
Injuries in Indiana

A Report on Injury-Related Fatalities and
Injuries Resulting in Hospitalization



Indiana State
Department of Health

Injury Prevention Program
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Injuries in Indiana
A Report on Non-Fatal Injuries and Injury-Related Fatalities

Section I: Introduction
Section II: Injury Deaths, 1999-2001
Section III: Summary of Hospital Discharge Data, 2002
Section IV: Other Selected Injury Topics

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Executive Summary

The Injury and Violence Prevention Program of the Indiana State Department of Health (ISDH) is pleased to provide this comprehensive data report on injuries affecting Hoosiers. The report compiles data gathered through the Program's newly-developed injury surveillance system. By accessing, analyzing, and compiling data from a wide variety of sources the report describes some of the issues related to injury and the immense toll that injuries take upon the lives of Indiana residents. Injuries are a major public health problem and require resources and programming to reduce this toll.

Although not all types of injuries could be included in this report, data on the types of injuries that comprise the majority of injury-related deaths and hospitalizations in Indiana are described. Hospital emergency department data are not included as complete data is not available to ISDH. It should be kept in mind that the injury fatality data are from years 1999 through 2001, while the hospitalization data are for 2002, the first year that the Indiana State Department of Health had direct access to individual level hospital discharge data.

Generally accepted terminology related to the analyses of injury data is used in this report. The term unintentional injury refers to the injuries generally described as "accidental." However many types of "accidental" injuries are predictable based on known risk factors and these injuries are often preventable. The term intentional injury refers to injuries sustained as a result of violence, including suicide, homicide, and assault. While injury deaths are significant, non-fatal injuries occur more frequently. Hospitalization and other medical care provided to the injured produce a financial and economic burden on society. It has been estimated that injury-attributable medical expenditures accounted for 10 percent of total medical expenditures in 2002, a figure similar to the percentages of other leading public health concerns such as obesity and smoking.

Injuries in Indiana is organized into several sections; following is an initial eight pages of statistical highlights from the report. After an introduction to and overview of the public health problem of injury, Indiana injury-related fatality data are described, including demographic data, and unintentional injury deaths due to motor-vehicle crashes, motorcycles and all-terrain vehicles; falls; poisoning; and fires and burns. This section also includes data on intentional injury deaths from homicide and suicide. Following the injury death data is an analysis of injuries resulting in hospitalization, based on the most recent Indiana hospital discharge data. Then several injuries of interest are described – fireworks-related injuries, childhood lawn mower injuries, and occupational injury and illness. Eleven tables and 47 figures provide data in graphic form for easy visualization of information. The Appendices contain summary tables and

age-specific injury rates that provide even more detailed data. Additionally, a glossary of terms has been added to provide a better understanding of the various injury mechanisms outlined in this report.

From 1999-2001, 10,143 Hoosiers died from injuries. Sixty-five percent (6,633) of these deaths resulted from unintentional injuries, the 5th leading cause of death in Indiana. In 2002, 97,504 Hoosiers were hospitalized secondary to injury, which is 12.5 percent of all acute care hospitalizations. Unintentional injuries comprised 84 percent of these injury-related hospital admissions, while 10 percent involved self-inflicted injuries. Injuries from falls accounted for 46 percent of the hospitalizations, 16 percent were due to motor vehicle traffic-related incidents, and 16 percent resulted from poisoning.

All ages and all sectors of the population are affected by injuries. Infants and young children are at increased risk of sustaining injuries from motor vehicle crashes, falls, drowning, fires, and poisoning. Children and adolescents are the victims of motor vehicle crashes, bicycle and pedestrian injuries, suicide and homicide. The leading causes of death among teens and young adults are motor vehicle injuries, drowning, suicide and homicide. Adults are impacted by fatal injuries from motor vehicle crashes, poisonings (largely related to suicide attempts), falls, suicide and homicide. The elderly are injured by falls, motor vehicle-related injuries and suicide.

Injuries pose a public health issue with a major impact on the lives of Hoosiers. There are a variety of strategies that can be effective for preventing injuries and controlling the effects of injuries. These generally fall within three categories: legal or policy changes, product and environmental safety developments, and education.

The scope of the impact of injuries upon the health of Indiana residents will become evident as this report is reviewed. It is hoped that the report will provide a useful reference document for policy-makers, agencies, organizations, and individuals so that the much-needed steps to reduce the burden of injuries can begin to take place.

The companion document to this report on injuries in Indiana is an ISDH Injury Prevention and Control Plan for Indiana that is under development in 2004-2005. The state plan focuses on five injury problems: motor vehicle crashes, falls, residential fires, poisonings, and suicide. Selected data from this report as well as specific goals, objectives, prevention strategies, and resources are described in the State Plan.

The ISDH Injury Prevention Advisory Council has provided valuable input into both the state plan (currently in draft form) and this [Injuries in Indiana](#) report. This report and the State Plan will be accessible on the ISDH website: www.in.gov/isdh/programs/injury. Support for the ISDH Injury Prevention and Control Program is provided through Cooperative Agreement #U17/CCU522371 from the Centers for Disease Control and Prevention, and through Health

Resources and Services Administration (HRSA) Grant #6H8IH502802 for planning and development of a statewide trauma system. The contents of this report are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Health Resources and Services Administration.

Highlights

Unintentional and Intentional Deaths, Indiana 1999-2001

From 1999-2001, more than 10,000 fatalities (55.7 per 100,000 population) resulted from injury, which accounted for 6 percent of all deaths in Indiana.

Unintentional (accidental) fatalities comprised 65 percent of all injury-related deaths. Suicides accounted for 20 percent and assault an additional 12 percent. Intent for approximately 3 percent of all injury deaths was undetermined.

Unintentional injuries were the 5th leading cause of death for all ages and the leading cause for persons aged 1 to 34 years. (2001 data)

The five leading causes of all unintentional injury deaths were motor vehicle traffic (41.5 percent), unspecified (12 percent), falls (12 percent), suffocation (8 percent), and poisonings (7 percent).

Motor vehicle traffic incidents accounted for 27 percent of all injury-related fatalities.

Falls were the leading cause of unintentional death among persons aged 75 to 84 years, and the 2nd leading cause among persons aged 65 to 74 and persons over aged 85 years.

Poisonings were the 2nd leading cause of unintentional death among persons aged 20 to 54 years.

Suicides and homicides were the 11th and 13th leading causes of death, respectively. (2001 data)

The leading causes of self-inflicted fatalities were deaths by firearm (59 percent), suffocation (19 percent), and poisoning (17 percent).

Firearms were responsible for 66 percent of homicides.

Firearm suicide and firearm homicide accounted for nearly one-fourth of all injury deaths among males.

Homicide by firearm was the leading cause of intentional death among persons aged 5 to 9 years and 15 to 34 years. Suicide by firearm was the leading cause of death for persons over aged 35 years and the 2nd leading cause in the 15 to 34 year age groups.

Males sustained two and a half times as many fatal injuries as females.

Males are approximately five times (4.8) as likely as females to commit suicide (usually with firearms), whereas females attempt suicide more often with the ingestion of poisons.

Females have a higher incidence of unintentional fall and suffocation-related deaths than males.

Among females, 89 percent of fall-related deaths occurred among those over aged 65 years.

The most frequently occurring fatal injuries among whites were motor vehicle crashes (29 percent), suicide by firearm (13 percent), and unintentional falls (9 percent).

Homicide by firearm (38 percent), motor vehicle crashes (16 percent), and suicide by firearm (6 percent) were the leading causes of death among blacks.

2002 Injuries Resulting in Hospitalization*

***Caution: Of 97,504 hospital discharge records with a primary injury diagnosis code, only 20,598 records were used for analysis after standardizing. The data below is based on records with a valid E code which comprise only 44 percent of the total hospital injury-related admissions.**

In 2002, the age-adjusted nonfatal injury rate among persons treated in Indiana hospitals was 334.5 per 100,000 population.

Unintentional injuries comprised 84 percent of all injury-related admissions. Hospitalizations for unintentional injuries were 6 times more frequent than hospitalizations for intentional injuries.

Intentional injuries accounted for 14 percent of all hospital admissions of which 71.4 percent were for injuries caused by self-harm, and 28.6 percent were for assault.

The five leading causes of injury-related hospitalizations were falls (46 percent), motor vehicle traffic (16 percent), poisoning (16 percent), struck by/against (4 percent), and other transport (3 percent).

Motor vehicle crashes and falls were the primary or secondary cause of unintentional injury death for all age groups. Falls were primary among persons aged 0 to 9 years and persons over 45 years. Motor vehicle traffic incidents were primary among persons aged 10 to 44 years.

Falls were the leading cause of unintentional injury hospitalizations, composing 55 percent (9,501) of unintentional injury-related hospitalizations.

Poisoning was the leading cause of self-inflicted injury hospitalizations, accounting for 93 percent of this category of hospital admission. Suicide attempts by medication overdose involved 1,906 persons.

Males aged <1 to 54 years had higher injury rates than their female counterparts, after which, female rates exceeded those of males.

Females accounted for 52.6 percent of the hospital discharges with age-specific rates highest among those aged 65 years and older, primarily related to fall injuries. For males, age-specific rates were highest among those aged 20 to 24 years and those aged 65 years and older.

The great majority of motor vehicle traffic-related hospitalizations involved motor vehicle occupants (73 percent). However, the categories of other transport (568), [which includes railway, off-road vehicles and aircraft], motorcyclists (398), bicyclists (248), and pedestrians (273) are also of concern.

Seventy-one percent of persons hospitalized for injuries were admitted through the emergency department. Thirty-seven percent were discharged from the hospital to another hospital or institution, a home care program, or a nursing facility.

Facts about Specific Injury Fatalities

Transport Injuries

Motor vehicle traffic-related fatalities totaled 2,750 deaths in Indiana during 1999-2001 and are the leading cause of death for persons aged 1 to 64 years.

Motor vehicle traffic incidents accounted for 27.1 percent of all injury deaths in Indiana from 1999-2001.

Generally, males have higher fatality rates than females. In Indiana injury rates were highest among males aged 15 to 24 years and among males over the age of 75 years.

From 1992-2001, the Indiana fatality rate per 100 million vehicle miles traveled declined nearly 20 percent.

Alcohol-related fatality rates have declined 32 percent from 1992-2001 compared to a 23 percent decline at the national level.

In 2000, alcohol-related deaths contributed to 34 percent of all motor vehicle traffic-related incidents.

In 2001, there was a 5.3 percent increase of drivers and front seat passengers who were properly restrained in passenger vehicles and pickup trucks.

Among the 613 drivers fatally injured in 2001, 76 percent were males; less than a third of males utilized a restraint system.

Half of the 148 female drivers fatally injured in 2001 wore a seatbelt at the time of the injury.

Only 28 percent of young drivers killed in 2001 were properly restrained.

The 2003 Youth Risk Behavior Surveillance Survey shows that 11 percent of those surveyed rarely or never wore safety belts and 28 percent rode with a drinking driver during the past twelve months.

In 2001, children less than age 16 years accounted for 5.9 percent of all traffic-related fatalities in Indiana and approximately 5 percent of all vehicle occupant fatalities.

Motorcyclists in Indiana were involved in 332 fatalities from 1997-2001, accounting for nearly eight percent of all fatal crashes during that time.

Among the total 332 motorcyclist killed in Indiana during 1997-2001, only 18 percent were wearing a helmet.

Falls

Falls are the 3rd leading cause of unintentional injury deaths in Indiana.

From 1999-2001, 12 percent of all unintentional injuries were due to falls.

Fall fatalities are highest in the Midwest region.

Fifty-three percent of falls were among males, with rates nearly two times that of females.

Falls are the most common cause of unintentional injuries among children and are also common among adults over age 65 years. In Indiana, a total of 14 fall deaths occurred among children aged 0 to 14 years. Seventy-five percent of all fall deaths were among person aged 65 years or older.

Fire and Burn-Related Injuries

In 2001, fire-related injuries were among the five leading causes of unintentional injury deaths for each age group and the 2nd leading cause among persons aged 1 to 4 and 55 to 64 years.

From 1999-2001, 283 persons in Indiana were fatally injured by fires.

From 1999–2001, there were 33 fire-related fatalities among children aged 5 years and younger in Indiana.

Residential fires are more common. Sixty-five percent of all fires during 1999-2001 in Indiana were residential.

Occupational Injury Deaths

Nationally, a total of 4.7 million nonfatal injuries and illnesses were reported in private industry workplaces in 2002.

In Indiana, more than 156,000 thousand nonfatal injuries and illnesses were reported in private industry workplaces in 2002.

Men accounted for 90 percent of the 2002 occupational injuries in Indiana. Overall, the majority of the injuries occur among persons aged 45 to 54 years.

In 2002, more occupational injuries were seen in the manufacturing industries in Indiana than from any other source.

Fireworks-Related Injuries

Fifty-three percent of all fireworks-related injuries reported involved children (aged <1 to 11 years) and adolescents (aged 12 to 18 years), who represent 26 percent of the population in Indiana.

Seventy-one percent of cases reported burn injuries, with burns of the hands being the most common type of injury.

One out of every five injuries reported involved the eyes, with 81 percent of those with eye injuries not using any method of eye protection.

Fourteen percent of injured persons required either hospital admission or specialized care for burns or eye injuries.

Sparklers, rockets and firecrackers were associated with 63 percent of all injuries reported.

Fireworks use on private property accounted for more than three-fourths of the injuries reported.

Seventy-four percent (367) of the reported injuries involved males and 26 percent (127) involved females.

The median age of those injured was 18 years (average=21 years; range=6 weeks to 74 years).

Seventy-two percent (356) of the injuries occurred during the holiday 4-day peak period of July 3rd-6th.

Lawn Mower Injuries among Children

Nationally, 112 children between the ages of 2 and 16 years were treated in emergency rooms for injuries sustained by riding power lawn mowers.

Sixty-two percent of children admitted were between the ages of 2 and 7 years.

In 2002, 25 percent of the children received injuries resulting in death.

Among those treated and released in 2002, males dominated by a 2 to 1 ratio.

Forty-one percent of the injuries resulted in lacerations, primarily to the legs, feet, or toes.

In 2002, 13 people were admitted for hospitalization due to lawn mower injuries in Indiana. Injuries included amputation of the toe, an open wound to the chest wall, and an open wound of the feet.

Selected National Statistics on Fatal and Nonfatal Injuries

Highlights from the Centers for Disease Control and Prevention Surveillance for Fatal and Nonfatal Injuries—United States, 2001

In 2001, 157,078 persons died from an injury and an estimated 29.7 million injured persons were treated in hospital emergency departments in the United States.

Sixty-five percent of all fatal injuries were unintentional and 33 percent were violence related, including homicide, legal intervention, and suicide.

The age-adjusted fatality rate for injury was 54.9 per 100,000 populations. For nonfatal injuries, the age-adjusted rate was 10,404 per 100,000 population.

Overall, fatal and nonfatal injury rates were higher for males than females and disproportionately affected younger and older persons.

Male age-adjusted fatal injury rates (81.2 per 100,000 population) were 2.6 times higher than that for females (30.8 per 100,000 population).

The highest percentage of violence-related fatal and nonfatal injuries was among persons aged 15 to 44 years.

Age-specific nonfatal injury rates were highest for persons aged 15 to 19 years.

The age-adjusted nonfatal unintentional injury rate for males (10,751/100,000) was 1.3 times higher than that for females (8,458/100,000).

The age-adjusted nonfatal assault-related rate for males (769/100,000) was 1.5 times higher than that for females (504/100,000).

Female rates (126/100,000) for self-harm injuries were 1.3 times higher than for males (99/100,000).

Fatal unintentional injury rates for persons over aged 75 years (146/100,000) were more than three times higher than rates for persons in all other age groups. Rates were lowest among children aged 5 to 9 years (6/100,000).

Homicide rates were highest among persons aged 20 to 24 (17/100,000), while nonfatal assault-related rates were highest for persons aged 15 to 24 years.

Suicide rates were highest for persons over aged 75 years (17/100,000) and lowest for persons aged 10 to 14 years (1/100,000).

The leading mechanisms for **fatal** unintentional injuries were the categories of motor vehicle traffic occupant, fall, poisoning, and pedestrian related injuries.

The leading mechanisms for **nonfatal** unintentional injuries were the categories of fall, struck by/against, overexertion, and motor vehicle traffic occupant.

The leading mechanisms for **fatal** assault-related injuries were firearm gunshot, terrorism, cut/pierce, suffocation /inhalation, and struck by/against. Firearm injuries accounted for 80 percent of homicides among persons aged 15 to 24 years.

The leading mechanisms for **nonfatal** assault-related injuries were struck by/against and cut/pierce.

The leading mechanisms for suicide deaths were firearm gunshot, suffocation/inhalation, and poisoning. However, suffocation/inhalation suicides superseded firearm suicide among persons aged less than 14 years and poisoning suicide was more common than suffocation/inhalation suicide among persons over aged 45 years.

The leading mechanisms for **nonfatal** self-harm-related injuries were poisoning and cutting/piercing.

Across all age groups, unintentional motor vehicle traffic occupant injuries were the leading cause of injury death and unintentional fall was the leading cause of **nonfatal** injury for both males and females.

Other leading causes of injury death among males were firearm suicide, unintentional poisoning, and firearm homicide.

Other leading causes of injury death for females were unintentional fall and poisoning.

For the complete report, refer to Centers for Disease Control and Prevention. *Surveillance Summaries*, September 3, 2004. MMWR 2004:53(No. SS-7).

Section I

Introduction

Injury Defined

Injuries are caused by acute exposure to physical agents, such as mechanical force or energy, heat, electricity, chemicals, and ionizing radiation, in amounts or at rates that cause bodily harm.¹ Injury may either be unintentional (accidental) or intentional (violence-related, including assault, homicide and suicide) and can lead to death or lifelong physical and emotional scars.

Table 1-1. Ten Leading Causes of Death, Indiana 1999-2001.

Rank	Age Groups										All Ages
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	
1	Congenital Anomalies 459	Unintentional Injury 152	Unintentional Injury 97	Unintentional Injury 85	Unintentional Injury 1,017	Unintentional Injury 708	Malignant Neoplasms 1,081	Malignant Neoplasms 3,386	Malignant Neoplasms 6,494	Heart Disease 40,085	Heart Disease 48,553
2	Short Gestation 289	Congenital Anomalies 41	Malignant Neoplasms 27	Malignant Neoplasms 29	Homicide 363	Suicide 354	Heart Disease 976	Heart Disease 2,552	Heart Disease 4,570	Malignant Neoplasms 27,142	Malignant Neoplasms 38,571
3	SIDS 163	Homicide 36	Homicide 16	Suicide 23	Suicide 290	Homicide 296	Unintentional Injury 893	Unintentional Injury 709	Chronic Low. Respiratory Disease 877	Cerebro-vascular 10,985	Cerebro-vascular 12,181
4	Unintentional Injury 110	Malignant Neoplasms 36	Congenital Anomalies 14	Homicide 22	Malignant Neoplasms 107	Malignant Neoplasms 266	Suicide 467	Suicide 387	Cerebro-vascular 613	Chronic Low. Respiratory Disease 7,982	Chronic Low. Respiratory Disease 9,241
5	Maternal Pregnancy Comp. 109	Influenza & Pneumonia 12	Benign Neoplasms 4	Heart Disease 14	Heart Disease 73	Heart Disease 235	Homicide 221	Cerebro-vascular 380	Diabetes Mellitus 581	Diabetes Mellitus 3,784	Unintentional Injury 6,633
6	Bacterial Sepsis 62	Heart Disease 10	Chronic Low. Respiratory Disease 4	Congenital Anomalies 12	Congenital Anomalies 32	HIV 77	Liver Disease 168	Diabetes Mellitus 364	Unintentional Injury 461	Alzheimer's Disease 3,501	Diabetes Mellitus 4,941
7	Placenta Cord Membranes 59	Perinatal Period 9	Heart Disease 4	Chronic Low. Respiratory Disease 7	Chronic Low. Respiratory Disease 16	Diabetes Mellitus 45	Diabetes Mellitus 152	Liver Disease 353	Liver Disease 280	Influenza & Pneumonia 3,407	Influenza & Pneumonia 3,816
8	Respiratory Distress 58	Septicemia 9	Influenza & Pneumonia 4	Influenza & Pneumonia 4	Influenza & Pneumonia 13	Congenital Anomalies 41	HIV 151	Chronic Low. Respiratory Disease 259	Nephritis 255	Nephritis 2,787	Alzheimer's Disease 3,546
9	Intrauterine Hypoxia 44	Cerebro-vascular 7	Meningitis 4	Cerebro-vascular 3	Cerebro-vascular 12	Cerebro-vascular 38	Cerebro-vascular 135	Septicemia 123	Septicemia 205	Unintentional Injury 2,401	Nephritis 3,255
10	Circulatory System Disease 42	Chronic Low. Respiratory Disease 5	Perinatal Period 3	Three Tied 2	Diabetes Mellitus 12	Two Tied 22	Chronic Low. Respiratory Disease 68	Nephritis 118	Influenza & Pneumonia 165	Septicemia 1,943	Septicemia 2,395

Adapted from the Centers for Disease Control and Prevention, WISQARS Database

Whether unintentional or intentional, injury has emerged as a public health issue and ranks among the ten leading causes of death in each age grouping. During 1999-2001, injury accounted for six percent (10,143) of all deaths among Hoosiers. The majority of these injuries are unintentional, ranking as the 5th leading cause of death. See **Table 1-1**.

The Public Health Impact of Fatal and Nonfatal Injuries

Nationally, injuries (unintentional and intentional) are the 4th leading cause of death for all ages, killing nearly 150,000 Americans annually.² Among the injury-related deaths occurring in 2001, 65 percent were classified as unintentional and a third were related to suicide or homicide.

There are many mechanisms associated with the occurrence of injuries. Among them, motor vehicle crashes (27 percent), firearms (19 percent), poisonings (14 percent), falls (10 percent), and suffocation (8 percent) are the five leading causes; combined they account for 78 percent of all injury deaths (2001 national data).¹

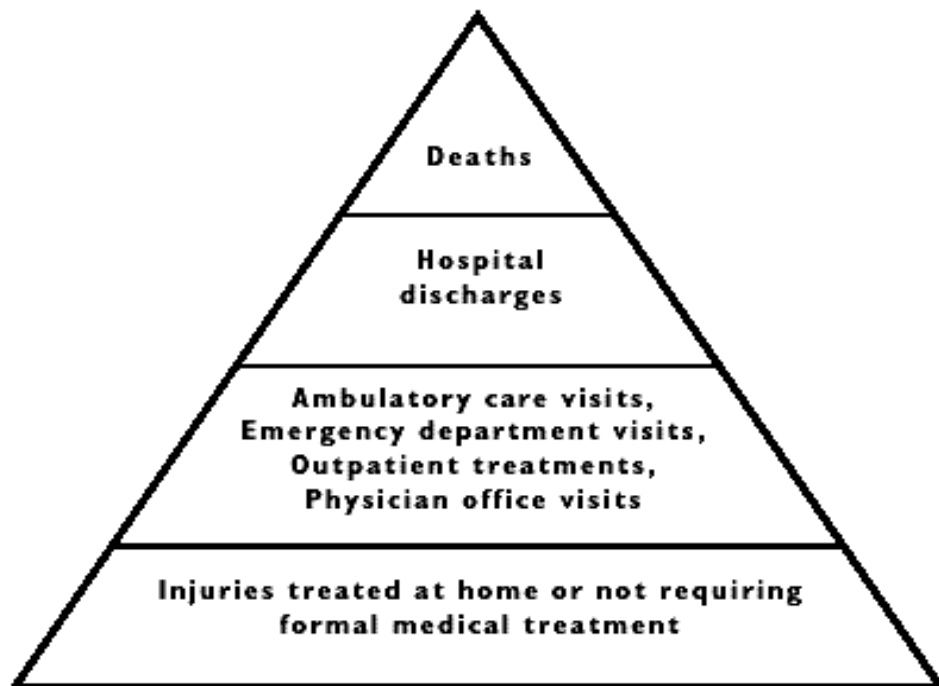
A method often used to determine the impact of injuries is the calculation of Potential Years of Life Lost (YPLL). YPLL measures premature mortality (early death) and provides insight into the impact of injury-related death. According to the 2001 National Vital Statistics Report, **unintentional injuries, suicides, and homicides combined accounted for 75 percent of deaths for those aged 15 to 19 years, 72 percent of deaths for those aged 20 to 24 years, and 52 percent of deaths for those aged 25 to 34 years. In addition, these categories represented 3.2 million YPLL, or 28.5 percent of YPLL from all deaths.**³

The circumstances surrounding an injury do not always result in death but can be severe enough to warrant admission to a healthcare facility. **In fact, nonfatal injuries occur much more frequently than fatalities.** Each year, an estimated one in six residents requires medical treatment for an injury, and an estimated one in ten residents visits a hospital emergency department for treatment of a nonfatal injury.⁴ The injury pyramid, **Figure 1-1** below, provides a visualization of the reality that injury-related deaths represent a small percentage of the injury spectrum. In 2001, more than 29 million people sustained non-fatal injuries in the United States compared to the average of 150,000 injury deaths annually.⁵

Hospitalization and other medical care provided to injured persons produce a financial burden, in terms of medical treatment, loss of productivity and wages, and rehabilitation for those severely injured. The Centers for Disease Control (CDC) estimates that the financial cost of injuries exceeds \$224 billion each year.⁶ Results from a CDC analysis in 2000 showed that **injury-attributable medical expenditures accounted for 10 percent of total medical**

expenditures, a figure similar to percentages of other leading public health concerns, such as obesity and smoking.⁷

Figure 1-1. The Injury Pyramid



Adapted from State and Territorial Injury Prevention Directors Association (STIPDA):
Safe States, 2003 Edition

This report provides the initial data analysis of fatal and nonfatal injuries in Indiana. The data presented is representative of injury-related deaths from 1999-2001 and nonfatal injury-related hospital discharges for the year 2002.

Analysis of Injuries in Indiana by Age and Life Stages

This section of the report summarizes the varying roles that injuries play related to ages and to developmental stages of life. Since traditional public health statistical age groupings do not always synchronize well with developmental life stages, this information attempts to provide some understanding of the changing contribution of injuries to fatalities and to hospitalizations in Indiana as people get older and move through childhood to being adults. Please refer to tables **A-12 and A-13** in **Appendix A** for charts containing detailed information on leading causes of unintentional and intentional injury-related deaths by age grouping for 1999-2001, and similar non-fatal injury-related leading contributors by age groupings for 2002 as shown in Tables **B-7 and B-8** in **Appendix B**.

Falls, the leading cause of unintentional non-fatal injuries, accounted for 55 percent of hospitalizations, while poisoning ranked as the leading contributor (66 percent) of non-fatal intentional injuries for all ages in Indiana during 2002. Motor vehicle traffic-related incidents are the leading cause of fatalities and the 2nd leading cause of all unintentional hospital admissions. Suicide and homicide by firearm were the leading causes of intentional injury deaths, particularly among persons aged 15 to 44 years and 65 to 74 years. Generally, injury death and morbidity vary by age groups with significantly higher rates among individuals aged 65 years and older.

Infants (aged less than 1 year) and preschool age children (aged 1 to 4 years) accounted for three percent (511) of unintentional hospitalizations by people of all ages during 2002 and four percent (262) of unintentional deaths from 1999-2001. Falls were the leading reason for unintentional hospital admissions for both age groups while suffocation among those aged less than 1 year and motor vehicle traffic-related incidents among those aged 1 to 4 years were the leading causes of unintentional death. Drowning is the 2nd leading cause of unintentional injury death in these age groups. Nationally, 250 children under aged 5 years drown in swimming pools annually and approximately 1,600 required treatment in emergency departments due to submersion injuries in 2002.⁸

Developmentally, young children are at higher risk for injury and death because of their explorative nature and curiosity about their environment. With limited cognitive ability and physical coordination, they are less capable of identifying and avoiding unsafe environments.⁶

Elementary school age children (aged 5 to 9 years) received more fatal injuries from motor vehicle traffic-related incidents than from any other cause. Fall-related injuries within this age group accounted for approximately a fourth (26 percent) of hospitalizations but this injury mechanism is not among the top five leading causes of death. Drowning and fire-related injuries accounted for 27 percent of all unintentional injury deaths in this age group.

At the national level, children in this age group are more susceptible to motor vehicle crashes, bicycle crashes, pedestrian injuries, dog bites, and suicide. Similar to younger children, early elementary school-aged children are often unable to judge if an environment is safe and are likely to demonstrate risky behaviors stimulated by impulse.⁶

The “pre-teen” and adolescent age groups (aged 10 to 19 years)

demonstrate an expanded list of injury prevention concerns to consider. Nationally, the leading causes of death among teens are motor vehicle injuries, drowning, suicide, and homicide.⁵ Consequently, teens are involved in violence-related injuries more than any other group. **In Indiana**, motor vehicle traffic incidents were by far the leading cause of injury and death among children and teens (aged 10 to 19 years). Among them, 70 percent of unintentional injury deaths and 44 percent of all hospital admissions resulted from traffic crashes. While driving a car becomes a common “rite of passage” for 16-year-olds in Indiana, their driving skills only improve with experience in operating a motor vehicle. Impulsive, risk-taking behavior continues with this age group which may include experimentation with or involvement in alcohol and substance abuse. While falls are the second leading cause for unintentional injury hospital admission in this age group, other transport-related injuries (such as those sustained by off-road and other motor vehicles not in traffic) are the next leading causes of death. Suicide and suicide attempts are also important causes of injuries.

The leading causes of unintentional injury death **among adults (aged 20 to 64 years)** are overwhelmingly motor vehicle crashes (53 percent), followed by poisonings (11 percent). Falls are also of concern, emerging as the fourth leading cause of death beginning at aged 35, then becoming the 2nd leading cause at age 55. Unintentional falls are also the 2nd leading cause of hospital admissions for persons aged 20 to 44 years. Beginning at age 45, falls are the primary reason for hospitalization, ranging from approximately 41 percent of unintentional injury-related hospitalization for persons aged 45 to 54 years to approximately 57 percent for persons aged 55 to 64 years.

Poisoning continues to be among the top five leading causes of unintentional death and hospitalizations for persons aged 20 to 54 years. Suicide by firearm and homicide by firearm, among the leading contributors for intentional injuries for persons aged 20 to 64 years, accounted for 61 percent of all intentional injury death in this age group. Homicide as a cause of death predominated in the 20 to 34 year-old age groups. Suicide by suffocation and poisoning are also of concern in the 20 to 64 year age groupings, comprising 24 percent of intentional injury deaths among them, while suicide by poisoning is the primary reason for hospital admission.

Although most adults are experienced motor vehicle drivers, the role of unsafe driving practices, failure to wear a seat belt, or driving while intoxicated continue to be contributing factors to the toll of death and injuries related to motor vehicle crashes.

Both physical and cognitive changes play a role in **older Americans' (aged 65 years and older)** susceptibility to motor vehicle-related injuries, falls, and suicide. As Americans age, their bones become more fragile, they experience problems with vision, their reflexes become slower and some are cognitively impaired by mental illness and/or depression. Although Americans are living healthier, longer lives, facing the reality of poor vision, limited mobility, the loss of loved ones, and the development of chronic illness can be devastating. Feelings of isolation and adjusting to a less active lifestyle increase the risk of suicide.⁶ In Indiana, falls, motor vehicle traffic incidents, and poisoning (as seen among adults) continue to be the leading causes of unintentional injury hospitalizations for senior citizens. Among this age group, falls accounted for 40 percent of all unintentional injury hospitalizations. Specifically among persons over aged 65 years, 84 percent of unintentional injury hospital admissions were the result of falls.

For all ages, motor vehicle traffic incidents and falls are the leading contributors to unintentional injury deaths and hospitalizations, while suicide and homicide by firearm predominate among intentional injury deaths. Suicide by poisoning and being struck by or against an object are the leading causes of intentional hospitalizations.

Data Sources and Methodology

For this report, three primary data sources, as described below, were utilized to compile fatal and nonfatal injury data for Indiana. Other resources such as the Youth Risk Behavior Surveillance System (YRBSS), the Indiana Criminal Justice Institute, Indiana's Roadside Observation Survey of Safety Belt Use and Motorcycle Helmet Use, Indiana's Poison Control Center, the ISDH Epidemiology Resource Center, and various published articles were used to complement the data collected.

Web-based Injury Statistics Query and Reporting System (WISQARS)

WISQARS is an interactive web-based database system maintained by the Centers for Disease Control (CDC), National Center for Injury Prevention and Control (NCIPC) which provides injury-related data that can be downloaded or queried in the form of customized reports. Mortality statistics included in WISQARS come from death certificate data reported to the CDC's National Center for Health Statistics (NHCHS) and can be stratified by all 50 states and U.S. US states and regions. WISQARS also provides data on all types and external causes of nonfatal injuries and poisonings treated in U.S. hospital emergency departments (cannot be stratified by states). This data is obtained from the National Electronic Injury Surveillance System (NEISS) All Injury Program that is operated by the U.S. Consumer Product Safety Commission (CPSC) and is not limited to whether or not the injury is associated with consumer products. Customized reports from WISQARS were utilized to present all of the unintentional and intentional mortality data integrated into this report unless otherwise indicated.

Fatality Analysis Reporting System (FARS)

FARS is a web-based encyclopedia maintained by the National Highway Traffic and Safety Administration and contains data on all vehicle crashes in the United States that occur on a public roadway and involve a fatality. A Query System provides interactive public access to fatal crash data for all 50 states through a web interface. Customized reports for Indiana were used to provide the majority of data presented in the motor vehicle-traffic section of this report.

Indiana Hospital Discharge Data

The source agency for the collection of hospital discharge data is the Indiana Hospital&Health Association (IHHA), which collects hospital discharge data from Indiana hospitals. Beginning with year 2002, selected patient-level data is being sent to the ISDH Epidemiology Resource Center through a working agreement.

Injury-related hospital discharge data for January 1 to December 31, 2002 totaled 779,332 inpatient hospitalizations. Among these, 12.5 percent (97,504) had an injury-related diagnosis code (ICD-9 CM 800-999) in one of the 15 diagnosis fields. However, only 44 percent (43,106) had a least one

supplemental External Cause of Injury Code (E code). This E coded portion of the hospital discharge data was then standardized for analysis using the SAS System, Version 8, based on recommendations from the Injury Surveillance Workgroup of the State and Territorial Injury Prevention Directors Association (STIPDA). For this report, a total of 20,598 records were analyzed by the ISDH Injury Prevention Program.

Hospital data records for analysis were limited to those with a principal diagnosis of injury and whose record met the ICD-9-CM and E code exclusion criteria as recommended by STIPDA. First, records were excluded if the primary ICD-9-CM diagnosis was due to certain adverse effects of therapeutic drug use, adverse effects of medical or surgical care and the late effects of these adverse complications. See **Appendix C** for STIPDA's recommendations. Records were also chosen so that the final data set would be representative of Indiana residents hospitalized at non-federal, acute care, inpatient facilities, and include readmissions, transfers, and deaths.

Secondly, because some medical records contain multiple E codes, an algorithm was used to identify the first one that was considered valid. **E codes were excluded if they identified place of occurrence (E849), perpetrator of child or adult abuse (E967), accidental poisoning by second hand smoke (E869.4), late or adverse complications during surgical or medical care (E870-E879), or adverse or late effects of drugs during therapeutic use (E930-E949).** However, if no other E code was present (excluding the place of occurrence code), then E967, E869.4, E870-E879, or E930-E949) was selected as the valid code.

Following STIPDA's inclusion and exclusion criteria for presenting hospital discharge data, 20,598 hospital records were used as the basis for this analysis. These records can be characterized as patient-level hospital discharges whose principle reason for admission was the result of injury and whose record had at least one valid supplemental E code.

Calculation of Rates

Age-specific rates for injury-related hospital discharges were calculated by dividing the number of hospital discharges for each age group by Indiana's 2002 Census population for that age group, then multiplying the result by 100,000.

Age-adjusted rates for injury-related hospitalizations were calculated by dividing the number of hospital discharges for each age group by Indiana's 2002 Census population for that age group and multiplying this sum by the appropriate 2000 standard million age-adjusted weights.

Rates (age-specific and age-adjusted) for injury deaths were extracted from the CDC's WISQARS database.

All rates are rounded to the nearest tenth percent.

Limitations

There are several circumstances to consider when interpreting the data presented in this report. First, this initial report presents fatal injury statistics for Indiana from multiple sources. These resources do not always have the same total number of injury deaths due to differences in case definitions. For example, the FARS database has a total of 2,815 motor vehicle traffic-related fatalities during 1999-2001 while the CDC WISQARS database has a total of 2,750 for the same time period. FARS uses police crash reports and includes only those deaths that occur within 30 days of the incident. WISQARS compiles data from both FARS and the National Center of Health Statistic's National Vital Statistics System, which uses death certificate data for motor vehicle traffic incidents. This creates minimal limitation in the precision of the data presented in this report, but should not affect its overall conclusions.

Second, nearly all mortality data was obtained from the WISQARS database. Although WISQARS has data beginning in 1981, the coding of mortality data changed in 1999 from ICD-9 to ICD-10. As a result, comparing the number of deaths and death rates from 1998 and prior with data from 1999 and later is not suggested. Therefore, the analysis in this report is limited in its ability to follow long-term trends of injuries in Indiana and thus focuses on mortality data beginning with year 1999.

Third, the only nonfatal injury data available to the ISDH Injury Prevention Program is for year 2002. All nonfatal injury statistics are derived from Indiana's hospital discharge data and is limited by the percent of hospital discharges supplemented with an external cause-of-injury code. For 2002, there was a total of 97,504 hospital discharge records with an injury diagnosis code (ICD-9-CM 800-999) assigned in any of the 15 diagnosis fields. Among these, only 44 percent had at least one supplemental E code, yielding a sub-set of data with 43,106 records. After standardization, there were 20,598 records included in the analysis. Because of insufficient E coding, all analyses serve only as an estimate and do not reflect the true impact of injury-related hospital admissions in Indiana.

Fourth, race information from hospital discharges is not broken down into all standard census categories (e.g., Asian Pacific Islanders, Alaskan/Native American categories are not included as options in the data) and ethnicity is not currently collected. Therefore, race information is grouped in the categories of white, black, and other/unknown.

Section II

Injury-Related Deaths

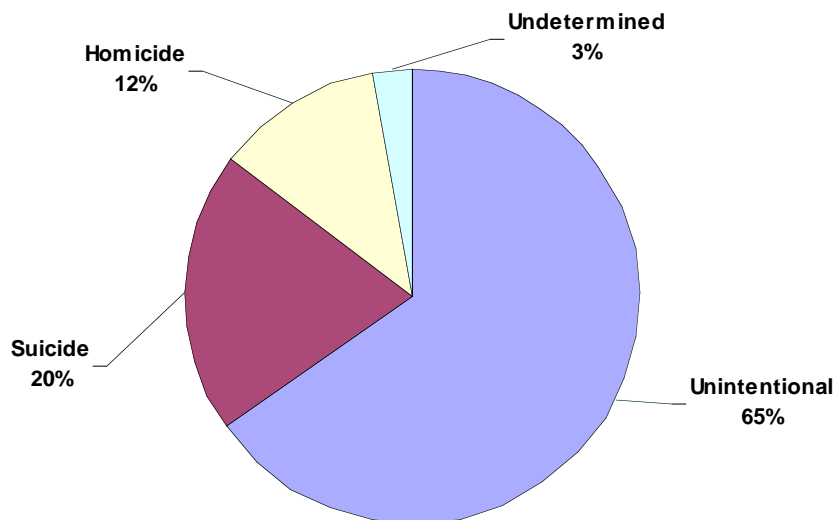
Note: All death statistics presented in the section of the report come from the CDC's WISQARS database unless otherwise indicated.

Overview

The age-adjusted injury death rate per 100,000 population in Indiana (55.7) during 1999-2001 was marginally higher than the national level (53.7) and the Midwest region (52.2). Indiana's injury death rate ranks 26th in the nation for unintentional injury and 22nd for intentional injuries. Among the Midwestern states, Indiana had the 5th highest unintentional rate and the 2nd highest rate for violence-related (including suicide and homicide) injury deaths.

From 1999-2001, 10,143 people in Indiana died as result of injury. Unintentional injury made up the majority (65 percent) of all fatalities as shown in **Figure 2-1** below. Additionally, 20 percent of deaths resulted from self-harm while 12 percent resulted from harming others. **Table 2-1** gives a summary of injury deaths by intent for Indiana during 1999-2001.

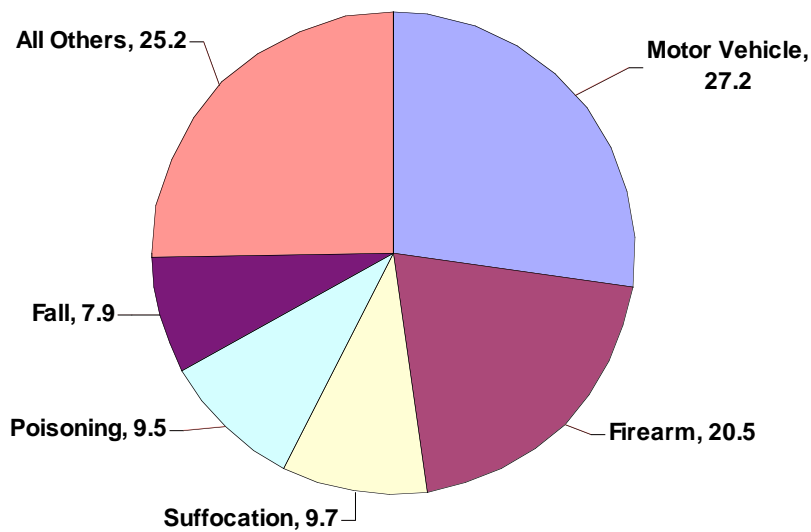
Figure 2-1. Injury Fatalities by Intent, Indiana 1999-2001
(Total Fatalities= 10,143)



Source: CDC, WISQARS

As shown in **Figure 2-2**, the leading causes for injury death in Indiana during 1999-2001 include motor vehicle traffic incidents, firearm violence, suffocation, poisonings, and falls. Forty-six percent of the motor vehicle traffic incidents were occupant fatalities, 7.3 percent involved motorcyclists, 6.7 percent were pedestrian fatalities, and 1.2 percent involved pedal cyclists. Suicide was involved in 57.3 percent of all firearm deaths. While the majority of the suffocation and poisoning deaths were classified as unintentional, a large proportion also related to suicide, 38.6 percent and 35.3, respectively. The majority of the falls were classified as unintentional and accounted for 12 percent of all injuries in this category. **Table 2-1** shows the leading causes of all injury deaths from 1999-2001 by intent. Refer to **Table A-1** in **Appendix A** for a summary of injury deaths by intent.

Figure 2-2. Leading Causes of Injury Death by Percent, Indiana 1999-2001
(Total Fatalities= 10,143)



Source: CDC, WISQARS

Table 2-1. Leading Causes and Percents of Injury Deaths by Intent, Indiana 1999-2001.

Unintentional			Self-Inflicted			Homicide		
Cause	No.	%	Cause	No.	%	Cause	No.	%
MV Traffic	2,750	41.5	Firearm	1,190	58.7	Firearm	794	65.7
Unspecified	792	11.9	Suffocation	380	18.8	Other Specified, Not Classified	109	9.0
Fall	786	11.8	Poisoning	339	16.7	Unspecified	103	8.5
Suffocation	524	7.9	Unspecified	21	1.0	Suffocation	57	4.7
Poisoning	442	6.7	Drowning/ Submersion*	18	0.9	Cut/Pierce	52	4.3
All Others	1,339	20.2	All Others	78	3.8	All Others	93	7.7
Total	6,633	100.0	Total	2,026	100.0	Total	1,208	100.0

Source: CDC, WISQARS

*Frequency of injury mechanism tied with another mechanism.

Note: Leading cause of injury where intent was undetermined is not shown.

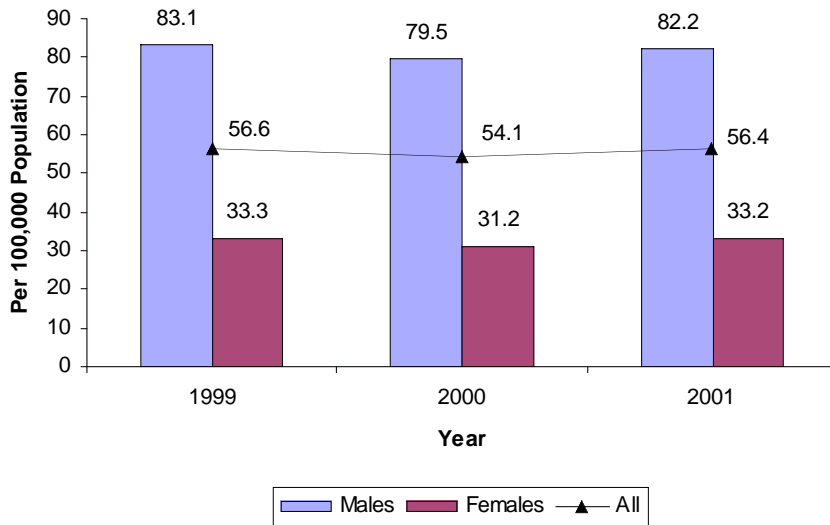
Injuries by Sex and Age

Based on national data, males are at increased risk for motor vehicle crashes, falls, drowning, and homicide. Men over the age of 65 years have the highest suicide rate. They may be less likely to ask for help putting them at an increased risk for depression, a risk factor for suicide. Women are often physically or sexually assaulted by an intimate partner and are also over-represented in hospitalizations for suicide attempts. Among older women (aged 65 years and older), there is an increased risk of falling and sustaining a hip fracture, with osteoporosis being a major contributor to this type of injury.⁶

The census population of Indiana is almost equally distributed by gender, with 96 males for every 100 females (based on Indiana 2002 census population estimates).⁹ Generally, males have higher injury rates than females. **See Figure 2-3.** During 1999-2001, males accounted for 68 percent of all injury deaths and were 2.5 times as likely as females to be fatally injured. The leading cause of injury death for both genders during 1999-2001 was motor vehicle traffic, 26.5 percent among males and 28.5 percent among females. Firearms were involved in 25.6 percent of all fatal injuries among males at a rate of 20 per 100,000 population, compared to a rate of 3.4 deaths among females. Other leading causes of death among males included suffocation (9.4 percent), poisoning (9.2 percent), and fall (6.3 percent).

Females accounted for 32 percent of all injury deaths. Aside from motor vehicle traffic-related injuries, 11.3 percent of injury deaths involved falls. Other leading causes of injury death among females included suffocation (10.4 percent), poisoning (10.0), and firearms (9.5 percent). Refer to **Table A-2** and **Table A-3** in **Appendix A** for a summary of male and female injury deaths by mechanism and cause.

Figure 2-3. Fatal Injury Rates by Sex, Indiana, 1999-2001
 (Total Fatalities= 10,143)

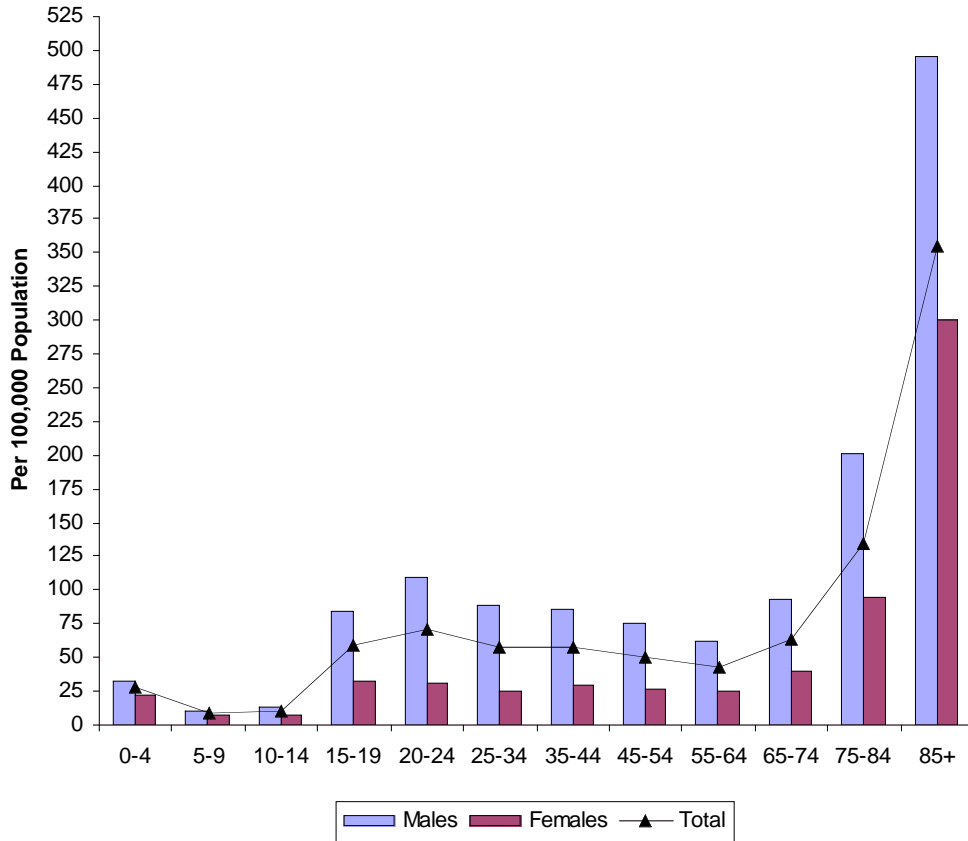


Source: CDC, WISQARS
 Rates are age-adjusted and rounded to the nearest tenth percent.

The distribution of the leading causes of injury-related deaths varied by age groups. Injury rates were highest among the 65-year and older age groups, 63.7 among persons aged 65 to 74 years, 134.8 among persons aged 75 to 84 years, and 354.7 among persons aged 85 years and older. See **Figure 2-4**. Following these age groups, rates were high among persons aged 20 to 24 years (71.0) and 15 to 19 years (58.7).

Refer to pages 15-17 for a detailed analysis of the varying roles that injury plays related to different age groups and developmental stages of life.

Figure 2-4. Fatal Injury Rates by Sex and Age, Indiana, 1999-2001
 (Total Fatalities= 10,143)



Source: CDC, WISQARS

*Does not include six unknown ages.

Injuries by Race and Ethnicity

Indiana is predominately populated by Caucasians (whites), which make up 88 percent of the total population. Blacks/African-Americans comprise 8 percent. Other races, such as American Indians and Alaska Natives, Asians, and Native Hawaiians and other Pacific Islanders, are also included in Indiana's population. However, these groups make up small percentages and injury rates among them are not stable due to small numbers. In addition, Indiana's Hispanic or Latino population is growing but is still a small proportion (3.5 percent) of the total population.

Because whites make up the majority of Indiana's population, unsurprisingly, they accounted for the majority (87.1 percent) of all injury deaths in Indiana during 1999-2001. Persons of the black/African American race accounted for 12.5 percent.

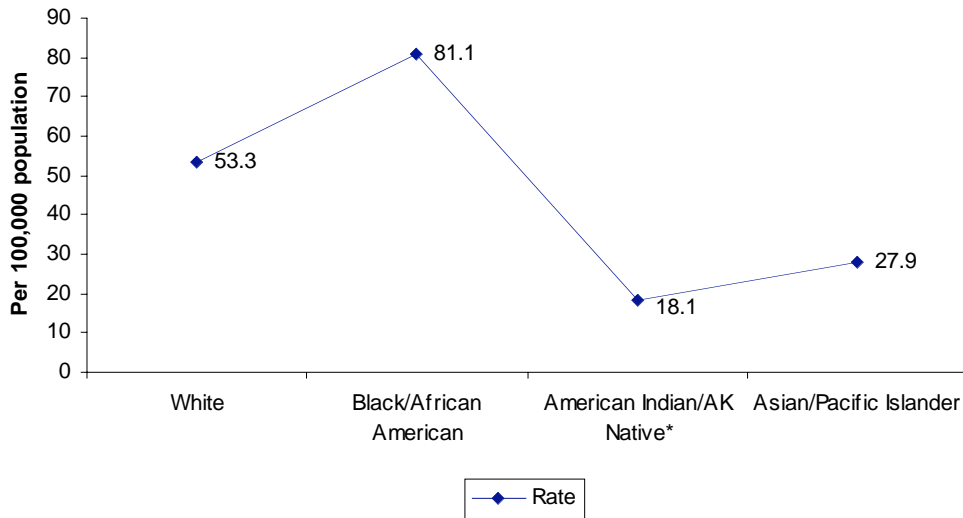
However, the rate of injury death is higher among black/African-Americans. **Figure 2-5** shows that black/African-Americans are 1.5 times as likely as whites to be fatally injured. Black/African-American males have higher injury rates (41 percent difference) when compared to white males. Injury rates among females in these two race groups are fairly similar, 35 percent among whites and 37 percent among Black/African Americans.

During 1999-2001, injuries most frequently occurring among whites and resulting in death included motor vehicle traffic (29 percent), suicide by firearm (13 percent), unintentional falls (9 percent), and unintentional suffocation (5 percent). Among black/African Americans, homicide by firearm (38 percent), motor vehicle traffic (16 percent), suicide by firearm (6 percent), unintentional suffocation (5 percent) and unintentional poisoning (4 percent) were the leading causes of injury fatality. **See Table 2-2.**

Motor vehicle traffic incidents are the primary cause of death among persons aged 1 to 64 years among whites, while among blacks it is the leading cause of death among persons over the aged 45 years. Based on national data, homicide disproportionately affects Black/African-American teenagers, where it is the leading cause of death for persons aged 15 to 19 years.⁶ In Indiana, more Black/African Americans aged 0 to 4 years and 10 to 44 years die from homicide than from any other cause.

Overall, injury rates per 100,000 population among black/African Americans in Indiana (81.2) are higher than the rate for the United States at 66.7. However, rates among whites are comparable to the U.S. with about 53 deaths per 100,000 from 1999-2001.

Figure 2-5. Fatal Injury Rates by Race, Indiana, 1999-2001
 (Total Fatalities= 10,143)



Source: CDC, WISQARS

Rates are age-adjusted and rounded to the nearest tenth percent.

*Rate is based on frequency less than 20 and should be interpreted with caution.

Table 2-2. Leading Causes and Percents of Injury Deaths by Race, Indiana 1999-2001

White			Black/African American			All Races		
Cause	No.	%	Cause	No.	%	Cause	#	%
Unintentional Motor Vehicle Traffic	2,532	28.7	Homicide Firearm	478	37.8	Unintentional Motor Vehicle Traffic	2,750	27.1
Suicide Firearm	1,113	12.6	Unintentional Motor Vehicle Traffic	198	15.7	Suicide Firearm	1,190	11.7
Unintentional Unspecified	751	8.5	Suicide Firearm	73	5.8	Unintentional Unspecified	792	7.8
Unintentional Fall	748	8.5	Unintentional Suffocation	68	5.4	Unintentional Fall	786	7.7
Unintentional Suffocation	455	5.2	Unintentional Poisoning	45	3.6	Homicide Firearm	779	7.7
All Others	3,232	36.6	All Others	402	31.8	All Others	3,846	37.9
Total	8,831	100.0	Total	1,264	100.0	Total	10,143	100.0

Source: CDC, WISQARS

Unintentional Injuries

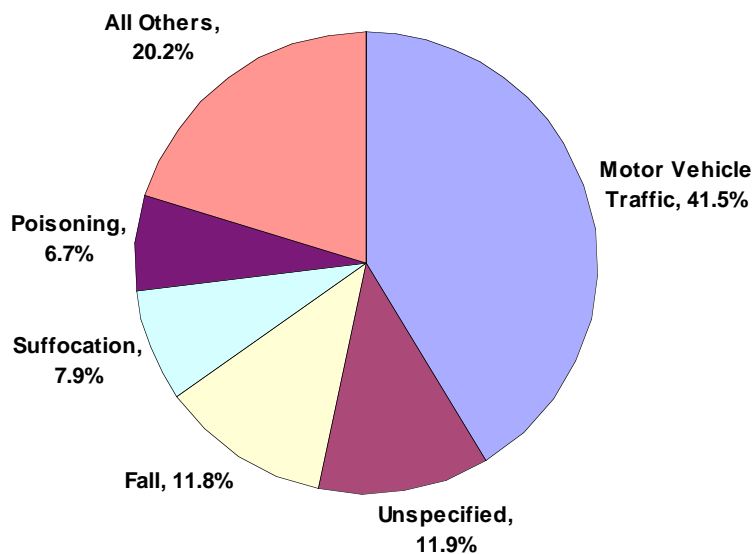
Overview

Unintentional (accidental) injury accounts for the vast majority of injury deaths and can be defined as deaths involving injury or poisoning by unpremeditated measures.¹⁰ In Indiana and the United States, **unintentional injury is the leading cause of death among persons 1 to 34 years and the 5th leading cause of death overall** following heart disease, malignant neoplasms, cerebrovascular disease, and chronic lower respiratory disease. (2001 data)

From 1999-2001, 65 percent (6,633/10,143) of Indiana injury deaths were unintentional, which results in an age-adjusted fatality rate of 36.5 per 100,000 population. This rate is slightly higher than the national level (35.3 per 100,000 population) and when compared to other states, Indiana has the 26th highest age-adjusted rate. Indiana has the 5th highest rate within the Midwest region. See **Tables A-7 and A-9** in **Appendix A**.

Figure 2-6. Leading Causes of Unintentional Injury Fatalities, Indiana 1999-2001

(Total Unintentional Fatalities=6,633)



Source: CDC, WISQARS

As shown in **Figure 2-6**, motor vehicle traffic incidents, the leading mechanism for injury deaths regardless of age, accounted for 41.5 percent (2,750) of all unintentional injury deaths in Indiana from 1999-2001. Although the means for 38.7 percent (1063) of the motor vehicle traffic incidents were coded as unspecified, 46 percent (1263) were classified as occupant fatalities, 7.3 percent (200) as involving motorcyclists, and 6.7 percent (185) were pedestrian fatalities.

Falls accounted for 11.8 percent of all unintentional injuries and when combined with motor vehicle-related incidents, both comprised more than half of all unintentional injury-related deaths. See **Table 2-1** on page 23.

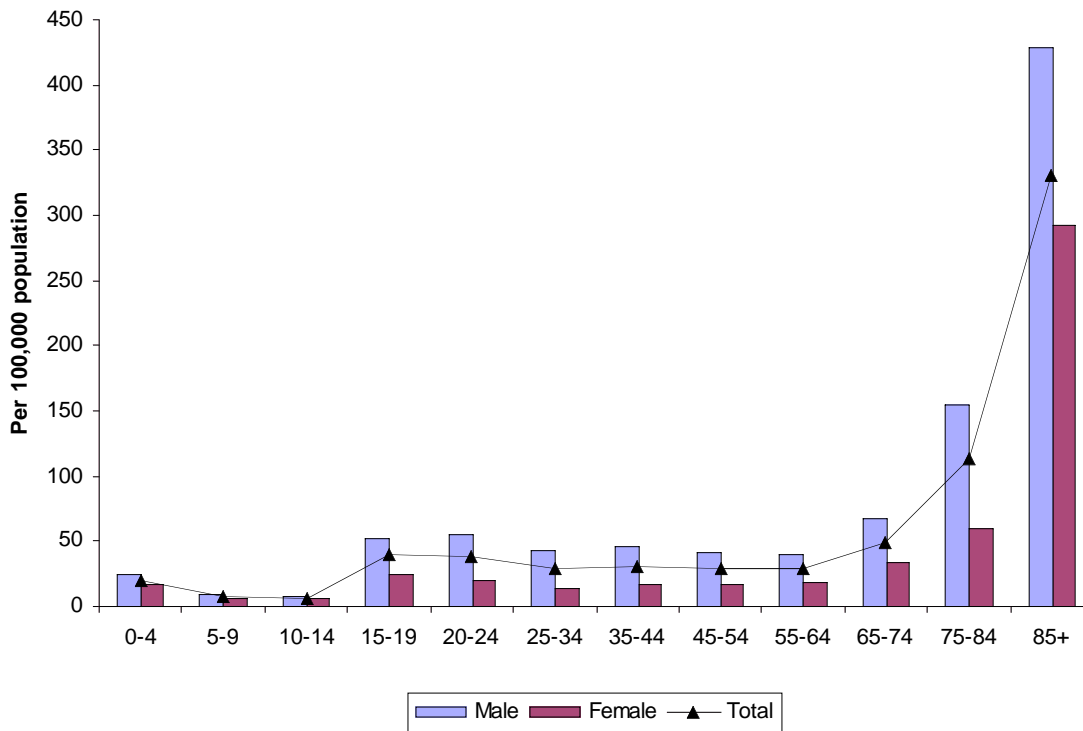
Suffocation and poisoning are also leading contributors of unintentional injuries. Fatal injuries related to suffocation occurred among 524 people in Indiana during 1999-2001, of which 20 percent involved children aged 0 to 4 years and 53 percent among older adults over aged 65 years. Poisoning accounted for nearly seven percent of unintentional injuries. Majority of these injuries were among males whose death rate per 100,000 population (3.5) was 2.5 times higher than the female rate (1.4). See **Table 2-1** on page 23.

Also of concern are the total number of injuries among pedestrians and pedal cyclists. Overall, there were 261 pedestrian fatalities in Indiana, 185 involved motor vehicle traffic incidents and 76 involved persons fatally injured from other means such as being struck by a train. There were also 40 total deaths involving pedal cyclists, where 33 involved motor vehicle incidents and 7 resulted from other means. Refer to **Table A-1** in **Appendix A** for a summary of all injury deaths by intent and Tables **A-2** and **A-3** for male and female summaries.

Unintentional injury constitutes the leading contributor of YPLL before the age of 65 years, accounting for 18 percent (134,722) of YPLL considering all mechanisms of death.

Figure 2-7. Unintentional Injury Deaths by Sex and Age, Indiana 1999-2001

(Total Unintentional Fatalities=6,633)



Source: CDC, WISQARS

The highest **percentage** of unintentional injury deaths occurred within the age grouping of 25 to 54 years and among persons aged 75 years and older. Together these age groupings accounted for 62.4 percent of all unintentional injuries. Persons aged 65 years and older showed the highest fatality **rates**. However, rates were also high among persons aged 15 to 19 years and 20 to 24 years, 39.2 and 37.7, respectively. See **Table A-6** in **Appendix A**.

Considering sex, the male rate for unintentional injury death was higher than the female rate in every age grouping as can be seen in **Figure 2-7**. The highest rate difference by gender occurred in the 20 to 54 year age groups where males were three times more likely than females to die of an unintentional injury. For all ages the rates for males were two times that of the rates for females.

Unintentional Injuries by Race

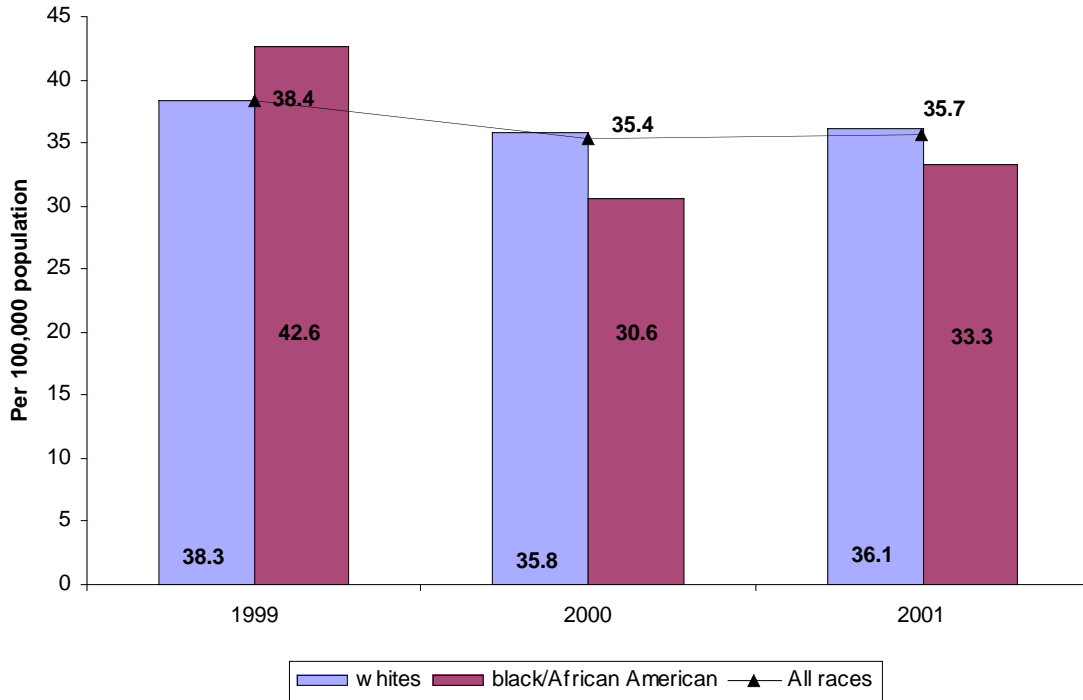
Motor vehicle traffic incidents are the leading cause of injury death for all Hoosiers regardless of race. Suffocation, falls, and poisonings are among the five leading causes of unintentional injury death for both groups. However, fire and burn-related injuries is the fourth leading cause of death among black/African Americans, while it does not rank as one five leading causes among whites. **See Table 2-3. Figure 2-8** shows unintentional injury rates by race among Hoosiers during 1999-2001.

Table 2-3. Five Leading Causes of Unintentional Injury Deaths by Race, Indiana 1999-2001

White			Black/African American			All Races		
Cause	No.	%	Cause	No.	%	Cause	No.	%
Motor Vehicle Traffic	2,532	41.6	Motor Vehicle Traffic	198	39.0	Motor Vehicle Traffic	2,750	41.5
Unspecified	751	12.3	Suffocation	68	13.4	Unspecified	792	11.9
Fall	748	12.3	Poisoning	45	8.9	Fall	786	11.8
Suffocation	455	7.5	Fire/Burn	43	8.5	Suffocation	524	7.9
Poisoning	397	6.5	Fall	36	7.1	Poisoning	442	6.7
All Others	1,210	19.9	All Others	118	23.2	All Others	1,339	20.2
Total	6,093	100.0	Total	508	100.0	Total	6,633	100.0

Source: CDC, WISQARS

Figure 2-8. Unintentional Injury Deaths by Race, Indiana 1999-2001
(Total Unintentional Fatalities=6,633)



Source: CDC, WISQARS

Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Selected Unintentional Injury Topics

- 1) Transport-Related Injuries
- 2) Falls
- 3) Poisoning
- 4) Fire/Burn-Related Injuries

Transport-Related Injuries

Transport-related injury includes those injuries attributed to cars, air, rail, motorcycles and bicycles. These injuries are the leading cause of death for persons under aged 34 years and the leading cause of injury death for all ages in the United States. This section also describes injuries related to motorcycles and all-terrain vehicles.

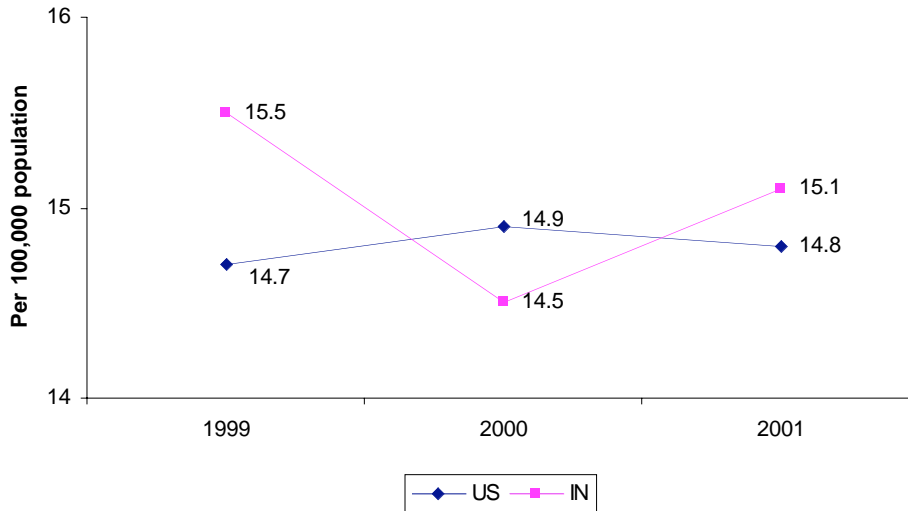
Motor Vehicle Traffic-Related Injury Deaths

In 2001, more than 3 million Americans were injured in motor vehicle traffic-related incidents and more than 42,000 people lost their lives. In addition, there are approximately 500,000 hospitalizations and 4 million emergency department visits occurring annually.¹¹ Major contributors to this high incidence of injuries related to motor vehicles include speeding, excessive lane changes, following too closely, and running red lights.⁵

From 1999-2001, motor vehicle traffic-related fatalities in Indiana totaled 2,750 deaths, an average of 916 Hoosiers each year. This is the leading cause of injury death for persons aged 1 to 64 years and accounts for 27.2 percent of all injury deaths and 41.5 percent of all unintentional injury deaths. Age-adjusted fatality rates in Indiana and the United States are between 14 to 15 deaths per 100,000 population per year. See **Figure 2-9**.

Figure 2-9. Motor Vehicle Traffic-Related Fatality Rates, Indiana and the United States, 1999-2001

(Total Motor Vehicle Traffic Fatalities=2,750)



Source: CDC, WISQARS

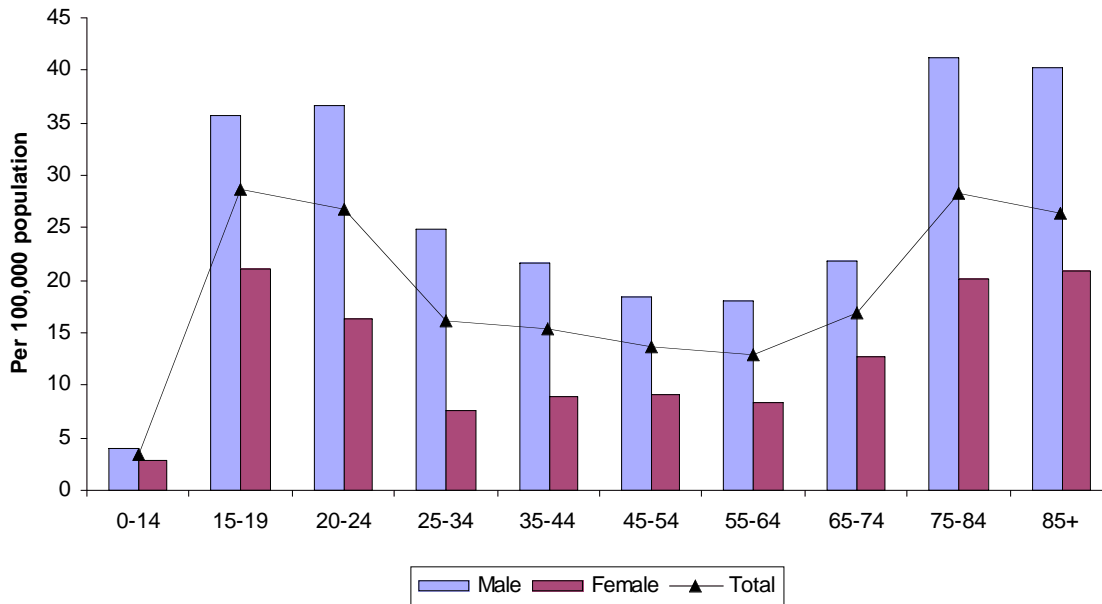
Rates are age-adjusted and rounded to the nearest tenth percent.

Generally, males have a higher fatality rate resulting from motor vehicle traffic incidents than females. This higher rate may be associated with more natural risk-taking and aggressive behavior among males.⁶ From 1999-2001, the highest age-adjusted rates in Indiana were among males aged 15 to 24 (36.3 per 100,000 population) and adults aged 75 years and older (41.0 per 100,000 population). Among females, higher rates also occur among these age groups. However, the male to female ratio is 2:1 for each of these age groups. See **Figure 2-10**.

The failure to use safety restraints, especially among children, and alcohol-impaired driving contribute significantly to motor vehicle injury and death. Use of child safety seats and safety belts and deterrence of alcohol-impaired driving are among the most important preventive measures to further reduce motor-vehicle occupant injuries. The following pages present a brief overview of the impact these risk factors have in relation to motor vehicle incidents in Indiana.

Figure 2-10. Motor Vehicle Traffic Deaths by Sex and Age, Indiana 1999-2001

(Total Motor Vehicle Traffic Fatalities for Indiana=2,750)



Source: CDC, WISQARS

The Fatality Analysis Reporting System (FARS) developed by the National Highway and Traffic Administration, contains data on all vehicle crashes in the United States that occur on a public roadway and involve a fatality of an occupant or non-occupant (e.g., pedestrian or bicyclist) within 30 days of the crash. Through this comprehensive surveillance system, motor vehicle traffic fatality data can be assessed for state level analysis. The Criminal Justice Institute in Indiana also compiles data on motor vehicle incidents.

The following section provides a detailed overview of the two most common circumstances (restraint system use and the use of alcohol while operating a motor vehicle) involving motor vehicle crashes from these two sources.

Based on analysis of FARS data, Indiana averaged 945 motor vehicle traffic-related deaths per year from 1992-2001. Indiana fatality rates per 100 million vehicle miles traveled declined nearly 20 percent during this time, while national fatality rates declined 14 percent.¹² See **Table 2-4** on page 36.

Motor Vehicle Accidents and Alcohol

Alcohol related fatalities are defined as fatalities that occur in crashes where at least one driver or non-occupant (pedestrian or pedalcyclist) involved in the crash has a blood alcohol concentration value greater than 0.01 gram per deciliter (g/dL).¹³ Nationally, 17,448 people in the United States died in alcohol-related motor vehicle crashes in 2001, accounting for 41 percent of all traffic-related deaths.¹⁴

Table 2-4 shows that since 1992, there has been a 32 percent decline in alcohol fatality rates in Indiana. During this same time period, national rates have declined 23 percent. In Indiana, the highest percentage (42 percent) of alcohol-related deaths occurred in 1992, when a total of 901 deaths (1.6 deaths per 100 million vehicle miles traveled) were reported. During 2000, alcohol-related deaths contributed to 34 percent of all motor vehicle traffic-related incidents marking the lowest percentage during the 10 year time period.¹³ **Figure 2-11** shows motor vehicle alcohol-related and fatality rates for Indiana and the United States during 1999-2001.

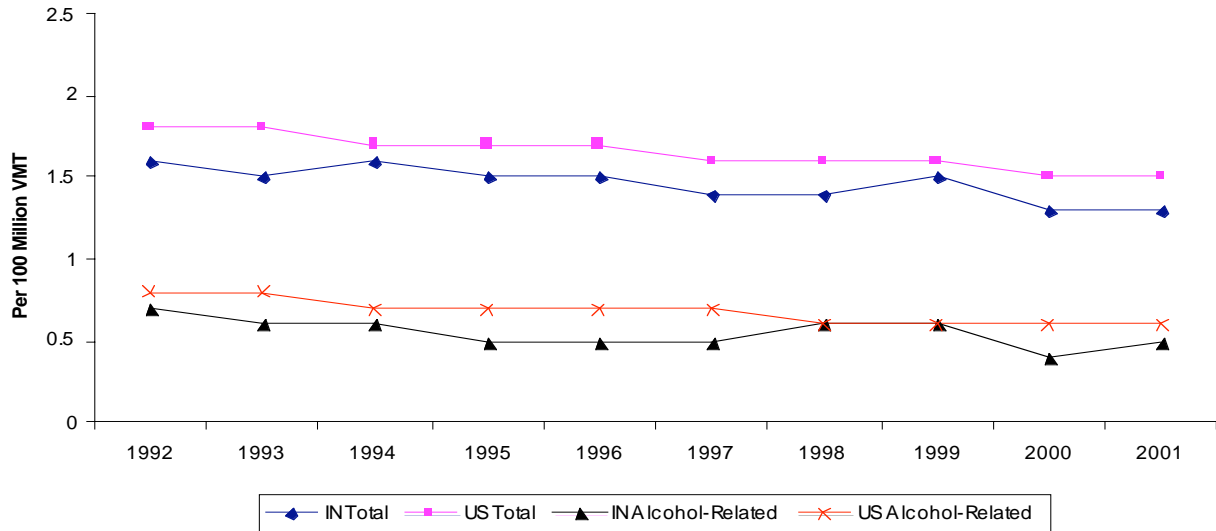
Table 2-4. Percent Difference of Motor Vehicle and Alcohol-Related Crash Rates, Indiana and United States 1992-2001.

Time Period	Indiana Total Motor Vehicle	Indiana Alcohol-Related	US Total Motor Vehicle	US Alcohol-Related
10 years	-20%	-32%	-14%	-23%
Last 5 years	-7%	-6%	-8%	-5%
Last 3 years	-13%	-18%	-3%	No change

Source: 1982-2001 (Final) FARS Files and 2002 FARS Annual Report File, FHWA's Highway Statistics, Annual Series.

Nationally, one in four crash-related deaths among child passengers under the age of 14 years involved the use of alcohol. Based on a recent analysis by the CDC of FARS data from 1997-2002, an average of 390 children (N=2,335) died in alcohol-related crashes annually. Sixty-eight percent of these children were passengers riding with drinking drivers and the majority of these children were not restrained.¹⁵

Figure 2-11: Fatality Rates and Alcohol-Related Rates, Indiana 1992-2001



Source: 1982-2001 (Final) FARS Files and 2002 FARS Annual Report File, FHWA's Highway Statistics, Annual Series.

Motor Vehicles and Seat Belt Use

Seat belts, the single most effective occupant protection device in vehicles, saved nearly 12,000 lives annually in the United States (2000 data).¹⁶ Based on the statewide September 2001 Indiana Roadside Observation Survey of Safety Belt Use and Motorcycle Helmet Use, the percent of drivers and front seat passengers who were properly restrained in passenger vehicles and pickup trucks increased from 62.1 percent in September 2000 to 67.4 percent in September 2001.¹⁷

In Indiana, mandatory seat belt laws apply to all front seat occupants and all rear seat passengers under age 12 years. All children under the age of 4 years must be properly restrained by a child safety seat. Indiana does practice primary enforcement, which allows law enforcement officials to stop a vehicle for the sole purpose of not utilizing a seat belt.¹⁸

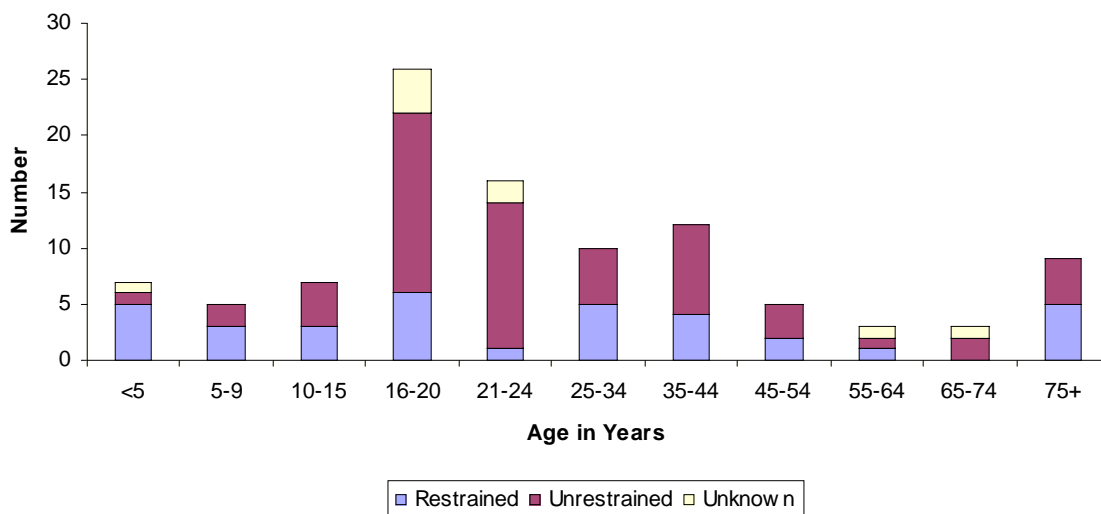
In Indiana, there were 613 drivers fatally injured in 2001. Among these deaths, 76 percent were males. Less than a third of the males (27.3 percent) utilized their restraint system. Among the 148 female drivers fatally injured, half of them wore their seat belt at the time of the crash. Young drivers (aged 16 to 20 years) are twice as likely to be involved in a fatal crash compared to all other drivers and continue to have the highest fatality rate per licensed driver in

Indiana and the nation. Among the young drivers killed (aged 16 to 20 years) in Indiana in 2001, only 28.4 percent were properly restrained (where restraint use was known). Additionally, one out of three young female drivers (aged 16 to 20 years) involved in a fatal crash was not restrained properly, while four out of five young male drivers (aged 16 to 20 years) were not properly restrained (where restraint use was known).¹⁹

Seat belt usage was higher for female **drivers** at both the national and the state level. Female **drivers** in Indiana continue to demonstrate higher usage rates (79.0 percent) than male drivers (61.9 percent).¹⁷ Males who are front seat passengers of pickup trucks were less likely to use safety restraints compared to their female counterparts.¹⁸

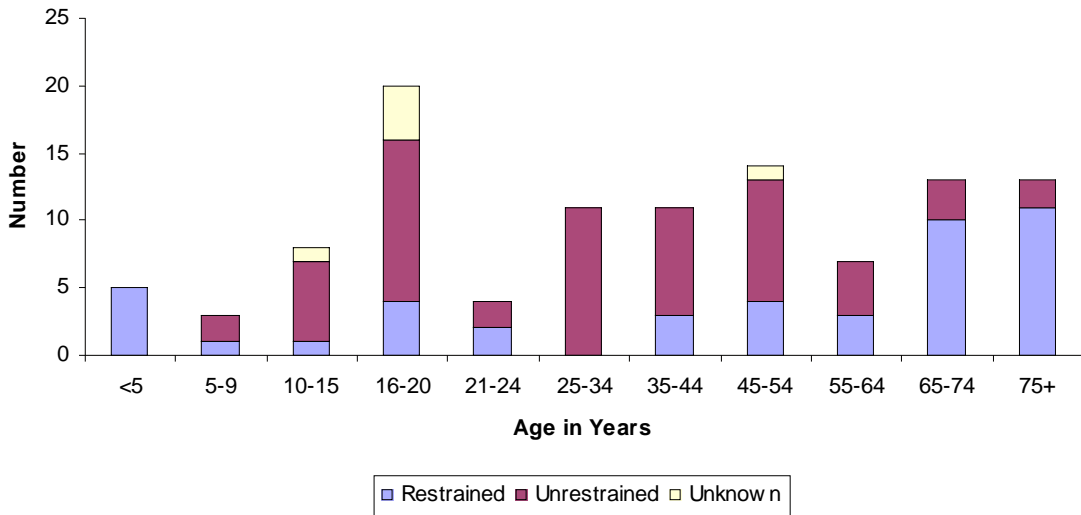
More than half of all **passengers** fatally injured were unrestrained in Indiana in 2001, 59.0 percent of males and 53.2 percent of females.¹⁸ National statistics show that proper use of lap and shoulder belts could prevent approximately 60 percent of motor vehicle-related deaths. According to the results of the Indiana 2003 Youth Risk Behavior Survey, 11 percent of high school students surveyed rarely or never wore safety belts and 28 percent rode with a drinking driver during the past month. Further, motor-vehicle crashes comprised one-third of all injuries among persons aged 10 to 24 years in Indiana.²⁰

Figure 2-12. Number of Male Passengers Fatally Injured in Motor Vehicle Crashes by Age and Restraint System-Use, Indiana 2001.



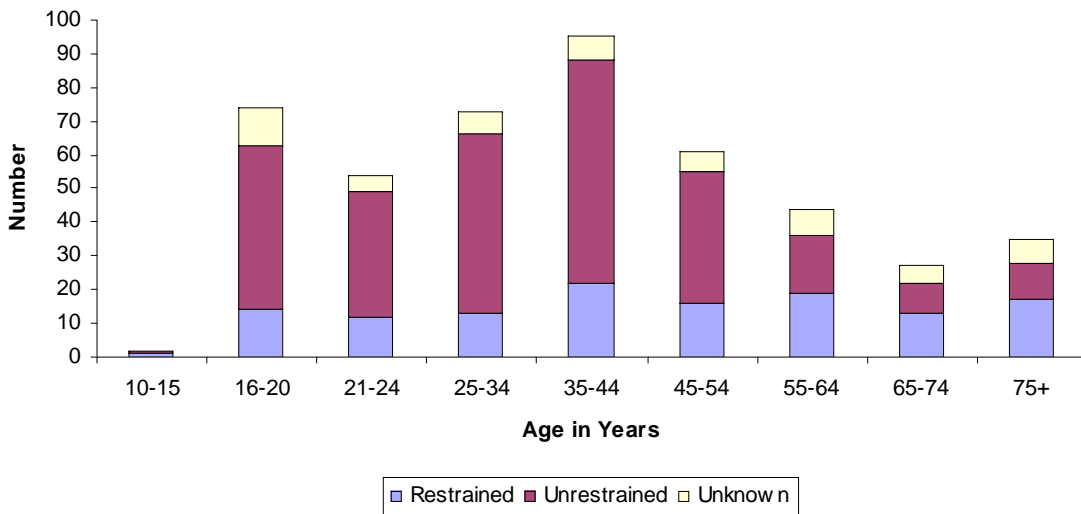
Source: Fatality Analysis Reporting System (FARS)

Figure 2-13. Number of Female Passengers Fatally Injured in Motor Vehicle Crashes by Age and Restraint System-Use, Indiana 2001.



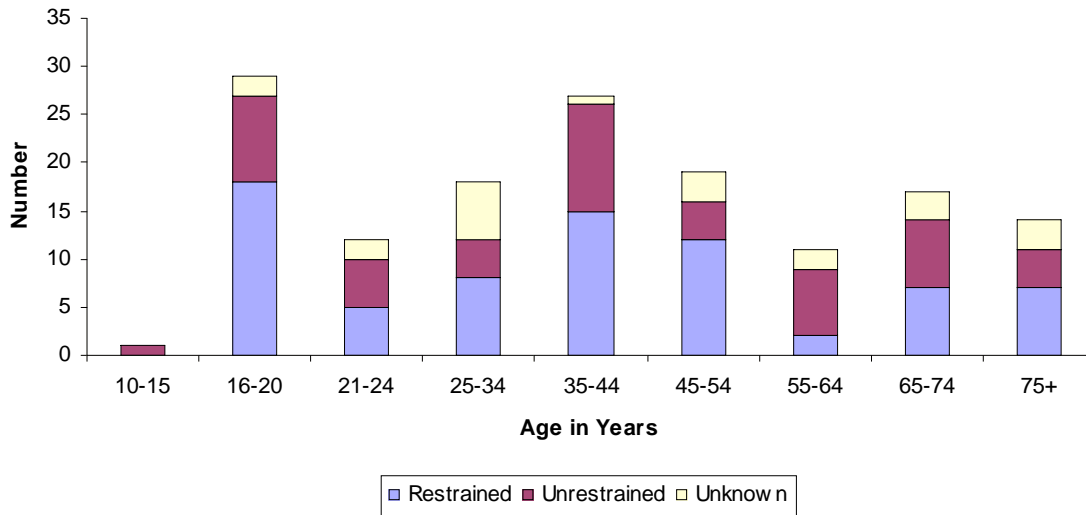
Source: Fatality Analysis Reporting System (FARS)

Figure 2-14. Number of Male Drivers Fatally Injured in Motor Vehicle Crashes by Age and Restraint System-Use, Indiana 2001.



Source: Fatality Analysis Reporting System (FARS)

Figure 2-15. Number of Female Drivers Fatally Injured in Motor Vehicle Crashes by Age and Restraint System-Use, Indiana 2001.



Source: Fatality Analysis Reporting System (FARS)

Children under Age 15 years

Nationally, the rates of motor vehicle fatalities have decreased over the past few years, from 15.2 per 100,000 in 1997 to 14.8 per 100,000 in 2001. However, children and older adults have the greatest risk of being fatally injured in a crash. National statistics show that 6 percent of those fatally injured in a motor vehicle crash in 2001 were children aged 15 years or younger.¹² Of the total 909 traffic-related fatalities for this age group in Indiana, children aged 15 years and younger accounted for 54 (5.9 percent) of those fatalities and 39 (4.7 percent) of all vehicle occupant fatalities. Also in this age group, males accounted for 37 (68.5 percent) of the total deaths and persons aged 15 years accounted for 18.5 percent of all traffic fatalities.²¹

In the United States motor vehicle crashes are the leading cause of death for children aged 1 to 14 years. (WISQARS, 2001 data) An average of 6 children less than aged 15 years were killed and 732 were injured every day in motor vehicle crashes in 2001. The use of alcohol plays a major role in motor vehicle crashes, also affecting children. In 2001, 23 percent of children less than 15 years old were killed in a motor vehicle crash where alcohol was involved.²²

Alcohol use was a factor in the deaths of seven children in Indiana during 2001. Four of the children who sustained fatal injuries were passengers of a vehicle with an alcohol-impaired driver. Overall, the rate of child passenger fatalities in vehicles with alcohol-impaired drivers is greater in Indiana than in the United States.²²

Indiana Child Restraint Law

Indiana law (IC-9-19-11) states that:

- ◆ Children under age 4 must be in safety seats that meet current federal safety standards.
- ◆ Children from age 4 up to 12 must use a child safety seat or a vehicle safety belt.
- ◆ Anyone who drives children is responsible for them being properly restrained.
- ◆ If children are not properly buckled up, the driver can be fined \$25 and be assessed four points against his or her driver's license.

NHTSA cites research stating that lap/shoulder belts, when used on front seat occupants aged 5 years and older, reduce the risk of fatal injury by 45 percent in passenger cars and 60 percent in light trucks. In Indiana, 14 out of 31 passengers (45.2 percent) aged less than 16 years and fatally injured were properly restrained. None of the four children who sustained fatal injuries as occupants of pick up trucks were restrained.²¹

Table 2-5. Restraint System-Use among Those Fatally Injured in Motor Vehicle Crashes, Indiana 2001.

Restraint Use	Driver	Passenger	Pedestrian	Pedal cyclist	Other/Unknown Non-Motorist	Total
Restrained	201	81	0	0	0	282
Unrestrained	334	123	56	10	4	527
Bicycle Helmet	0	0	0	1	0	1
Unknown	78	20	0	1	0	99
Total	613	224	56	12	4	909

Source: 1982-2001 (Final) FARS Files and 2002 FARS Annual Report File, FHWA's Highway Statistics, Annual Series.

Motorcycles

In 2001, more than 3,000 deaths occurred nationally among motorcyclists, accounting for 8 percent of total traffic fatalities, 9 percent of all occupant fatalities, and 2 percent of all occupants injured.²³

Motorcyclists in Indiana were involved in 332 fatalities from 1997-2001, accounting for nearly 8 percent of all fatal crashes during that time.²⁴

Motorcyclists are more likely to be injured or killed in a collision with a fixed object than are persons in other vehicles. National data shows that in 2001, 28 percent of motorcyclists were killed and 12 percent were injured during collisions with fixed objects.²³ Further, per 100 million vehicle miles traveled in 2001, motorcyclists were about 26 times as likely to die in a crash as someone riding as a passenger in a car, and were 5 times as likely to be injured. Per 100,000 registered vehicles, the fatality rate for motorcyclists (65.2) in 2001 was 4.1 times the fatality rate for passenger car occupants (15.8).²⁵

The use of helmets plays a major role in reducing fatalities to motorcyclist. However, based on the National Occupant Protection Use Survey (NOPUS), there has been a significant increase of nonuse (45 percent) among motorcyclists. NOPUS is an observational survey of motorcycle helmet, safety belt, and child safety seat use implemented by the National Highway Traffic and Safety Administration (NHTSA). Helmet use among operators fell from 71 percent in 2000 to 58 percent in 2002. NHTSA estimates that helmets used in 2001 saved the lives of 674 motorcyclists, are 29 percent effective in preventing fatal injuries, and are 67 percent effective in preventing brain injuries, which is common injury sustained when involved in a motorcycle incident.²³ Among the total 332 motorcyclist killed Indiana during the five-year period of 1997-2001, only 60 (18 percent) were wearing a helmet.¹²

In recent years there has also been a trend in increasing numbers of motorcycle deaths associated with alcohol-impaired drivers, especially among persons over aged 40 years. Based on 1983-2003 data from the NHTSA Fatality Analysis Reporting System (FARS) analyzed by CDC, 8.2 percent of alcohol-impaired motorcycle drivers over aged 40 years were fatally injured in 1983; by 2003 the percentage in this age group increased to 48.2 percent. This increase may be because there are more drivers in this age group riding motorcycles and because they may be more likely to consume alcohol before driving than younger motorcycle drivers.²⁶

In 2001, the overall percentage of alcohol involvement in the United States was 37 percent higher among motorcyclists when compared to drivers of passenger vehicles. Nationally, 41 percent of the total 1,369 motorcycle operators who died in a single-vehicle crash in 2001 were intoxicated and more than 5 percent had at least one previous conviction for driving while intoxicated.²³

All Terrain Vehicles

All terrain vehicles (ATVs) are three or four wheel-motorized vehicles, weighing between 250 and 500 pounds intended for off-road use on rough terrain.²⁷

ATVs pose significant hazards, particularly among children. This problem has been documented as early as 1984, when the Consumer Product and Safety Commission (CPSC) began investigating the hazards, which led to the acceptance of consent decrees by the ATV manufacturers to implement several safety measures. Manufacturers agreed to include age recommendations in their advertisements, have labels on the ATVs warning consumers of the dangers to children who ride adult-sized ATVs, implement a rider-safety training program nationally, develop a voluntary standard to make ATVs safer, and to discontinue the production and sale of new three wheeled ATVs because of the instability due to their high center of gravity.²⁸

The risk of injury today among four-wheeled ATV riders is nearly as great as it was when three-wheeled ATVs were banned in 1988. The CPSC estimate that since the mid 1980s there has been between 200 and 300 deaths from ATVs annually and injuries associated with ATVs and requiring emergency department visits have increased more than 100 percent in the last few years, from 52,800 in 1997 to 110,100 in 2001.²⁹

One-third (n=110,100) of injuries in 2001 were among children and adolescents under aged 16 years.²⁹ This age group is at an increased risk due to developmental immaturity, the size and weight of the vehicle, the inability to travel safely at high speeds, and inadequate physical size and strength needed to maneuver and control the ATV.²⁷ The majority of the injuries are known to occur when the driver loses control, the vehicle rolls over, the driver or passenger is thrown off, or there is a collision with a fixed object.²⁸

There are limited sources that document the impact of ATV-related injury and death in Indiana. However, based on national data, these injuries are escalating. Among all deaths associated with ATVs during the period of January 1982 through December 31, 2002, Indiana has the 23rd highest number of deaths (93) compared to all states.³⁰ Based on the analysis of the 2002 Hospital Discharge Data, there were 233 hospital admissions resulting from ATVs. These injuries were prominent among persons aged 10 to 34. The majority (36.9 percent) of the injuries was among adolescents and teens aged 10 to 19 years and among young adults aged 20 to 34 years (33.9 percent)³¹ Note: the external cause of injury code E821 was used to identify ATV-related injuries.

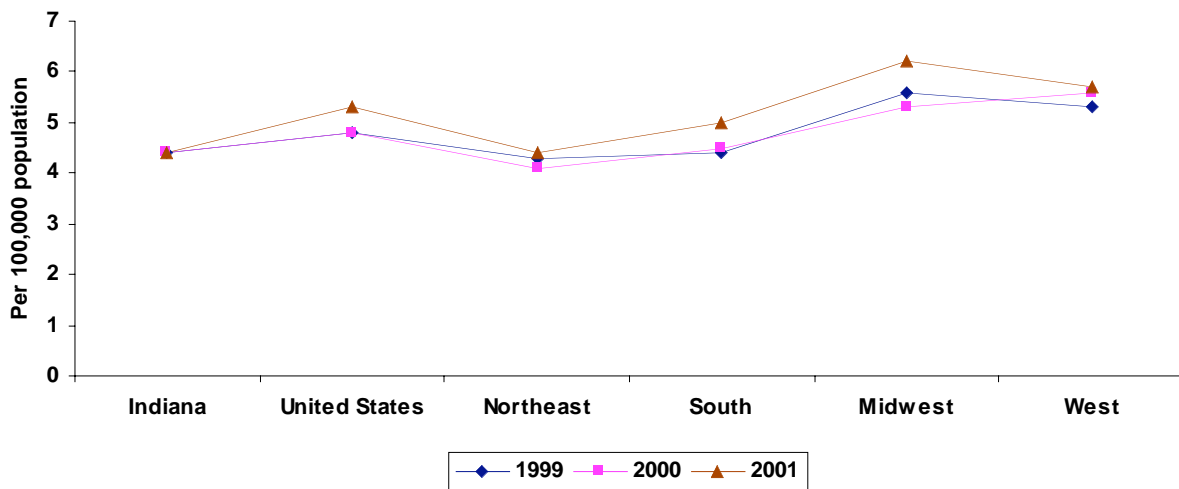
Falls

Falls are the 3rd leading cause of unintentional injury deaths in Indiana. There were 786 deaths from falls in 1999-2001, accounting for 12 percent of all unintentional injuries, but slightly less than the 14 percent of unintentional injury fall deaths that occur nationally.

Age-adjusted death rates in Indiana have remained quite stable at four deaths per 100,000 population. Comparing falls by regions, the age-adjusted fatality rates are similar overall with 4 to 6 deaths per 100,000 population annually. See **Figure 2-16**. From 1999-2001, fall fatality rates were highest in the Midwest. During this time, Indiana had the second lowest fatality rate (4.4) among Midwestern states.

Figure 2-16. Unintentional Fall Fatality Rates (Per 100,000) by Region, 1999-2001.

(Total Fall Fatalities=804)



Source: CDC, WISQARS

Circumstances surrounding falls vary between men and women. From 1999-2001, more than half (53 percent) of all unintentional fall-related fatalities in Indiana were among males, whose age-adjusted rate of 6.1 per 100,000 population was nearly two times that of females (3.2 per 100,000 population).

Falls among Children

Falls are the most common cause of unintentional injury among children.³² Approximately 140 children under age 15 years die annually from fall-related injuries in the United States.³³ Among those who die, more than half are ages 4 years and younger.³⁴

Children are more susceptible to death when they fall from high elevations and when they sustain head injuries from contact with hard objects such as concrete surfaces.³³ Those at greatest risk are aged 10 years and younger, likely due to their curiosity and because they are still developing their motor skills. Generally, males are more than twice as likely as females to die from fall-related injuries.³²

The majority of falls among children happen in the home, the location of fall-related injury for more than 80 percent of children aged 4 years and under and 45 percent of children aged 5 to 14 years. Other common areas where children fall are from windows, down stairs, off furniture, and from bikes and other outdoor play equipment. Among the more severe injuries, the most common are head injuries³² and fractures to the arms and legs.³³

In Indiana, there were 14 fall-related injury deaths among children 0 to 14 years during 1999-2001. The fatality rate for this age group is too unstable for comparison with other age groupings due to small numbers. However, falls are among the 10 leading causes of injury death among children aged 1 to 9 years and the 5th leading cause of unintentional injury among children aged 1 to 4 years.

Falls among Older Adults

Falls remain the leading cause of injury deaths among adults aged 65 years and older. Based on national data, one of every three adults fall each year and older frail adults are twice as likely to fall when compared to healthier adults.³⁵

Falls are caused by both intrinsic (personal) and extrinsic (environmental) factors and are expected to increase among this age group, the fastest growing population segment in the U.S. Intrinsic factors include gait and balance, muscle weakness, limitations of daily living activities, visual problems, lack of physical activity, and the effects of using prescription drugs. Extrinsic factors include potential hazards in the home such as loose rugs, the absence of railings on stairs or grab bars in the bathroom, and poor lighting.³⁵

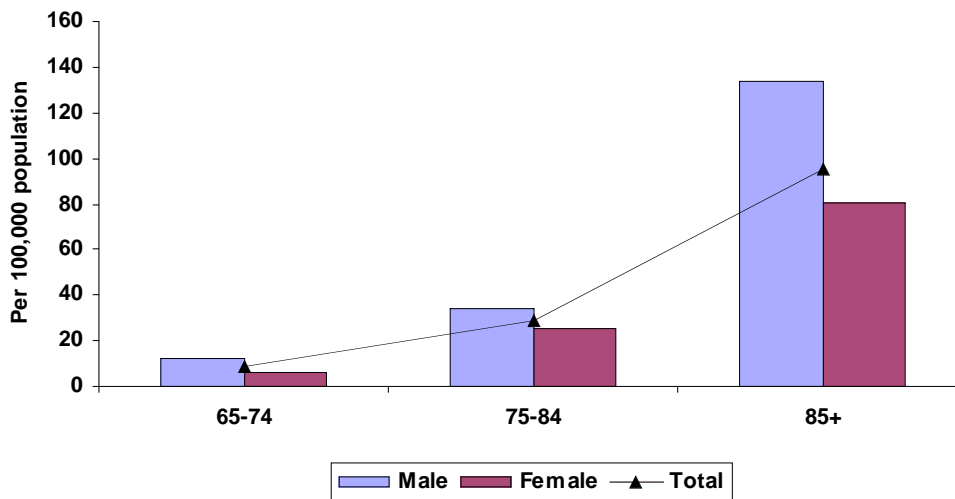
Although fall fatalities are not comparable among most of the Indiana age distributions due to small numbers, rates are significant among males and females aged 65 years and older as seen in the figure below. In Indiana, 76 percent of all fall-related deaths were among persons aged 65 years and older

during 1999-2001, while this segment of the population comprises only 12 percent of the population in Indiana (based on Indiana 2002 census population estimates).⁹ Rates were higher for males (35 per 100,000 population) than for females (22 per 100,000 population). However, among all females whose death resulted from a fall, 89 percent were aged 65 years and older. Similar findings occur for males in that the 65 years and older age group comprised 65 percent of fall-related deaths.

Risk factors associated with falls include increasing age, muscle weakness, functional limitations, environmental hazards, use of psychoactive medications, history of falls and a previous hip fracture, physical activity, osteoporosis, and low body mass index.³⁵

The most common fall-related injuries are fractures involving the hip, spine, or forearms. Of these, hip fractures are the most serious and lead to disability and sometimes death. In 1999, approximately 338,000 people in the United States were admitted to the hospital for fractured hips.³⁶

Figure 2-17. Fall Fatalities among Persons Aged 65 Years and Older by Sex and Age, Indiana 1999-2001.
(Total Fall Fatalities=804)



Source: CDC, WISQARS

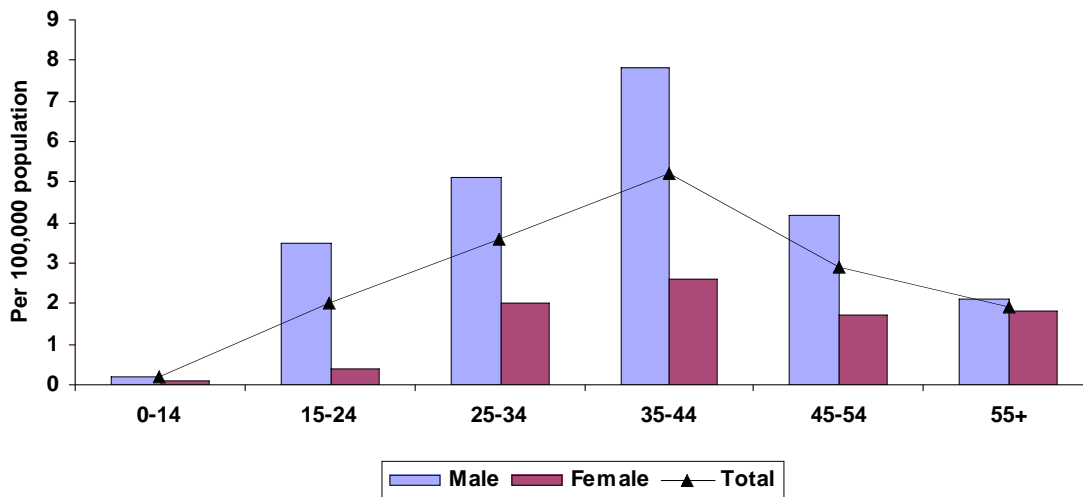
Poisoning

Among the leading causes of injury deaths reviewed in this report, the majority of the injuries occur unintentionally. However, a substantial number of poisoning-related deaths also result from intentional behaviors. From 1999-2001, nearly one-fourth of all poisoning-related deaths in the United States were intentional, compared to 36 percent in Indiana.

Poisoning is defined as the ingestion of or contact with a substance that produces toxic effects and results in bodily harm.³⁷ Nationally, poisoning fatalities fall within the 10 leading causes of injury death for persons aged 15 years and older, with more deaths seen in persons aged 35 to 54 than in any other age group. Poisoning is the 4th leading cause of all injury-related deaths and the 3rd leading cause for unintentional injury.

Figure 2-18. Unintentional Poisoning Fatalities by Sex and Age, Indiana 1999-2001.

(Total Unintentional Poisoning Fatalities=442)



Source: CDC, WISQARS

Note: Rates for females ages 0-14 and 15-24 and males ages 0-14 are based on frequencies of 20 or less, are unstable, and should be interpreted with caution.

From 1999-2001, unintentional poisoning rates were similar in all four regions of the United States with approximately 4 to 6 deaths per 100,000 population. Among them the Midwestern states had the lowest rate, averaging 3.74 deaths per 100,000. In Indiana, seven percent of all unintentional injury deaths were poisoning-related, resulting in an age-adjusted fatality rate of 2.44 per 100,000 population. The male rates (3.50 per 100,000 population) were more than twice the female rate (1.39 per 100,000 population).

Poisoning Exposure among Children

Children under aged 6 years account for 55 percent of the poisonings managed by the Indiana Poison Control Center during 2001 and 2002. Among this age group, 2-year-olds make up the largest percentage (19.6 percent) of poison exposures, followed by 1 year olds, which accounted for 17.2 percent. The most common poison exposures for children are the ingestion of household products such as cleaning substances, pain relievers, and personal care products.³⁸

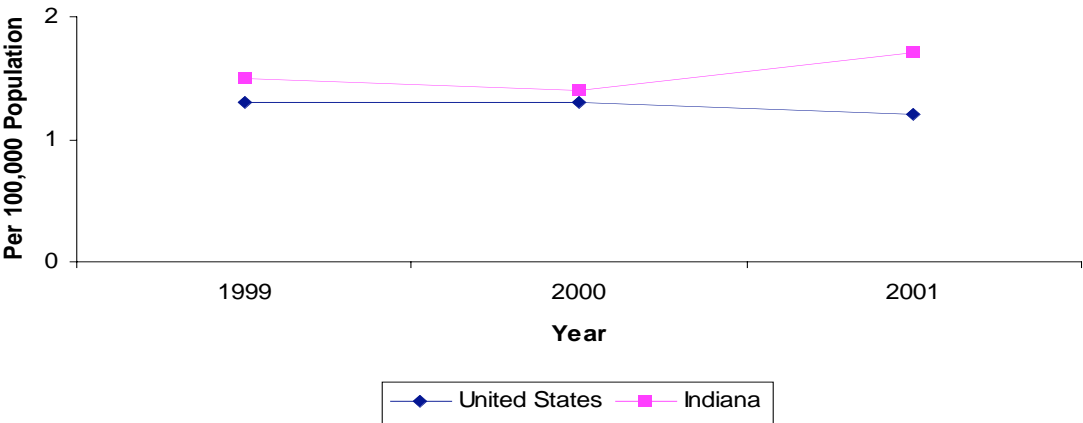
Fire and Burn-Related Injuries

According to the National Health Interview Survey, more than 1 million people each year are non-fatally injured from fires and burns. Approximately 45,000 burn victims require hospitalization each year. Half of these are admitted to specialized burn centers where nearly 6 percent do not survive. Although fire-related death rates have declined from about 10 per 10,000 to 4.2 per 10,000 since the 1990s, it is estimated that 4,500 people die due to fire-related injuries annually.³⁹

In Indiana fire-related injuries are among the five leading causes of unintentional injury deaths for each age group. It is the second leading cause of unintentional injury death among Hoosiers aged 1 to 4 and 55 to 64 years (based on 2001 data).

From 1999-2001, 283 persons in Indiana died of unintentional fire-related injuries for age-adjusted rate of 1.56 per 100,000 population. This figure is higher than the national fatality rate of 1.23 per 100,000 population. Since 1999, Indiana fatality rates have been consistently higher than those of the United States. See **Figure 2-19**.

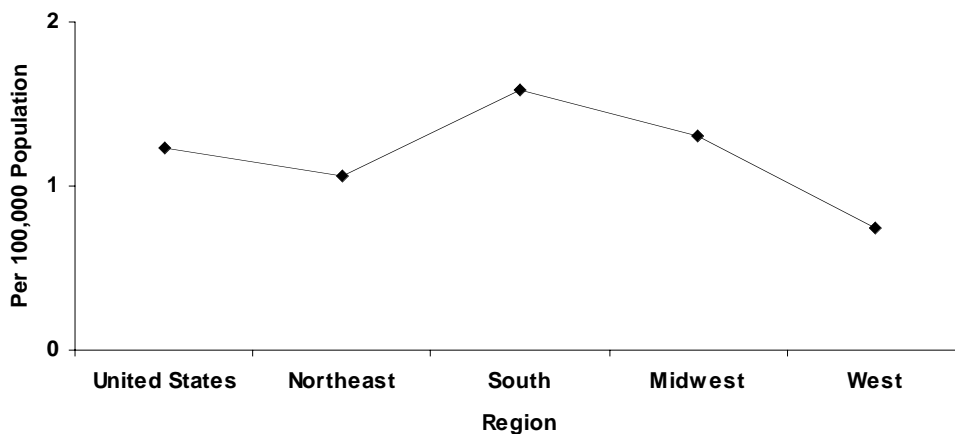
Figure 2-19. Unintentional Fire-Burn Fatality Rates, United States and Indiana, 1999-2001.



Source: CDC, WISQARS

Regional comparisons from 1999-2001 show that fire fatalities in the Midwest are higher than in other regions, except that of the South. See **Figure 2-20**. According to the report "Surveillance and Prevention of Residential-Fire Injuries",⁴⁰ the high rate in the South may be due to rural poverty, a lower prevalence of smoke alarms, and greater use of portable heating equipment. Within the Midwest region, death rates range from 0.80 to 1.59 per 100,000 population, with Indiana having the 3rd highest rate at 1.56 per 100,000 population.

Figure 2-20. U.S. Fire-Related Fatality Rates by Region, 1999-2001.



For Indiana, the number of fire-related deaths stratified by age and sex are too small to make meaningful rate comparisons. However, fires remain a leading cause of unintentional injury death among children aged 0 to 14 years nationally. The youngest children are at the greatest risk. Children aged 5 years and younger are more than twice as likely to die in a fire compared to all other age groups. More than half of those who die in this age group are asleep at the time of the fire, and another one-third are too young to react appropriately.⁴¹ Since 1999, there have been 33 unintentional fire fatalities (12 percent of all unintentional fire-related injury deaths) among children aged 5 years and younger in Indiana.

Rates are consistently higher for males than for females. From 1999-2001, males in Indiana accounted for 63 percent (2.34 males per 100,000 population) of unintentional fire fatalities compared to 37 percent (1.24 females per 100,000 population) of females.

In general, those at increased risk to sustain a fire-related injury or death include:

- Children 4 years of age or younger and adults 65 years or older
- Minority and low income populations
- African-Americans and Native Americans
- Persons living in rural areas and manufactured homes or substandard housing
- Persons living in houses without functioning smoke detectors
- Persons with a cognitive disability or persons impaired by alcohol or other drugs

Residential Fires

Residential fires are more common and cause more deaths than any other type of fire, accounting for approximately 85 percent of all fires in the United States.⁴² For 2001, the most recent mortality data available, 3,796 persons died in the United States from residential fire-related injuries, accounting for seventy-four percent (2,813) of fire-related deaths.

In Indiana, considering both unintentional and intentional fire-related deaths from 1999-2001, 65 percent (209 out of 321) were residential, resulting in an age-adjusted fatality rate of 1.15 per 100,000 population. This figure is slightly higher than the national age-adjusted rate of 1.03 per 100,000 population.

In nearly 40 percent of residential fires in the United States, alcohol is involved and victims die primarily of smoke inhalation or toxic gases instead of burns.⁴² Residential fires peak during the winter months of December through February, a time when heating equipment such as fireplaces, space heaters and wood-burning stoves are used most frequently in the home.⁴³

Intentional Injuries

Overview

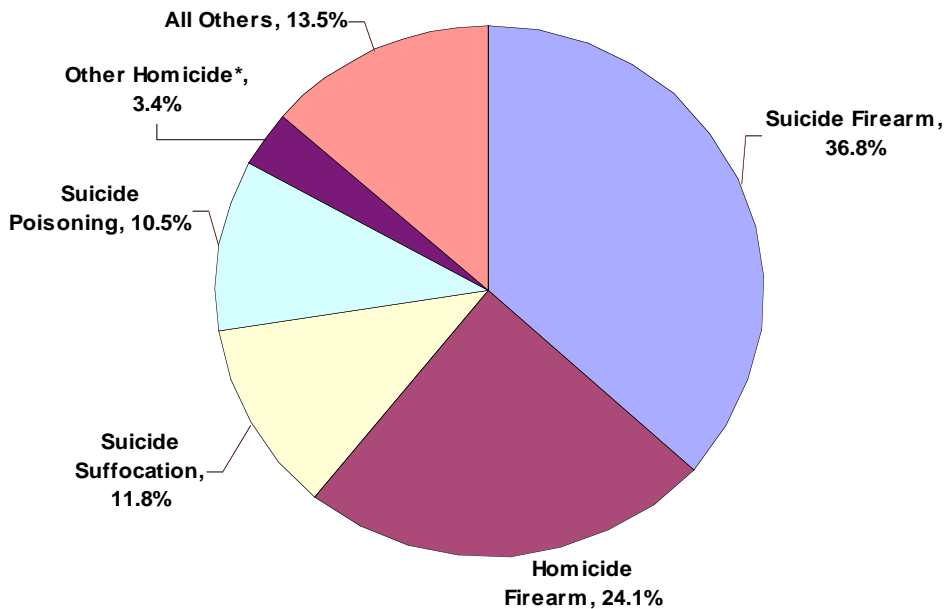
In the United States and in Indiana, suicide and homicide are the 11th and 13th leading causes of death, respectively. (2001 data) Intentional injuries resulted in 3,234 deaths in Indiana from 1999-2001 at a rate of 17.7 per 100,000 population and were among the top five leading causes of death for every person aged 1 to 54 years. During this same time period, intentional injuries accounted for 32 percent of all injury deaths in Indiana.

The Indiana rate, which ranked 30th among all states, was marginally higher than the Midwest region (16.0 per 100,000 population) and the United States (17.0 per 100,000 populations) during 1999-2001. Among the mid-western states, Indiana has the 2nd highest rate. See **Tables A-8 and A-10 in Appendix A.**

Violence-related injury can be defined as the intentional use of physical force or power, against oneself or another person that results in or has a high likelihood of resulting in injury or death.⁴⁴

Figure 2-21. Leading Causes of Intentional Injury Deaths, Indiana 1999-2001

(Total Intentional Fatalities=3,234)



Source: CDC, WISQARS

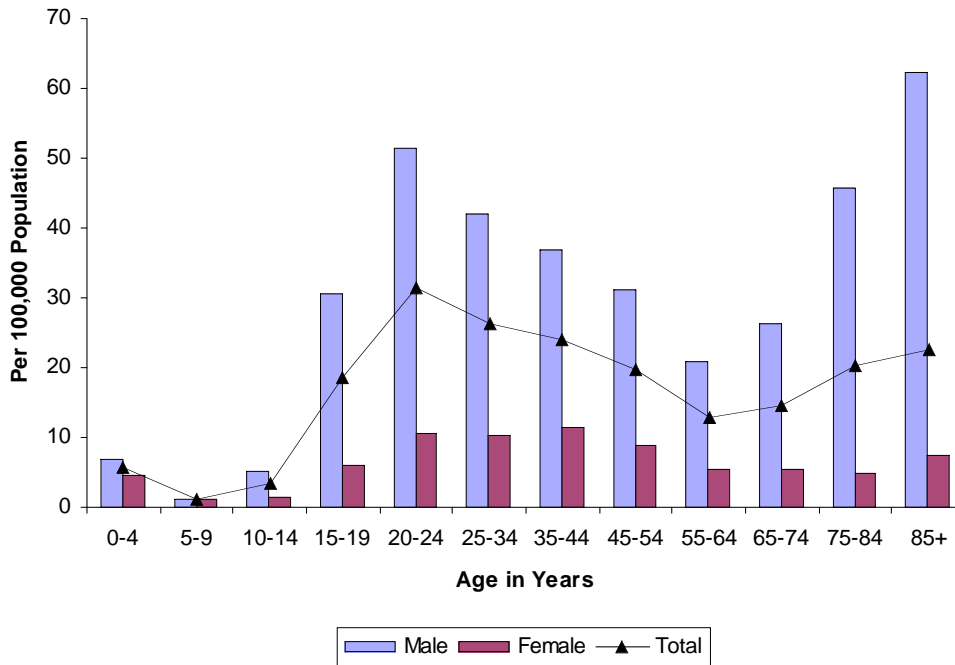
*Defined as a homicide that is not elsewhere classifiable.

The leading causes of intentional injury death in Indiana during 1999-2001 were suicide by firearm and homicide by firearm. When combined, these comprise 61 percent of all intentional injury deaths. Other leading causes were suicide by suffocation (12 percent) and suicide by poisoning (10 percent). See **Figure 2-21**.

Of the total 3,234 violence-related injury deaths 2,026 were suicides and 1,208 were homicides. Seventy-nine percent (2,561) of all violence-related deaths were among males and 21 percent (673) were among females. As demonstrated in **Figure 2-22**, intentional injury rates among males surpassed fatality rates among females for every age group. Males in Indiana were 4 times as likely as females to die from intentional injuries during 1999-2001.

Figure 2-22. Intentional Injury Deaths by Sex and Age, Indiana 1999-2001

(Total Intentional Fatalities=3,234)



Source: CDC, WISQARS

Note: Rates based on frequencies of 20 or less are unstable and should be interpreted with caution. (Unstable rates are among persons aged 5 to 9 years; females aged 10 to 14 and females aged 85+ years).

Suicide by firearm was the leading cause of violent injury deaths among Hoosiers over aged 35 years. Suicide among males totaled 1,656 deaths, of which 62.8 percent were with the use of a firearm. Homicide by firearm was the leading cause of violent injury deaths among persons aged 5 to 9 years and 15 to 34 years. Males in Indiana accounted for a third of the homicides (n=1,208) during 1999-2001 and among them 71.5 percent were with the use of firearms.

Although there is not a statewide data collection system for firearm violence, the Indiana Partnership to Prevent Firearm Violence has established the Indiana Firearm Injury and Death Surveillance System. This system is used to track firearm injury deaths for Marion County, which is the most heavily populated county (863,787 people) and comprises 14 percent of Indiana’s population of 6,126,743 people. (2001 data)⁴⁵ Based on analysis of the data populated in this surveillance system for 2002-2003, 976 people in Marion County sustained firearm-related injuries. Thirty percent of these were fatal injuries.⁴⁶

In Marion County, the majority of the firearm deaths for 2002 and 2003 were homicide by assault (72.3 percent), followed by self-inflicted suicide (14.0 percent). Among victims with gunshot wounds, 68 percent were African-American; 30 percent were white; 88 percent were men. More persons with Hispanic ethnicity were injured in 2003. In 285 cases in which the type of firearm was identified, handguns accounted for 88 percent. Most offenders and shooters were young males.⁴⁶

The leading circumstances surrounding unintentional injuries were from handling or carrying a gun and gun cleaning. Among the assault homicide cases with known circumstances, robbery or burglary and arguments were the leading circumstances. The common circumstances for self-inflicted suicide included depression or mental illness, interpersonal relationship problems, criminal or legal issues, physical illness, and alcohol or substance dependence or abuse.⁴⁶

In Indiana, the highest **percentage** of injury deaths among males and females were in the 20-54 age groupings, accounting for 69.3 percent of all intentional injury deaths when combined.

Intentional injury **rates** were highest for persons aged 20-24 years. From this point rates steadily declined until the age of 65 years.

Table 2-6. Five Leading Causes of Intentional Injury Deaths by Race, Indiana 1999-2001

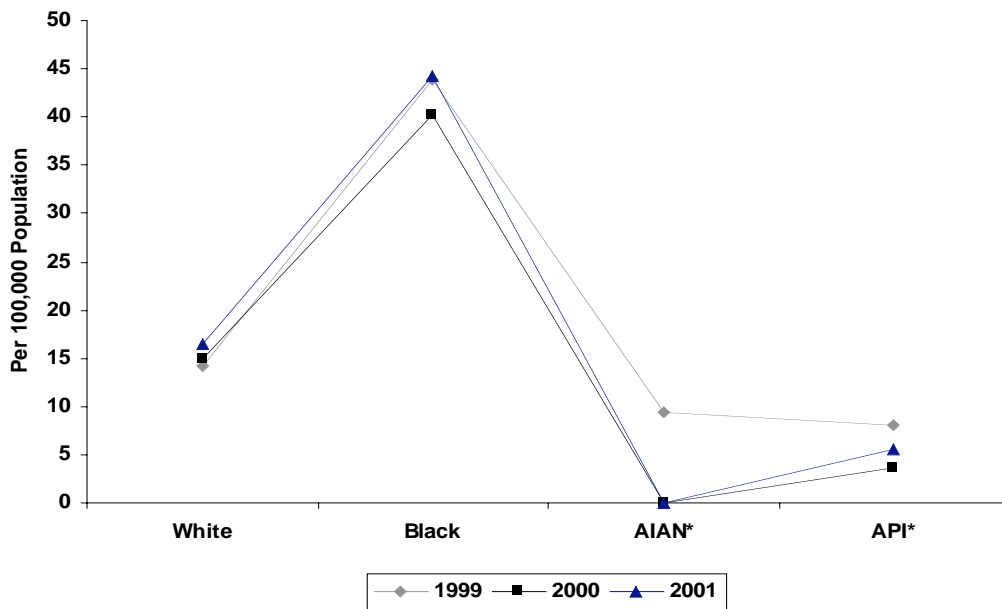
White			Black/African American			All Races		
Cause	No.	%	Cause	No.	%	Cause	No.	%
Suicide Firearm	1,113	44.4	Homicide Firearm	478	67.2	Suicide Firearm	1,190	36.8
Suicide Suffocation	361	14.4	Suicide Firearm	73	10.3	Homicide Firearm	779	24.1
Suicide Poisoning	329	13.1	Homicide Other	31	4.4	Suicide Suffocation	380	11.8
Homicide Firearm	298	11.9	Homicide Unspecified	28	3.9	Suicide Poisoning	339	10.5
Other Homicide	77	3.1	Homicide Suffocation	25	3.5	Homicide Other	109	3.4
All Others	330	13.2	All Others	76	10.7	All Others	437	13.5
Total	2,508	100.0	Total	711	100.0	Total	3,234	100.0

Source: CDC, WISQARS

Intentional injury rates during 1999-2001 were higher for black/African Americans in Indiana. On average, the rates among black/African Americans were 3 times higher than the rate among whites. See **Figure 2-23**. Mechanisms that frequently contributed to fatalities among black/African

Americans include the use of firearms. Homicide by firearm and suicide by firearm accounted for 77.5 percent of all intentional injury deaths among black/African Americans, and 56.3% among whites. Among whites, suicide by firearm accounted for 44 percent of intentional injuries. Suicide by suffocation (hanging), and by poisoning were also leading contributors to fatalities among whites, accounting for 27.5 percent of deaths among them. Homicide by firearm comprised 12 percent of deaths among whites compared to 67.3 percent of deaths among black/African Americans. See **Table 2-6**.

Figure 2-23. Intentional Injury Deaths by Race, Indiana 1999-2001
(Total Intentional Fatalities=3,234)



Source: CDC, WISQARS

* Rates are based on frequencies less than 20 and should be interpreted with caution.

Note. AIAN refers to American Indian/Alaska Native and API refers to Asian/Pacific Islander.

Selected Intentional Injury Topics

- 1) Suicide
- 2) Homicide

Suicide

As the 11th leading cause of death nationally and among Hoosiers, suicide claimed the lives of more than 30,000 Americans in 2001. In Indiana, 20 percent of all injury deaths resulted from suicide during 1999-2001, at a rate of 11.1 per 100,000 population. However, these figures may be only estimates as many suicides go unreported, may not be treated in a hospital, or may not be recorded as a self-inflicted injury.

Suicide is a multifaceted problem with several risk factors. Potential indicators such as expressions of suicidal thoughts, recent social stressors, and substance abuse are common among the victims.⁴⁷

As with any injury, suicides have significant variations with regard to sex and age. See **Figure 2-24**. In Indiana and the United States, males are more than four times as likely as females to commit suicide, whereas females attempt suicide more often with the ingestion of poisons, and report higher rates of depression.

Suicide rates increase with age and are highest among Americans aged 65 years or older, especially those who are divorced or widowed. CDC reports that on average, an older adult commits suicide every 90 minutes in the United States. Men in this age group have the highest rate. Risk factors associated with this increased incidence of suicide include but are not limited to depression, mental illness, and chronic disease. It is believed that men are less likely to ask for help, especially help for emotional concerns. This factor may contribute to the increased risk of suicide death in this category. In nearly all cases, men aged 65 years or older who commit suicide suffer from depression and become more socially isolated and vulnerable to suicide.⁶ In Indiana, 17 percent of all suicide deaths from 1999-2001 were among adults over aged 65 years, with 85 percent of these among males.

Suicide also disproportionately affects youth in the nation, particularly those aged 15 to 24 years, ranking as the 3rd leading cause of death in this age group. According to national estimates, more teenagers and young adults died from suicide than from cancer, heart disease, AIDS, birth defects, stroke and chronic disease combined in 1999.⁴⁸

According to a CDC analysis of suicide methods among persons aged 10 to 19 years, the most common method of suicide in this age group was by firearm and suffocation (primarily by hanging), accounting for approximately 90 percent of suicide deaths in this age group. During 1992-2001, suicide rates among persons aged 10 to 19 years, declined from 6.2 to 4.6 per 100,000. Corresponding to this decrease in the number of fatalities comes a shift in how

suicides are occurring, particularly among persons aged 10 to 14. Since the early to mid 1990s suicide by suffocation (hanging) has surpassed firearm-related suicide and has become the most common method in this age group. This shift results in a total of 1.8 suicides by suffocation for every firearm suicide. (2001 data)⁴⁹

The Youth Risk Behavior Surveillance System (YRBSS) was established by the CDC to monitor high school students' health risks and behaviors in six categories identified as most likely to result in negative outcomes. One of the categories included is unintentional injury and violence (including suicide). This survey provides comparable local (when available), state, and national data about youths.

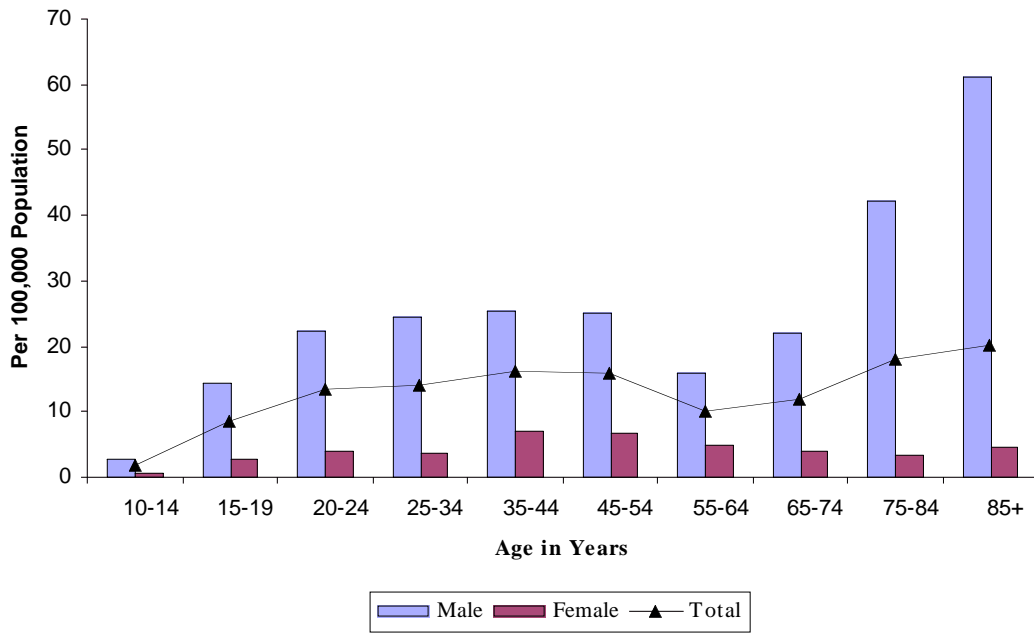
The result of the 2003 national school-based YRBSS data indicates that 17 percent of 9th through 12th graders seriously considered attempting suicide during the past 12 months, 16 percent in Indiana. Thirteen percent of Hoosiers surveyed (compared to 17 percent nationally) had a plan for how they would attempt suicide and 7 percent actually attempted suicide one or more times during the past 12 months. Two percent of these required medical attention.⁵⁰

During 1999-2001, a total of 2,026 suicide-related deaths occurred among Hoosiers. Of these, 82 percent (1,656) were among males and 18 percent (370) were among females. Males aged 75 years and older showed the highest suicide rates per 100,000, 18.0 for the 75 to 84 years age group and 20.2 among males aged 85 years and older. High rates were also seen among males aged 20 to 54 years who accounted for 55 percent of all suicides during this time.

The leading mechanisms for which suicide among males occurred were by firearm (62.8 percent), by suffocation (19.6 percent) and by poisoning (12.5 percent).

Among females in Indiana during 1999-2001, suicide death rates per 100,000 were more prominent in the 35 to 54 year age groups, 7.1 among females aged 35 to 44 years and 6.6 among females aged 45 to 54 years. Firearm (40.5 percent), poisoning (35.7 percent), and suffocation (14.9 percent) were the leading causes of suicide deaths among females in Indiana.

Figure 2-24. Suicide Deaths by Sex and Age, Indiana 1999-2001
 (Total Suicide Fatalities=2,026)



Source: CDC, WISQARS

Homicide

Homicides were the 2nd leading cause of injury death among persons aged 15 to 34 years and the leading cause of all violence-related deaths among persons aged 0 to 9 and 15 to 24 years. More than 51,000 Americans died violently, a rate of 17.9 deaths per 100,000 population. (2001 data)

Assault homicide is any injury or death from an unlawful act by one or more persons with intent of causing injury and/or death to another person.⁵¹

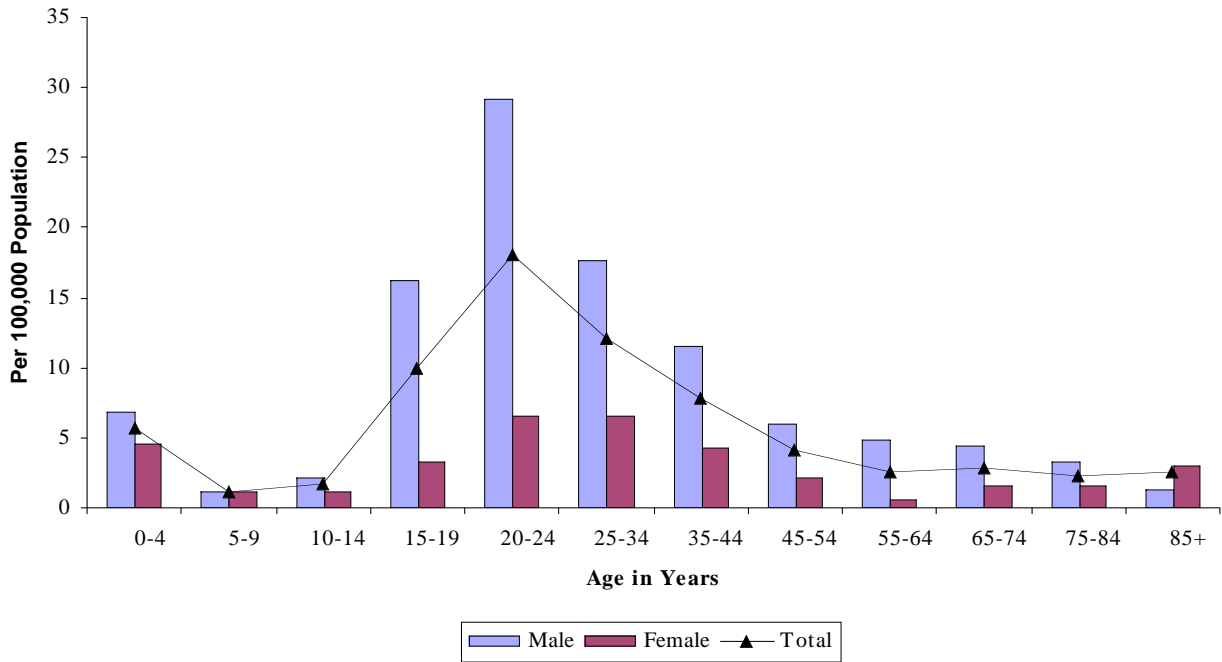
In 2001, there were 427 Indiana residents whose death was classified as a homicide, sixty-eight percent (290) of these resulted from a firearm injury. Overall, homicides occur in Indiana at a rate of 6.95 per 100,000 population.¹⁰

According to the CDC's data on homicide from 1999-2001, Indiana's rate did not vary much from national rates. For each year, there were approximately 6 to 7 deaths per 100,000 population for the US and among Hoosiers. While homicide ranks as the 13th leading cause of death, homicide by firearm is the 2nd leading cause of violence-related injury deaths in Indiana.

Nationally, males are three times more likely to be killed and almost eight times more likely to commit homicide than are females. Based on data available from the U.S. Department of Justice, Bureau of Justice Statistics, more than three-fourths (76.4 percent) of homicide victims in Indiana during 2001 were males. The majority of the victims (28.8 percent) were Hoosiers aged 18 to 24 years. High percentages were also seen among Hoosiers aged 25 to 34 years (27.2 percent) and 35 to 49 years (21.7 percent). When looking at this data source from 1999-2001, we find that Indiana averaged 385 victims per year.

As shown in **Figure 2-25** below, homicide rates among Hoosiers were highest among persons aged 20 to 24 years.

Figure 2-25. Homicide by Sex and Age, Indiana 1999-2001
 (Total Homicides=1,208)



Source: CDC, WISQARS

Based on national data, black/African Americans are disproportionately represented as both homicide victims and offenders. In terms of rates per 100,000, black/African Americans are six times more likely to be victimized and about eight times more likely to commit homicide than are whites. Males represent three-quarters of homicide victims and nearly 90 percent of offenders. In terms of rates per 100,000, males are three times more likely to be killed and almost eight times more likely to commit homicide than are females. Approximately one-third of murder victims and almost half the offenders are under the age of 25. (2001 data)⁵²

Section III

2002 Hospital Discharge Data

The Role of External Cause of Injury Codes

One impact of injuries can be quantified by evaluating injury-related hospitalizations. In the United States, an estimated 1.5 million people are discharged from hospitals annually as a result of injury. This constitutes 8 percent of all hospital discharges and makes injury the second most commonly listed primary diagnosis.²

Hospital records in Indiana are indexed using the International Classification of Diseases, 9th Revision Clinical Model (ICD-9-CM). These codes identify the nature of the injury or death. **External causes of injury codes (E codes) are supplemental to ICD-9-CM codes** and describe the circumstances under which an injury occurred.

E codes allow for the enumeration of hospital discharges by circumstances resulting in injury. According to national estimates of non-fatal injuries treated in United States hospital emergency departments in 2001, falls were the leading cause of unintentional injury for every age group, except among persons aged 15 to 24 years where being struck by or striking against objects or persons predominates. Examples of this classification of injury include being struck by a falling object while playing sports, or “accidentally” being struck by objects or persons. Struck by or against is the 2nd leading cause of all nonfatal injuries and also among infants and children ages 0 to 14 years, who comprise nearly a third of all injuries in this category.⁵³

Concurrently, assault (other than sexual assault) was the leading cause of all nonfatal intentional injuries evaluated in emergency departments. Sexual assault is the 2nd leading cause of nonfatal violence-related injury among infants and children age 1 to 9 years. For person ages 14 and older, attempted suicide by poisoning is the 2nd leading cause. Overall, patients were 5.5 times more likely to be treated in hospital emergency departments for assault than for self-inflicted injuries.⁵³

In Indiana, prior to 2002, there had only been statewide, aggregate E coded data relating to inpatient hospital discharges available to the ISDH from the Indiana Health and Hospital Association (IHHA). However, a collaborative relationship between these two entities resulted in a law passed in 2002 by the General Assembly, which allows ISDH access to this data, the basis for this portion of the Injuries in Indiana Report. The report presents a detailed summary of all injury-related hospital discharges among Indiana residents in which the principle reason for admission (ICD-9-CM diagnosis code of 800-999) to a non-federal, acute care, inpatient facility was an injury, including late effects, but excluding adverse effects of therapeutic use of drugs and adverse effects of medical and/or surgical care and the late effects of those adverse effects. This definition also includes all readmissions, transfers and deaths.

Since the documentation of injury based on E codes is not a legislative mandate in Indiana, **the data in this report is limited by the fact that only 44 percent of the 2002 hospital discharges have a supplemental E code.** The E coded portion of the data used for this report was standardized for analysis based on recommendations from the Injury Surveillance Workgroup of the State and Territorial Injury Prevention Directors Association (STIPDA), yielding 20,598 records for analysis. **Refer to Appendix C for an outline of STIPDA's recommendations.**

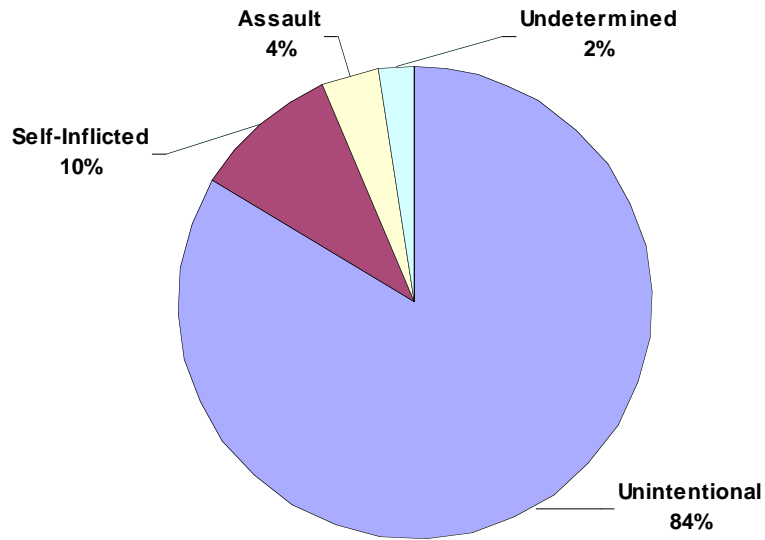
Limited E code documentation stems from a variety of reasons. In April 2004, the ISDH Injury Prevention Program developed a mini-survey as an attempt to identify barriers and potential incentives for improved E coding, which was distributed at the annual Indiana Health Information Management Association state conference. Based on 51 surveys completed, the primary barrier to poor documentation of E coding was that it is not a priority. Other barriers included insufficient resources or personnel, insufficient time, lack of training on the documentation of E codes, and poor documentation in the hospital record by physicians and health care professionals. **Because of insufficient E coding, all hospital discharge data analysis serves only as an estimate and does not reflect the true impact of injury-related hospitalizations in Indiana.**

Based on the analysis of hospital discharges for 2002, there were six admissions resulting from unintentional injury for every intentional injury admission in Indiana. Unintentional injuries resulted in more than 17,000 (17,211) hospitalizations during 2002, yielding an age-adjusted hospitalization rate of 279.5 per 100,000 population. **The leading mechanisms for unintentional injury hospitalizations were falls (9,516), poisoning (3,285), and motor vehicle traffic-related incidents (3,283).** Refer to Appendix B for more detailed statistics on injury hospital admissions in Indiana.

Nonfatal intentional injuries in Indiana comprised 14 percent of all injury hospitalizations, composed of self-inflicted injuries (10 percent) and assault-related injuries (4 percent). The most common methods for self-inflicted injuries were poisoning (93 percent) and being cut or pierced (3 percent). For assault-related injuries, being violently struck by or against an object (32 percent) surpassed firearm injuries (26 percent). Firearm injuries were the 2nd leading cause of hospitalization among persons aged 15 to 34 years and among persons aged 65 years and older. Injuries resulting from a person struck by or against an object was the 2nd leading cause for all ages and among persons aged 35 to 64 years.

Figures and Highlights

Figure 3-1. Injury-Related Hospitalizations by Intent, Indiana 2002
(Total Hospitalizations=20,598)



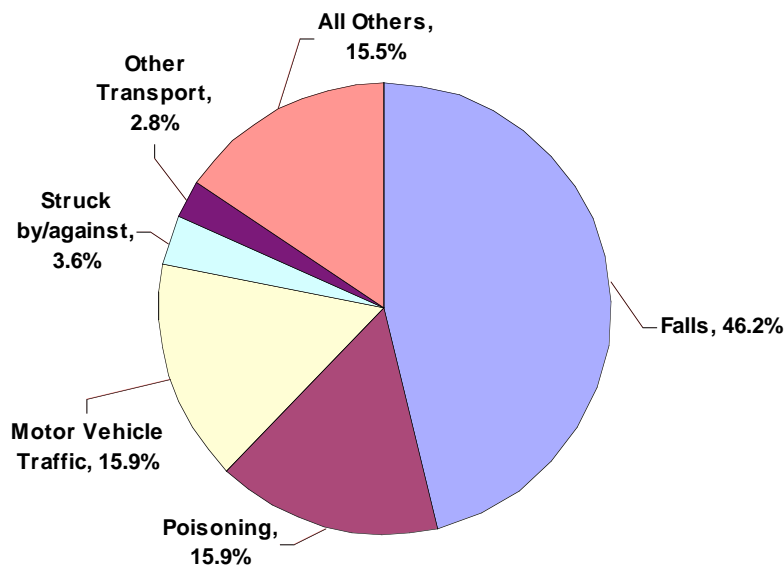
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data
Note: Does not include the category of "Other" where n=12.

Highlights:

- Among all injury-related hospitalizations, 84 percent of the admissions resulted from unintentional injuries, 10 percent related to self-inflicted injuries, and 4 percent were assault-related. Two percent were of an undetermined intent.

Figure 3-2. Leading Causes of Injury-Related Hospitalizations, Indiana 2002

(Total Hospitalizations=20,598)



Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- Of the five leading causes of injury, 46 percent (9,516) were due to falls, 16 percent (3,285) were due to poisoning, and 16 percent (3,283) were due to motor vehicle traffic-related incidents.
- Seventy-three percent of the motor vehicle traffic-related hospitalizations involved motor vehicle occupants. However, the categories of other transport (568), which includes all-terrain vehicles and snowmobiles, motorcyclists (398), pedestrians (243), and pedalcyclists (73) are also of concern.
- Poisoning hospitalizations involve self-inflicted injuries (suicide attempts) for 1,906 persons, and were unintentional for 965 people.
- Within the assault category, physical assault (struck by/against) involved 267 hospitalizations, 213 hospitalizations involved firearms, and cutting/piercing injuries were involved in 141 hospitalizations.
- Other transport-related injuries accounted for 568 hospital admissions (3 percent of all unintentional hospitalizations). This category includes injuries involving non-traffic motor driven snow mobiles, non-traffic accidents with collision of a moving or stationary object, and railway incidents of an employee or passenger.

Table 3-1. Leading Causes of Hospitalizations by Intent, Indiana 2002.

Unintentional		Self-Inflicted		Assault		Undetermined	
Cause	No.	Cause	No.	Cause	No.	Cause	No.
Falls	9,501	Poisoning	1,906	Struck by/against	267	Poisoning	413
MV Traffic	3,276	Cut/Pierce	59	Firearm	213	Firearm	49
Poisoning	965	Firearm	52	Cut/Pierce	141	Unspecified	13
Other Transport	568	Suffocation	11	Other Specified, Classifiable	68	Other Specified, Not Elsewhere Classified	7
Fire/Burn	485	Fire/Burn	7	Unspecified	68	Falls	6
All Others	2,416	All Others	18	All Others	65	All Others	12

Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

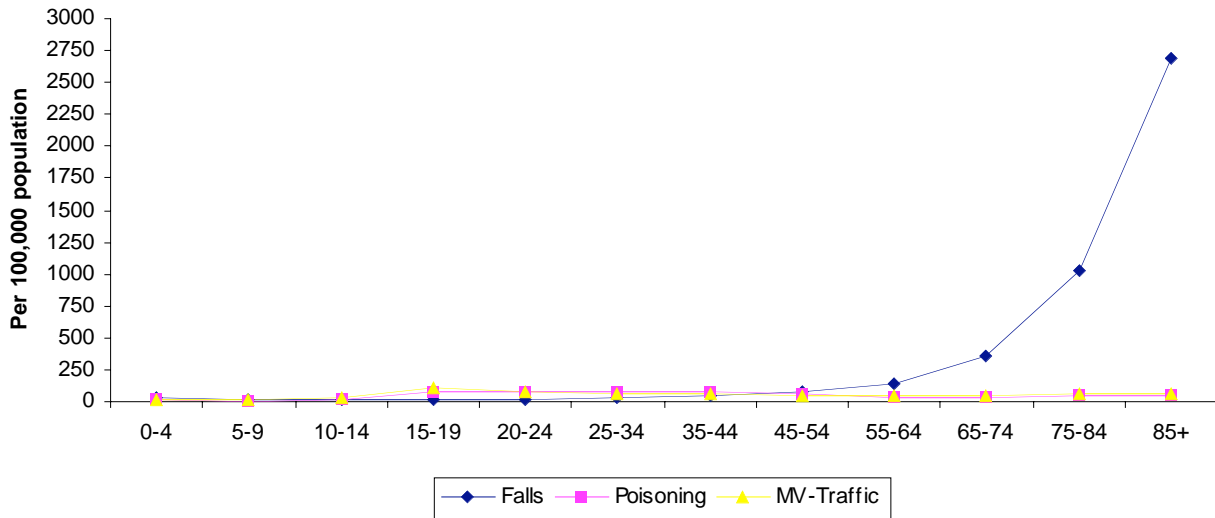
Note: Does not include the category of "Other" where n=12.

Highlights:

- Falls were the leading cause of unintentional injury hospitalizations, comprising 55 percent of unintentional hospital admissions (n=17,211).
- Thirty-two percent resulted from a fall on the same level from slipping, tripping, or stumbling. However, 41 percent of the unintentional falls were classified as "other and unspecified". This category includes falling and striking a sharp object and falling while striking against another object.
- Poisoning was the leading cause of self-inflicted injury hospitalizations, accounting for 93 percent of this category of hospital admissions. Among these, 40 percent resulted from the use of tranquilizers and other psychotropic agents. 27 percent resulted from the use of analgesics, antipyretics, and antirheumatics.
- Twenty-five percent of the **unintentional** poisoning-related hospitalizations resulted from the ingestion of analgesics, antipyretics, and antirheumatics and 13 percent from tranquilizers.
- Struck by or against is the leading cause of assault injury hospitalizations. Struck by or against injuries comprised 32.5 percent of all assault-related hospital discharges. Twenty-six percent of all assault hospitalizations resulted from the use of a firearm and 20 percent resulted from unarmed fights or brawls. Another 17.2 percent involved a cutting and piercing instrument.

Figure 3-3. Leading Causes of Injury Hospitalizations by Age, Indiana 2002

(Total Hospitalizations=20,598)



Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

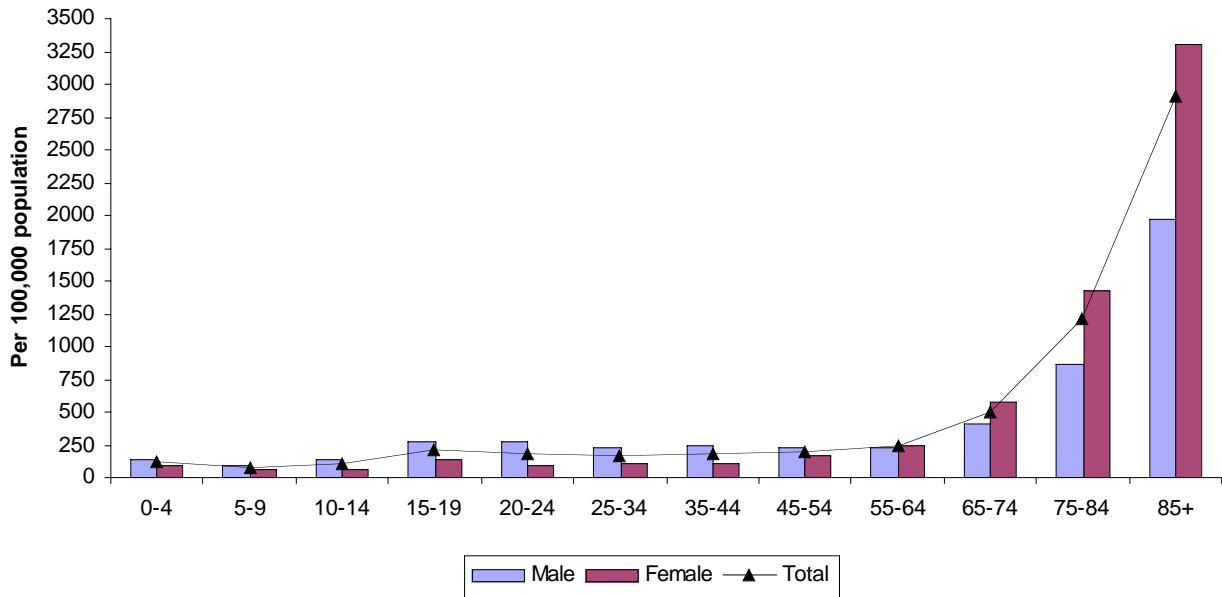
Note: Excludes one case with sex unknown.

Highlights:

- Falls are the leading cause of injury-related hospitalizations for persons age less than one to 9 years and over 45 years with significant increases among persons age 55 years and older. Almost one-half of falls in the elderly (46.5 percent) resulted in hip fractures.
- Motor vehicle traffic-related injuries peak among individuals ages 15 to 24 years.
- Poisoning-related injuries predominated in the 15 to 44 year age groups.

Figure 3-4. Unintentional Injury Hospitalization Rates by Sex and Age, Indiana 2002

(Total Unintentional Hospital Discharges=17,211)



Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

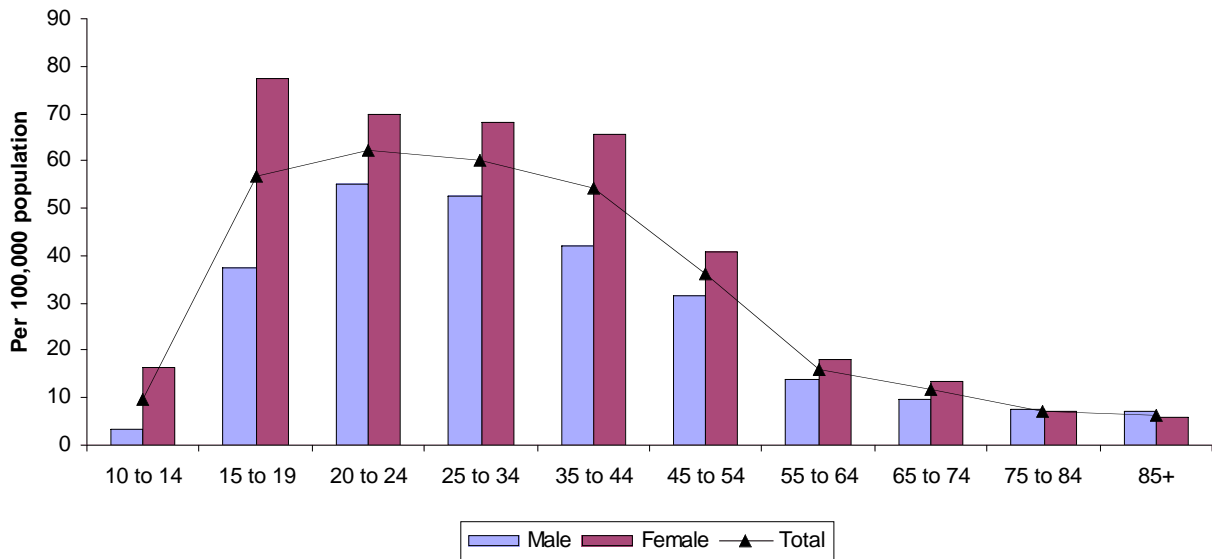
Note: Excludes two cases with sex unknown.

Highlights:

- Unintentional injury rates are higher in males through the 45 to 54 year age group. Injury rates are higher among females age 55 years and older with the highest age-specific rate of 3300.8 per 100,000 population among those 85 years and older.
- Among males, rates are highest among those ages 65 years and older. Males age 15 to 19 and 20 to 24 years follow with rates of 271.6 and 267.5 per 100,000 population, respectively.

Figure 3-5. Self-Inflicted Injury Hospitalization Rates by Sex and Age, Indiana 2002

(Total Self-Inflicted Hospital Discharges=2,053)



Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data
 Note: Excludes one case with age unknown.

Highlights:

- In Indiana, the age-adjusted self-inflicted injury rate is 33.4 per 100,000 population.

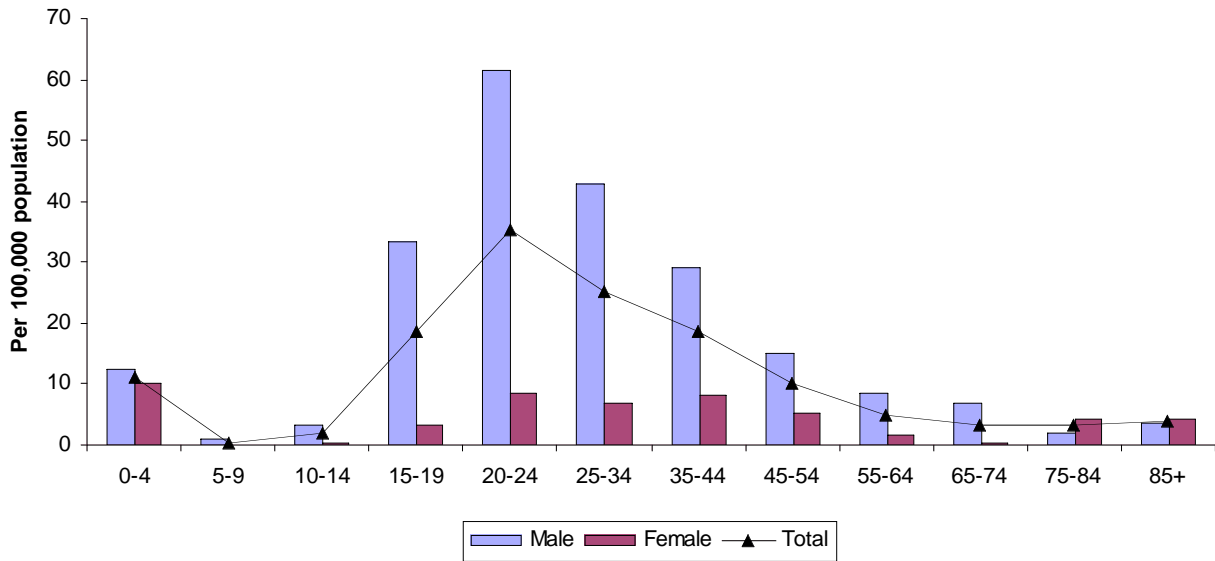
The overall injury rate among females (39.8 per 100,000 population) is 1.5 times the rate of males (27.1 per 100,000 population). Female rates are higher than male rates for every age group, up to 75 years and older.

Rates peak among persons aged 15-44 years for both males and females.

The mechanisms most frequently occurring for self-inflicted injuries primarily involves overdoses of medications such as tranquilizers and other psychotropic agents (37.5 percent) or analgesics, antipyretics and antirheumatics (25.5 percent).

Figure 3-6. Assault-Related Injury Rates by Sex and Age, Indiana 2002

(Total Assault-Related Hospital Discharges=822)



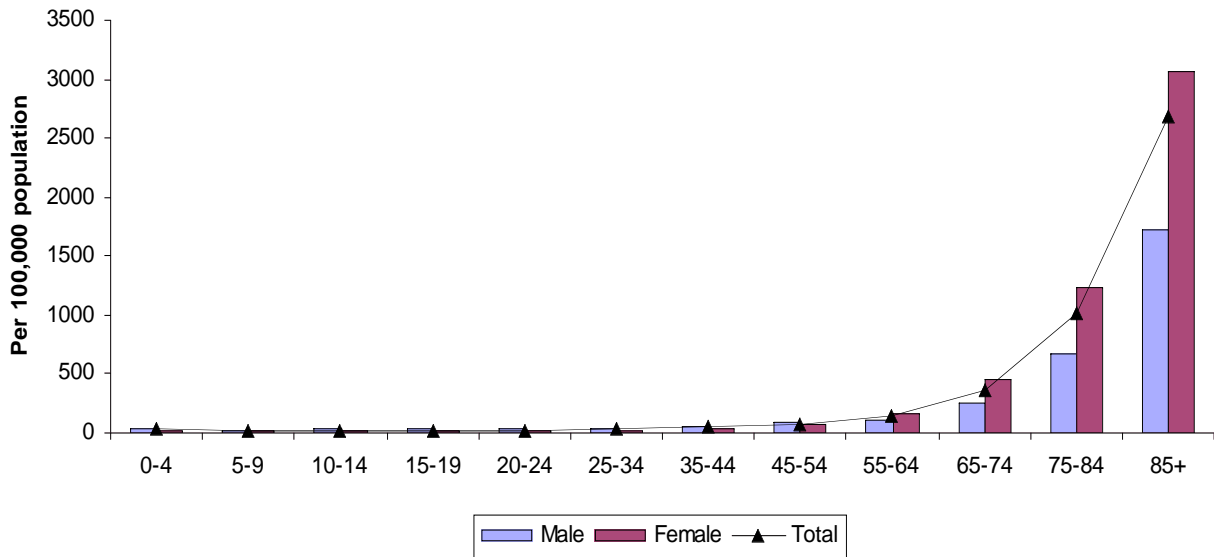
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- Injuries secondary to assault demonstrated a 4:1 male to female ratio.
- Among males, rates were particularly elevated among those aged 20 to 24 years. Among females, age specific rates were unstable due to small numbers for every age grouping, except among persons aged 0 to 4 years and 25 to 54 years. Among these, the highest rate was 10.0 per 100,000 population in the 0 to 4 year age group.
- For all assault-related hospitalizations, 26 percent involved the use of a firearm (i.e., handgun, shotgun, hunting rifle), 20.2 percent resulted from an unarmed fight or brawl and 17.2 percent resulted from involvement with a cutting or piercing instrument

Figure 3-7. Unintentional Fall-Related Hospitalization Rates by Sex and Age, Indiana 2002

(Total Unintentional Fall-Related Hospital Discharges=9,501)



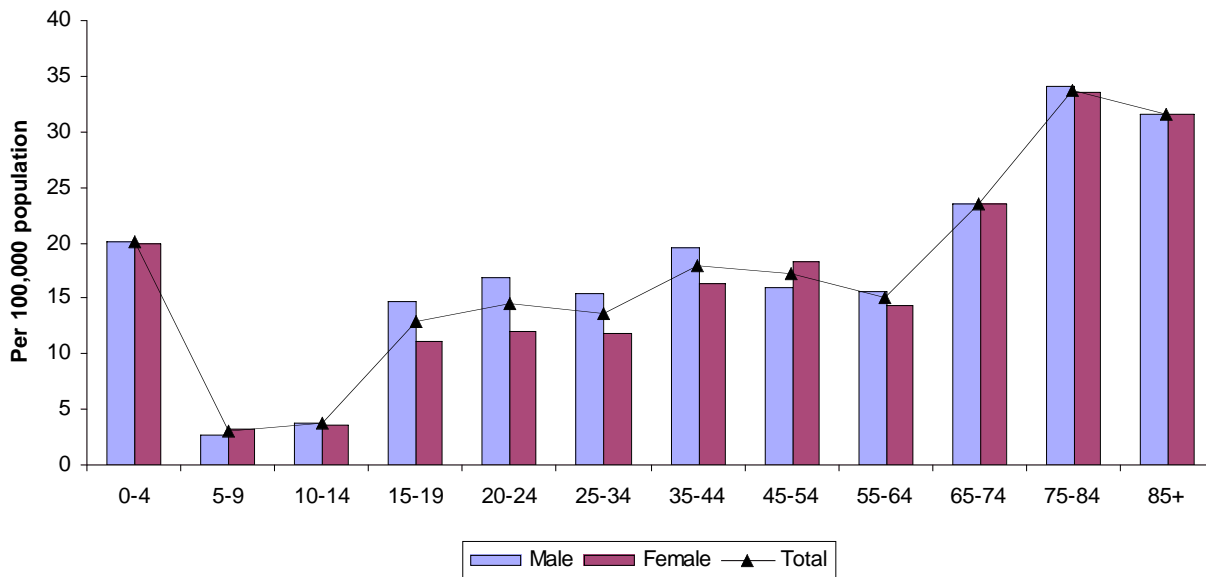
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- Fall-related injuries resulted in a rate of 154.3 injury hospital discharges per 100,000 population. Overall females (171.4 per 100,000 population) have a higher rate than males (121.2 per 100,000 population). Almost one-half of falls in injured elderly females resulted in hip fractures.
- For both males and females, rates began to show significant increases beginning at age 65 years. This shift in rates results in a peak among persons age 85 years and older. Injury rates for males and females in this age group are 1723.7 and 3073.1 per 100,000 population, respectively.
- Thirty-two percent of the injuries resulted from a fall on the same level from slipping, tripping, or stumbling, 12 percent were from falling from one level to another, such as from playground equipment, a chair, furniture, and wheelchair. Falling from stairs or steps comprised 8 percent of the fall injuries.

Figure 3-8. Unintentional Poisoning-Related Hospitalization Rates by Sex and Age, Indiana 2002

(Total Unintentional Poisoning-Related Hospital Discharges= 965)



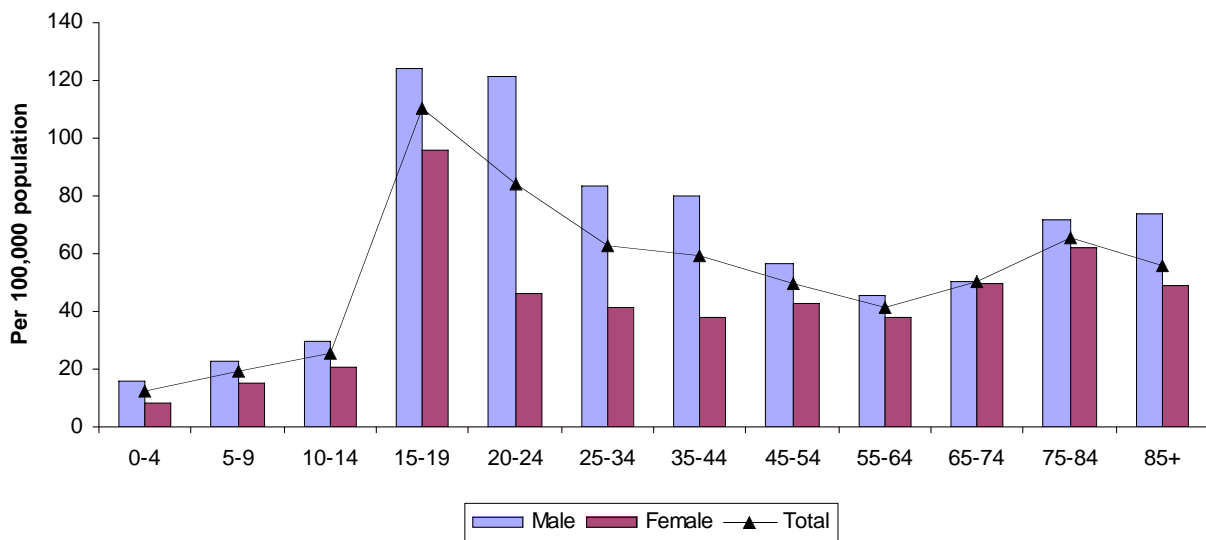
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- Unintentional poison-related incidents resulted in an injury hospitalization rate of 15.7 per 100,000 population, with little variability rate among male and female age grouping.
- For both sexes, rates peak among those ages 65 years and older. Notable is a peak during childhood years involving children ages 0 to 4 years.
- One fourth of the unintentional poisoning-related hospitalizations resulted from the ingestion of analgesics, such as acetaminophen, antipyretics, and antirheumatics. Examples of drugs in this category include opiates and narcotics, and salicylates, aromatic analgesics, and antiphlogistics such as indomethacin.
- Eight percent resulted from accidental poisoning by tranquilizers, including phenothiazines, butyrophenones, and benzodiazepines.

Figure 3-9. Motor Vehicle Traffic-Related Hospitalization Rates by Sex and Age, Indiana 2002

(Total Unintentional Motor Vehicle Traffic-Related Hospital Discharges=3,276)



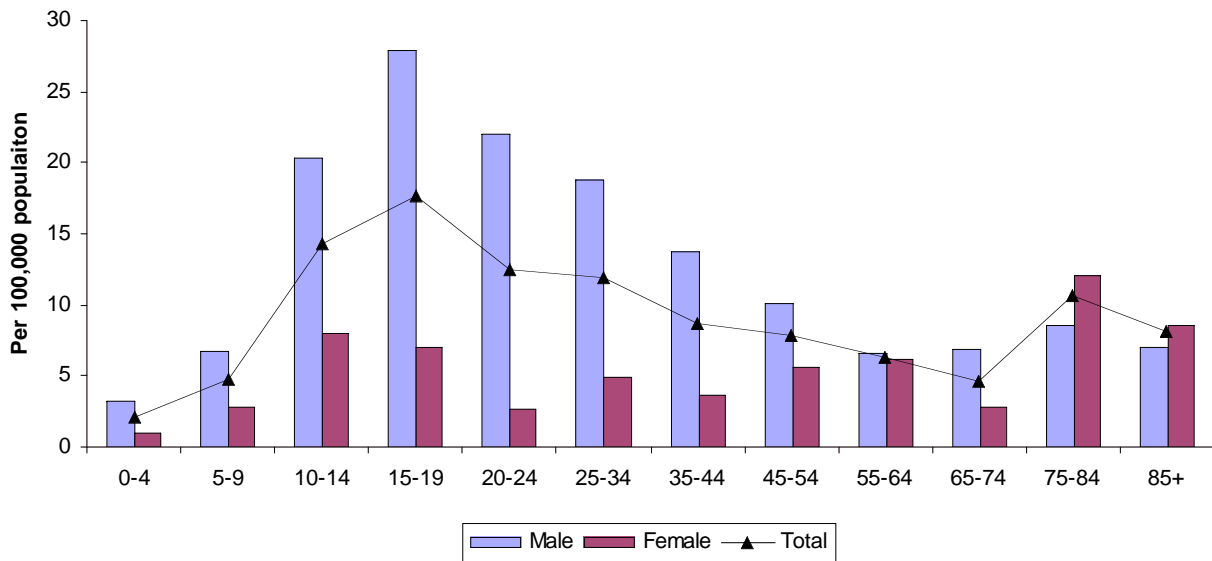
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- The age-adjusted hospitalization injury rate for motor vehicle traffic-related causes was 53.2 per 100,000 population.
- Males had an overall higher rate (65.6 per 100,000 population) than females (40.8 per 100,000 population) and showed higher rates than females in every age grouping.
- The rate of injuries were highest among males aged 15 to 19 years and 20 to 24 years with rates of 123.8 and 121.4, respectively. Rates among males ages 20 to 24 years were 2.6 times higher than female rates in this age group.
- For females, rates were highest among those aged 15 to 19 years at 95.8 per 100,000 population.
- Forty-one percent involved a collision of a motor vehicle with another vehicle parked, stopped, stalled, disabled, or abandoned on the highway. Nineteen percent involved motor vehicle traffic incident due to loss of control and without collision on the highway. Loss of control in this category includes but is not inclusive to a blow out, a burst tire, a driver falling asleep, a driver inattention, excessive speed, and failure of mechanical part.

Figure 3-10. Unintentional Other Transport-Related Hospitalization Rates by Sex and Age, Indiana 2002

(Total Unintentional Other Transport-Related Hospital Discharges=568)



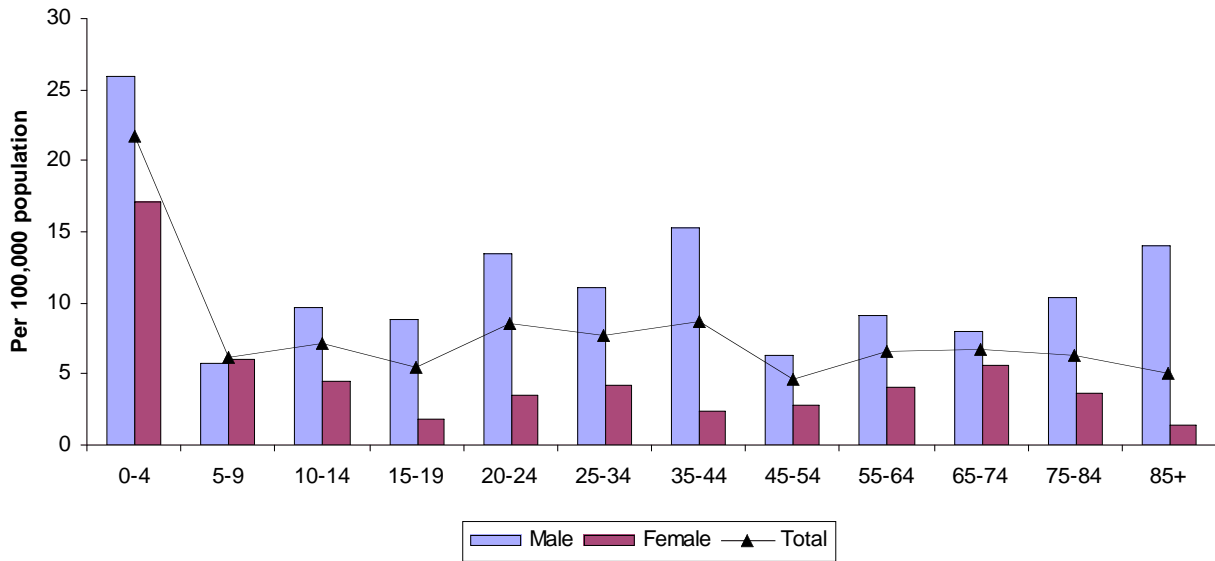
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- Other transport injury is defined as an injury to a person who is not a pedestrian or bicyclist and involves a railway, off-road vehicle, other motor vehicle not in traffic, other surface transport, watercraft (excluding submersion or near drowning involving boats), and aircraft.
- There were a total of 568 unintentional other transport-related injuries, resulting in an age-adjusted hospitalization rate of 9.2 per 100,000 population.
- Males were injured 2.7 times more frequently than females, with higher rates in the 10 to 34 year age groups.
- Forty-one percent of the injuries involved a non-traffic incident with another “off-road” vehicle, injuring the driver or passenger of a motorcycle, and the driver or passenger of a motor vehicle other than a motorcycle.
- An off road vehicle is a motor vehicle of special design, to enable it to negotiate rough or soft terrain or snow. Examples include all terrain vehicles (ATVs) and snowmobiles.

Figure 3-11. Unintentional Fire and Burn-Related Hospitalization Rates by Sex and Age, Indiana 2002

(Total Unintentional Fire/Burn-Related Hospital Discharges=485)



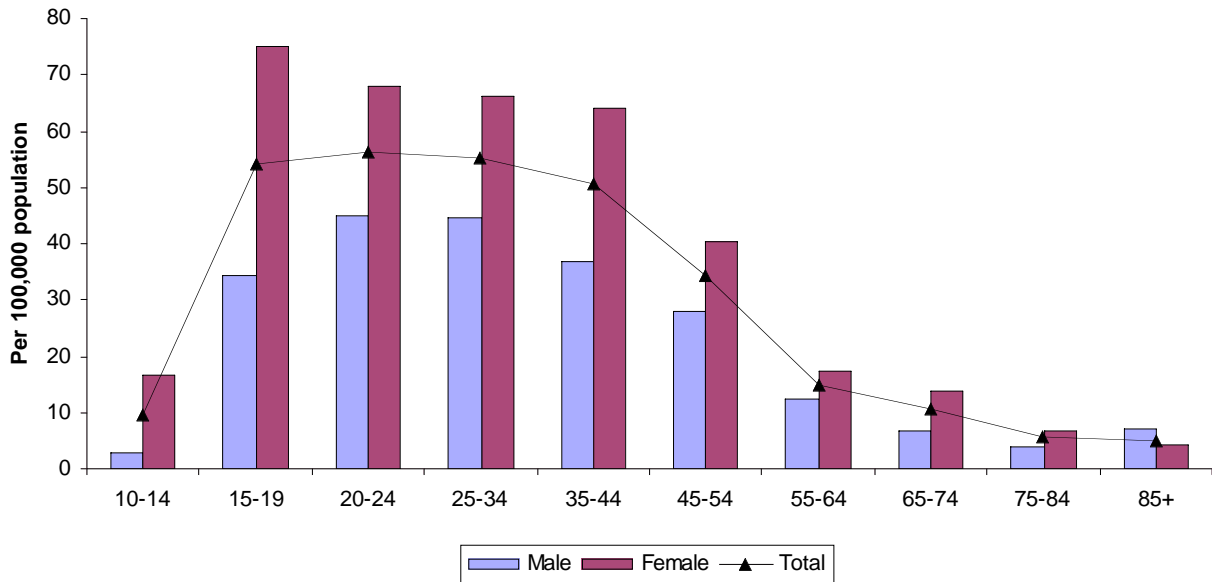
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- The age-adjusted hospitalization injury rate for fire/burn-related causes was 7.9 per 100,000 population.
- Males were 2.5 times more likely to be injured than were females.
- Injury rates peaked among children ages 0 to 4 years for both males and females.
- The majority of the incidents (55.7 percent) involved injuries caused by hot substances or objects, caustic or corrosive materials, and steam. Seventeen percent of the injuries involved the ignition of highly flammable material, such as benzene, gasoline and kerosene.

Figure 3-12. Suicide by Poisoning Hospitalization Rates by Sex and Age, Indiana 2002

(Total Self-Inflicted Poisoning-Related Hospital Discharges=1,906)



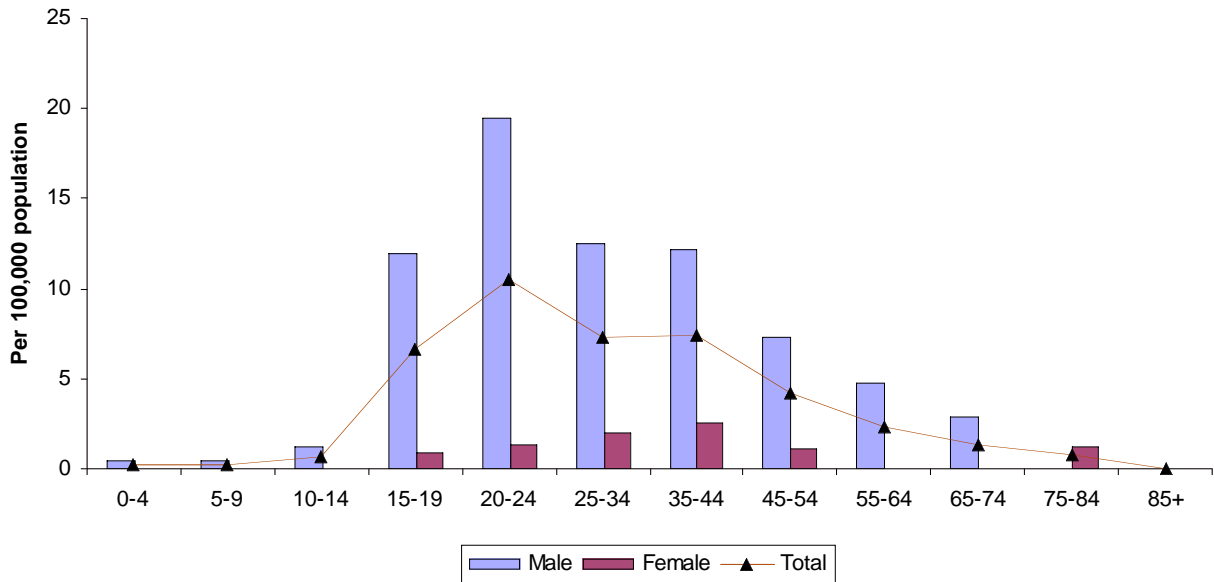
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- Females were 1.7 times more likely to attempt suicide than males.
- Rates were higher among females aged 15 to 44 years, 74.9 for the 15 to 19 year age group, 67.9 for the 20-24 year age group, 66.3 for the 25 to 34 year age group, and 64.1 for the 35 to 44 year age group.
- Forty percent of suicide attempts resulted from the use of tranquilizers and other psychotropic agents. Twenty-seven percent resulted from the use of analgesics, antipyretics, and antirheumatics.

Figure 3-13. Assault, Struck by/Against Hospitalization Rates by Sex and Age, Indiana 2002

(Total Assault, Struck by/against-Related Hospital Discharges=267)



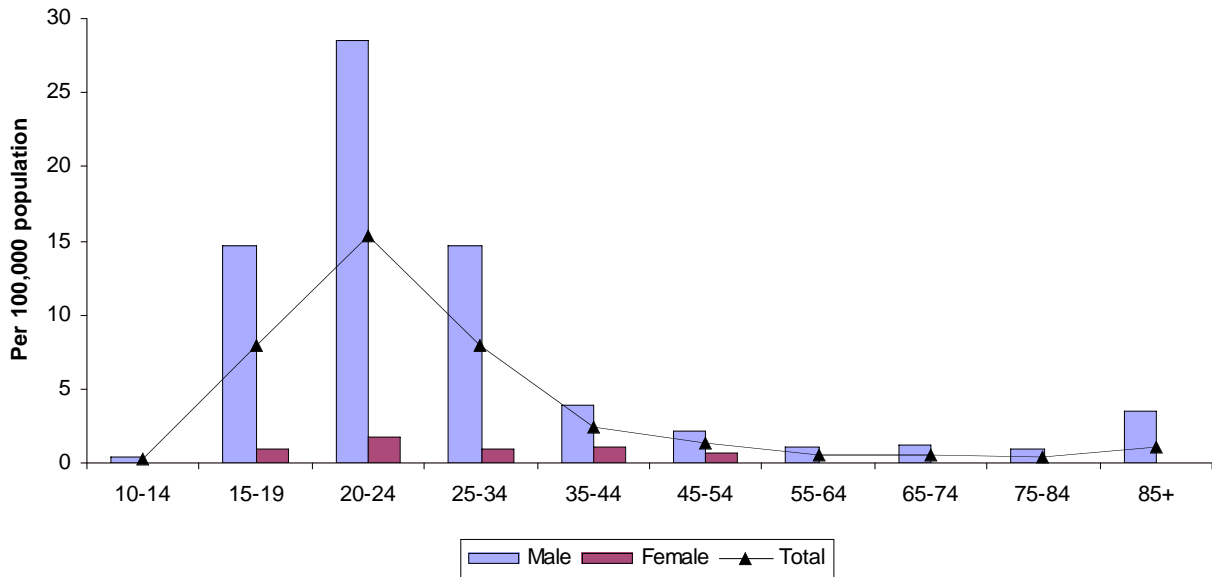
Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

Highlights:

- The overall injury hospitalization rate for assault, struck by/against-related injuries was 4.3 per 100,000 population.
- Male injury rates were 7 times higher than female injury rates. Rates among males peaked in the 20 to 24 year age group and were fairly stable among the 15 to 19 and the 25 to 44 year age groups.
- For females, rates stratified by age are not significant due to small numbers.
- Injured persons involved in an unarmed fight or brawl accounted for 62 percent of this category of injury. Thirty-eight percent were due to the injured person being assaulted by striking a blunt or thrown object.

Figure 3-14. Assault, Firearm Hospitalization Rates by Sex and Age, Indiana 2002

(Total Assault, Firearm-Related Hospital Discharges=213)



Highlights:

- Males accounted for 92 percent of all assault by firearm injuries.
- Among males, rates were significant only for the 15 to 34 year age groups. Among these the highest rate was for persons aged 20 to 24 years (28.5 per 100,000 population).
- Although 51 percent of the assaults were by an unspecified firearm, 46 percent involved the use of a handgun, with an additional 3 percent involving a shot gun or hunting rifle.

Section IV

Other Selected Injury Topics

Fireworks-Related Injuries

Fireworks-related injury cases, reported in 2003 and 2004, comprised in this report totaled 494, of which 65 percent (319) occurred during the weekend of July 4th, including 48 percent (239) of injuries that took place on Independence Day. While those injured ranged in age from 6 weeks to 74 years, children and adolescents composed 53 percent of the reported cases. According to the 2003 U.S. Census population estimates for Indiana, persons under aged 18 years represent 26 percent of the population. Adults were present 57 percent of the time for injuries reported in children and adolescents less than aged 18 years. Males were involved in 74 percent of all cases reported, which is a common finding for many traumatic injuries. The racial distribution of those injured was similar to that of the population in Indiana.

As expected, burns were the most frequent type of injury, involving 71 percent (353) of all reported cases and 56 percent of all injuries. While the hands were the part of the body most commonly injured (one-third of all injuries), injuries to the eye (21 percent) were also frequent, with the great majority (81 percent) of those with eye injuries reporting no method of eye protection in use. Bystanders were injured in 15 percent (75) of reported cases. Hospital admission was needed for 4.5 percent of those injured, and an additional 9.3 percent requiring specialized care for either burn injuries or eye injuries. There were no deaths reported to the ISDH related to fireworks injuries during the time period of this report.

When the location of the activity using fireworks was identified, 76 percent (377) of cases reported occurred at private home, yard, or property (self-owned or friend, neighbor or relative). The type of fireworks involved in injuries varied somewhat by age, with sparklers causing the most injuries in young children, rockets and firecrackers involved in adolescents, and a fairly equal distribution of these three types of fireworks affecting injured adults.

Mishandling, malfunction, or errant path of fireworks was the most frequent mechanism reported for fireworks-associated injury, accounting for 62 percent (304) of all those injured. Although whether alcohol was used was not stated in 87 percent of the reported cases, alcohol use occurred at the scene of activities affecting injured persons of all age groups. Alcohol use was reported by 26 percent of all adults injured.

Among the 89 percent (440) who reported the location of the activity that resulted in injuries, 61 percent (269) occurred at the injured person's private home, yard, or property. A friend/neighbor/relatives home or property was involved for 25 percent (108); public or school property was noted for 10 percent (42).

Although most reports did not provide information on alcohol consumption, 13 percent (64) stated that alcohol was imbibed related to the injury and 45 of these noted alcohol use within three hours of the injury. Thirty-nine total cases reported alcohol use by other people at the scene.

Fifteen percent (75) of all people injured were bystanders. Among those injured who were less than aged 18 years, fifty-seven percent (n=246) of the injuries happened while in the presence of an adult.

CHILDREN: LESS THAN ONE THROUGH ELEVEN YEARS OF AGE

There were 145 (101 male and 44 female) injuries reported in children. The types of fireworks mainly resulting in injury included sparklers (57 cases), rockets (29 cases) and firecrackers (20 cases). Eighty-one percent (117) sustained burns in this age group.

The most frequently reported injured body part was the hands (48 cases). Injuries to other body parts included the leg (34 cases), eye (32 cases), face/ears/head (24 cases), arm (23 cases), and trunk (12 cases). None of those with eye injuries were using eye protection. The majority of these injuries (68 percent or 99) happened in the presence of an adult. Ten reports noted alcohol use at the scene at the time of the injury. Nineteen percent (28) of the injured children were bystanders. The majority (87 percent or 126) of those injured were evaluated in hospital emergency departments or provider offices and then released to home. Ten children were transferred or re-evaluated at more specialized healthcare sites (i.e., burn centers, eye centers) and three children were hospitalized for injuries sustained.

ADOLESCENTS: TWELVE THROUGH EIGHTEEN YEARS OF AGE

Among adolescents, there were 115 fireworks-related injuries, involving 92 males and 23 females. The most frequent type of fireworks involved among this age group were rockets (36 injuries), followed by firecrackers (27 injuries), sparklers (9 injuries). Pyrotechnics was reported as the cause of 4 injuries. Burns (66 percent) and the category of contusion/laceration/abrasion (22 percent) were the most frequent types of injuries reported.

The hand was the most frequently reported body part injured (49 cases). Injuries to other parts of the body included the eye (42 cases), face/ears/head (20 cases), arm (14 cases), leg (12 cases) and trunk (8 cases). Among those with eye injuries, none were wearing eye protection, although three people were wearing contact lenses at the time of the injury. One person required surgery to the eye as a result of the injury sustained. Six cases required hospitalization and eleven were transferred to or re-evaluated at more specialized healthcare sites (i.e., burn centers, eye centers).

Among those cases less than aged 18 years, 42 injuries occurred while in the presence of an adult. Fourteen of the injured were bystanders. Although the most frequently reported mechanism of injury involved mishandling of fireworks, 36 percent (41) reported the injury resulted from malfunctioning or errant paths of the fireworks.

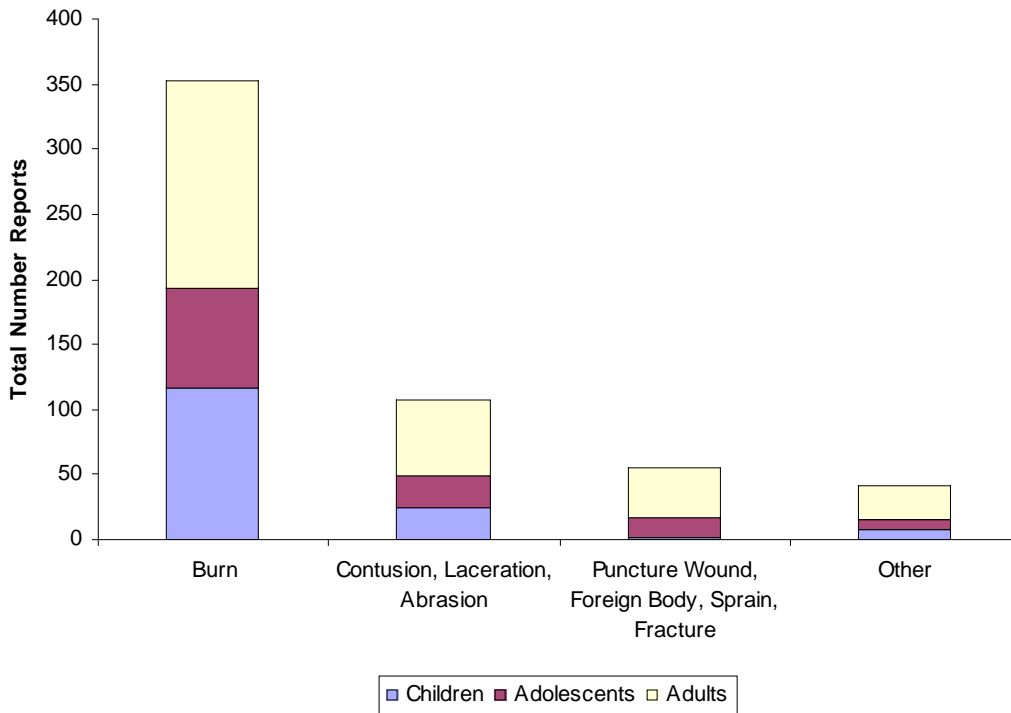
ADULTS: NINETEEN YEARS OF AGE AND OLDER

There were 234 people (47 percent of all cases) aged 19 years and older injured during this reporting period (174 males and 60 females). The types of fireworks primarily involved in the injuries were rockets (48 cases), sparklers (43 cases), and firecrackers (40 cases). Pyrotechnics was reported as the cause of 12 injuries. Sixty-eight percent (160) of the adults experienced burn injuries.

Hand injuries were reported 113 times. Injuries also included the eye (56 cases), face/ears/head (48 cases each), leg (34 cases) trunk (29 cases), and arm (24 cases). For those with eye injuries, only four wore eyeglasses or safety glasses. Thirteen cases were admitted to hospitals. Twenty-five cases were transferred to or re-evaluated at more specialized healthcare sites (i.e., burn centers, eye centers).

The use of alcohol was reported by 26 percent (61) of injured adults and 43 imbibed alcohol within three hours of the injury. Fourteen percent (33) of the injured cases were bystanders. Forty-six percent (107) of the cases reported an injury resulting from malfunctioning fireworks or an errant path of rockets, while 48 noted that mishandling of fireworks resulting in the injury.

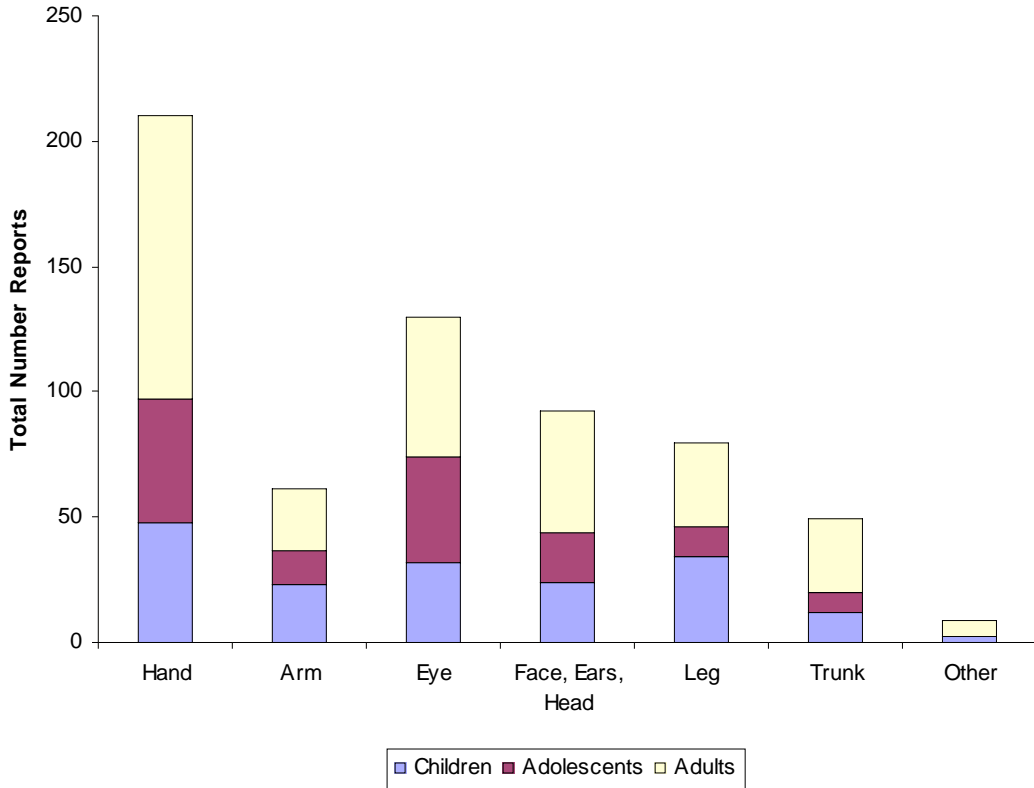
Figure 4-1. Type of Injury Involved in Fireworks, Indiana 2003-2004



Source: ISDH, Injury Prevention Program

Seventy-one percent (353) of the cases experienced injury from burns. Although there was variability in the severity of the burns, the majority sustained either a 1st or 2nd degree burn. Twenty-two percent (76) reported only a 1st degree burn, 49 percent (173) reported a 2nd degree burn, and 18 percent (62) reported a combination of both. Twelve people reported 3rd degree burns. Other types of injuries included contusions/lacerations/abrasions (108 cases), penetrating foreign body/missiles (32 cases), puncture wounds (16 cases) and sprains/fractures (7 cases). Fifty-four (340) percent of all injuries involved the hands or eyes, although injuries to many parts of the body were reported

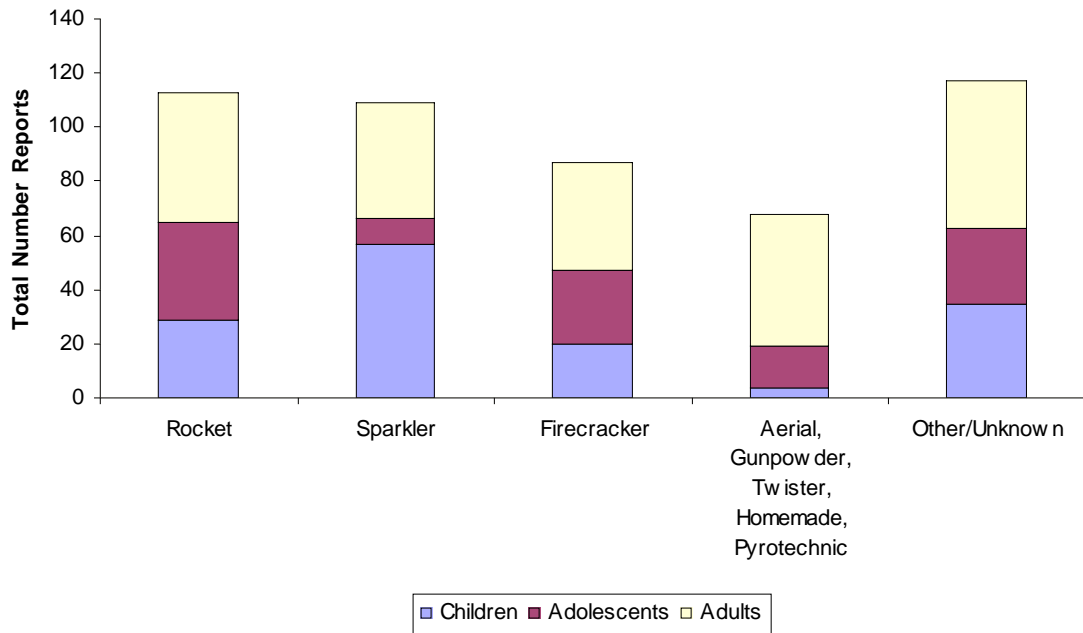
Figure 4-2. Body Parts Involved in Fireworks-Related Injuries, Indiana 2003-2004



Source: ISDH, Injury Prevention Program

Sparklers, rockets, and firecrackers accounted for 63 percent of the injuries (Table 1). Many other types of fireworks causing injury were reported, including a quarter stick of dynamite, smoke bombs, spinners, small poppers, roman candles, and fountains. Although one-fourth (123) of the reports noted that the injury resulted from mishandling fireworks, 37 percent (181) reported that the injury resulted from fireworks malfunction or an errant path of a rocket.

Figure 4-3. Type of Firework Involved in Injury, Indiana 2003-2004



Source: ISDH, Injury Prevention Program

Table 4-1. Type of Fireworks Involved in Injury, All Injuries.

Type of Fireworks / Pyrotechnics	Frequency	Percent
Rockets (i.e., bottle rockets)	113	22.9%
Sparkler	109	22.1%
Firecrackers	87	17.6%
Aerial Devices	34	6.9%
Pyrotechnics*	16	3.2%
Twister / "Jumping Jacks"	11	2.2%
Homemade, altered devices	5	1.0%
Lightning Gunpowder	2	0.4%
Unspecified / Unknown / Other	117	23.7%
Total	494	100%

*Reported to the State Fire Marshal's office for further investigation.

Table 4-2. Frequency of Body Part Injured, All Injuries.

Body Part Involved**	Frequency**	Percent of Injured Persons**	Percent of All Injuries**
Hand	210	42.5%	33.3%
Eye	130	26.3%	20.6%
Face/Ears/Head	92	18.6%	14.6%
Leg	80	16.2%	12.7%
Arm	61	12.3%	9.7%
Trunk	49	9.9%	7.8%
Other	9	1.8%	1.4%
Total	631	127.7%	100.0%

**Not mutually exclusive, some cases received injuries to multiple body parts.

Table 4-3. Fireworks-Related Injuries by Selected Categories, 2003-2004

Category	2003	2004
Demographics	n=261	n=233
Median Age/Range	18 (0-74 yrs)	18 (0-72yrs)
Children/Adolescents	53%	52%
Males	73%	76%
Females	27%	24%
White	84%	87%
Black or African-American	10%	8%
Injury Type/Body Part Injured		
Burns	76%	67%
Hand Injuries	34%	32%
Eye Injuries	17%	25%
Injury Circumstances		
Injured on Private Property	83%	89%
Cases with Eye Injury and No Eye Protection	82%	88%
Children Injured with Adults Present	64%	50%
Received Specialized Care for Burn or Eye	8%	19%
Injuries		
Hospitalized	3%	6%
Fireworks Circumstances		
Injuries from Sparklers, Rocket, and Firecrackers	62%	64%
Injuries from Mishandling Firework	27%	23%
Errant Path or Malfunctioning Firework	36%	37%

Source: ISDH, Injury Prevention Program

Lawn Mower Injuries among Children

Children receive injuries from lawnmowers in a variety of ways, but the most severe injuries occur from contact with the rotating blades of the lawn mower. These injuries, like most unintentional injuries, can be avoided and prevented.

Based on NEISS data, there were 112 U.S. children between the ages of 2 and 16 years who were treated in hospital emergency rooms from January 1, 2000 to December 31, 2002 for injuries sustained by riding power lawn mowers. Among these, 20 percent were either admitted for hospitalization or treated and transferred, presumably to another hospital. One child sustained injuries that resulted in death.

NEISS case-specific data providing demographic information and surrounding circumstances is available only for year 2002. However, for previous years (2000-2001), there were 80 children between the ages of 2 and 16 years who presented in a hospital emergency department for riding mower injuries. Among these, 19 percent (15) were hospitalized or transferred. In 2001, 62 percent (8/13) of the children admitted for hospitalization were between the ages of 2 and 7 years. Four had injuries serious enough to require amputation and two were admitted for deep lacerations.

In our analysis of the U.S. case-specific data for 2002, 32 children were evaluated in a hospital emergency department for riding mower injuries. Among these 24 were treated and released, 7 were admitted for hospitalization or treated and transferred, and 1 died while in the ED, thus 25% received injuries resulting in hospitalization or death. It should be noted that among the 7 hospitalized or transferred, six were aged 3 to 5 years (86%). The majority of these preschooler injuries involved deep cutting traumatic injuries of the feet and toes, 5 of which required some degree of amputation. The patient who died was an 11-year-old who sustained a fracture in the neck from running into a branch while operating the riding mower.

Among those treated and released (n=24) in 2002, males dominated by a 2 to 1 ratio. The ages ranged from 5 to 15 years, with one-fourth under aged 6 years. Forty-one percent (10) of the injuries resulted in lacerations. Other injuries included contusions and abrasions (8), fractures (2) and other unspecified injuries (4). The majority of the injuries were to the legs, feet, or toes. Other injuries were to the hand or fingers (5), head or face (5), trunk or shoulder (3), and total body (1). Common circumstances resulting in injury included 7 children (29%) operating the riding mower, which then flipped over or ran over a body part (age range from 8 to 15 years) and

another 7 cases where a parent or relative was operating the riding mower with a child aboard, where the child fell off and sustained an injury, usually through contact with the mower blades (age range from 3 to 9 years). Two cases involved a mower collision with another object or vehicle containing a child, who then received injury from contact with the mower. Other cases include cuts to the finger from touching the mower blade in the store, a 3 year-old who burned her hand by touching the hot exhaust after mowing was completed, and 5 injuries which did not involve mower blade contact.

Hospitalizations, Indiana hospital discharge database, 2002

In Indiana, there were 13 people admitted for hospitalization due to riding lawn mower-related injuries, based on a query for injury hospitalizations resulting from power lawn mowers. Hospitalizations were more frequent among males (77 percent) and ages ranged from 4 to 55 years. Four cases (or 30 percent) involved children and adolescents age 4 to 15 years. Injuries included amputation of the toe, fracture, and open wound of the chest wall, and open wound of the foot.

Conclusion

Power mower-related injuries frequently occur among children and are more common among males. Parent surveys completed in the early 1980's revealed that one-third of parents allowed their child in the yard while the lawn mower was in use – in suburban and rural areas this figure was 46%. Childhood power mower injuries occur from young children falling or slipping into the mower blade while playing and running nearby, by riding mowers running over children who fall off while riding on them, by mowers placed into reverse and the operator is not aware a child is behind them, and by rocks or other objects thrown by the mower striking a child, especially in the eyes or the head. In this study of NEISS data, 6 out of 10 children injured resulted from circumstances where the school-age child or young adolescent was either operating the mower or the younger child was riding on the mower with a parent who was the operator.

In Indiana, 30 % of the cases involved children below 16 years of age, who represent only 20% of the population, thus youth are disproportionately affected by these maiming injuries resulting mainly from riding mowers. Of special concern, supported by the U.S. data presented here, are the 20% of children who required hospitalization due to the severity of their injuries, with the majority being between the ages of 2 and 7 years. Many of the injuries from mower blade contact require amputation of portions of the foot or toes. These injuries frequently require multiple surgical operations to repair the body parts affected, and an extensive rehabilitation program to regain body function. The aftermath from the severe cutting/amputation injuries often results in permanent disfigurement. The resulting injury, or

death following an injury, can be emotionally overwhelming, especially when the injuries relate to the mower being operated by a parent or relative of the victim. Prevention of such injuries should be included in all injury prevention efforts.

Occupational Injury and Illness

An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition.⁵⁴ Work-related incidents fall in two categories: traumatic injury and occupational disease. A traumatic injury is a wound or damage to the body resulting from an event in the work environment during one work shift such as a cut, puncture wound, or laceration. Occupational disease is a wound or damage to the body if the condition happened because of events in more than one work shift, such as back strains or carpal tunnel syndrome.⁵⁵

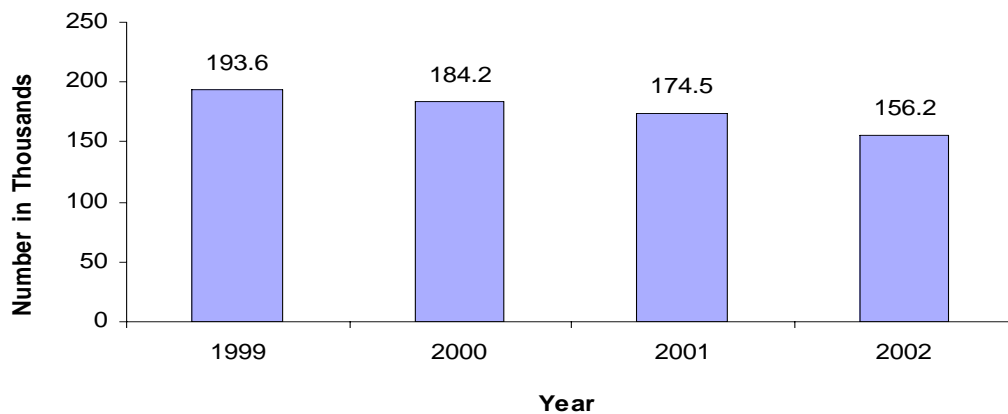
The Survey of Occupation Injuries and Illnesses is a Federal/State program in which nonfatal injury and illness reports are processed by state agencies in cooperation with the Bureau of Labor Statistics (BLS). The purpose of this survey is to measure nonfatal injuries and illnesses, excluding self employed farmers with fewer than 11 employees, private households, federal government agencies, and for national estimates, employees in state and local government agencies. The number of injuries and illnesses reported can be influenced by changes in the level of economic activity, working conditions and work practices, worker experience and training, and the average number of hours worked by employees.⁵⁶

Each year in the United States, many workers are injured or become ill during the course of their employment. According to the survey, a total of 4.7 million nonfatal injuries and illnesses were reported in private industry workplaces in 2002, resulting in a rate of 5.3 cases per 100 equivalent full-time workers. This is the lowest figure seen since the Bureau of Labor Statistics, U.S. Department of Labor began reporting this information in the early 70s, a decrease of 52 percent.⁵⁶

The research division of the Indiana Department of Labor collects data on occupational injuries and illness. According to the 2002 data, more than 156 thousand (or 6.8 per 100 equivalent full-time workers) nonfatal injuries and illnesses were reported in private industry workplaces during 2002. Men accounted for 90 percent of the occupational injuries and illness during 2002.

As shown in **Figure 4-4**, the numbers of nonfatal occupational injuries and illnesses in Indiana have declined since 1999; from 193.3 thousand to 156.2 thousand in 2002. These figures include all state and local government industries.

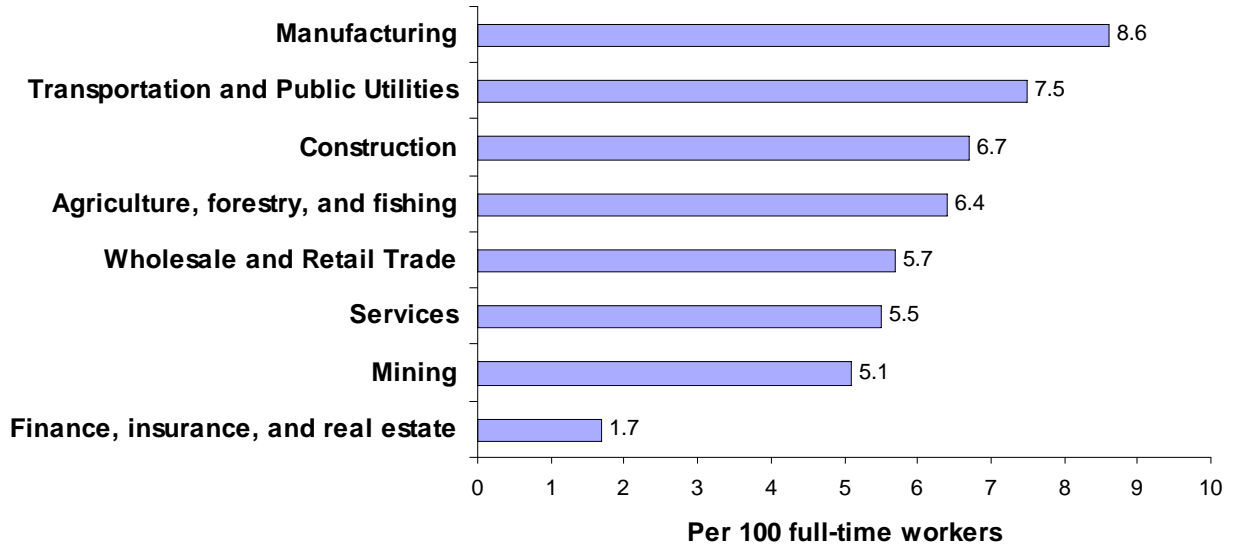
Figure 4-4. Number of Nonfatal Occupational Injuries and Illnesses, Indiana 1999-2002.



Source: Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses, in cooperation with participating State agencies.

In Indiana, more **nonfatal** injuries were seen in the manufacturing industries than any other category. See **Figure 4-5**. Nationally, among all cases, approximately 2.5 million people required recuperation away from work, a transfer to another job, restricted duties at work, or a combination of these.

Figure 4-5. Incidence Rates of Nonfatal Occupational Injuries and Illnesses by Selected Industry Type, Indiana 2002.

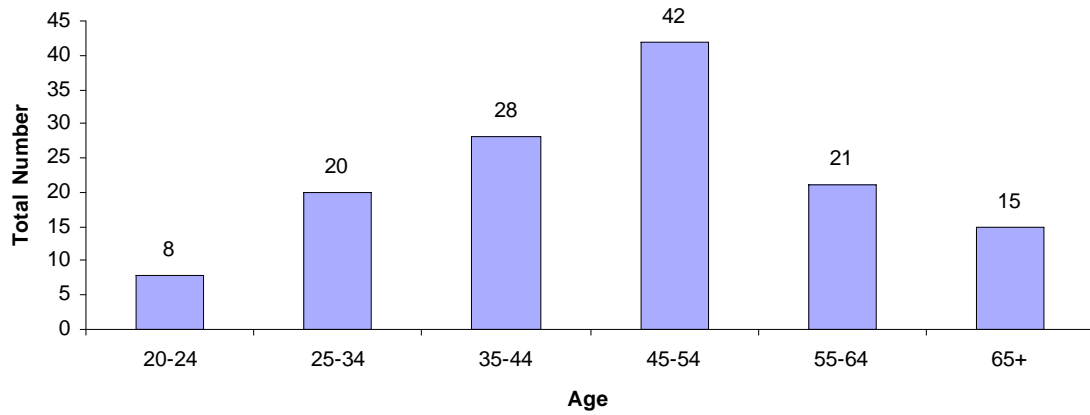


Source: Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses, in cooperation with participating State agencies.

As shown in **Figure 4-6**, the majority of the fatal occupational injuries in Indiana occurred among workers aged 45 to 54 years. (2002 data) **Figure 4-7** shows fatal occupational injuries by sex for years 1999-2002.

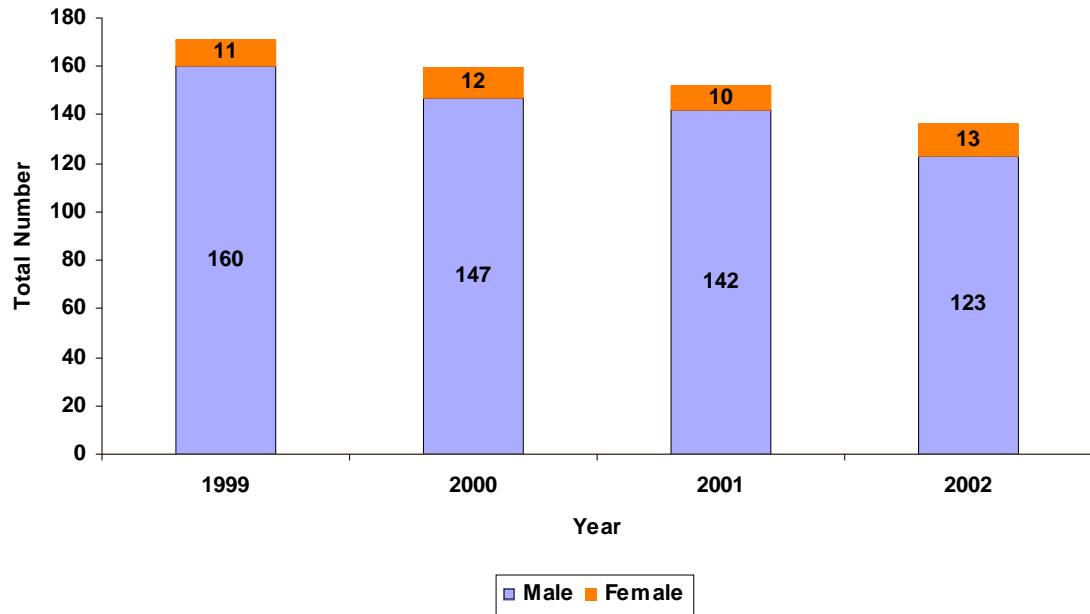
The manner in which the majority of work-related fatalities occur in the U.S. involve transportation incidents, with those occurring on the highway accounting for one-fourth of all transport fatalities. Injuries by means of coming into contact with objects or equipment, violence, and falls are also contributors to fatalities. Each of these categories accounts between 13 and 16 percent of all workplace fatalities. (2002 data) (US Dept Labor)

Figure 4-6. Number of Fatal Occupational Injuries and Illnesses by Age, Indiana 2002.



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

Figure 4-7. Number of Fatal Occupational Injuries, Indiana 1999-2002.



Source: U.S. Department of Labor, Bureau of Labor Statistics, Census of Fatal Occupational Injuries.

Glossary of Terms

The following list provides a general means to help with the interpretation of ICD-9 External Cause of injury codes. The definitions provided are not comprehensive.

Cut/Pierce- includes injury caused by cutting and piercing instruments, such as knives, power hand tools, and household appliances.

Drowning/Submersion- includes injury from drowning and submersion with and without involvement of watercraft. Examples include boats, rivers, pools, and bathtubs.

Falls- the unintentional falls category involves steps or stairs, ladders and scaffolds, and other falls from one level to another (including falls from a chair or bed. Falls by suicide are described as "jumping from high places" and homicide falls are described as "pushing from high places".

Fire/Burn- includes injury from fire and flames and from hot objects and substances. Examples include smoke inhalation, structural fires, clothing ignition, burns caused by hot liquids and steam, caustics and corrosives.

Firearms- although E codes permit differentiation among firearms such as handguns, shotguns, hunting rifles, a large percent of the type of firearm is not specified.

Machinery- includes injuries associated with machinery used in various industrial and occupational activities. Examples include

Motor Vehicle Traffic- includes injury resulting automobiles, vans, trucks, motorcycles, and other motorized cycles known or assumed to be traveling on public roads or highways.

Motor Vehicle Traffic (occupant) - injured person identified as a driver or passenger of an automobile.

Motor Vehicle Traffic (motorcyclist) - injured person identifies as a driver or passenger of a motorcycle.

Motor Vehicle Traffic (pedal cyclist) - injury resulting from a collision between a pedal cyclist and a motor vehicle in traffic.

Motor Vehicle Traffic (pedestrian) – injury resulting from a person being hit by a motor vehicle on a public road or highway.

Pedal Cyclist (other) - includes injury among pedal cyclists not involving motor-vehicle traffic incidents, such as those being hit by a train, a motor vehicle while not in traffic, by other means of transport, or by a collision with another pedal cycle.

Pedestrian (other) – involves pedestrians hit by a train, by a motor vehicle where the collision did not occur on a public road or highway or by other means of transportation.

Transport (other) - includes injury associated with various other means of transportation such as railway, off-road and other motor vehicles not in traffic, water, and aircraft.

Natural/Environmental- includes injury from environmental conditions such as being exposed to excessive heat or cold temperatures.

Poisoning- involves injury or death due to the ingestion of drugs, other medicinal substances and gases such as alcohol, disinfectants, cleansers, paints, insecticides, corrosives, and caustics.

Struck By/Against- includes injuries resulting from being struck by or striking against objects or persons. Unintentional injuries specify being struck accidentally by a falling object and striking against or being struck accidentally by objects or persons. Homicide/assault include being struck by a blunt or thrown object and injuries sustained in an unarmed fight or brawl.

Suffocation- represents injury caused by the inhalation or ingestion of food or other objects that block respiration and by other mechanical means that hinder breathing (e.g., plastic bag over nose or mouth, suffocation by bedding, and unintentional or intentional hanging or strangulation).

Appendices

Appendix A

Summary of Injury Deaths, 1999-2001

Table A-1. Summary of Injury Deaths by Mechanism and Cause, Indiana 1999-2001

Mechanism/Cause	Uninten- tional	Self- Inflicted	Assault	Undeter- mined	Total	*Rate	Percent
Cut/Pierce	10	8	52	0	70	0.4	0.7
Drowning/Submersion	214	18	2	12	246	1.4	2.4
Fall	786	11	1	6	804	4.5	7.9
Fire/Burn	283	14	18	6	321	1.8	3.2
Fire/Flame	276	14	18	6	314	1.7	3.1
Hot Object/ Substance	7	0	0	0	7	0.1†	0.1
Firearm	67	1,190	794	24	2,075	11.3	20.5
Machinery	59				59	0.4	0.6
Motor Vehicle Traffic	2,750				2,750	15.0	27.2
Motorcyclist	200				200	1.1	2.0
Occupant	1,263				1,263	6.9	12.5
Pedal Cyclist	33				33	0.2	0.3
Pedestrian	185				185	1.0	1.8
Other	6				6	0.1†	0.1
Unspecified	1,063				1,063	5.8	10.5
Pedal Cyclist, Other	7				7	0.1†	0.1
Pedestrian, Other	76				76	0.4	0.7
Transport, Other Land	228	10	11	4	253	1.4	2.5
Transport, Other	65				65	0.4	0.6
Natural/Environment	120				120	0.7	1.2
Overexertion	2				2	0.0†	0.0
Poisoning	442	339	6	174	961	5.3	9.5
Struck by/Against	59		37		96	0.6	0.9
Suffocation	524	380	57	24	985	5.4	9.7
Terrorism		0	1		1	0.0†	0.0
Other Specified, Classifiable	99	17	17	1	134	0.7	1.3
Other Specified, Not Elsewhere Classifiable	50	18	109	13	190	1.0	1.9
Unspecified	792	21	103	12	928	5.2	9.1
All Injury	6,633	2,026	1,208	276	10,143	55.7	100.0

Source: CDC, WISQARS

*Rates are age-adjusted per 100,000 population and rounded to the nearest decimal point.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-2. Summary of Injury Deaths among Males by Mechanism and Cause, Indiana 1999-2001

Mechanism/Cause	Unintentional	Self-Inflicted	Assault	Undetermined	Total	*Rate	Percent
Cut/Pierce	7	6	41	0	54	0.6	0.8
Drowning/Submersion	173	11	1	7	192	2.1	2.8
Fall	420	9	1	5	435	6.2	6.3
Fire/Burn	178	9	10	0	197	2.4	2.9
Fire/Flame	173	9	10	0	192	2.3	2.8
Hot Object/ Substance	5	0	0	0	5	0.1†	0.1
Firearm	56	1,040	647	22	1,765	20.0	25.6
Machinery	56				56	0.7	0.8
Motor Vehicle Traffic	1,823				1,823	20.7	26.5
Motorcyclist	172				172	1.9	2.5
Occupant	795				795	9.0	11.5
Pedal Cyclist	30				30	0.3	0.4
Pedestrian	127				127	1.5	1.8
Other	4				4	0.1†	0.1
Unspecified	695				695	8.0	10.1
Pedal Cyclist, Other	5				5	0.1†	0.1
Pedestrian, Other	57				57	0.6	0.8
Transport, Other Land	164	5	2	3	174	2.0	2.5
Transport, Other	53				53	0.6	0.8
Natural/Environment	67				67	0.9	1.0
Overexertion	1				1	0.0†	0.0
Poisoning	311	207	3	116	637	7.2	9.2
Struck by/Against	53		25		78	0.9	1.1
Suffocation	284	325	22	14	645	7.9	9.4
Terrorism		0	1		1	0.0†	0.0
Other Specified, Classifiable	76	14	11	0	101	1.2	1.5
Other Specified, Not Elsewhere Classifiable	31	14	71	10	126	1.5	1.8
Unspecified	330	16	70	6	422	6.1	6.1
All Injury	4,145	1,656	905	183	6,889	81.6	100.0

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-3. Summary of Injury Deaths among Females by Mechanism and Cause, Indiana 1999-2001

Mechanism/Cause	Uninten- tional	Self- Inflicted	Assault	Undeter- mined	Total	*Rate	Percent
Cut/Pierce	3	2	11	0	16	0.2†	0.5
Drowning/Submersion	41	7	1	5	54	0.6	1.7
Fall	366	2	0	1	369	3.2	11.3
Fire/Burn	105	5	8	6	124	1.3	3.8
Fire/Flame	103	5	8	6	122	1.3	3.7
Hot Object/ Substance	2	0	0	0	2	0.0†	0.1
Firearm	11	150	147	2	310	3.4	9.5
Machinery	3				3	0.0†	0.1
Motor Vehicle Traffic	927				927	9.7	28.5
Motorcyclist	28				28	0.3	0.9
Occupant	468				468	4.9	14.4
Pedal Cyclist	3				3	0.0†	0.1
Pedestrian	58				58	0.6	1.8
Other	2				2	0.0†	0.1
Unspecified	368				368	3.8	11.3
Pedal Cyclist, Other	2				2	0.0†	0.1
Pedestrian, Other	19				19	0.2†	0.6
Transport, Other Land	64	5	9	1	79	0.8	2.4
Transport, Other	12				12	0.1†	0.4
Natural/Environment	53				53	0.5	1.6
Overexertion	1				1	0.0†	0.0
Poisoning	131	132	3	58	324	3.5	10.0
Struck by/Against	6		12		18	0.2†	0.6
Suffocation	240	55	35	10	340	3.3	10.4
Terrorism		0	0		0	0.0†	0.0
Other Specified, Classifiable	23	3	6	1	33	0.3	1.0
Other Specified, Not Elsewhere Classifiable	19	4	38	3	64	0.7	2.0
Unspecified	462	5	33	6	506	4.4	15.6
All Injury	2,488	370	303	93	3,254	32.5	100.0

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-4. Rates* and Percents of Fatal Injuries by Age and Sex, Indiana 1999-2001

Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	353	3.5	27.9	215	3.1	33.1	138	4.2	22.2
5-9	115	1.1	8.7	67	1.0	9.9	48	1.5	7.5
10-14	136	1.3	10.2	91	1.3	13.3	45	1.4	6.9
15-19	794	7.8	58.7	585	8.5	84.4	209	6.4	31.8
20-24	917	9.0	71.0	721	10.5	109.8	196	6.0	30.9
25-34	1,420	14.0	57.0	1,112	16.1	88.3	308	9.5	25.0
35-44	1,662	16.4	57.9	1,228	17.8	85.9	434	13.3	30.1
45-54	1,246	12.3	50.7	909	13.2	74.7	337	10.4	27.2
55-64	677	6.7	42.4	475	6.9	61.4	202	6.2	24.5
65-74	754	7.4	63.7	493	7.2	93.5	261	8.0	39.7
75-84	1,079	10.6	134.8	606	8.8	201.1	473	14.5	95.0
85+	984	9.7	354.7	382	5.5	495.5	602	18.5	300.6
Unknown	6	0.1	0.0†	5	0.1	0.0†	1	0.0	0.0†
Age-adjusted	10,143	100.0	55.7	6,889	100.0	81.6	3,254	100.0	32.5

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-5. Rates* and Percents of Fatal Injuries by Race, Indiana 1999-2001

Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
All Races	10,143	100.0	55.6	6,889	67.9	77.0	3,254	32.1	35.0
White	8,831	87.1	53.9	5,910	85.8	73.4	2,921	89.8	35.0
Black	1,264	12.5	79.1	957	13.9	124.9	307	9.4	36.9
American Indian / Alaskan Native	8	0.1	14.0†	4	0.1	13.6†	4	0.1	14.5†
Asian / Pacific Islander	40	0.4	19.6	18	0.3	18.0†	22	0.7	21.2

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-6. Rates* and Percents of Injury Deaths by Age, Sex, and Intent, Indiana 1999-2001

Unintentional									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	262	3.9	20.6	160	3.9	24.6	102	4.1	16.4
5-9	97	1.5	7.3	58	1.4	8.5	39	1.6	6.1
10-14	85	1.3	6.4	50	1.2	7.3	35	1.4	5.4
15-19	530	8.0	39.2	366	8.8	52.8	164	6.6	24.9
20-24	487	7.3	37.7	363	8.8	55.3	124	5.0	19.5
25-34	708	10.7	28.4	541	13.1	42.9	167	6.7	13.6
35-44	893	13.5	31.1	652	15.7	45.6	241	9.7	16.7
45-54	709	10.7	28.9	502	12.1	41.3	207	8.3	16.7
55-64	461	7.0	28.9	308	7.4	39.9	153	6.1	18.5
65-74	575	8.7	48.5	351	8.5	66.6	224	9.0	34.0
75-84	911	13.7	113.8	464	11.2	153.9	447	18.0	89.7
85+	915	13.8	329.9	330	8.0	428.1	585	23.5	292.1
Age-adjusted	6,633	100.0	36.5	4,145	100.0	50.5	2,488	100.0	24.3

Suicide									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
10-14	23	1.1	1.7	20	1.2	2.9†	3	0.8	0.5†
15-19	118	5.8	8.7	100	6.0	14.4	18	4.9	2.7†
20-24	172	8.5	13.3	146	8.8	22.2	26	7.0	4.1
25-34	354	17.5	14.2	307	18.5	24.4	47	12.7	3.8
35-44	467	23.1	16.3	364	22.0	25.5	103	27.8	7.1
45-54	387	19.1	15.8	305	18.4	25.1	82	22.2	6.6
55-64	163	8.0	10.2	123	7.4	15.9	40	10.8	4.9
65-74	141	7.0	11.9	116	7.0	22.0	25	6.8	3.9
75-84	144	7.1	18.0	127	7.7	42.3	17	4.6	3.4†
85+	56	2.8	20.2	47	2.8	61.0	9	2.4	4.5†
Unknown	1	0.0	0.0†	1	0.1	0.0†	0	0.0	0.0†
Age-adjusted	2,026	100.0	11.1	1,656	100.0	19.3	370	100.0	4.0

Table A-6. (Continued) Rates* and Percents of Injury Deaths by Age, Sex, and Intent, Indiana 1999-2001

Homicide									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	72	6.0	5.7	44	4.9	6.8	28	9.2	4.5
5-9	16	1.3	1.2†	8	0.9	1.2†	8	2.6	1.2†
10-14	22	1.8	1.7	15	1.7	2.2†	7	2.3	1.1†
15-19	134	11.1	9.9	112	12.4	16.2	22	7.3	3.3
20-24	232	19.2	18.0	191	21.1	29.1	41	13.5	6.5
25-34	302	25.0	12.1	221	24.4	17.6	81	26.7	6.6
35-44	225	18.6	7.8	165	18.2	11.5	60	19.8	4.2
45-54	100	8.3	4.1	73	8.1	6.0	27	8.9	2.2
55-64	42	3.5	2.6	38	4.2	4.9	4	1.3	0.5†
65-74	33	2.7	2.8	23	2.5	4.4	10	3.3	1.5†
75-84	18	1.5	2.3†	10	1.1	3.3†	8	2.6	1.6†
85+	7	0.6	2.5†	1	0.1	1.3†	6	2.0	3.0†
Unknown	5	0.4	0.0†	4	0.4	0.0†	1	0.3	0.0†
Age-Adjusted	1,208	100.0	6.5	905	100.0	9.8	303	100.0	3.3

Undetermined									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	19	6.9	1.5†	11	6.0	1.7†	8	8.6	1.3†
5-9	2	0.7	0.2†	1	0.5	11.5†	1	1.1	0.2†
10-14	6	2.2	0.5†	6	3.3	0.9†	0	0.0	0.0†
15-19	12	4.3	0.9†	7	3.8	1.0†	5	5.4	0.8†
20-24	26	9.4	2.0	21	11.5	3.2	5	5.4	0.8†
25-34	56	20.3	2.3	43	23.5	3.5	13	14.0	1.1†
35-44	77	27.9	2.7	47	25.7	3.3	30	32.3	2.1
45-54	50	18.1	2.0	29	15.8	2.4	21	22.6	1.7
55-64	11	4.0	0.7†	6	3.3	0.8†	5	5.4	0.6†
65-74	5	1.8	0.4†	3	1.6	0.6†	2	2.2	0.3†
75-84	6	2.2	0.8†	5	2.7	1.7†	1	1.1	0.2†
85+	6	2.2	2.2†	4	2.2	5.2†	2	2.2	1.0†
Age-Adjusted	276	100.0	1.5	183	100.0	2.1	93	100.0	1.0

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-7. Unintentional Injury Rates* by State, 1999-2001

State	Rate	State	Rate
Alaska	60.6	Delaware	36.4
Mississippi	57.7	Vermont	36.2
New Mexico	56.9	Oregon	35.7
Wyoming	53.0	Nebraska	35.7
Montana	51.3	North Dakota	35.6
Alabama	49.5	Minnesota	35.0
South Carolina	49.3	Pennsylvania	34.9
Tennessee	47.8	Virginia	34.6
Arkansas	46.8	Washington	34.6
Oklahoma	46.5	District of Columbia	34.2
Arizona	46.2	Maine	33.9
Kentucky	45.9	Iowa	33.6
Louisiana	45.7	Utah	33.3
Idaho	44.5	Illinois	33.0
South Dakota	44.3	Michigan	32.9
West Virginia	43.2	Ohio	31.9
North Carolina	43.2	Connecticut	30.5
Missouri	42.5	New Hampshire	28.0
Georgia	42.0	Hawaii	27.5
Colorado	41.0	New Jersey	26.9
Kansas	39.9	California	26.5
Texas	38.3	Maryland	25.0
Nevada	38.2	New York	24.2
Florida	37.9	Rhode Island	22.3
Wisconsin	37.2	Massachusetts	20.6
Indiana	36.5	United States	35.3

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Table A-8. Intentional Injury Rates* by State, 1999-2001

State	Rate	State	Rate
District of Columbia	35.4	Kentucky	17.3
Nevada	28.3	Oregon	17.2
New Mexico	27.7	Texas	16.9
Alaska	24.7	Illinois	16.7
Arizona	24.4	Kansas	16.7
Louisiana	23.3	Washington	16.1
Mississippi	22.3	Pennsylvania	16.0
Alabama	22.1	South Dakota	15.9
Montana	22.1	Delaware	15.4
Oklahoma	21.4	California	15.3
Wyoming	20.7	Wisconsin	14.9
Arkansas	20.7	New York	14.6
Tennessee	20.4	Nebraska	14.3
Missouri	20.0	Ohio	14.3
North Carolina	19.4	Maine	14.3
South Carolina	19.2	Hawaii	14.1
Florida	19.0	Vermont	13.8
Maryland	18.9	New Hampshire	13.3
Georgia	18.9	New Jersey	13.3
Colorado	18.8	North Dakota	13.2
West Virginia	18.1	Connecticut	12.2
Indiana	17.7	Iowa	12.2
Utah	17.7	Minnesota	11.9
Virginia	17.5	Rhode Island	11.6
Idaho	17.5	Massachusetts	9.0
Michigan	17.5	United States	17.0

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Table A-9. Unintentional Injury Rates* by Midwest Region, 1999-2001

Midwest States	Rate
South Dakota	44.26
Missouri	42.47
Kansas	39.91
Wisconsin	37.19
Indiana	36.49
Nebraska	35.66
North Dakota	35.60
Minnesota	35.00
Iowa	33.57
Illinois	33.02
Michigan	32.89
Ohio	31.88

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Table A-10. Intentional Injury Rates* by Midwest Region, 1999-2001

Midwest States	Rate
Missouri	20.0
Indiana	17.7
Michigan	17.5
Kansas	16.7
Illinois	16.7
South Dakota	15.9
Wisconsin	14.9
Nebraska	14.3
Ohio	14.3
North Dakota	13.2
Iowa	12.2
Minnesota	11.9

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Table A-11: Unintentional Injury Deaths by Mechanism, Indiana 1999-2001.

Mechanism	Fatalities	% Deaths	Rates*
MV Traffic	2,750	41.5	15.0
Unspecified	792	11.9	4.4
Fall	786	11.8	4.4
Suffocation	524	7.9	2.9
Poisoning	442	6.7	2.4
Fire/Burn	283	4.3	1.6
Other Land Transport	228	3.4	1.3
Drowning	214	3.2	1.2
Natural/Environment	120	1.8	0.7
Other Specified, Classifiable	99	1.5	0.6
Pedestrian, Other	76	1.1	0.4
Firearm	67	1.0	0.4
Other Transport	65	1.0	0.4
Machinery	59	0.9	0.3
Struck by or Against	59	0.9	0.3
Other Specified, Not Elsewhere Classified	50	0.8	0.3
Cut/Pierce	10	0.2	0.1†
Pedal cyclist, Other	7	0.1	0.0†
Overexertion	2	0.0	0.0†
Total	6,633	100.0	36.49

Source: CDC, WISQARS

* Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table A-12. Five Leading Causes of Unintentional Deaths by Age, Indiana 1999-2001

<1 Year			1 to 4 Years			5 to 9 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Suffocation	89	80.9	MV-Traffic	41	27.0	MV-Traffic	40	41.2
Drowning	5	4.5	Drowning	33	21.7	Drowning	13	13.4
MV-Traffic	5	4.5	Fire/Burn	25	16.4	Fire/Burn	13	13.4
Other Land Transport	3	2.7	Suffocation	8	11.8	Other Land Transport	8	8.2
Fire/Burn	2	1.8	Fall	8	5.3	Pedestrian, Other	8	8.2
10 to 14 Years			15 to 19 Years			20 to 24 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
MV-Traffic	46	54.1	MV-Traffic	386	72.8	MV-Traffic	346	71.0
Drowning	9	10.6	Other Land Transport	35	6.6	Poisoning	37	7.6
Other Land Transport	9	10.6	Drowning	33	6.2	Other Land Transport	21	4.3
Fire/Burn	5	5.9	Poisoning	16	3.0	Drowning	19	3.9
Firearm	3	3.5	Unspecified	13	2.5	Fire/Burn	18	3.7
25-34 Years			35 to 44 Years			45 to 54 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
MV-Traffic	405	57.2	MV-Traffic	438	49.0	MV-Traffic	337	47.5
Poisoning	89	12.6	Poisoning	150	16.8	Poisoning	72	10.2
Other Land Transport	38	5.4	Fire/Burn	42	4.7	Fall	53	7.5
Drowning	30	4.2	Fall	38	4.3	Unspecified	43	6.1
Fire/Burn	23	3.2	Other Specified, Classifiable	31	3.5	Suffocation	40	5.6
55 to 64 Years			65 to 74 Years			75 to 84 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
MV-Traffic	208	45.1	MV-Traffic	200	34.8	Fall	229	25.1
Fall	58	12.6	Fall	104	18.1	MV-Traffic	225	24.7
Fire/Burn	32	6.9	Unspecified	72	12.5	Unspecified	222	24.4
Suffocation	32	6.9	Suffocation	52	9.0	Suffocation	103	11.3
Unspecified	30	6.5	Fire/Burn	36	6.3	Fire/Burn	30	3.3
85+ Years			All Ages					
Cause	Number	Percent	Cause	Number	Percent			
Unspecified	368	40.2	MV-Traffic	2,750	41.5			
Fall	264	28.9	Unspecified	792	11.9			
Suffocation	123	13.4	Fall	786	11.8			
MV-Traffic	73	8.0	Suffocation	524	7.9			
Natural /Environment	23	2.5	Poisoning	442	6.7			

Source: CDC, WISQARS

Table A-13. Five Leading Causes of Intentional Deaths by Age, Indiana 1999-2001

<1 Year			1 to 4 Years			5 to 9 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Homicide, Unspecified	18	50.0	Homicide, Unspecified	10	27.8	Homicide Firearm	8	50.0
Homicide, Suffocation	6	16.7	Homicide, Other Specified NEC	8	22.2	Homicide, Other Specified NEC	2	12.5
Homicide, Other Specified NEC	4	11.1	Homicide Firearm	5	13.9	Homicide, Unspecified	2	12.5
Homicide Firearm	2	5.6	Homicide Fire/Burn	4	11.1	Homicide Drowning	1	6.3
Homicide, Other Specified, C	2	5.6	Homicide, Other Specified, C	3	8.3	Homicide Fire/Burn	1	6.3
10 to 14 Years			15 to 19 Years			20 to 24 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Suicide Suffocation	12	26.7	Homicide Firearm	104	41.3	Homicide Firearm	196	48.5
Homicide Firearm	11	24.4	Suicide Firearm	73	29.0	Suicide Firearm	106	26.2
Suicide Firearm	8	17.8	Suicide Suffocation	30	11.9	Suicide Suffocation	41	10.1
Homicide, Other Specified NEC	7	15.6	Homicide, Unspecified	9	3.6	Suicide Poisoning	15	3.7
Homicide Poisoning	1	2.2	Homicide, Other Specified NEC	8	3.2	Homicide Cut/Pierce	9	2.2
25-34 Years			35 to 44 Years			45 to 54 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Homicide Firearm	223	34.0	Suicide Firearm	238	34.4	Suicide Firearm	225	46.2
Suicide Firearm	189	28.8	Homicide Firearm	129	18.6	Suicide Poisoning	85	17.5
Suicide Suffocation	88	13.4	Suicide Poisoning	103	14.9	Homicide Firearm	59	12.1
Suicide Poisoning	60	9.1	Suicide Suffocation	94	13.6	Suicide Suffocation	58	11.9
Homicide, Other Specified NEC	20	3.0	Homicide, Other Specified NEC	26	3.8	Homicide, Other Specified NEC	13	2.7
55 to 64 Years			65 to 74 Years			All Ages		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Suicide Firearm	101	49.3	Suicide Firearm	249	62.4	Suicide Firearm	1,190	36.8
Suicide Poisoning	33	6.1	Suicide Suffocation	37	9.3	Homicide Firearm	779	24.1
Suicide Suffocation	20	9.8	Suicide Poisoning	35	8.8	Suicide Suffocation	380	11.8
Homicide Firearm	19	9.3	Homicide Firearm	21	5.3	Suicide Poisoning	339	10.5
Homicide, Other Specified NEC	7	3.4	Homicide Unspecified	11	2.8	Homicide, Other Specified NEC	109	3.4

Source: CDC, WISQARS

Appendix B

Summary of Hospital Discharge Data, 2002

Table B-1. Summary of Hospital Discharges by Mechanism and Cause, Indiana 2002

Mechanism/Cause	Uninten- tional	Self- Inflicted	Assault	Undeter- mined	Other*	Total	Rate**	Percent
Cut/Pierce	143	59	141	4	0	347	5.6	1.7
Drowning/Submersion	20	0	0	0		20	0.3†	0.1
Fall	9,501	3	6	6		9,516	154.5	46.2
Fire/Burn	485	7	11	3		506	8.2	2.5
Fire/Flame	215	5	0	1		221	3.6	1.1
Hot Object/Substance	270	2	11	2		285	4.6	1.4
Firearm	131	52	213	49	6	451	7.2	2.2
Machinery	182					182	3.0	0.9
Motor Vehicle Traffic***	3,276	6	0	1		3,283	53.3	15.9
Motorcyclist	398					398	6.5	1.9
Occupant	2,403					2,403	39.0	11.7
Pedal Cyclist	73					73	1.2	0.4
Pedestrian	243					243	4.0	1.2
Unspecified	136					136	2.2	0.7
Pedal Cyclist, Other	175					175	2.8	0.8
Pedestrian, Other	30					30	0.5	0.1
Transport, Other	568	0		0		568	9.2	2.8
Natural/Environment	245	0		1		246	4.0	1.2
Overexertion	279					279	4.6	1.4
Poisoning	965	1,906	1	413	0	3,285	53.5	15.9
Struck by/Against	475		267		4	746	12.1	3.6
Suffocation	59	11	1	2		73	1.2	0.4
Other Specified, Classifiable	374	2	68	1	0	445	7.2	2.2
Other Specified, Not Elsewhere Classifiable	67	6	46	7	1	127	2.1	0.6
Unspecified	236	1	68	13	1	319	5.2	1.5
All Injury	17,211	2,053	822	500	12	20,598	334.5	100.0

Source: ISDH, Injury Prevention Program 2002 Hospital Discharge Data

Note: Percent total does not include the subcategories of Fire/Burn and Motor Vehicle Traffic injuries.

* Includes legal intervention.

** Rates are age-adjusted per 100,000 population and rounded to the nearest decimal point.

*** Three categories of codes (occupant of streetcar, rider of animal, and other specified person) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle category, the sum of these categories can be derived by subtraction.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table B-2. Summary of Hospital Discharges among Males by Mechanism and Cause, Indiana 2002

Mechanism/Cause	Unintentional	Self-Inflicted	Assault	Undetermined	Other*	Total	Rate**	Percent
Cut/Pierce	112	40	115	4	0	271	8.8	2.8
Drowning/Submersion	14	0	0	0		14	0.4†	0.1
Fall	3,112	3	0	4		3,119	121.4	32.0
Fire/Burn	342	5	11	2		360	11.9	3.7
Fire/Flame*	164	5	0	1		170	5.6	1.7
Hot Object/Substance	178	0	11	1		190	6.3	1.9
Firearm	113	48	195	43	6	405	12.9	4.2
Machinery	162					162	5.4	1.7
Motor Vehicle Traffic***	1,986	2	0	0		1,988	65.6	20.4
Motorcyclist	360					360	11.7	3.7
Occupant	1327					1327	44.0	13.6
Pedal Cyclist	54					54	1.7	0.6
Pedestrian	155					155	5.1	1.6
Unspecified	72					72	2.4	0.7
Pedal Cyclist, Other	145					145	4.7	1.5
Pedestrian, Other	23					23	0.8	0.2
Transport, Other	410	0		0		410	13.3	4.2
Natural/Environment	156	0		1		157	5.5	1.6
Overexertion	126					126	4.3	1.3
Poisoning	483	717	1	203	0	1,404	46.3	14.4
Struck by/Against	362		235		4	601	19.6	6.2
Suffocation	36	10	0	2		48	1.7	0.5
Other Specified, Classifiable	242	2	28	1	0	273	9.0	2.8
Other Specified, Not Elsewhere Classifiable	46	5	29	4	1	85	2.8	0.9
Unspecified	100	1	56	8	1	166	5.7	1.7
All Injury	7,970	833	670	272	12	9,757	340.3	100.0

Source: ISDH, Injury Prevention Program 2002 Hospital Discharge Data

Note: Percent total does not include the subcategories of Fire/Burn and Motor Vehicle Traffic injuries.

* Includes legal intervention.

** Rates are age-adjusted per 100,000 population and rounded to the nearest decimal point.

*** Three categories of codes (occupant of streetcar, rider of animal, and other specified person) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle category, the sum of these categories can be derived by subtraction.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table B-3. Summary of Hospital Discharges among Females by Mechanism and Cause, Indiana 2002

Mechanism/Cause	Unintentional	Self-Inflicted	Assault	Undetermined	Other*	Total	Rate**	Percent
Cut/Pierce	31	19	26	0	0	76	2.5	0.7
Drowning/Submersion	6	0	0	0		6	0.2†	0.1
Fall	6,389	0	6	2		6,397	171.7	59.0
Fire/Burn	142	2	0	1		145	4.7	1.3
Fire/Flame	50	0	0	0		50	1.6	0.5
Hot Object/Substance	92	2	0	1		95	3.1	0.9
Firearm	18	4	18	6	0	46	1.5	1.3
Machinery	20					20	0.6†	0.2
Motor Vehicle Traffic***	1,289	4	0	1		1,294	41.0	11.9
Motorcyclist	38					38	1.2	0.4
Occupant	1075					1075	34.0	9.9
Pedal Cyclist	19					19	0.6†	0.2
Pedestrian	88					88	2.8	0.8
Unspecified	64					64	2.0	0.6
Pedal Cyclist, Other	30					30	1.0	0.3
Pedestrian, Other	7					7	0.2†	0.1
Transport, Other	158	0		0		158	4.9	1.5
Natural/Environment	89	0		0		89	2.7	0.8
Overexertion	153					153	4.5	1.4
Poisoning	482	1,189	0	210	0	1,881	60.6	17.4
Struck by/Against	113		32		0	145	4.4	1.3
Suffocation	23	1	1	0		25	0.8	0.2
Other Specified, Classifiable	132	0	40	0	0	172	5.3	1.6
Other Specified, Not Elsewhere Classifiable	21	1	17	3	0	42	1.3	0.4
Unspecified	136	0	12	5	0	153	4.4	1.4
All Injury	9,239	1,220	152	228	0	10,839	312.2	100.0

Source: ISDH, Injury Prevention Program 2002 Hospital Discharge Data

Note: Percent total does not include the subcategories of Fire/Burn and Motor Vehicle Traffic injuries.

* Includes legal intervention.

** Rates are age-adjusted per 100,000 population and rounded to the nearest decimal point.

*** Three categories of codes (occupant of streetcar, rider of animal, and other specified person) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle category, the sum of these categories can be derived by subtraction.

† Rates based on frequencies of 20 or less are unstable and should be interpreted with caution.

Table B-4. Rates of Nonfatal Injuries by Age and Sex, Indiana 2002

Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	572	2.8	133.2	347	3.6	158.2	225	2.1	107.1
5-9	340	1.7	77.5	214	2.2	95.1	125	1.2	58.6
10-14	536	2.6	116.5	356	3.6	150.7	180	1.7	80.3
15-19	1,296	6.3	294.4	808	8.3	358.6	488	4.5	227.1
20-24	1,334	6.5	293.0	942	9.7	407.1	392	3.6	175.1
25-34	2,180	10.6	265.9	1,420	14.6	341.6	760	7.0	188.1
35-44	2,454	11.9	262.2	1,525	15.6	327.0	928	8.6	197.6
45-54	2,167	10.5	253.2	1,209	12.4	285.4	958	8.8	221.6
55-64	1,513	7.3	267.1	709	7.3	258.7	804	7.4	275.0
65-74	2,004	9.7	518.0	741	7.6	425.6	1263	11.7	593.7
75-84	3,322	16.1	1220.1	922	9.4	873.7	2400	22.1	1439.3
85+	2,879	14.0	2928.3	564	5.8	1979.9	2315	21.4	3315.1
Age-Adjusted	20,598	100.0	334.5	9,757	100.0	340.3	10,839	100.0	312.2

Source: ISDH, Injury Prevention Program 2002 Hospital Discharge Data

Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Note: Does not include 1 unknown age and 1 unknown sex.

Table B-5. Percent of Nonfatal Injuries by Race and Disposition, Indiana 2002

Race Groups	Total		Males		Females	
	No.	Percent	No.	Percent	No.	Percent
White	16,965	82.4	7,668	78.6	9,297	85.8
Black	1,888	9.2	1,167	12.0	721	7.6
All Others	1,745	8.5	922	9.4	821	7.6
Disposition						
Routine	12,249	59.5	6,949	71.2	5,299	48.9
Nursing Facility	4,651	22.6	1,082	11.1	3,569	32.9
Other Institution	1,753	8.5	716	7.3	1,037	9.6
Home Care	737	3.6	318	3.3	419	3.9
Other Hospital	532	2.6	298	3.1	234	2.2
Expired	497	2.4	270	2.8	226	2.1
Against Medical Advice	152	0.7	111	1.1	41	0.4
Unknown	27	0.1	13	0.1	14	0.1
Total	20,598	100.0	9,757	100.0	10,839	100.0

Source: ISDH, Injury Prevention Program 2002 Hospital Discharge Data

Table B-6. Rates of Nonfatal Injuries by Age, Sex, and Intent, Indiana 2002

Unintentional									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	511	3.0	119.0	311	3.9	141.8	200	2.2	95.2
5-9	334	1.9	76.2	209	2.6	92.9	124	1.3	58.1
10-14	472	2.7	102.5	336	4.2	142.2	136	1.5	60.7
15-19	910	5.3	206.7	612	7.7	271.6	298	3.2	138.7
20-24	819	4.8	179.9	619	7.8	267.5	200	2.2	89.3
25-34	1,376	8.0	167.8	963	12.1	231.6	413	4.5	102.2
35-44	1,666	9.7	178.0	1,139	14.3	244.2	526	5.7	112.0
45-54	1,682	9.8	196.5	969	12.2	228.7	713	7.7	165.0
55-64	1,361	7.9	240.3	635	8.0	231.7	726	7.9	248.3
65-74	1,931	11.2	499.1	707	8.9	406.0	1,224	13.2	575.4
75-84	3,282	19.1	1206.1	910	11.4	862.3	2,374	25.7	1423.7
85+	2,865	16.6	2914.0	560	7.0	1965.9	2,305	24.9	3300.8
Unknown	2		--						
Age-Adjusted Rate	17,211	100.0	279.5	7,970	100.0	282.5	9,239	100.0	260.2

Suicide									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
10-14	45	2.2	9.8	8	1.0	3.4	37	3.0	16.5
15-19	250	12.2	56.8	84	10.1	37.3	166	13.6	77.2
20-24	283	13.8	62.2	127	15.2	54.9	156	12.8	69.7
25-34	494	24.1	60.3	218	26.2	52.4	276	22.6	68.3
35-44	506	24.6	54.1	197	23.6	42.2	309	25.3	65.8
45-54	311	15.1	36.3	134	16.1	31.6	177	14.5	40.9
55-64	91	4.4	16.1	38	4.6	13.9	53	4.3	18.1
65-74	46	2.2	11.9	17	2.0	9.8	29	2.4	13.6
75-84	20	1.0	7.3	8	1.0	7.6	12	1.0	7.2
85+	6	0.3	6.1	2	0.2	7.0	4	0.3	5.7
Age-Adjusted Rate	2,053	100.0	33.4	833	100.0	27.1	1,220	100.0	39.8

Table B-6. (Continued) Rates of Nonfatal Injuries by Age, Sex, and Intent, Indiana 2002

Assault									
Age Groups	Total			Males			Females		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
0-4	48	5.8	11.2	27	4.0	12.3	21	13.8	10.0
5-9	2	0.2	0.5	2	0.3	0.9	0	0.0	0.0
10-14	9	1.1	2.0	8	1.2	3.4	1	0.7	0.4
15-19	82	10.0	18.6	75	11.2	33.3	7	4.6	3.3
20-24	161	19.6	35.4	142	21.2	61.4	19	12.5	8.5
25-34	206	25.1	25.1	178	26.6	42.8	28	18.4	6.9
35-44	174	21.2	18.6	136	20.3	29.2	38	25.0	8.1
45-54	86	10.5	10.0	64	9.6	15.1	22	14.5	5.1
55-64	28	3.4	4.9	23	3.4	8.4	5	3.3	1.7
65-74	13	1.6	3.4	12	1.8	6.9	1	0.7	0.5
75-84	9	1.1	3.3	2	0.3	1.9	7	4.6	4.2
85+	4	0.5	4.1	1	0.1	3.5	3	2.0	4.3
Age-Adjusted Rate	822	100.0	13.3	670	100.0	21.6	152	100.0	4.9

Source: ISDH, Injury Prevention Program 2002 Hospital Discharge Data
Rates are age-adjusted per 100,000 population and rounded to the nearest tenth percent.

Table B-7. Five Leading Causes of Unintentional Hospitalizations by Age, Indiana 2002

<1 Year			1 to 4 Years			5 to 9 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Fall	26	23.6	Fall	103	25.7	Fall	87	26.0
Fire	16	14.5	Poisoning	78	19.5	MV-Traffic	84	25.1
Other Specified, Classifiable	15	13.6	Fire	77	19.2	Struck by/against	28	8.4
Suffocation	14	12.7	MV-Traffic	46	11.5	Fire	27	8.1
Poisoning*	8	7.3	Other Specified, classifiable	19	4.7	Pedal cyclist, Other	23	6.9
10 to 14 Years			15 to 19 Years			20 to 24 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
MV-Traffic	117	24.8	MV-Traffic	485	53.3	MV-Traffic	384	46.9
Fall	101	21.4	Fall	95	10.4	Fall	106	12.9
Transport, Other	66	14.0	Transport, Other	78	8.6	Poisoning	66	8.1
Struck by/against	51	10.8	Struck by/against	60	6.6	Transport, Other	57	7.0
Pedal cyclist, Other	35	7.4	Poisoning	57	6.3	Fire/Burn	39	4.8
25-34 Years			35 to 44 Years			45 to 54 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
MV-Traffic	512	37.2	MV-Traffic	553	33.2	Fall	686	40.8
Fall	264	19.2	Fall	438	26.3	MV-Traffic	426	25.3
Poisoning	112	8.1	Poisoning	168	10.1	Poisoning	147	8.7
Transport, Other	98	7.1	Fire/Burn	82	4.9	Transport, Other	67	4.0
Fire/Burn*	63	4.6	Transport, Other	81	4.9	Other Specified, classifiable	54	3.2
55 to 64 Years			65 to 74 Years			75 to 84 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Fall	775	56.9	Falls	1411	73.1	Fall	2722	82.9
MV-Traffic	234	17.2	MV-Traffic	194	10.0	MV-Traffic	179	5.5
Poisoning	85	6.2	Poisoning	91	4.7	Poisoning	92	2.8
Struck by/against	39	2.9	Struck by/against	35	1.8	Unspecified	56	1.7
Fire/Burn	37	2.7	Unspecified	34	1.8	Overexertion	45	1.4
85+ Years			All Ages					
Cause	Number	Percent	Cause	Number	Percent			
Falls	2637	92.0	Falls	9501	55.2			
MV-Traffic	55	1.9	MV-Traffic	3276	19.0			
Poisoning	31	1.1	Poisoning	965	5.6			
Unspecified	31	1.1	Transport, Other	568	3.3			
Overexertion	25	0.9	Fire /Burn	485	2.8			

Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

* Frequency of injury mechanism tied with another mechanism.

Table B-8. Five Leading Causes of Intentional Hospitalizations by Age, Indiana 2002

0 to 14 Years			15 to 19 Years			20 to 24 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Poisoning	44	42.3	Poisoning	238	71.7	Poisoning	256	57.7
Other Specified, Classifiable	36	34.6	Firearm	40	12.0	Firearm	78	17.6
Other Specified, Not Elsewhere Classified	7	6.7	Struck by/against	29	8.7	Struck by/against	48	10.8
Unspecified	6	5.8	Cut/Pierce	10	3.0	Cut/Pierce	36	8.1
Struck by/against	5	4.8	Other Specified, Not Elsewhere Classifiable	5	1.5	Other Specified, Classifiable	8	1.8
25-34 Years			35 to 44 Years			45 to 54 Years		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Poisoning	455	65.0	Poisoning	473	69.6	Poisoning	294	74.1
Firearm	83	11.9	Struck by/against	69	10.1	Struck by/against	36	9.1
Struck by/against	60	8.6	Cut	52	7.6	Cut/Pierce	28	7.1
Cut/Pierce	57	8.1	Firearm	35	5.1	Firearm	16	4.0
Unspecified	17	2.4	Unspecified	25	3.7	Unspecified	8	2.0
55 to 64 Years			65 + Years			All Ages		
Cause	Number	Percent	Cause	Number	Percent	Cause	Number	Percent
Poisoning	85	71.4	Poisoning	61	62.2	Poisoning	1907	66.3
Struck by/against	13	10.9	Firearm	8	8.2	Struck by/against	267	9.3
Cut/Pierce	8	6.7	Cut/Pierce	7	7.1	Firearm	265	9.2
Firearm	4	3.4	Struck by/against	7	7.1	Cut/Pierce	200	7.0
Other Specified, Not Elsewhere Classified*	3	2.5	Other Specified, Not Elsewhere Classified	5	5.1	Unspecified	69	2.4

Source: ISDH, Injury Prevention Program, 2002 Hospital Discharge Data

* Frequency of injury mechanism tied with another mechanism.

Appendix C

STIPDA Recommendations for Presenting Hospital Discharge Data

Table C-1: Criteria for Selecting Nature of Injury Codes in Principal Diagnosis Fields for Injury Hospitalizations

Inclusions	Descriptions
800-909.2 909.4 909.9	Fractures; dislocations; sprains and strains; intracranial injury; internal injury of thorax, abdomen, and pelvis; open wound of the head, neck, trunk, upper limb, and lower limb; injury to blood vessels; late effects of injury, poisoning, toxic effects, and other external causes, excluding those of complications of surgical and medical care and drugs, medicinal or biological substances.
910-994.9	Superficial injury; contusion; crushing injury; effects of foreign body entering through orifice; burns; injury to nerves and spinal cord; traumatic complications and unspecified injuries; poisoning and toxic effects of substances; other and unspecified effects of external causes.
995.5-995.59	Child maltreatment syndrome.
995.80-995.85	Adult maltreatment, unspecified; adult physical abuse; adult emotional/psychological abuse; adult sexual abuse; adult neglect (nutritional); other adult abuse and neglect.
Exclusions	Descriptions
<800	Not related to injury.
909.3 909.5	Late effects of complications of surgical and medical care; late effects of adverse effects of drug, medicinal, or biological substance.
995.0-995.4 995.6-995.7 995.86 995.89	Other anaphylactic shock; angioneurotic edema; unspecified adverse effect of drug, medicinal and biological substance; allergy, unspecified; shock due to anesthesia; anaphylactic shock due to adverse food reaction; malignant hyperpyrexia or hypothermia due to anesthesia.
996-999	Complications due to certain specified procedures; complications affecting specified body systems, not elsewhere classified; other complications of procedures, not elsewhere classified; complications of medical care, not elsewhere classified.

Table C-2: Recommended Framework of E-code Groupings for Presenting Injury Mortality and Morbidity Data

Mechanism/Cause	Manner/Intent				
	Unintentional	Suicide/Self Inflicted	Homicide/Assault	Undetermined	Legal Intervention/Other
Cut/Pierce	E920.0 – .9	E956	E966	E986	E974
Drowning/Submersion	E830.0 – .9, E832.0-.9, E910.0 –.9	E954	E964	E984	
Fall	E880.0 – E886.9, E888	E957.0 –.9	E968.1	E987.0 –.9	
Fire/Burn	E890.0 – E899, E924.0 – .9	E958.1,.2,.7	E961, E968.0,.3	E988.1,.2,.7	
Fire/Flame	E890.0 – E899	E958.1	E968.0	E988.1	
Hot Object/ Substance	E924.0 –.9	E958.2,.7	E961, E968.3	E988.2,.7	
Firearm	E922.0 –.3,.8, .9	E955.0 – .4	E965.0 – .4	E985.0 – .4	E970
Machinery	E909.0 – .9				
Motor Vehicle Traffic	E810 – E819 (.0 – .9)	E958.5	E96835	E988.5	
Occupant	E810 – E819 (.0,.1)				
Motorcycle	E810 – E819 (.2,.3)				
Pedal Cyclist	E810 – E819 (.6)				
Pedestrian	E810 – E819 (.7)				
Unspecified	E810 – E819 (.9)				
Pedal Cyclist, Other	E800 – E807 (.3), E820 – E825 (.6), E826.1, .9, E827 – E829 (.1)				
Pedestrian, Other	E800 – E807 (.2) E820 – E825 (.7) E826 – E829 (.0)				
Transport Other	E800 – E807 (.0,.1,.8,.9) E820 – E825 (.0-.5,.8,.9) E826.2 – 8 E827 – E829 (.2 - .9) E831.0 – .9, E833 – E845.9	E958.6		E988.6	
Natural/Environment	E900.0 – E909, E928.0 – .2	E958.3		E988.3	
Bites/Stings	E905.0 – .6,.9, E906.0 – .4,.5,.9				
Overexertion	E927				
Poisoning	E850.0 – E869.9	E950.0 – E952.9	E962.0 – .9	E980.0 – E982.9	E972
Struck by/Against	E916 – E917.9		E960.0, E968.2		E973, E975
Suffocation	E911 – E913.9	E953.0 – .9	E963	E983.0 – .9	
Other Specified and Classifiable	E846 – E848, E914 – E915, E918, E921.0 – .9, E922.4, E923.0 – .9, E925.0 – E926.9, E928.3, E929.0 – .5	E955.5,.6,.9 E958.0,.4	E960.1, E965.5 – .9, E967.0 – .9, E968.4,.6,.7	E985.5, .6, E988.0, .4	E971, E978 E990 – E994, E996, E997.0 – .2
Other Specified, Not Elsewhere Classifiable	E928.8, E929.8	E958.8, E959	E968.8, E969	E988.8, E989	E977, E995, E997.8 E998, E999
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
All Injury	E800 – E869, E880 – E929	E950 – E959	E960 – E969	E980 – E989	E970 – E978 E990 – E999
Adverse Effects					E870 – E879, E930.0 – E949.9

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