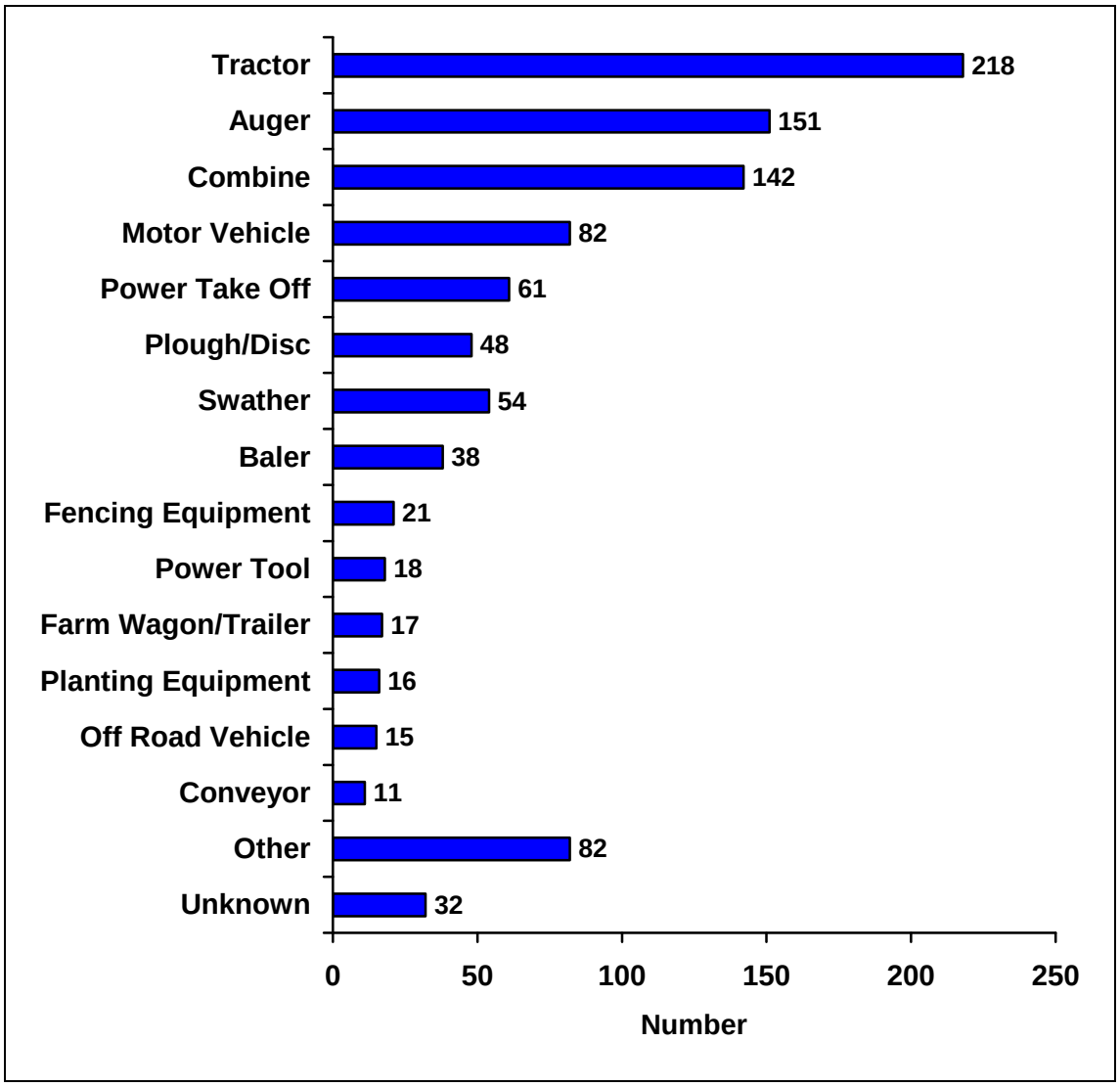


Figure 10.2.7. Distribution of hospitalized machine-related farm injuries by type of machine, Saskatchewan, April 1, 1995 to March 31, 2004 (n=1015).

- Tractors, augers and combines are involved in 50% of all machine-related farm injuries. Tractors are also the most common machine involved in fatal farm injuries. Tractors are the most common machines found on Saskatchewan farms and they are used year round as compared to combines, which are only used during harvest season. [Figure 10.2.7]

- Since hours of exposure to various types of farm machines is not known at the present time, we do not know which machine is the most dangerous per hour of operation.

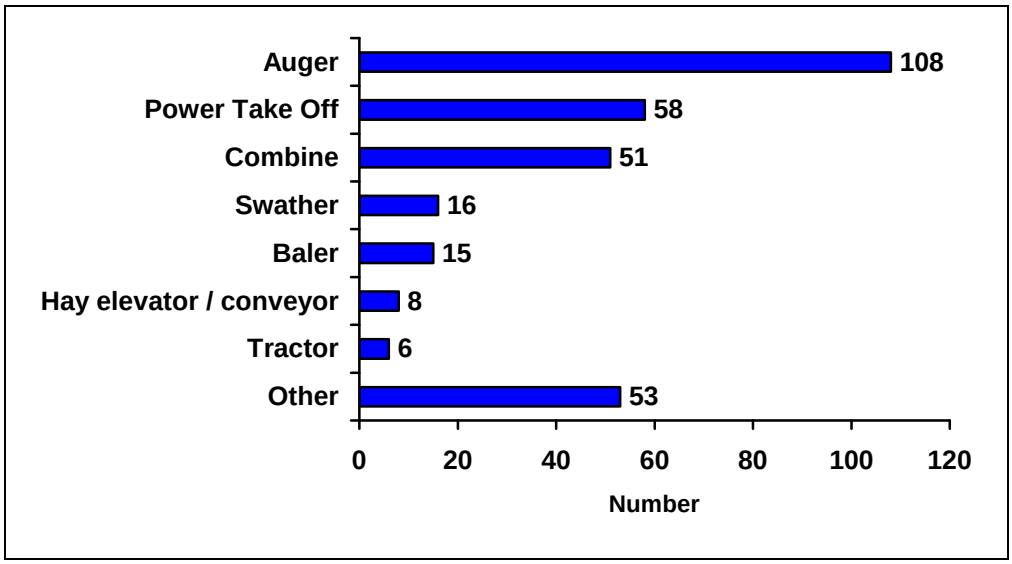


Figure 10.2.8. Distribution of machinery entanglements by type of machine, Saskatchewan, April 1, 1995 to March 31, 2004 (n=320).

- Entanglement with augers is the most common machinery type involved in farm injuries. [Figure 10.2.8]

- The primary diagnoses most frequently associated with entanglement injuries are fractures, amputations, lacerations and contusions with over half of these involving the upper limbs.

Table 10.2.4. Distribution of machinery entanglements by age-group, Saskatchewan, April 1, 1995 to March 21, 2004 (n=320).

Age-group	Machinery Entanglement		Farm Population*	
	Number	Percent	Number	Percent
0-19 years	43	13.4	38390	31.4
20-39 years	78	24.3	22860	18.5
40-59 years	114	35.6	42195	34.2
60+ years	85	26.5	19635	15.9
Total	**320**	**100**	**123300**	**100**

* Farm Population, 2001 Population Census and Census of Agriculture, Statistics Canada

- Persons in the 20 to 39 years age-group and in the 60 years and older age-group are over represented in machinery entanglement injuries according to the proportion of the farm population that they represent. [Table 10.2.4]

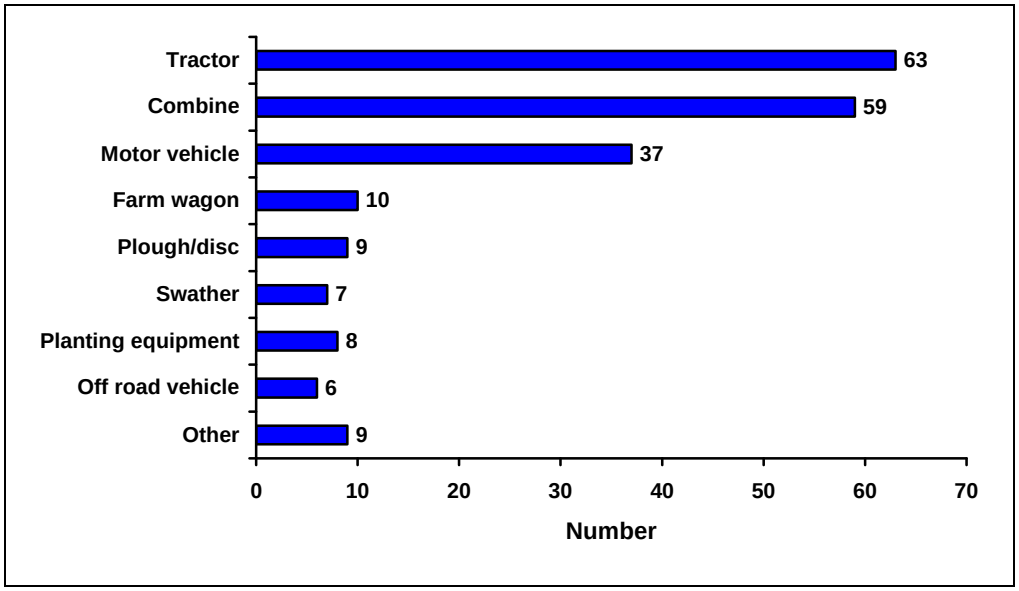


Figure 10.2.9. Distribution of falls from machines by type of machine, Saskatchewan, April 1, 1995 to March 31, 2004 (n=208).

- In most cases it is not possible to determine if the machine was moving or stationary at the time of the fall. The prevention strategies to address each scenario are quite different.

- The primary diagnoses most frequently observed with falls from machines are fractures of the extremities and fractures of the spine and trunk.

Table 10.2.5. Distribution of falls from machines by age-group, Saskatchewan, April 1, 1995 to March 31, 2004 (n=208).

Age-group	Falls from machines		Farm Population*	
	Number	Percent	Number	Percent
0-19 years	21	10.0	38390	31.4
20-39 years	19	9.1	22860	18.5
40-59 years	67	32.3	42195	34.2
60+ years	101	48.6	19635	15.9
Total	**208**	**100**	**123300**	**100**

* Farm Population, 2001 Population Census and Census of Agriculture, Statistics Canada

- Persons in the 60 + year age-group are clearly over represented among those who were injured in falls from machines according to the proportion of the farm population that they represent.

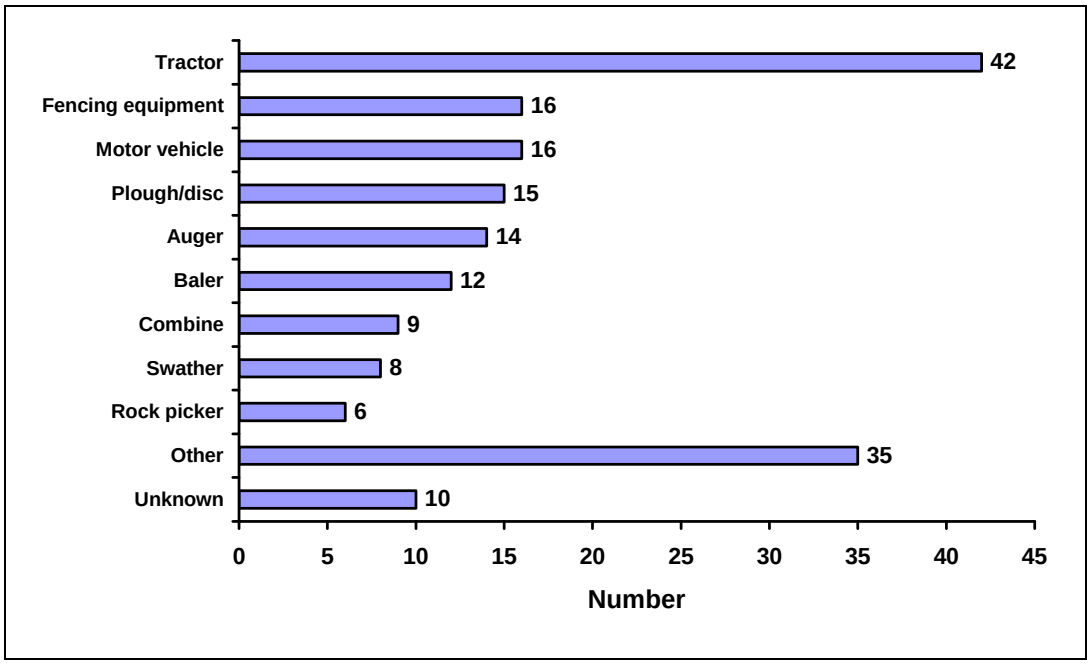


Figure 10.2.10. Distribution of pinned or struck by machines by type of machine, Saskatchewan, April 1, 1995 to March 31, 2004 (n=188).

- A tractor is the most common type of machine involved in injuries where a person is pinned or struck by machines. [Figure 10.2.10]

- These injury events frequently include machine operators who have dismounted a machine that is still powered.

- The primary diagnoses most frequently reported with this type of injury event are fractures of the extremities and open wounds of the extremities.

- "Other" category includes but is not limited to power take-offs, farm trailers, power tools, spraying equipment, gardening equipment, planting equipment, mix mills, off-road vehicles and haybines.

Table 10.2.6. Distribution of pinned or struck by machines by age-group, Saskatchewan, April 1, 1995 to March 31, 2004 (n=188).

Age-group	Pinned or struck by machine		Farm Population*	
	Number	Percent	Number	Percent
0-19 years	17	9.0	38390	31.4
20-39 years	44	23.4	22860	18.5
40-59 years	77	40.9	42195	34.2
60+ years	50	26.5	19635	15.9
Total	**188**	**100**	**123300**	**100**

* Farm Population, 2001 Population Census and Census of Agriculture, Statistics Canada

- Persons in the two oldest age-groups are clearly over represented among those who were pinned or struck by a machine according to the proportion of the farm population that they represent.

10.2.3 Non-Machinery Related Farm Injuries

This section presents data regarding farm injuries that are not related to machinery. The primary causes of these injuries are animal-related and falls from height.

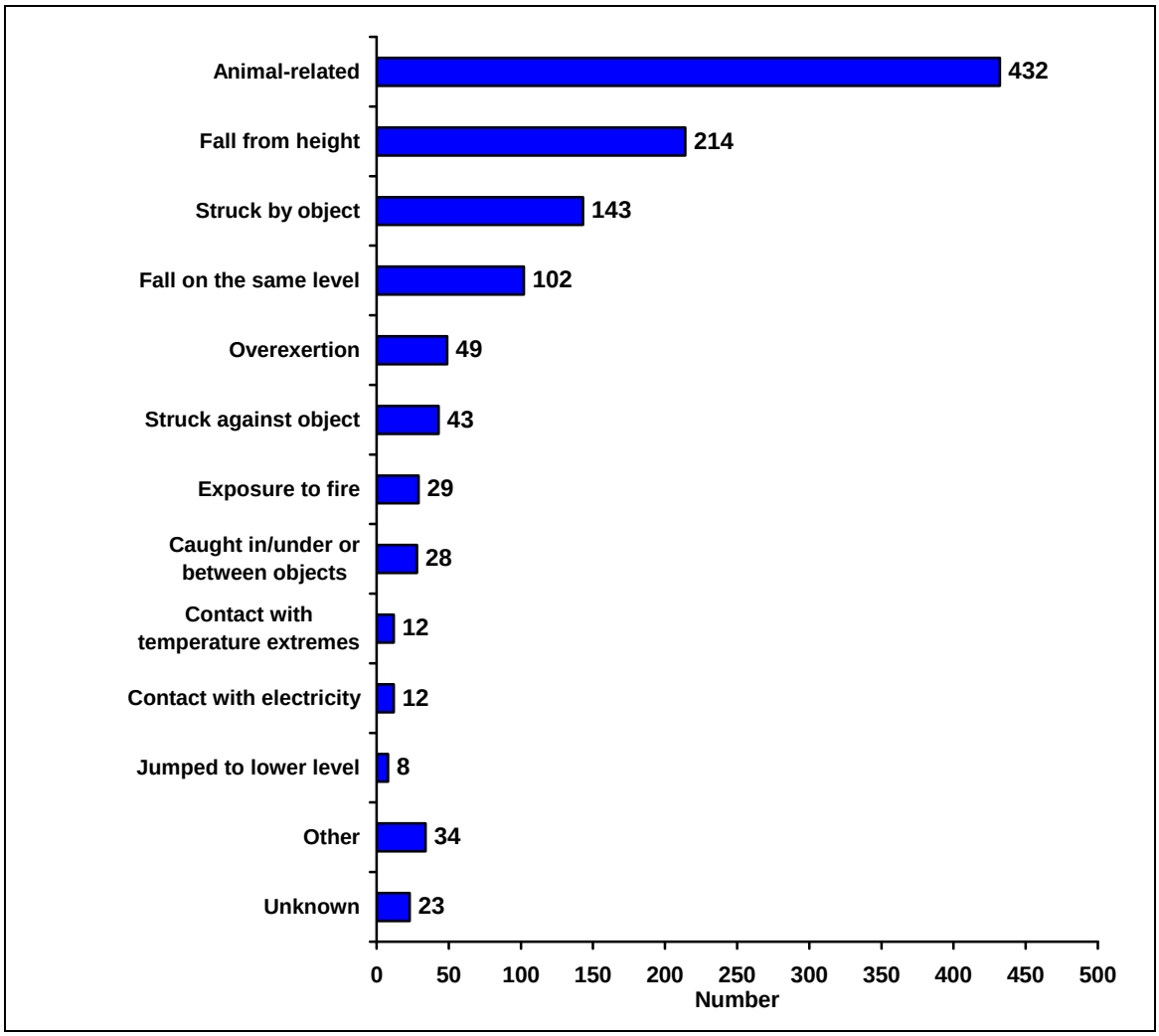


Figure 10.2.11. Non-machinery-related farm injuries by mechanism of injury, Saskatchewan, April 1, 1995 to March 31, 2004 (n=1201).

- Non-machinery related hospitalizations account for 54% of all farm injury hospitalizations. This is different from the pattern observed for fatal injuries where non-machine related fatalities represented 26% of all farmwork related fatalities.

- Animal-related injuries, falls and being struck by an object accounted for 74% of all non-machine related farm injury hospitalizations. [Figure 10.2.11]

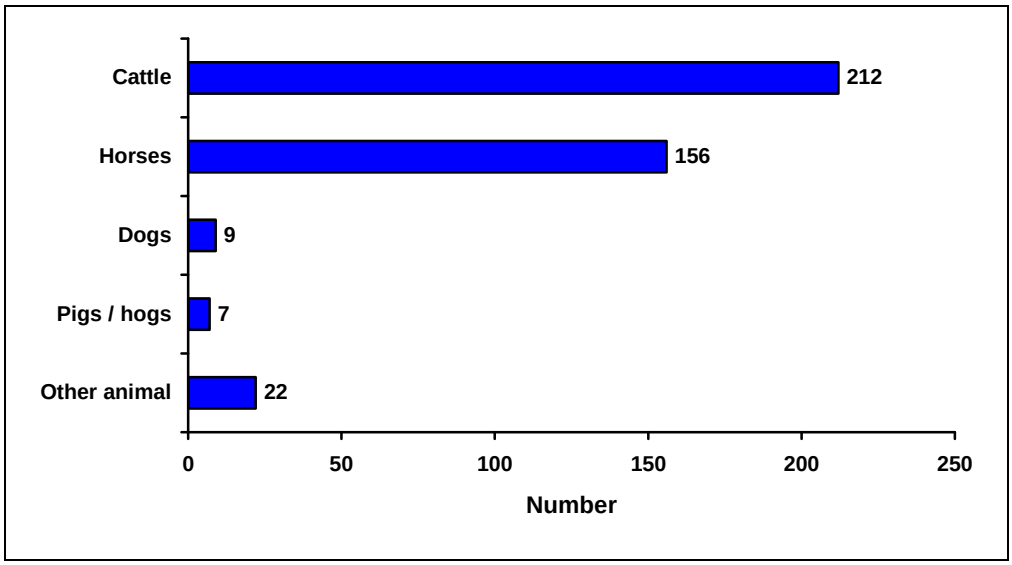


Figure 10.2.12. Animal-related farm injuries by type of animal, Saskatchewan, April 1, 1995 to March 31, 2004 (n=432).

- Being struck or crushed by an animal and falls from animals accounted for 79% and 12% respectively of animal-related injuries. Falls from animals are not captured using the ICD 9 and ICD 10-CA injury codes. Upon conducting an analysis of the ICD 9 and ICD 10-CA code for “falls from animals” for the period, 1995/96 – 2003/04, 512 cases of falls from animals were identified. In most cases, the falls occurred from horses. The location of the injury was not indicated in 90% of the records. However, since most horses are located on farms, it is reasonable to assume that most of these events occurred on farms.

Table 10.2.7. Animal-related farm injuries by age-group, Saskatchewan, April 1, 1995 to March 31, 2004 (n=432).

Age-group	Animal-related Injuries		Farm Population*	
	Number	Percent	Number	Percent
0-19 years	64	14.8	38390	31.4
20-39 years	90	20.8	22860	18.5
40-59 years	165	38.2	42195	34.2
60+ years	113	26.2	19635	15.9
Total	**432**	**100**	**123300**	**100**

* Farm Population, 2001 Population Census and Census of Agriculture, Statistics Canada

- Persons in the oldest age-group are clearly over represented among those who were involved in animal-related injuries according to the proportion of the farm population that they represent. [Table 10.2.7]

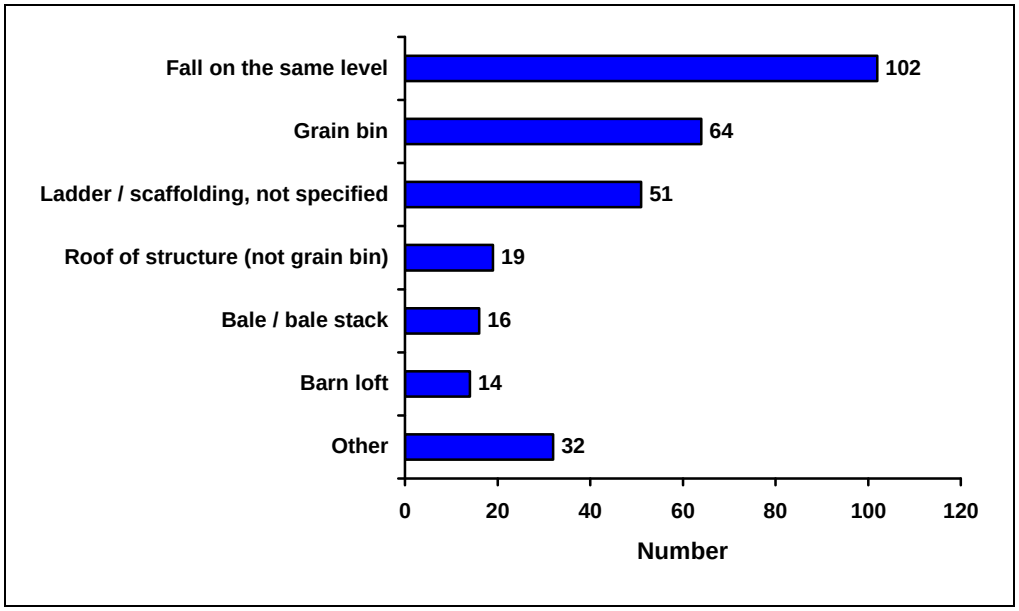


Figure 10.2.13. Fall-related farm injuries by location of fall, Saskatchewan, April 1, 1995 to March 31, 2004 (n=316).

- Falls from height account for 67% of all fall injuries, while slips and trips (fall on the same level) account for the remainder. [Figure 10.2.13]

- On farms at least 20% of falls occur from grain bins.

Table 10.2.8. Fall-related farm injuries by age-group, Saskatchewan, April 1, 1995 to March 31, 2004 (n=316).

Age-group	Falls		Farm Population*	
	Number	Percent	Number	Percent
0-19 years	48	15.4	38390	31.4
20-39 years	42	13.3	22860	18.5
40-59 years	130	41.1	42195	34.2
60+ years	99	31.3	19635	15.9
Total	**316**	**100**	**123300**	**100**

* Farm Population, 2001 Population Census and Census of Agriculture, Statistics Canada

- Persons in the oldest two age-groups are clearly over represented among those who were involved in fall injuries according to the proportion of the farm population that they represent. [Table 10.2.8]

- Among persons older than 60 years, 50% of falls are slips and trips (falls on the same level).

11. APPENDICES

11.0 APPENDICES

APPENDIX A

Technical Notes on Analyses

Technical Notes on Analysis of self-reported injury based on Canadian Community Health Survey:

The CCHS is a general health survey that covers the population aged 12 or older who were living in private households. It does not include residents of Indian reserves, Canadian Forces bases, and some remote areas. The total size for the Saskatchewan sample was 7,393 which was weighted to represent the 2005 Saskatchewan population of 787,765 residents aged 12 years or older.

In the survey, respondents were asked about injuries that occurred in the past year and that were serious enough to limit their normal activities. Several examples were given: "a broken bone, a bad cut or burn, a sprain, or a poisoning." Some of the relevant questions asked to respondents were as follows:

- Not counting repetitive strain injuries, in the past 12 months were you injured?
- Thinking about the most serious injury, in which month did it happen? Was that last year or this year?
- What type of injury did you have? (For example, a broken bone or burn.)
- What part of the body was injured?
- Where did the injury happen?
- What type of activity were you doing when you were injured?
- Was the injury the result of a fall?
- How did you fall?
- What caused the injury?

Data from the 3.1 cycle of the Canadian Community Health Survey (CCHS) conducted in 2005 were analyzed to obtain frequency tables of various variables relevant to injuries.

Technical Notes on Injury Hospitalization Analysis

List of ICD-codes (9 or 10) for including the data:

In order to extract the injury data, the data line was included if it had any of ICD-9 or 10 listed below that appeared in any cell of diagnoses for a number of acute inpatient and day surgery separations due to an injury (as defined by external cause of injury codes).

> *Inclusions*: All acute inpatient and day surgery cases where an external cause of injury is indicated on the hospital record, defined by the following ICD codes appearing in any diagnostic field.
>
> > ICD-9: E800.x-E807.x, E810.x-E838.x, E840.x-E848.x, E850.x-E858.x, E860.x-E869.x, E880.x-E888.x, E890.x-E929.x, E950.x-E999.x
> >
> > ICD-10: V01.x-V99.x, W00.x-X59.x, X60.x-Y36.x, Y89.x-Y98.x

Exclusions: Injuries that did not result in a hospital admission; acute inpatient and day surgery separations due to injuries due to medical misadventure, defined by the following ICD codes appearing in any diagnostic field.

ICD-9: E870.x-E876.x, E878.x-E879.x, E930.x-E949.x

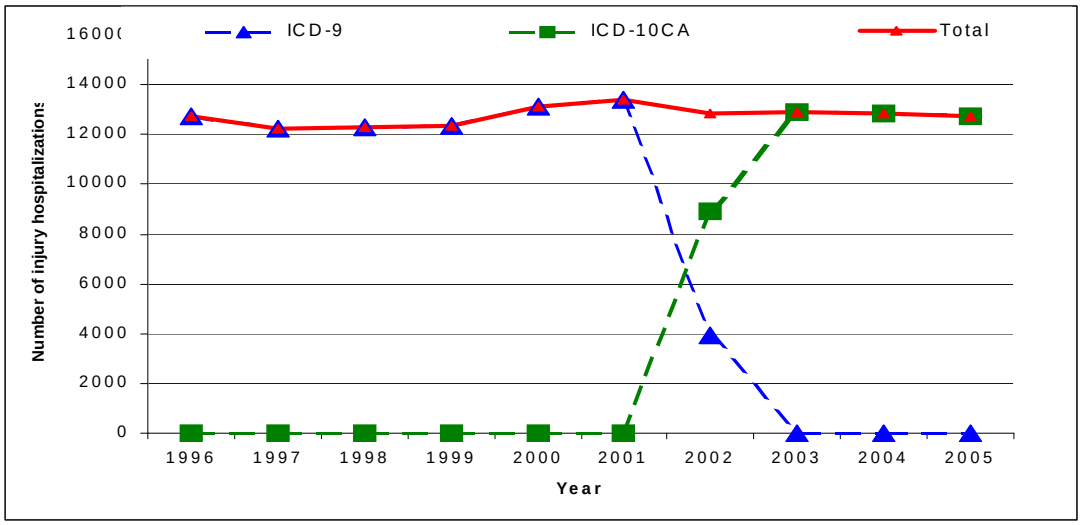
ICD-10: Y40.x-Y59.x, Y60.x-Y69.x, Y70.x-Y88.x

Data source: Hospital DAD - The source for the numerator is an extract from Saskatchewan Health's year-end hospital file linked to Saskatchewan Health's Person Registry System (PRS). The hospital file is mainly data submitted to the Canadian Institute for Health Information's (CIHI's) Discharge Abstract Database (including about 67% of the records for Saskatchewan residents hospitalized in out of province facilities), but also includes merged information from Saskatchewan Health's reciprocal billing system to fill in the rest of the out of province hospitalizations.

Data availability: Annually. CIHI's final version of the data is available 5 to 6 months after the end of the fiscal year. The Ministry of Health's final version of this data is available 11 to 12 months after the end of the fiscal year, and the extract is provided to Population Health Branch, Ministry of Health soon after.

Injury hospitalization case definition:

All individuals in the Person Registry System during the current fiscal year who were acute inpatients and/or day surgery cases where an external cause of injury was indicated on the hospital records as ICD 9 (800-999) excluding 839 and 849 except injuries due to medical misadvanture: E-code classes 10 and 11 (ICD9 codes E870 - E876, E878, E879); and injuries due to adverse effects due to therapeutic agents: E-code class 18 (ICD9 codes E930 - E949), and as ICD10-CA (V,W,X,Y) except injuries due to medical misadvanture: ICD10-CA codes (Y60 - Y69, Y71 - Y84 and Y88.1) and injuries due to adverse effects due to therapeutic agents: ICD10-CA codes (Y40 - Y59, Y70 and Y88.0).



Appendix Figure T1. The chart showing the distribution of injury hospitalizations across years of study period, by the ICD code versions used in different years.

Table. Injury related deaths, by cause and age group, Saskatchewan 1995 to 1999

Cause of Death (ICD9)	*0 to 9*	*10 to 14*	*15 to 19*	*20 to 34*	*35 to 64*	*65+*	*Total*	*Percent*
Land Vehicle Accidents	*41*	*32*	*109*	*196*	*239*	*136*	*753*	*25*
Suicide	1	10	57	207	294	84	653	21
Accidental Falls	1	0	3	8	35	428	475	16
Accidental submersion or suffocation	35	4	7	26	43	76	191	6
Accidental poisoning - drugs and other	1	4	5	35	81	16	142	5
Other Accidents [1]	8	6	5	26	54	36	135	4
Homicide	6	2	10	56	32	11	117	4
Accidental Fires	21	2	2	11	23	17	76	2
Accidents in Nature	5	1	6	7	15	26	60	2
Water Transport Accidents	2	0	0	5	9	2	18	1
Air and Space Vehicle Accidents	0	0	1	6	10	1	18	1
Other[2]	5	1	4	15	46	60	131	4
TOTAL	126	62	209	598	881	893	2769	100

[1]Other Accidents include ICD9 E916 to E928, such as: struck by falling object, machinery, explosions, caustic or corrosive material, electric current or radiation.

[2] Other includes war, legal intervention, medical and surgical abnormal reactions, late effects of accidental injury and injury-intent unknown.

Table. Injury related deaths, by cause and age group, Saskatchewan 2000 to 2004

	Age Group							
Cause of Death (ICD10)	*0 to 9*	*10 to 14*	*15 to 19*	*20 to 34*	*35 to 64*	*65+*	*Total*	*Percent*
Land Vehicle Accidents	19	24	104	185	214	139	685	24
Intentional self-harm	0	12	58	156	266	61	553	19
Falls	7	0	3	10	62	324	406	14
Accidental Exposure to other and unspecified factors	1	0	3	2	21	337	364	13
Other accidental threats to breathing	10	2	3	9	20	53	97	3
Accidental poisoning by and exposure to noxious substances	4	4	11	49	106	20	194	7
Assault	4	2	12	58	54	17	147	5
Exposure to smoke, fire and flames	8	4	2	15	30	18	77	3
Exposure to forces of nature	2	0	6	9	25	21	63	2
Water transport accident	0	0	2	3	3	0	8	0
Air or space transport accident	0	0	0	1	4	0	5	0
Accidental drowning and submersion	13	1	7	11	23	6	61	2
Other	6	6	9	28	69	76	194	7
TOTAL	74	55	220	536	897	1072	2854	100

Technical Notes on Farm Injury Data analysis

1.1 Database Management

All data collected as part of the Saskatchewan Farm Injury Surveillance project are maintained in strict confidence. In the case of the hospitalized farm injury data, Ministry of Health de-identified data provided to the researchers. In the case of fatal farm injury data, personal identifiers such as the patient's name are not collected by the researchers. All data are kept as computer files which are encrypted and located in locked rooms at the Canadian Centre for Health and Safety in Agriculture (formerly I.ARE.H), University of Saskatchewan. Documents pertaining to these data are kept in locked filing cabinets also located in locked rooms at CCHSA.

1.2 Identification of Individual Cases

All reports of patterns of injury contained in this report are based on analyses of group data only. No individual cases are presented. Where stratified analyses by factors of interest resulted in a group size of less than five cases, the results are aggregated to the "other" category or, in the case of fatality data, are reported as a proportion of the total.

2. Overview of Data Sets

2.1 Identification of Farm Fatalities

The process used in the identification of fatalities on Saskatchewan farms is described below:

1. The two sources of farm fatality data were Occupational Health and Safety Division, Saskatchewan Ministry of Advanced Education, Employment and Labour and the Provincial Coroner's Office, Saskatchewan Ministry of Justice.
2. A comprehensive list of all potential, farm-related fatalities was assembled within each agency.
3. Once cases were identified, detailed case reports were sought for review and data abstraction. The main sources of information were the coroner's reports and the Occupational Health and Safety Division's accident investigation reports. The definitive source of information was the coroner's investigation report.
4. Data abstraction and entry were completed on each eligible case. This was done in a consistent manner using a standard data abstraction form (Appendix B) and a database program that was developed using the Canadian Agricultural Injury Surveillance Program (CAISP) template.
5. Ineligible cases were excluded using the decision rules developed by the CAISP collaborators.
6. Cases were stratified into two categories: a) work-related farm fatalities, and b) farm fatalities that were not work-related but were caused by a hazard of the farm environment. The result is the final, provincial registry of farm fatalities.

2.2 Identification of Hospitalized Farm Injuries

1. Basic Data

Hospital discharge data were obtained from the administrative data of Saskatchewan Ministry of Health. Farm machinery injuries were identified using a systematic computer search of this hospital separation database where the primary external cause of injury (ICD-9 E-code) was E919.0: *Injuries Caused by Agricultural Machines*. Non-machinery farm injuries were identified through a systematic search of hospital separation data where: (1) the fifth digit of the external cause of injury (ICD-9 E-code) was one (indicating that the location of injury is a farm) and, (2) the primary E-code is in the range of E850-869 or E880-928 (includes poisoning, falls, injury caused by fire and flame, injury due to natural and environmental factors, injury caused by submersion, suffocation and foreign bodies, and other incidents.) Using the ICD-10-CA classification, the codes V01 - X59 were searched and those having a place of occurrence code of U98.7 (indicating “farm”) were included.

The information obtained through this search constitutes the basic data set on hospitalized farm injuries. This data set included demographic information (e.g., month and year of birth, sex, resident health region), external cause of injury code, diagnostic codes, health region in which the hospitalization occurred, type of admission, type of discharge, date of admission, date of discharge, and length of hospital stay.

2. Enhanced Data

The procedure for obtaining the enhanced hospitalization data was developed and conducted with the assistance of the Population Health Branch, Saskatchewan Ministry of Health. The procedure is described below:

1. An information letter and invitation to participate in the project was sent from researchers at the CCHSA and the Ministry of Advanced Education, Employment and Labour and the officials from Saskatchewan Ministry of Health to each Chief Executive Officer of a health region or affiliated hospital in the province. Each consenting health region or affiliated hospital identified an individual to serve as a contact for the project. This individual coordinated the hospital record abstractions within the health region.
2. Saskatchewan Ministry of Health prepared an abstraction list for each health region and affiliated hospital which enabled the location of the hospital charts. The Centre for Agricultural Medicine researchers prepared a standard abstraction form (Appendix B) for each potential case. These were sent by Saskatchewan Health to the contact person in each location.
3. Local medical records personnel located the hospital charts and abstracted specific information from the hospital records. Completed abstraction forms were returned to CCHSA for review.
4. Data were electronically encoded using the Access template and coding guidelines developed by CAISP.
5. The information from the hospital discharge summaries provided by Saskatchewan Health combined with the information returned on the abstraction forms constituted the enhanced data set.

2.3 Notes About Data Collection

1. Hospitalized Injuries – Search Algorithm Implications: Machinery Injuries

Because of the existence of a single E-Code that can be used to identify agricultural machinery injuries (E919.0), we think that the distribution of machinery injuries is reasonably accurate in the data set. The verification process followed during the collection of the enhanced data suggested that only a small proportion of these cases were ruled out as not being agricultural machinery injuries. It is not, however, possible to determine the extent to which the data collection protocol missed additional cases of this type due to improper coding of agricultural machinery injuries. The machinery injury counts should therefore be viewed as conservative estimates.

2. Hospitalized Injuries – Search Algorithm Implications: Non-Machinery Injuries

Non-machinery farm injuries can only be identified by the use of the place of occurrence code. The place of occurrence codes are the fifth digit sub-classification code of one (ICD-9) and U98.7 (ICD-10-CA) for farm which includes buildings and land under cultivation and excludes farm house and home premises of farm. Cases having a place of occurrence code indicating farm were selected.

In the enhanced data, we observed discrepancies in the consistent and appropriate use of the place of occurrence code for farm. Of 945 cases having the E-code 919.0 (agricultural machinery), which were verified as farm machinery injuries occurring on a farm, 138 (14.6%) had a place of occurrence code indicating a location other than a farm. Of these, the most common location code error was the use of the code for the home, accounting for 135 of 138 errors. It is reasonable to estimate that a similar magnitude of error occurs during the coding of non-machinery injuries. As the use of the location code is the only method available to identify non-machinery farm injuries, we think that these types of injuries are under-reported in these data.

2.4 Calculation of Rates

In this report, some rates of injury are provided. These describe ratios of the number of hospitalized farm injuries, to the number of persons at risk of experiencing a farm injury over a time period of interest (usually one year). Calculation of rates on a per capita basis allows the frequency of an outcome to be compared, after accounting for differences in population size or period of study.

It is very important to recognize that the rates that are reported here are far from perfect. The best population information available in Canada to describe the persons at risk of experiencing a farm injury is population counts from the Canada Census of Agriculture and Population Census. These counts do not include hired workers or visitors to the farm. We suspect that some of the injured persons counted among those experiencing farm injuries are in these latter groups. The effect of including in the numerator persons who are not also counted in the denominator is that the estimated rate will be higher than the true rate.

3.0 Data Quality Limitations

3.1 Use of Calendar Versus Fiscal Year

Records of hospitalization data are kept according to fiscal years (April 1st to March 31st) Because our reporting is based on the calendar year, the yearly data for 1990 are incomplete. In this report, data are missing for the first 3 months of 1990. Based on the distribution of hospitalized injury events for the years when complete data were available, it was estimated that 35 to 40 injuries may have occurred in this period. In view of the small number, we did not believe that this missing data would affect the injury patterns that were observed.

3.2 Data Encoding Guidelines

To facilitate the organization of the data into categories which would be meaningful for identifying patterns of injury associated with the mechanisms of injury, the categories described in the *International Classification of Diseases, 9th revision, (1989)* as "the external causes of injury" or E-codes were used. Where these were inadequate, such as for the category "accidents caused by agricultural machines" (E- code 919.0), additional categories developed by CAISP were used.

3.3 Identification of Cases Outside of the Established E-Code Protocol

According to the protocol for the use of the fifth digit sub-classification code for "place of occurrence" as described in the ICD-9 E-Code system, the fifth digit may be used, if desired, with E-Code categories in the ranges E850-E869, and also E880-E928. However, the range of codes which are excluded from this statement contain some E-Codes that may be associated with farm injuries. In the ICD-10-CA external cause of injury protocol, the place of occurrence code is used for all cases.

Because our standardized search procedure was based on the range of E-Codes suggested by the fifth digit classification or the place of occurrence code additional causes of injury have been excluded from hospital separation data contained in this report. They include hospitalizations that resulted from: 1) railway collisions; 2) some motor vehicle collisions; 3) transport accidents that do not involve vehicles (e.g., falls from animals); and 4) late effects of accidental injuries.

We attempted to estimate the impact of the limitations of fifth digit location of injury code on our case identification. We conducted a review of the codes E287 (animal-drawn vehicle accident) and E828 (accident involving animal being ridden). We identified 329 cases having these codes. These hospital charts were abstracted in the hope of extracting location information. Only 28 (9%) of the cases could be located as having occurred on a farm. In spite of this finding, it is logical to assume that it is likely that almost all of these injuries occurred on farms as that is where the large majority of horses and cattle (animals being ridden) are found. However these injuries do not fit the case definition for this study. These cases that could not be located on farms were excluded from the main analysis but the information is included in a special section of the report.

3.4 Reporting of Rates

There were two important limitations concerning the reporting of rates within this document.

1. From the information provided in the hospital records, it was not possible to know if the person who was injured was a farm resident, a hired worker or a visitor to the farm (numerator of rate). The best available information concerning the population at risk for a farm injury is the number of residents living in the household of a farm operator, available from the Canadian Census of Agriculture and the Population Census (denominator of rate). Thus the denominator would exclude persons injured who were non-resident hired workers or visitors who do not live in the household of a farm operator. We suspect that some of the farm injuries were to hired persons and visitors, resulting in a possible overestimate of the true rate.

2. Based on our observations of the incorrect use of the fifth digit location code as described in section 2.3 number 2, we think that the numbers of cases of non-machine farm injuries were under reported. The effect of underreporting non-machine farm injuries in the numerator is to underestimate the true rate of injury.

In spite of the limitations described above, the authors felt that the estimated rates reported in this document provide some useful information concerning the frequency of these events when comparing age-groups or when comparing other health outcomes of interest for this population. However, given the limitations described above, the rates, which are reported, should be viewed with caution.

APPENDIX B

Consequences for Drinking and Driving

Driver's licence suspension periods apply if you are convicted of driving with a blood alcohol level over .08, impaired driving or failure to provide a breath sample. In Saskatchewan, the first conviction of any of the above offences will result in a driver's licence suspension for a period of one year. A second offence results in a three-year licence suspension and any subsequent offence results in a five-year licence suspension. Fines for these offences start at $600, with no maximum.

If you are at fault for a collision while driving impaired, you also have no insurance coverage for the damage to your vehicle or to others' vehicles or property.

Before a driver's licence can be reinstated, the driver must attend a mandatory addiction screening and assessment, and complete any education or recovery program recommended by their addictions counselor.

First-time drinking and driving offenders who have successfully completed their required addiction screening and all education or recovery programs may be eligible to participate in the Ignition Interlock Program.

Administrative Sanctions

New drivers who consume any amount of alcohol and drive receive a 30-day suspension and must attend a Driving Without Impairment (DWI) course for the first occurrence. Subsequent occurrences result in a 90-day suspension and mandatory addictions screening and an education or recovery program recommended by a drug and alcohol counsellor before the driver's license will be reinstated.

Experienced drivers with a blood alcohol level over .04 receive a 24-hour driver's license suspension. A second 24 hour suspension is extended to a 15-day driver's license suspension. The driver is also required to attend a DWI course if a second 24-hour suspension is incurred. Subsequent occurrences result in a 90-day suspension, addictions screening and a recommended education or recovery program.

All drivers who are charged with a blood alcohol level exceeding .08 or refusing a breath test will be subject to a 90-day suspension. The individual receives an immediate 24-hour suspension and a seven-day driving permit if the driver had a valid driver's licence. The 90-day administrative suspension begins after the expiry of the seven-day driving permit.

Police now have a new tool for detecting impairment. The Standardized Field Sobriety Test (SFST) is a series of tests that detect if a driver is impaired by alcohol and/or drugs. Failing or refusing to take the SFST results in an immediate 24-hour driver's license suspension.

APPENDIX C

Saskatchewan Workers' Compensation Board

Workers' compensation is a no-fault insurance program that protects employers and workers against the result of work injuries. The system provides coverage and protects workers and employers against the risks and uncertainties of litigation.

The Saskatchewan Workers' Compensation Board (WCB) is an independent body created by provincial legislation, the Workers' Compensation Act 1979, General Regulations, and Exclusion Regulations to administer a compensation system on behalf of workers and employers. The WCB is also guided by the Meredith Principles, which state the following:

- No-fault compensation: Workplace injuries are compensated regardless of fault. The worker and employer waive the right to sue.
- Collective liability: The total cost of the compensation system is shared by all employers.
- Security of payment: A fund is established to guarantee that compensation monies will be available.
- Exclusive jurisdiction: All compensation claims are directed solely to the compensation board.
- Independent board: The governing board is both autonomous and non-political.

In cases of injury or death arising out of, and in the course of, employment, the WCB provides financial protection, medical benefits and rehabilitation services to injured workers and their dependents.

In the pre-injury phase – before injuries happen, the WCB promotes injury prevention to employers and workers. In the post-injury phase – after an injury has occurred, the WCB focuses on providing wage replacement, medical recovery and return-to-work.

APPENDIX D

Mechanism of Farm Injury Definitions

Non-Machinery Injuries
Animal-related injuries

1 **Crushed by / struck by animal**
Includes being kicked by animal
Example #1: victim rides horses, falls off, and horse falls on him, crushing him.
Example #2: victim was kicked by a bull.

2 **Other animal**
Example: The victim was attacked by the dogs at the farm. The dog bites penetrated her neck causing severe bleeding. She died of her injuries.

3 **Fall from animal**
Example: victim falls off horse, striking his head on the ground. *Struck-By injuries*

4 **Struck by object**
Includes: *The object was moving and struck against the person;*
Flying object;
Swinging or slipping object;
Rolling, sliding object on floor;
Falling object during handling;
Falling object, Not Elsewhere Classified;
Struck by, Not Elsewhere Classified.
Excludes: *Being struck by an object (e.g. bale or log) while hoisting it or unloading it from a machine (e.g. tractor with front end loader or truck trailer / flat deck).*

5 **Struck against object**
Includes: *Person was moving and struck against the object;*
Struck against moving object;
Step on stationary object;
Struck against stationary object;
Struck against, Not Elsewhere Classified.

Caught-in injuries

6 **Caught in, under, or between objects**
Includes: *Compressed / pinched by rolling, sliding / shifting objects;*
A moving and a stationary object;
Two or more moving objects;

Land slides and cave-ins (e.g., dirt trenches);
Collapsing materials;
Caught in (buried in) grain;
Caught in, under, or between, Not Elsewhere Classified;
Crush asphyxiations;

Excludes: *Being caught under an object (e.g., bale or log) that has fallen from a machine(e.g., tractor with front end loader or truck trailer / flat deck) while hoisting or unloading the object. See* ***Machinery related Injuries #18***

Fall injuries

7 **Fall from height**

Includes:
From scaffolds, walkways, platforms, etc.;
From ladders;
From roof;
From piled or stacked materials;
On stairs or steps;
Into shafts, excavations, floor openings, etc.;
Through floor surface;
From ground level to lower level;
Fall from elevation, Not Elsewhere Classified.

8 **Fall on same level**

Includes:
Fall to the walkway or working surface;
Fall onto or against objects;
Fall on same level, Not Elsewhere Classified.

Other injuries

9 **Jumped to lower level**

Includes:
From scaffold, platform, loading dock;
From structure, structural element, Not Elsewhere Classified;
From stationary vehicle;
To lower level, Not Elsewhere Classified.

10 **Overexertion**

Includes:
In lifting objects;
In pulling or pushing objects;
In holding, wielding or throwing objects;
Overexertion, Not Elsewhere Classified.

11 **Drowning in water**

Includes: *drowning in Manure Pit, Ditch, Dugout, Pond Other water bodies.*

Excludes: *Drowning due to flowing grain, silage, soil. See # 6 Caught in, under or between objects.*

12 **Exposure to fire / explosions**

Includes: *Fire in building or other structure including bunk house for hired workers;*
Forest, brush, grass, or other outdoor fire;
Ignition of clothing from controlled heat source;
Explosions.

Excludes: *Fire in farm residence, as injuries occurring in farm home / residence are excluded from database;*
Fires in machines.

13 **Contact with temperature extremes**

Includes: *General heat – atmospheric or environmental;*
General cold – atmospheric or environmental;
Hot objects or substances;
Cold objects or substances;
Contact with temperature extremes, Not Elsewhere Classified.

Excludes: *Contact with hot objects or substances coming from machines (e.g., radiator fluid).*

14 **Contact with electric current**

Excludes: *Overhead electrocution with grain auger;*
Struck by lightening. See "other"

16 **Contact with radiation, caustic, toxic or noxious substances or environments (specify)**

Includes: *Pesticides (includes herbicides, fungicides, insecticides, rodenticides, etc.); Silo gas (nitrous oxides); Manure pit gases (methane, hygrodgen sulfide gas); Carbon monoxide;Insect stings; Venom; Allergic reactions including anaphylaxis; Other toxic or noxious substances, Not Elsewhere Classified.*

Excludes: *Traumatic asphyxiation and asphyxiation due to entrapment in flowing grain, silage or soil. See #6 or #11.*

19 **Firearms**

Includes: *injuries due to being shot by a gun.*

Machinery related Injuries

1 **Sideways rollover**

Includes: *Deaths caused by a machine / vehicle rolling over on its side and crushing the victim as it rolled. Usually the victim was operating or riding on the machine.*

Excludes: *Deaths caused by being run over by an upright machine. See # 7 through #13.*

2 **Backwards rollover**

Includes: *Death caused by a machine rolling backwards, that is the front tires of the machine rotate around the rear axle of the machine causing it to land on its top*

Excludes: *Death due to being run over by an upright machine. See #7 through #13*

3 **Unspecified rollover**

Includes: *machine rollover events where the direction of the roll (sideways or backwards) is not clear or where the vehicle rolled end over end.*

Exclude: *Death due to being run over by an upright machine. See #7 though #13*

4 **Entangled or caught in moving parts of machinery**

Includes: *Any part of the body becoming trapped in the moving parts of a machine*

5 **Pinned or struck by machine**

Includes: *Being struck by a machine, but not runover;*
Being caught between two machines, but not runover;
Being caught between a machine and another stationary object, but not runover;

Excludes: *Being run over by a machine.*

6 **Machine / motor vehicle Collision**

Includes: *Collisions between farm machinery*
Collisions between farm machinery and other vehicles
Collisions between farm trucks and other vehicles
Collision between farm vehicle / machinery and stationary object

7 **Operator fell from machine, not runover**

8 **Operator fell from machine, then runover**

9 **Passenger fell from machine, not runover**

10 **Passenger fell from machine, then runover**

11 **Runover of operator**
Runover of an operator who has dismounted the machine that he/she was operating and was subsequently run over by the unmanned machine.

12 **Runover of passenger**
Runover of a pedestrian by a machine

13 **Runover of bystander**
Runover of a pedestrian by a machine

15 **Fall from machine, not runover, person unspecified**
Applies when it is not known from the text description if the victim was the operator or a passenger on the machine.

16 **Fall from machine, then runover, person unspecified**
Applies when it is not known from the text description if the victim was the operator or a passenger on the machine.

17 **Runover of person, unspecified**
Applies when it is not known from the text description if the victim was the dismounted operator of the machine, a dismounted passenger or a bystander.

18 **Struck by object propelled or falling off machinery**
Includes: *Being struck by or caught under an object (e.g. bale or log) while hoisting it or unloading it from a machine (e.g. tractor with front end loader or truck trailer / flat deck);.*
Being struck by an object that was propelled by a machine (e.g. stone propelled from mower striking the victim; while towing a truck with a tractor the towing chain broke and struck the victim);
Part(s) of a machine breaks and then strikes the victim (e.g. the belt of a grain auger breaks striking the victim; pins of front end loader break and front end loader falls off tractor striking the victim).

21 **Overexertion**
Includes: *Overexertion injuries caused while moving, pushing, pulling, repairing machinery (e.g. back strain that occurred while moving a grain auger)*

22 **Jump to lower level**

Includes: *Injuries that occurred when the victim intentionally jumped to a lower level from a machine (e.g. jumped off the tractor, combine, truck, etc.)*

Excludes: *Injuries that occurred due a slip or trip while mounting / dismounting a machine. See #7, 9 or 15.*

23 **Struck against machine**

Includes: *Injuries that occurred when the victim struck a body part against a machine (e.g. while repairing the combine, the victim struck his leg against a sharp metal protrusion causing a laceration that subsequently became infected).*

APPENDIX E

Saskatchewan Comprehensive Injury Report Working Group

TERMS OF REFERENCE

October 5, 2006

Background

Injuries are a significant but preventable health problem. They are a major cause of disability in Canada and the leading cause of premature deaths among youth. Injuries are consistently the highest cause of potential years of life lost in the province. All injuries are preventable by a variety of feasible interventions that range from low cost changes in policies and public education, to high cost changes in technology and public structures.

Clear understanding of the nature and extent of the problems associated with injuries in various demographic groups of the covered population is a precondition for formulating prevention strategies. Given the shared intersectoral responsibility for injuries and the need for development of a comprehensive surveillance, an intersectoral initiative is being planned to assess factors involved in the high rates of injuries in Saskatchewan.

Purpose of provincial injury report

The purpose of the provincial injury surveillance report is to provide an overall analysis of injuries in Saskatchewan encompassing all age-groups in order to define the extent of the problem. The collaborative development of the report will serve as a tool to strengthen a shared approach to injury prevention.

On completion, the report will assist the agencies involved to develop and implement initiatives to help prevent injuries in the province. The report will also serve to provide information for the future development of recommendations to address this matter.

Mandate

In order to accomplish the above purpose, an intersectoral Injury Surveillance Report Working Group (WG) is being established to provide input into the report design, provide data where relevant and help with the writing of the report.

Working Group Membership

The membership is comprised of the following agencies:

1. Population Health, Saskatchewan Health (co-Project Coordinator) *William Osei*
2. Community Care, Saskatchewan Health (co-Project Coordinator) *Kelly Froehlich*
3. Saskatchewan Prevention Institute *Noreen Agrey*

4. SGI, Traffic Safety Unit — *Kathryn Harris*
5. WCB — *Christine Han*
6. IAREH (U of S) — *Louise Hagel*
7. Saskatchewan Safety Council (SSC) — *Gord Moker*
8. Saskatchewan Labour — *Lou Spasic*
9. Regional Medical Health Officer — *Dr. Mark Vooght*
10. Department of Culture Youth and Recreation — *Randy Passmore*

Roles and Responsibilities

- **Lead Agency:**
  - Population Health Branch will be the lead agency.
  - The lead agency will work with the partner agencies to finalize a consistent format, content and headings, etc. for each chapter of the report.
  - The spokesperson for the report shall be situated in the lead agency.
  - The lead agency will also work closely with each agency to address contradictions and issues that may arise to obtain consistency in style, formatting, contents and conclusions.
  - The lead agency will coordinate the roles of the partner agencies, informing and updating them on the progress of the project as a whole.
  - The functions of the lead agency will include drafting of the common briefing note and coordinating its distribution and review among the partner agencies with assistance from Community Care Branch.
  - The lead agency will also recruit potential partner agencies.
  - Final editorial responsibility will rest with the lead agency.

- **Individual Roles for Partner Agencies:**
  - In addition to the input responsibilities assigned to individual agencies under "Specific Roles" below, WG members will severally assume the following roles and responsibilities.
  - Provide advice into design of the project as well as providing and analyzing their own data.
  - Each agency will have the opportunity to develop chapters describing their related injuries, if they so wish. Such draft chapters would be consistent in content with the font, style, etc. as agreed to by the working group.
  - Facilitate, as necessary, the development of joint intersectoral briefing notes and other essential briefings in their respective agencies to ensure the timely and successful completion of the report.

Data sources

- Will include hospitalization and vital statistics data as well as other relevant data to be supplied by the agencies involved.
- Some comparisons with other provinces where relevant.
- Information about trends and distribution of injuries within the province will be included.

Proposed structure or report (Tentative, subject to discussion)

Background
Introduction
Executive Summary
Provincial Perspective

- **Trends and Patterns**
- **Major Causes (first 20 –25 causes of injuries)**
- **Also including:**
  - **Place (Large Urban/Rural/ North)**
  - **Person (Gender, Age Groups)**
  - **Time (Year, Month)**

Circumstances/e-codes (e.g. Falls, Suicide, Homicide etc.)
RHA Perspective: Comparison between RHAs.
SGI component
Recreation component
Farm injury component
Work place component
Conclusions
Appendix

- **Listing of injury by:**
  - **SGI**
  - **IAREH**
  - **WCB**
  - **Hospitalization codes, Age/ Sex, RHAs**
  - **Death-related Injuries**
  - **List of remaining injury categories**
  - **Age-groupings (0-9, 10-14, 15-19, 20-34, 35-64, 65+)**
  - **Technical notes**
  - **Limitations**

Specific Roles

1. TOR and Proposal development ..... **PHB**
2. Recruitment of other partner agencies ..... **PHB**
3. Obtaining consistency in format, content etc. of the report ……..... **LeadAgency**
4. Section Responsibilities:
   4.1 Data analysis and report writing:
   - Injury morbidity and deaths by all age-groups and sub-populations groups, place, trends ..... **PHB/SPI/SSC**
   - Injury in the workplace ..... **WCB/Labour**
   - Motor vehicle related injuries ..... **SGI**
   - Farm injuries ..... **IAREH (U of S)**

   4.2 Consistency in formatting, content and conclusions of the report ..... **PHB/SPI**

4.3 Overall responsibility for the report.....**All agencies**
4.4 Report production and printing.....**CCB**
4.5 Communication strategy:
4.5. 1 Spokesperson for the report.....**CMHO-PHB**
4.5. 2 Common briefing notes..... **PHB/CCB**
4.5. 3 Cover letters ..... **PHB/CCB**
4.5. 4 Posting on internet.....**CCB**

Meetings and Agenda

Meetings will be held once a month at the call of the co-coordinator in the lead agency. Meetings may be conducted by conference call or in person. The same coordinator will put agenda together. Most of the WG consultations and work will be achieved by email. Minutes will be taken and circulated by CCB as soon as possible after the meeting.

Costs

Each agency will bear its own costs associated with participation in the project.

Secretarial Services

The CCB will provide secretarial services to the Working Group.

Accountability

Members of the working group will report to their own supervisors in their various departments or agencies. The working group will provide data and exchange data, reports, research and other information as well as various drafts of the injury report being developed.

Public Release of Information

Public announcements or information sharing related to the project shall be coordinated through the lead agency.

Term

The WG will survive the project until the public release of the report.

Timelines

- Draft TOR and consultations .....Completed August 22, 2006
- Approval Process-Executive Committee .....September 5, 2006
- Approval Process (by all partners)..... Completed by September 30, 2006
- Data collection .....Completed by November 30, 2006
- Data analysis ..... Completed by **January 30, 2007**

- Draft Report ..... Completed by **March 31, 2007**
- Final Report ..... Completed by **June 1, 2007**
  (with the possibility of extension)

Abbreviations:

CCB.....Community Care Branch (of Saskatchewan Health)
U of S ..... .University of Saskatchewan
IAREH ..... Institute of Agricultural, Rural and Environmental Health (U of S)
WCB..... Workers' Compensation Board
CMHO ..... Chief Medical Health Officer
PHB ..... Population Health Branch (of Saskatchewan Health)
SPI ..... Saskatchewan Prevention Institute

This publication is available online at: www.health.gov.sk.ca/injury-report