

Unintentional Injuries

Fast Facts

■ Unintentional injuries constitute the fifth leading cause of death in Island County from 1996-2000, comparable to both Washington State (5th) and the United States (fourth leading cause of death). Unintentional injury is the leading cause of death for residents ages 1-44. Consistently in Island County, primary causes include motor vehicle accidents, falls, drowning, and poisoning. Another leading national factor is often resident fires/burns.

“Injury is the principal public health problem in America today.”

– William Foege, former CDC Director

■ Motor vehicle accidents are the leading cause of unintentional injury death for county residents under the age of 65, followed by poisoning and drowning. Island County lost 34 persons to motor vehicle accidents from 1998-2001. Fourteen residents died from falls in the same years.

■ Island County averages about two drownings per year and in 2001 we had three drownings.

■ Seatbelt use in Island County is a concern, 87.6% of county adults always wore seatbelts (12.4% do not!) and 95.8% of children are always belted in.

■ Forty-four percent of children in the county do not always wear a bike helmet when riding their bikes.

■ Most preventable health problems are caused by tobacco use, lack of physical activity, improper diet, alcohol/substance abuse that leads to motor vehicle and pedestrian injuries, and unsafe use and storage of firearms.

■ Approximately 800 child deaths (ages 0-17) occur in Washington State each year. At least 40% of these are considered unexpected. In 1998, the Child Death Review Program was implemented to review cases/recommend interventions/policy changes. In 2003 this program was unfunded by the state legislature.

■ Washington State has an injury database comprised of death certificates and CHARS data (Comprehensive Hospital Abstract Reporting System). The limitations of CHARS are that it is a Washington, state-regulated, hospitals only (not Naval Hospital Oak Harbor) and it admits only (no emergency room or outpatient data).

■ Death certificates and hospital systems use illness and disease codes (ICD-10) and external cause codes (e-codes) to classify cases.

■ Washington State averages about 2500 injury fatalities/year and about 36,000 injury hospitalizations/year.

Injury Definition: Any unintentional or intentional damage to the body, resulting from acute exposure to thermal, mechanical, electrical, or chemical energy, or from the absence of such essentials as heat or oxygen.”

- Unintentional injuries (motor vehicle crashes, falls, poisonings, fires/burns, suffocation, drownings) account for ~65% of injury fatalities.
- Intentional injuries (homicide, suicide, assault) account for ~ 35% of injury fatalities.
- Rates and causes vary by gender, race, income, age, and geography; and as expected, interventions can be targeted by cause, by age, and by injury type.
- A variety of risk factors are associated with the causes of unintentional injuries, including violent and abusive behavior and substance abuse.
- Unintentional injuries account for 12% of medical spending, equaling \$224 billion in the U.S., of which 28% is paid by public sources (e.g. Medicare, Medicaid).

“If a disease was killing our children in the proportions that accidents (injuries) are, people would be outraged and demand that this killer be stopped.” – C. Everett Koop, former U.S. Surgeon General

Identified Issues

- ***Water Safety/Life Jacket Use: 37% of adults surveyed had been in a small boat (< 20 ft.) in the past year. Of these 21.6% never wear a lifejacket. Island County averages about two drownings a year and had three in 2001.***
- ***Firearms Safety/Storage: 38% of adults surveyed had firearms in the house, 47% of those were unlocked, 21% were loaded (about 50% of these were also unlocked).***
- ***Bicycle Safety/Helmet Use: 16.7% of children use bicycle helmets sometimes (6.3%), seldom (3.1%) or never (7.3%), according to parent report.***
- ***Falls: Falls constitute the highest number (65%) of non-fatal hospitalizations for unintentional injury. From Jan-June of 2001 WGH had 1560 incidents (emergency and outpatient) coded to falls, second only to “accidents”.***

Background and Introduction

Injuries are classified as either *unintentional* or *intentional* and the field of injury prevention examines both unintentional injuries and those resulting from intentional acts of violence. Unintentional injuries include occupational injuries, motor vehicle crashes, falls and drowning. Intentional injuries include assault, homicide and suicide and are discussed in other chapters of this report (Crime and Violence, Mental Health). The risk of injury is so great that most people sustain a significant injury at some time during their lives.¹ Nevertheless, this widespread human damage too often is taken for granted in the erroneous belief that injuries happen by chance and are the result of unpreventable events. In fact, most injuries are not accidents or random, uncontrollable acts of fate but are predictable and preventable.² Both unintentional and intentional injuries have differing risk factors and prevention measures.

Unintentional injury was the leading cause of death among Island County residents ages 1-44 from 1996 through 2001. Unintentional injury was also the leading cause of potential life lost before age 65, accounting for nearly 30% of all years of potential life lost.³

The incidence of unintentional injury is highest among men and younger people, because these two populations engage in high-risk behaviors more often, both at work and during recreation. As is true for Washington State and the nation, men in Island County have higher death rates associated with unintentional injury than women.

Injuries are a significant cause of hospitalization, and account for more physician visits than any other health condition in the United States. Frequently, injuries are not fatal but leave survivors in need of considerable assistance and often unable to work. Some of the tremendous economic and social costs of injuries are associated with the rehabilitation needs of survivors. The largest costs occur because those killed and injured are typically young adults, whose inability or decreased ability to function socially and economically affects both their families and society. Because most injuries can be avoided and because injury-related costs are so high, injury prevention has become a major health focus.

Injuries (unintentional and intentional) are the leading cause of all deaths in Washington among people age one to 44. In 2000, nearly 3,000 residents died due to injuries from a variety of causes such as motor vehicle crashes, firearms, poisonings, falls, and drowning. Of these deaths, 65% were classified as unintentional, 30% were intentional or violent (homicide or suicide), and 5% were of other or undetermined intent. The leading cause of unintentional injury death was motor vehicle crashes (35%). Of the violence-related deaths, 78% were suicides, and 22% were homicides.

The risk for specific types of injury varies by age and gender. For example, infants and toddlers of both sexes are at highest risk for injury from suffocation and drowning. Males age 15-24 have the highest rates of injuries due to motor vehicle crashes. Among older adults, falls are the leading cause of injury hospitalization, with women having significantly higher rates than men. Youth, especially males, continue to be involved as both perpetrators and victims of violent injuries. In addition to other consequences, females and children are often injured as a result of both physical and sexual assaults, which are frequently perpetrated by assailants they know.



There were 708 motor vehicle-related deaths in Washington in 2000 (age-adjusted death rate: 12.1 per 100,000). Motor vehicle death rates declined significantly during the past 20 years. Motor vehicle death rates are substantially higher for residents of rural areas than for people living in more developed or urban areas. The rates are highest for males 15 to 24 years of age and 75 and older.

Two major themes emerge from information on injury and violence. First, injuries and violence affect people of all ages. Second, injury reflects complex

problems involving many different sectors of society. No single force working alone can accomplish everything needed to reduce the number of injuries. Improved outcomes require the combined efforts of health, education, transportation, law, engineering, and safety sciences.

Although the greatest impact of injury is in human suffering and loss of life, the financial cost is staggering. By the late 1990s, national injury costs were estimated at more than \$224 billion annually, an increase of 42% over the 1980s.⁴ As with other health problems, it costs far less to prevent injuries than to treat them. For example:

- Every child safety seat saves \$1,360 in direct medical and other costs.
- Every bicycle helmet saves \$395 in direct medical and other costs.
- Every smoke detector saves \$35 in direct medical costs and an additional \$865 in other costs.
- Every dollar spent on poison control centers saves \$6.50 in medical costs.⁵

Many effective intervention strategies for injury prevention exist.^{6,7,8} Program evaluations can help assure that interventions are effective and identify the best methods for implementation.

While every person is at risk for injury, certain types of injuries affect some groups more frequently. For example, American Indians or Alaska Natives have disproportionately higher death rates from motor vehicle crashes and suicide. Homicide is especially high among African Americans. White, elderly females are at highest risk for falls and fall-related injuries. Common risk factors for injury include poverty, lack of education, and substance abuse. Understanding these differences is a first step toward eliminating health disparities in our population.

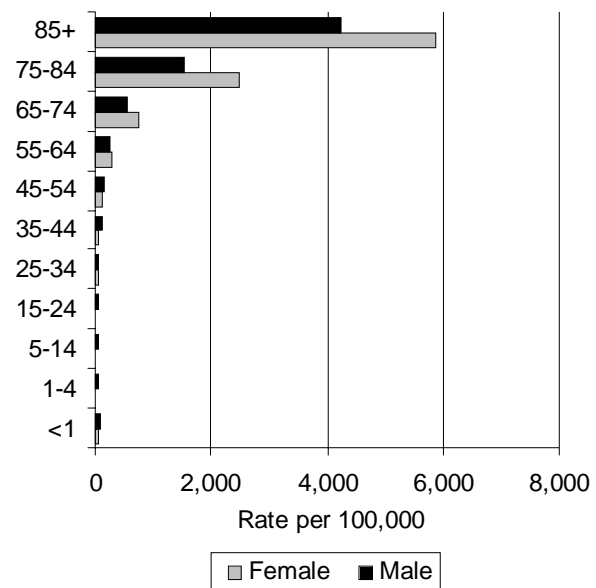
Injury and violence are commonly occurring public health problems that adversely affect the health and well being of individuals and communities. The public health approach to injury prevention is multidisciplinary, encouraging experts and advocates from scientific disciplines, organizations, and communities to work together with populations at risk to find solutions to injury in our nation.

In 2002, ICHD responded to 34 animal bite complaints.

Falls—Background and Information

In Washington in 2000, 11,742 people age 65 or older were hospitalized due to falls. Falls are the most common type of injury among people age 65 or older accounting for 77% of all injury hospitalizations in this population. Falls are not an inevitable consequence of aging. They can be prevented through multifaceted interventions that target modifiable risk factors. Exercise with strength and balance training has proven to be the single most effective method for reducing falls and fall-related injuries among seniors.

**Fall Hospitalizations
Age and Gender
WA State CHARS, 1998-2000**



Injuries due to falls occur at all ages; however, people older than 65 suffer a disproportionate share of the burden. While this group made up approximately 11% of the total state population in the year 2000, they accounted for 69% of all fall-related hospitalizations. The risk of falling increases substantially with age.^{9,10} Fall hospitalization rates begin to climb at about age 55 and go up rapidly as age increases. Older adult women have the highest fall hospitalization rates.

The relationship between age and falling is partly explained by physiologic changes that occur as people grow older.¹¹ These changes can lead to osteoporosis, arthritis, decreased muscle strength and mass, decreased joint flexibility, decreased collagen elasticity and strength, and general discomfort and pain. Individuals with these changes can respond more slowly during difficult or emergency situations or develop early and excessive fatigue, which might lead to a fall. They are also more likely to sustain an injury if a fall occurs.

Falls: Other Measures of Impact and Burden

Mortality. In Washington State in 2000 there were 393 deaths due to falls among people age 65 or older (rate 59.4 per 100,000). Falls accounted for 59% of unintentional injury deaths in this population. While women have much higher rates of nonfatal fall hospitalizations, men have higher rates of death due to falls. Women and men may have different outcomes from a fall for several reasons. For example, osteoporosis might play a substantial role in hip and other limb fractures for women, or the circumstances of falls might differ for men and women, with women more likely to fall on their hip and men more likely to fall on their head.¹²



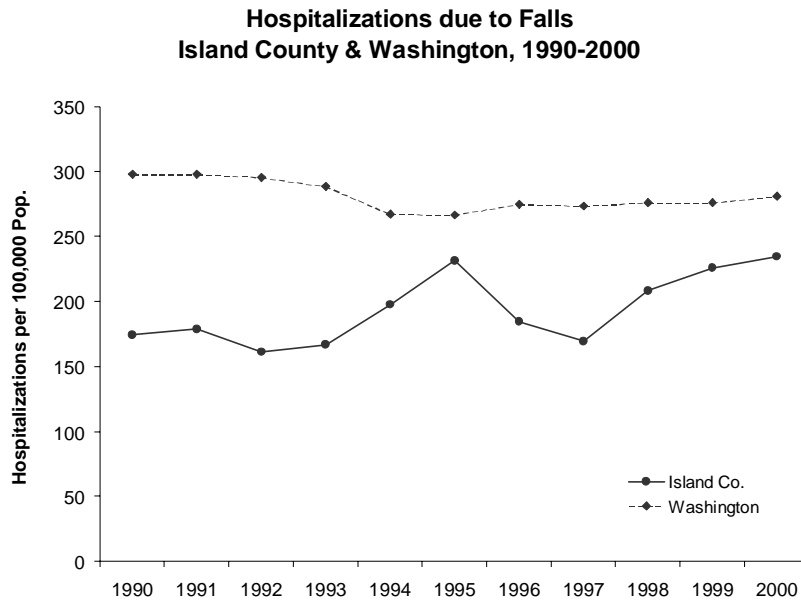
Cost of falls. The public pays a very high proportion of the medical care costs associated with falls among older adults. In 1999, Medicare paid for 89% of fall-related hospitalizations among people 65 and older at a cost of \$68.6 million. Ninety-seven percent of these fractures were from falls. Medicare paid nearly \$60.9 million for inpatient care of fractures, including hospital care, inpatient care in a skilled nursing facility following a covered hospital stay, and home health and hospice care. An additional \$7.7 million was spent for outpatient care, including care provided by doctors and other health care providers in various settings such as physicians' offices, ambulatory surgical centers, and rural health clinics; laboratory and diagnostic services; surgical supplies and durable medical equipment; and ambulance services. These charges represent a conservative estimate of the cost of falls because fractures are but one of many adverse health outcomes that can result from a fall.

Quality of Life. Falls are a common reason for admission to nursing homes and so are a threat to independence and quality of life. Among Washington people age 65+ who were hospitalized for falls in 2000, less than a quarter (22%) were able to be released to their home under self-care. Nearly two-thirds (64%) were transferred to skilled nursing facilities (SNF) or intermediate care facilities (ICF) for additional care. While many nursing home placements are temporary and the patient returns home after two to three months of rehabilitation, falls remain a strong predictor of long-term placement in a nursing home.¹²

Falls

Falls accounted for 14.5% of unintentional injury deaths between 1991 and 2000, but 54% of unintended injury hospitalizations. Mortality due to falls showed no clear trend in Island County, with an average of 2.8 deaths per year, varying between zero and 6 deaths in any given year. Hospitalization rates due to unintentional injuries fluctuated somewhat, but did not have any definitive increasing or decreasing trend. An increase from 1998 on is due to the inclusion of Camano Island cases.

The majority of deaths and hospitalizations due to falls occur to people aged 65 and older. Of fourteen people who died in falls between 1996 and 2000, ten (71.4%) were aged 65 and older. Similarly, this age group comprised 72.4% of hospitalizations during the same period.



Risk and Protective Factors

Most falls among people age 65+ result from a combination of factors. The aging process, chronic health problems, physical impairments, drugs, and external hazards all contribute. Although investigators have not used consistent classifications, a recent review of fall risk factor studies reported that the factors most strongly associated with falling are muscle weakness, history of falling, gait problems, and balance problems.¹³

Several studies have shown that the risk of falling increases dramatically as the number of risk factors increases. For example, one study of community-dwelling seniors showed that the percentage of people falling increased from 27% for those with no or one risk factor to 78% for those with four or more risk factors.¹⁴ Another study used multivariate analysis to simplify risk factors so that maximum predictive accuracy could be obtained by using only three risk factors (i.e., hip weakness, unstable balance, taking four or more medications). With this model, the predicted one-year risk of falling ranged from 12% for people with none of the three risk factors to 100% for people with all three.¹⁵

Falls – Effective Interventions

The following strategies are based on guidelines developed by the American Geriatrics Society (AGS) Panel on Falls Prevention.⁴ These guidelines were developed following an extensive systematic review of the literature on falls among older adults. They provide a useful tool for evaluating the risk of falls among older adults and determining the content of fall prevention interventions for healthy and “at risk” people age 65+.

To be effective, a falls prevention intervention must be tailored to the needs of the individual, based on findings from a falls risk assessment. Further, the intervention must target modifiable risk factors using proven methods.

Because most falls are due to a combination of factors, it is not surprising that the most effective interventions are those that include multiple components that address multiple risk factors. Based on a review of the literature, the key components of a falls prevention program for community-dwelling older adults are:

- Gait training and advice on the appropriate use of assistive devices (such as canes and walkers).
- Exercise programs, including balance and strength training.
- Modification of environmental hazards (safe footwear and removal of hazards in the home).
- Review and modification of medications (in particular, sedatives and antidepressants).
- Treatment of postural hypotension (drop in blood pressure and dizziness on standing).
- Treatment of cardiovascular disorders, including cardiac arrhythmias.

It is important to note that exercise with strength and balance training has proven to be the single most effective method for reducing falls and fall-related injuries among seniors.⁸ Decisions as to the types of exercises, intensity of exercises, size of group, and ratio of staff to participants must be guided by baseline data on each participant’s level of strength, balance, and endurance. It is important to note that, while health and behavior education has proven benefits when used as part of a multicomponent intervention, education alone has not proven effective as a falls prevention strategy.

A community-medical model that weaves together the skills and resources of public health workers, social service providers, and health care professionals can be used to build an effective senior falls prevention program. This approach can provide multiple sources of referral to the program, as well as multiple opportunities to encourage the continued participation of seniors once they are enrolled in the program. It is advisable to have a multidisciplinary team to help guide program policies and help identify the essential services and educational messages. Public health can have an important role in sharing information on evidence-based “best practices” for senior falls prevention, assisting in the development of essential partnerships, and providing technical assistance for program evaluation.

Motor Vehicle Accidents-Background and Introduction

Historically, motor vehicle death rates in Washington have been lower than those for the nation as a whole. In the mid 1990s the national trend in motor vehicle deaths leveled off, while Washington’s rates continued to decline.

From 1980 to 2000 motor vehicle death rates in Washington declined significantly from 25.2 to 12.1 per 100,000 population. Although motor vehicle fatalities remain a leading cause of injury death in our state, the trend shows substantial progress. Much of the improvement is attributable to increased use of occupant protection devices, such as seat belts, efforts to discourage drunk driving, more safety features in cars, and highway engineering improvements. Motor vehicle death rates are substantially higher for residents of rural areas than for people living in more developed or urban areas. These higher death rates might reflect relatively poor driving conditions, lower prevalence of seat belt use, and limited availability of emergency medical services.

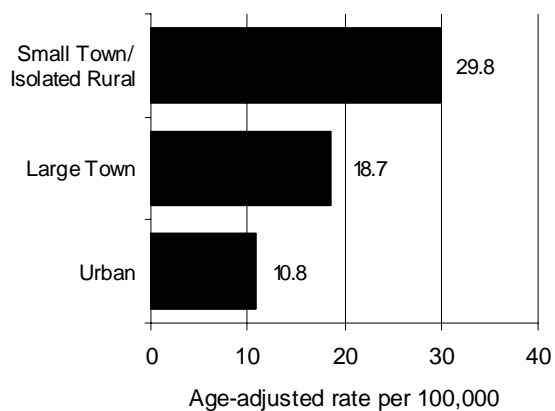
In 2000, the age-adjusted motor vehicle death rate for males was 16.7 per 100,000, compared to 7.7 per 100,000 for females. Males were at higher risk for motor vehicle death at all ages except birth through four. Males 15-24 years of age and 75 and older were at the highest risk. The 1998 – 2000 motor vehicle death rate for males 15 – 24 years old was 32.5 per 100,000, more than 2.5 times the rate in the general population. The rates for men 75 – 84 and men 85 and older were 31.4 and 53.2 per 100,000, respectively. These rates do not take into account the number of miles driven. Because the oldest people tend to drive fewer miles than younger people, their risk of motor vehicle fatality per mile driven is much higher than the risk in other age groups. Motor vehicle crashes can result in death, but more often they result in nonfatal injuries, many of which require hospitalization. In 1999 there were 4,305 nonfatal motor vehicle related hospitalizations in Washington. Nonfatal injury hospitalizations outnumbered fatalities by a ratio of nearly 6:1.

There are a number of risk and protective factors that apply to motor vehicle accidents. They include:

Drinking drivers. Alcohol-impaired drivers account for a substantial portion of traffic fatalities in Washington. In 1999, 29% of all traffic fatalities involved people who were “driving under the influence” (DUI), and 187 people were killed.¹⁶ However, the number of DUI deaths in 1999 represented a decrease of 8.1% from the previous four-year average.

Driver violations. Most driver violations in fatal traffic collisions, based on the judgment of police officers, include failure to stay in the vehicle lane, driver impairment, excessive speed, and driver inattention. For teenage drivers, failure to maintain traffic lane and excessive speed were the leading violations in fatal collisions.¹⁷

**Motor Vehicle Deaths
Urban and Rural
WA State Death Certificates, 1998-2000**



Occupant protection. Seat belts save lives. Compared to those who use seat belts or other appropriate restraints (e.g., car seats for infants and young children), people who do not buckle up have more than twice the risk of dying or sustaining a disabling injury in a serious crash. The use of seat belts and child restraints in Washington continues to increase. Data from the Washington Traffic Safety Commission (WTSC) show that over 80% of the occupants of passenger vehicles buckle up, except in many rural areas where usage is about 70%. Use rates are significantly lower for pickup trucks and heavy trucks. The use of child safety seats has reduced the likelihood of fatal injury by an estimated 69% for infants and 47% for toddlers in the United States.¹⁸ A WTSC observational study conducted in Washington by Washington State University in 2000 found that 92% of children younger than nine were seated in some type of restraint system, although, many children were not using appropriate restraints.¹⁹ The survey found that nearly 50% of children between 40 and 60 pounds were seated in adult-style seatbelts, and only 22% of children were riding in booster seats. In 2000 Washington adopted a new law requiring the use of booster seats for all children between the ages of four and six or who weigh between 40 and 60 pounds. These children are at risk of injury if they use adult seat belts alone instead of booster seats and seat belts.

Motorcycle helmets. Passage of the motorcycle helmet law in 1990 has been associated with substantial decreases in motorcycle fatalities and injuries. Between 1990 and 1999 the number of motorcycle drivers and passengers killed decreased by nearly 50% compared to the previous 10-year period, and the number of injuries decreased by 35%.

Roadway and vehicle design. Roadway and motor vehicle design are important factors affecting motor vehicle death and injury rates. Our success in reducing motor vehicle fatalities is partly due to advancements in motor vehicle “crashworthiness” and a variety of engineering solutions to traffic hazards.

There are also a number of high-risk populations for motor vehicle accidents. They include: **Youthful drivers.** Youthful drivers are over-represented in total traffic collisions (including drinking-driver and non-drinking driver collisions). Their rates, compared to the licensed driver population as a whole, are almost three times greater for total collisions and more than two times greater for fatal collisions.³

Pedestrians and bicyclists. Pedestrian fatalities accounted for 67 traffic deaths in 2000. An additional 12 deaths occurred to bicyclists hit by motor vehicles. Pedestrian fatalities are highest among people age 55 or older. The rate of death due to bicycle crashes is highest among young people age five to 14.

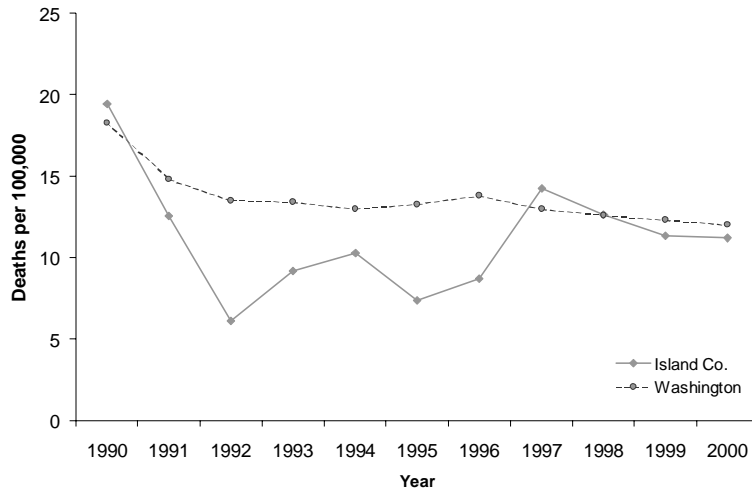
Occupants who fail to use protection. WTSC collision data show that, among drivers involved in collisions those who had been drinking were less likely to be wearing restraints than non-drinking drivers (64% use rate for drivers under the influence compared with 95% use rate for non-drinking drivers).¹⁶

WTSC's 2000 observational survey of restraint use by children found lower restraint use for children in vehicles with drivers younger than 25 or older than 50, drivers who themselves were not using seat belts, and drivers in pickup trucks.

Motor Vehicle Accidents

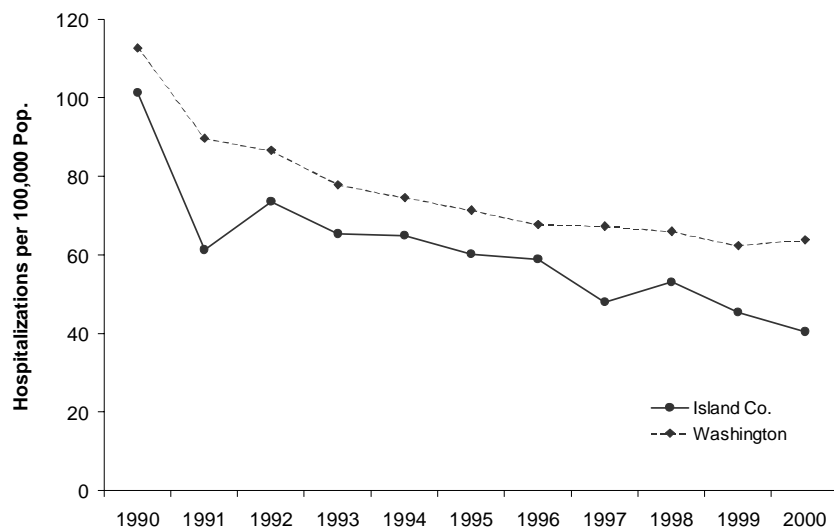
In the decade between 1991 and 2000, 384 Island County residents lost their lives in motor vehicle accidents. Mortality rates due to motor vehicle accidents in Island County were highest at the beginning of this period and then fell by roughly half in the middle of the decade. However, after 1997 these rates returned to higher levels. At the statewide level there was a gradual but significant drop throughout the period. Rates also dropped statewide. Island County had a generally lower rate of motor vehicle accident deaths than Washington throughout the period, but this difference was not significant.

**Mortality Rates from Motor Vehicle Accidents
Island Co. & Washington, 1990-2000**

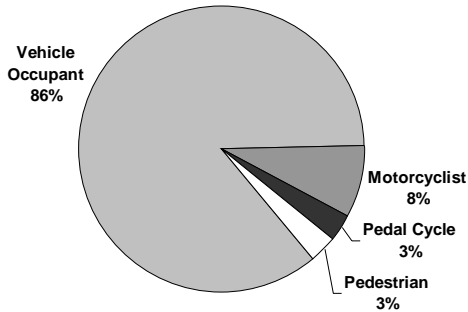


While mortality rates from motor vehicle accidents increased in recent years, the rate of hospitalizations due to motor vehicle accidents dropped steadily from 1990 to 2000, in both Island County and Washington State. Both of these decreases were statistically significant. The most marked decrease occurred between 1990 and 1992. Note that the increase in Island County between 1997 and 1998 reflects the inclusion of Camano Island resident cases.

**Motor Vehicle Accident Hospitalizations
Island County & Washington, 1990-2000**

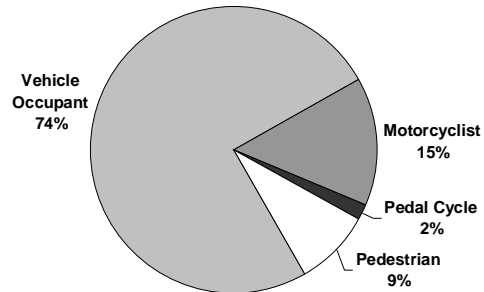


**Persons Killed in Motor Vehicle Accidents
Island Co. 1991-2000**



The majority of persons killed or hospitalized due to motor vehicle accidents were occupants of a vehicle. Motorcyclists comprised 15% of persons hospitalized, but only 8% of those killed.

**Persons Hospitalized in Motor Vehicle Accidents
Island Co. 1991-2000**

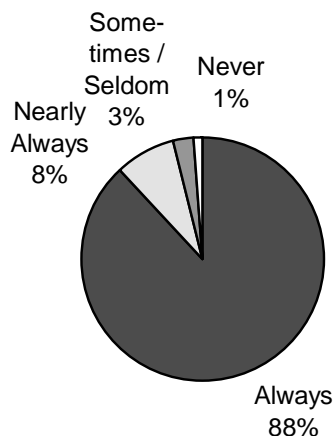


Car Safety Restraint Use

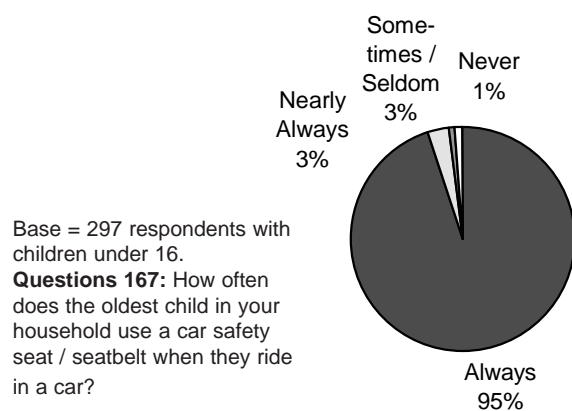
The Island County BRFSS asked respondents whether they and their children (if applicable) wore seatbelts. The vast majority of respondents (88%) said they “always” wear seat belts when in a car. The 12% who do not always wear seat belts are considered by the CDC to be “at risk.” There were regional differences in the use of seatbelt use with 100% of North Whidbey respondents always wearing their seatbelts to the lowest rates among South Whidbey (85.4%) and Camano Island respondents (87%). Respondents with children in the household were more likely to say they “never” use seat belts than were respondents without children at home (3% vs. <1%).

A total of 96% of the respondents’ children under 16 use seat belts or safety seats when riding in a car.¹ These proportions were comparable to 1996 findings.

Seatbelt Use by Adults



Seatbelt / Safety Seat Use by Children



Effective Interventions

Motor Vehicle Accidents

Washington's progress in reducing motor vehicle death rates reflects numerous intervention efforts including those to implement a statewide trauma system, to reduce the incidence of drunk driving, to increase the use of occupant protection devices, and to improve the safety of roadways and automobiles. Continuation of these successful efforts would probably bring further progress. Specific recommended interventions and strategies include the following:

Reducing alcohol-impaired driving is one of the key priorities in highway safety. Two groups of great concern are hard-core, repeat offenders and young drinking drivers in the high-risk 21 – 34 year age group. Efforts to reduce alcohol-impaired driving include increasing the conviction rate for driving under the influence (DUI) and providing continued public education regarding drinking and driving.

In 1994 and 1995 new underage impaired driving laws were adopted, with penalties for drivers younger than 21 with a blood alcohol content (BAC) of .02 or higher. Aggressive public information and education campaigns targeting underage drivers are planned as well as strict enforcement of the zero tolerance law. In 1998 Washington enacted important changes to the DUI law including a lower BAC limit of .08 for all drivers, administrative license suspensions, vehicle impoundment, and more jail time for convicted DUI offenders.

Curfews and graduated licensing systems have been shown to be effective interventions to reduce injuries and deaths among young drivers.¹ In 2001 Washington implemented a graduated licensing law. This new law modifies driving exposure so that new, young drivers accumulate experience in lower risk situations before “graduating” to full licensure. First, there is a learning stage when the new driver drives on a supervised basis for a set period of time. Then, an intermediate license is issued for unsupervised driving but only in lower risk conditions. For example, driving between 1:00 am and 5:00 am and carrying teenage passengers without an adult in the car are prohibited for at least the first six months. After completing this second stage without a moving violation or crash, the young Washington driver receives a full-privilege license.

A “***primary enforcement***” ***seat belt law*** was enacted by the legislature in 2002 which will likely increase use of occupant protection. Washington previously had a secondary law that allowed seat belt enforcement only when a driver is stopped for another violation. According to the Washington Traffic Safety Commission (WTSC), other states have found 10% to 20% increases in seat belt use rates following a change from secondary to primary laws. The WTSC has estimated that 34 additional lives could be saved in our state each year if belt use reaches 90% under the new primary enforcement law.²

Drowning

Swimming, boating, and other forms of water recreation are among the most popular pastimes of Washington residents. In some circumstances, these activities can prove dangerous, even fatal. In 2001, there were 2 Island County deaths due to drowning. Drowning can be prevented by closely supervising children in or around water, installing and maintaining protective barriers around swimming pools, especially residential pools, and wearing personal flotation devices (life vests).

Over the past 20 years, Washington's drowning rate has steadily declined an estimated 3.9% per year. In 2000, the drowning rate was 1.6 per 100,000 population, the lowest rate reported since 1980. Historically, Washington's drowning rates have been higher than the nation as a whole; however, it appears that the gap may be closing. The US rate for drowning in 1998, the most recent year for which national data are available, was also 1.6 per 100,000.

During the three-year period 1998-2000 the five counties with the highest drowning rates per 100,000 population were Ferry, Pacific, Klickitat, Clallam, and Grant. Unlike many injuries, which commonly occur at or around home, drownings tend to cluster in geographic areas with large bodies of water frequently used for recreation.

A map of drowning rates by county of residence has not been included in this chapter because residence-based rates are of limited value in pinpointing areas of high risk for drowning. Further, because more than half of Washington's 39 counties average fewer than five drowning deaths per year, county comparisons are not likely to be meaningful. Drowning rates appear to be higher for residents of small town/rural areas than for residents of more developed, densely populated areas.

With the exception of infants, males of all ages have substantially higher drowning rates than females. The highest rate of drowning occurs in males 15-24 years of age and those between the ages of 65 and 84. For the elderly, the risk of drowning is considerably less than for other injuries, such as dying from a fall. However, among the 15-24 year-old population, drowning is the second leading cause of unintentional injury death. Similarly, the drowning rate for children under the age of 15 is low relative to the rates for older people; nonetheless, drowning is a leading cause of death for this vulnerable segment of our population. Drowning of children younger than five most often occurs in swimming pools and bathtubs. Most drownings among people older than four occur while swimming, boating, or wading in lakes or rivers.



In 1999, there were 44 hospitalizations for near-drowning. A near-drowning incident often produces extensive brain damage. The initial and long-term costs of these incidents are very high. Estimated costs of medical care for an initial stay in the hospital for a near-drowning victim range from \$2,000 to \$80,000. The lifetime costs of long-term care for a near-drowning that results in brain damage can be more than \$4.5 million.²⁰

Risk factors associated with drowning include:

Alcohol. Drinking alcohol while engaged in water recreation activities is recognized as a key risk factor for drowning.²¹

Supervision. Lack of adequate supervision is a factor related to drowning of young children and people who have pre-existing medical conditions, such as seizure disorders.

Pool Barriers. The lack of pool barriers or improperly designed and maintained barriers, especially around residential pools, increases the risk of drowning for young children.

Personal Flotation Devices (PFD). In 2000, 80% of boating-related fatalities in the United States involved victims who were not wearing a PFD or lifejacket.²² Only an estimated 25% of Washington residents in small boats wear PFDs.²³

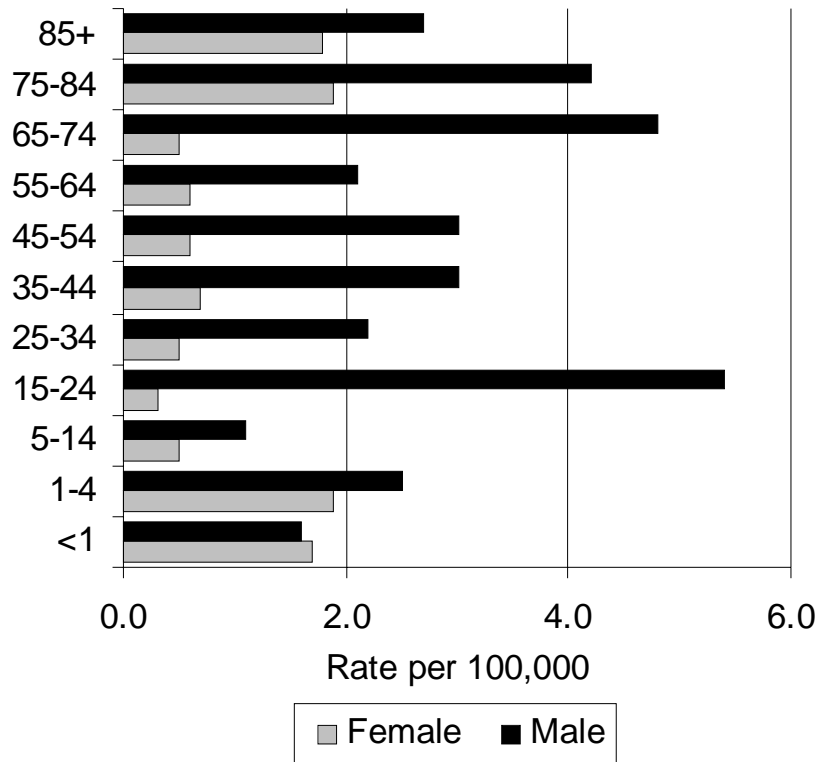
Environmental Factors. Cold water or turbid water, riptides with ocean currents, and fast moving waters that appear still or quiet are risk factors for drowning. Difficult water conditions are especially dangerous when combined with adverse weather or changes in weather conditions.

High Risk Populations

Populations at highest risk for drowning include:

- young children younger than five years old;
- males, especially males 15 to 24 and those age 65 or older;
- people who engage in water recreation activities while under the influence of alcohol;
- people with seizure disorders; and
- people who cannot swim.

**Drowning Deaths
Age and Gender
WA State Death Certificates, 1998-2000**



Effective Interventions

Drowning

To date there has been no systematic evaluation of interventions designed to change behaviors and risk factors associated with drowning. Program evaluation is needed to assure that interventions are effective and identify the best methods for implementation. Some of the strategies that have been attempted or considered, consistent with recommendations from the National Center for Injury Prevention and Control,³ include the following:

Promote close supervision of young children. Develop water safety programs for parents to promote appropriate supervision of young children in or around water.

- Make PFDs available for use at no cost at public water recreation facilities.

Promote installation and maintenance of pool barriers.

- Work with the pool industry to provide responsible information on pool safety, barriers, and supervision when selling and installing pools.

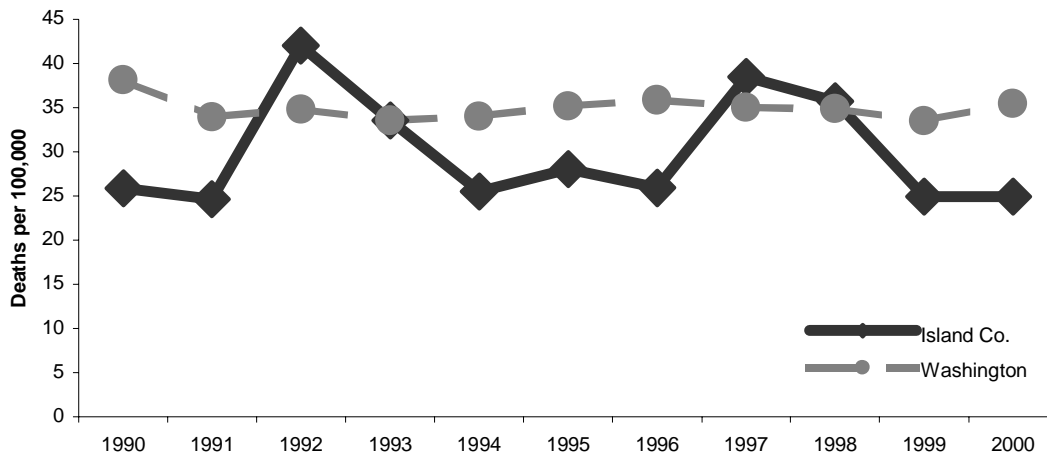
- Develop partnerships with the insurance industry to implement incentives to ensure facilities are safely designed, maintained and operated.

Local Data: Findings

Unintentional Injury Trends

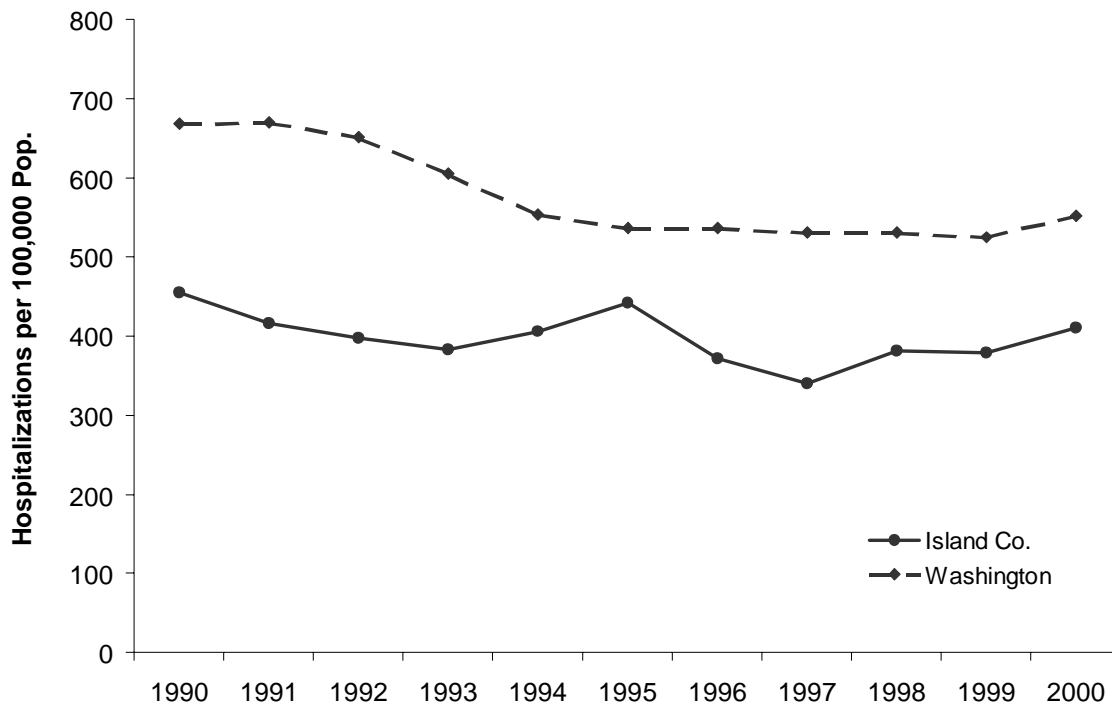
Unintentional injuries were the fifth leading cause of death in Island County between 1996 and 2000, causing the deaths of 102 people. This constituted approximately 4% of all deaths. The rate of unintentional injury deaths during this period was 30 deaths per 100,000 residents. Neither Island County nor Washington State experienced significant changes in the rate of unintentional injury deaths during this period.

**Age-Adjusted Unintentional Injury Mortality Rates
Island Co. & Washington 1990-2000**



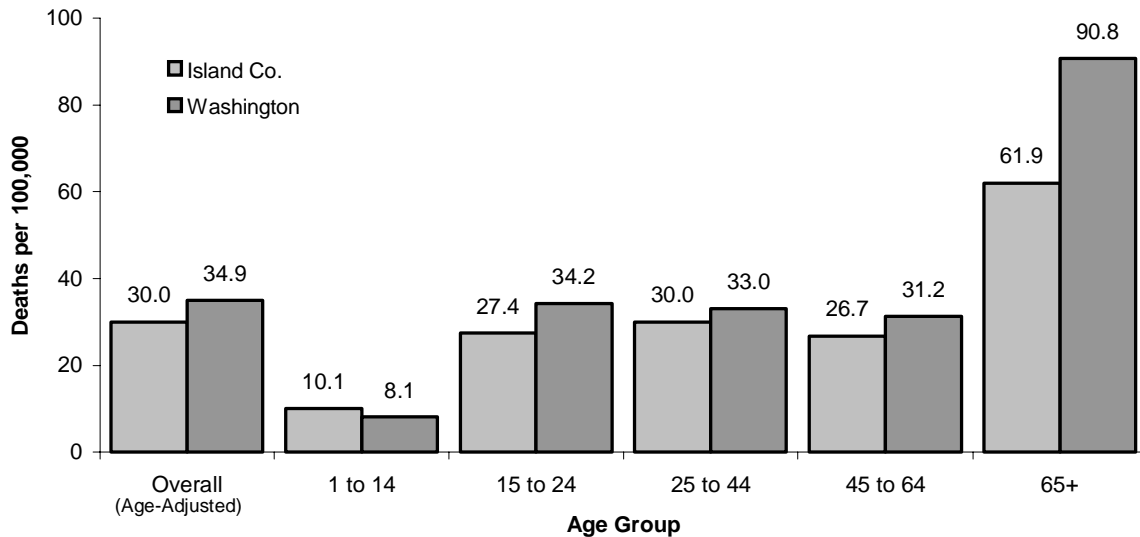
In general, rates of hospitalization for unintentional injuries were lower in Island County than in Washington as a whole between 1990 and 2000. Both the county and the state show generally decreasing trends, although Island County experienced a notable peak in 1995. Island County rates increased from 1998 onwards, but this is probably not a reflection of an actual increase in hospitalizations so much as the correction of a problem in the hospitalization data before 1998.* Nevertheless, rates of hospitalization due to unintentional injury were lower in Island County between 1996 and 2000 than in the previous period of 1990-1995 (376.2 per 100,000 vs. 416.0).

Unintentional Injury Hospitalizations Island County & Washington, 1990-2000



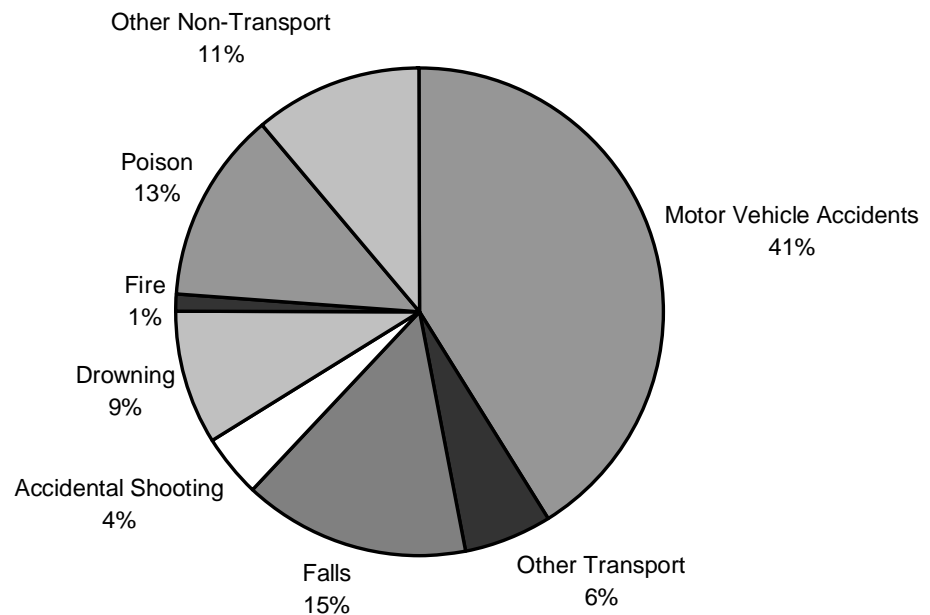
Island County experienced a somewhat lower rate of unintentional injury deaths than Washington State between 1996 and 2000, but not significantly so. While unintended injuries were the leading cause of death for people between the ages of one year and 44, the highest rate of injury deaths occurred among folks aged 65 and older. Among this age group, Island County residents had a significantly lower rate of deaths due to unintended injuries than the state as a whole.

Unintentional Injury Mortality Rates by Age Group Island Co. & Washington, 1996-2000



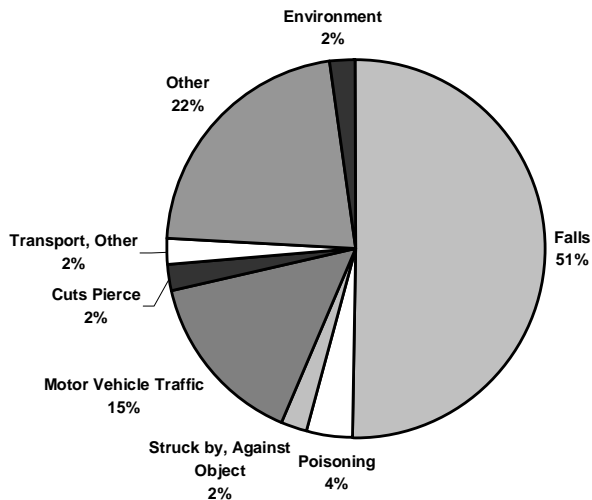
The most common form of unintentional injury death in Island County was due to motor vehicle accidents, which comprised 41% of injury deaths in the county between 1996 and 2000. Falls accounted for 15%, and poisonings for an additional 13%.

Types of Unintentional Injury Deaths Island Co. 1996-2000



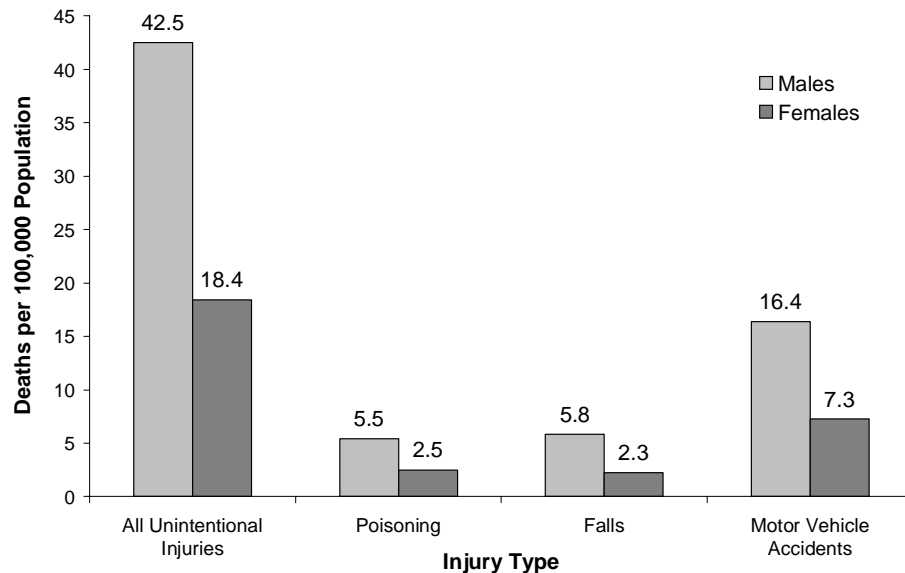
When unintentional injuries are examined as a cause of hospitalizations, a somewhat different pattern emerges. While they are the leading cause of unintentional injury deaths, motor vehicle accidents only accounted for 15% of hospitalizations. Fully one-half of hospitalizations were caused by falls. Accidental poisonings were the reason for 4% of unintentional injury hospitalizations, while no other cause exceeded 2% of the total.

**Unintentional Injury Hospitalizations*
Island County 1995-1999**



Males were more likely than females to die from unintentional injuries, with a mortality rate of 42.5 deaths per 100,000 between 1996 and 2000 compared to only 18.4 among females. Males were significantly approximately twice as likely as females to die in auto accidents (16.4 deaths per 100,000 vs 7.3 among females). In addition, between 1996 and 2000, all deaths by drowning (seven) and accidental gunshot deaths (four) occurred among men.

**Age-Adjusted Unintentional Injury Mortality Rates
by Sex and Cause, Island Co. 1996-2000**



Men had higher mortality rates than females in all age groups. This held true for all age groups except the youngest (Under 25 years old). The greatest difference was in the 25 to 44 year-old age range, when men were found to be almost five times more likely to die from an unintentional injury than women (48.4 deaths per 100,000 vs 10.4 deaths among females).

Firearm Safety and Storage

Nationally, a number of unintentional injuries involve firearms. The Island County BRFSS asked questions regarding firearms in the home. Fifty-three percent of respondents keep guns in or around their homes, the most common reason being for hunting or sport. Among gun owners, eleven percent have a firearm in or around the home that is loaded and unlocked. The subgroups most likely to have firearms were:

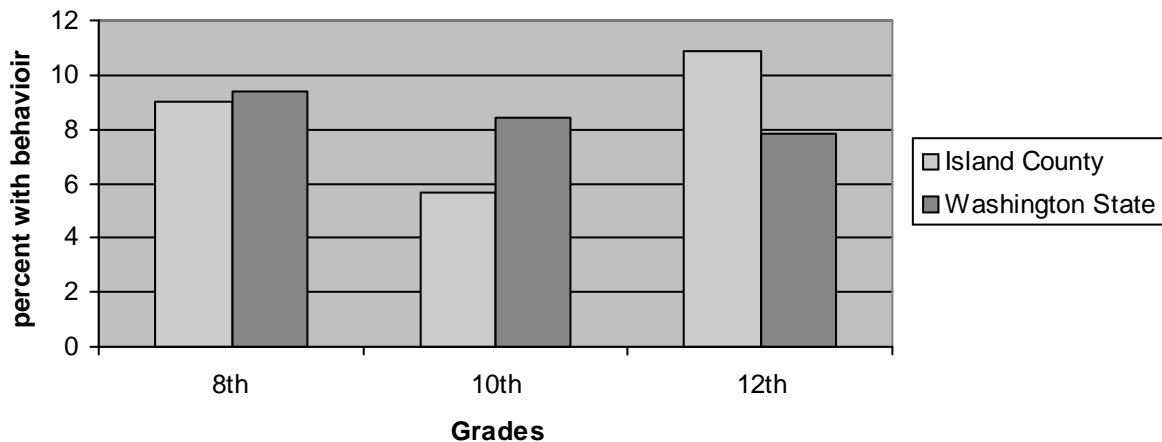
- Respondents with household incomes of \$25,000 or more (of whom 69% reported having firearms) compared to those with incomes under \$25,000 (34%);
- Respondents who did not attend college (60%), compared to those who attended college (49%);
- Respondents age 30 and older (59%), compared to respondents under age 30 (39%);
- Men (58%), compared to women (48%).³

Each year, fewer than five injuries and deaths in the county are attributable to firearms.

Youth Weapon Carrying and Perceptions Regarding Handgun Availability

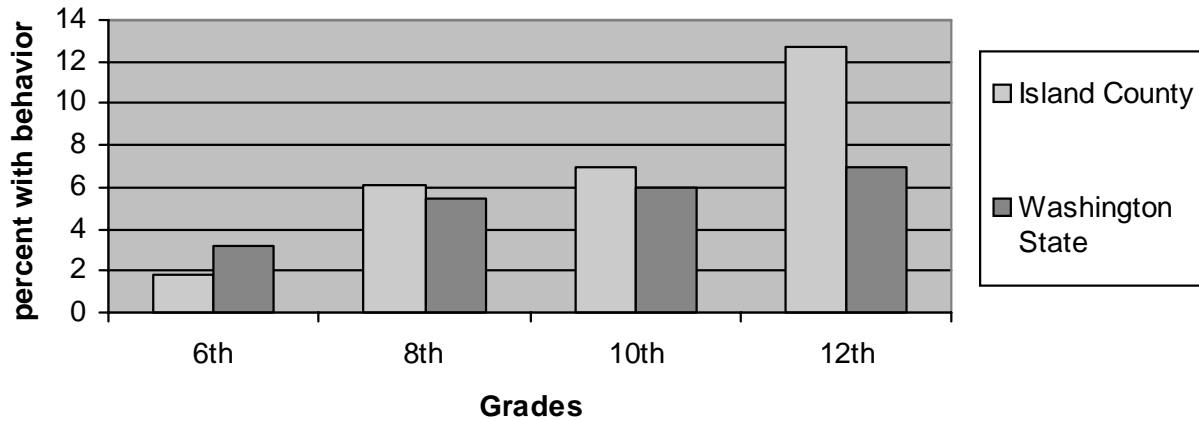
Island County 12th grade youth were statistically higher than the state rate when asked whether they carried a weapon in general and whether they carried a weapon to school. In each grade and in each of the past three Healthy Youth Surveys (1998, 2000, 2002) there have also been increases in the perceptions that handguns are more available to youth.

**Carried a Weapon in the Past 30 Days,
Washington State and Island County, 2002**



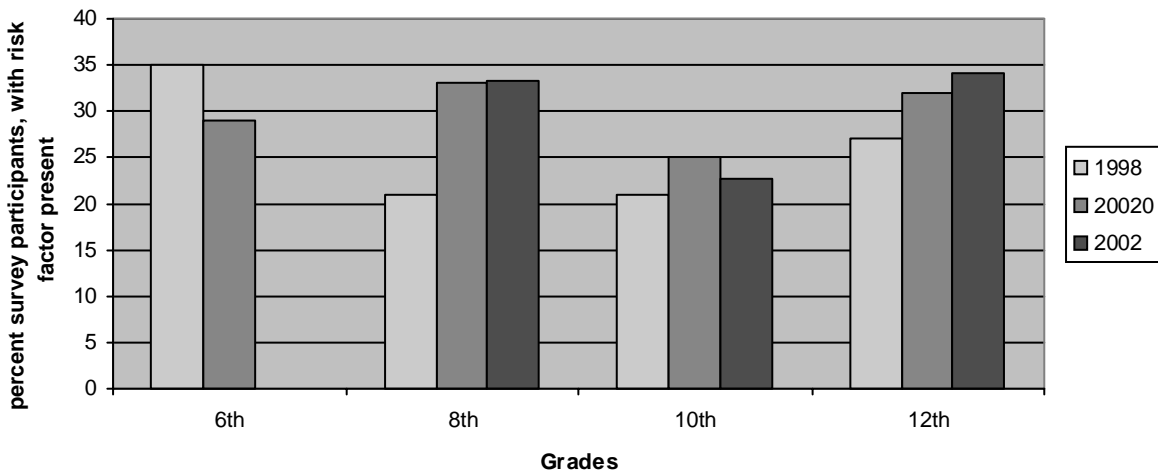
Source: Healthy Youth Survey

Carried a Weapon in the Past 30 days on School Property, Washington State and Island County, 2002



Source: Healthy Youth Survey

Perceived Availability of Handguns, Island County, 1998-2002

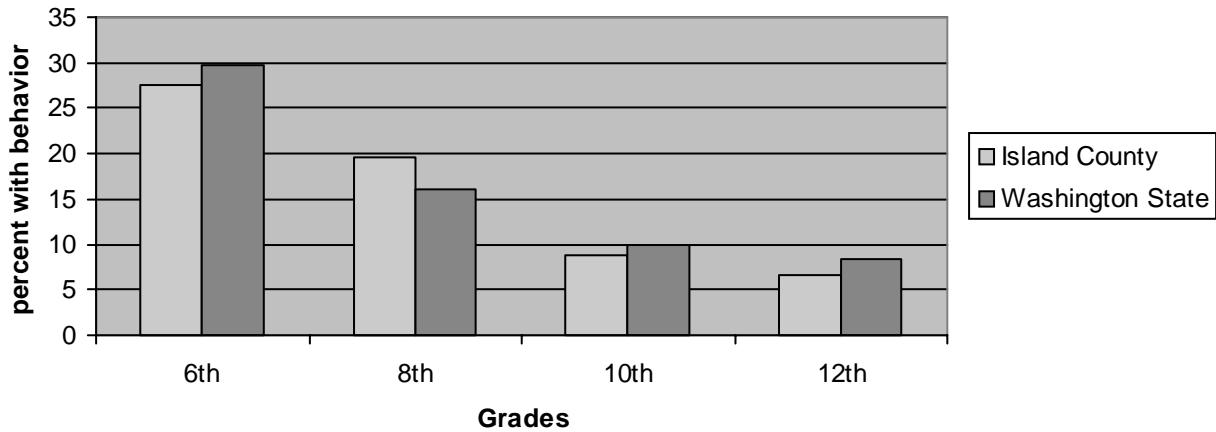


Source: Healthy Youth Survey

Bicycle Safety and Helmet Use

Island County has two sources of local data regarding bicycle safety: one source is the Island County BRFSS in which adult respondents were asked how often their child (children) wore bicycle helmets; the other source is the Healthy Youth Survey in which youth were asked how often they wore a bicycle helmet. The Healthy Youth Survey shows youth use of bicycle helmets is a concern, as less than 30% of youth always wore their helmet and use greatly declines with each grade level.

Always Wore a Bicycle Helmet, Washington State and Island County, 2002

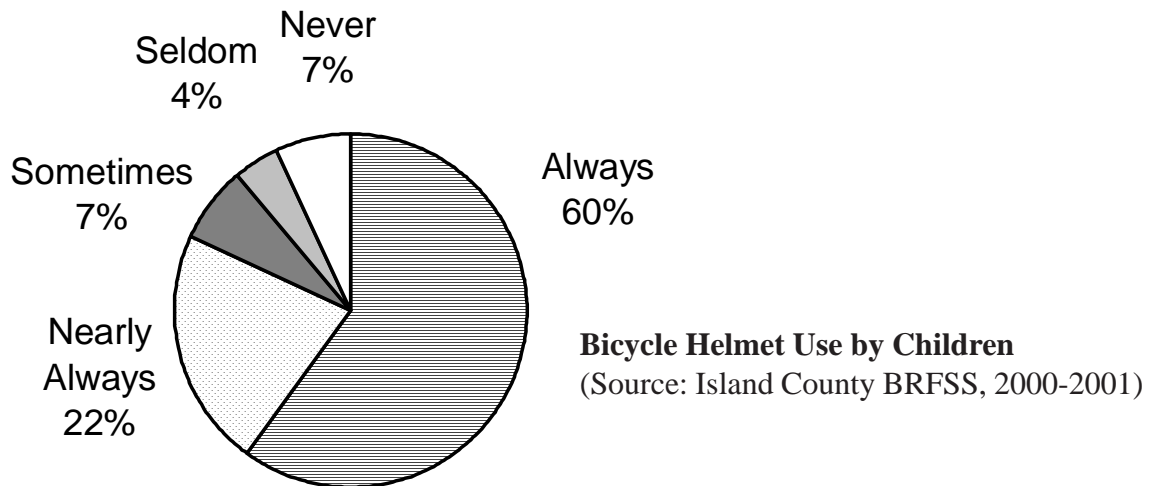


Source: Healthy Youth Survey

BRFSS respondents with children between 5 and 16 were asked how often their youngest child in this age group wears a helmet while bicycling. Among the children who ride a bicycle, 60% “always” wear a helmet, while 7% “never” do, consistent with 1996 findings.

Subgroups that were more likely to say their child “always” wears a bike helmet included:

- Respondents age 25 to 34 (67%) compared to respondents age 35 to 44 (45%), and
- Persons earning \$50,000 or more per year (67%) vs. those earning \$20,000-\$50,000 per year (47%).



Bicycle Helmet Use by Children
(Source: Island County BRFSS, 2000-2001)

Base = 228 respondents with children between 5 and 16 years old

Question 168: During the past year, how often has the youngest child under 16 worn a bicycle helmet when riding a bicycle? Would you say ... ?

Smoke Detectors

We also asked BRFSS respondents about their testing of the smoke detectors in their homes. Two-thirds of respondents (66%) said their home smoke detectors had been tested within the past six months; 30% said they had been tested within the previous month.

It is a good practice to change the batteries in your smoke alarms two times a year, corresponding with time changes (spring/fall).

Smoke Detectors

(Source: Island County BRFSS, 2000-2001)

Within the Past Month	30%
1-6 Months Ago	36
6-12 Months Ago	14
1 or More Years Ago	7
Never	7
No Smoke Detectors in Home	1
Don't Know/Unsure	5

Healthy People Goals

Two *HP2010* goals are to reduce hospital emergency department visits caused by injuries and reduce deaths caused by unintentional injuries (to 17.5 deaths per 100,000 population).

One of the national injury prevention goals for older adults is to reduce the incidence of hip fracture, the most serious and costly injury associated with falling. The national *Healthy People 2000* goal was to reduce the overall rate of hospitalizations for hip fracture among people age 65 or older to a rate of no more than 607 per 100,000 population (1995 Revisions). Washington did not achieve this target. The *Healthy People 2010* goal is to further reduce this rate to no more than 416 per 100,000 for women and 474 per 100,000 for men.

Historically, Washington's population age 65 or older has had lower rates of hip fracture than the nation as a whole. In 1998, the national hip fracture rate for people age 65 or older was 1,056 for women and 593 for men. By comparison, Washington's rates for that same year were 970 for women and 434 for men. Washington has consistently met the national goal for older males; however we are far from achieving the goal for older females. In view of historical trends and the continued aging of the population, it is unlikely that hip fracture rates in Washington will decrease or even stay the same without substantial, continuous efforts to engage older adults in health promotion behavior and effective management of chronic conditions.

The national *Healthy People 2000* goal for motor vehicle deaths was an age-adjusted rate not to exceed 14.2 per 100,000. Washington's 2000 rate for motor vehicle deaths would be 12.3 per 100,000 if measured in a way comparable to the *Healthy People 2000* goal (that is age-adjusted to the US 1940 standard population and adjusted for changes in ICD-coding described in the Health of Washington publication).

The national *Healthy People 2010* goal is to further reduce motor vehicle deaths to a rate of no more than 9.2 per 100,000. If the current trend continues, Washington will probably meet this target. Another *HP2010* goal is to increase the use of safety belts (to 92%) and child restraints (to 100%) in automobiles.

Despite progress in reducing the drowning rate, Washington did not meet the *Healthy People 2000* goal that the drowning rate not exceed 1.3 per 100,000 population. Washington's 2000 rate for drowning would be 1.6 per 100,000 if measured as was the *Healthy People 2000* goal (that is, age-adjusted to the US 1940 standard population and adjusted for changes in ICD-coding described in Appendix B). The national *Healthy People 2010* goal is to further reduce the drowning rate to 0.9 drownings per 100,000 population. If current trends continue, Washington is not likely to meet this goal without intensified drowning prevention efforts.

Another *HP2010* goal is to reduce the proportion of persons living in homes with firearms that are loaded and unlocked. The goal is to reduce the rate to 16% of the population.

Additionally the *HP2010* is to increase the number of states/localities that have laws requiring bicycle helmets.

End Notes

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- ¹⁹ Washington Traffic Safety Commission. 2000 Survey of Passenger Restraint Use Among Children, 2001.
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- ²¹ Howland J, Hingson R. Alcohol as a risk factor for drowning: a review of the literature (1950-1985). Accident Analysis and Prevention 1988;20:19-25.
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- ²³ Quan L, Bennett E, Cummings P, Trusty M, Treser C: Are life vests worn? A multiregional observational study of personal flotation device use in small boats. Injury Prevention 1998; 4:203-205.

* The Washington Comprehensive Hospital Abstract Reporting System (CHARS) data assigns to cases to counties based upon the patient's Zip Code. Unfortunately, before 1998 Camano Island residents received their mail through the Stanwood Post Office. Stanwood is in Snohomish County, hence Camano Island residents were assigned to Snohomish County. However, in calculating rates, the population of the entire county has been used, thus artificially deflating the rates. This situation was resolved in 1998 when the U.S. Postal Service assigned Camano Island its own Zip Code.

Unintentional Injury

Local Resources

Island County Health Department at <http://www.islandcounty.net/health/communic.htm>.

Public Health Nurses are available by phone Monday thru Friday during normal working hours at
..... (360) 679-7351 ext. 7272 or (360) 240-5554 ext. 7671
After hours & weekends call (360) 914-0840

Helpful Internet Sites

Advocates for Highway and Auto Safety website at www.saferoads.org. An alliance of consumer and safety groups and insurance companies and agents who encourage the adoption of federal and state laws, policies and programs that save lives and reduce injuries. Safety issues, links to other website resources, attitude and poll data, summary of safety laws by state.

Bicycle Helmet Safety Institute at www.helmets.org/proginfo.htm. A consumers guide to helmets, helmet campaign help, information on inexpensive helmets, and more.

Buckle Up America at www.nhtsa.dot.gov/people/injury/airbags/buckleplan/buckleup/. This site contains reports on what has worked elsewhere, and includes a comprehensive Action Kit with fact sheets, letter templates, sample press releases, and partnership building information.

Building Safe Communities at www.edc.org/HHD/csn/bsc.

Centers for Disease Control (CDC) National Center for Injury Prevention and Control website at www.cdc.gov/ncipc/. NCIPC works closely with other federal agencies; national, state, and local organizations; state and local health departments; and research institutions to reduce injury, disability, death, and costs associated with injuries outside the workplace. The website includes resources for bike safety, restraint use, teen driving, and other traffic safety issues.

Children's Hospital and Regional Medical Center, Safety All Stars Program at www.safetyallstars.com

The Future of Children website at www.futureofchildren.org. This site disseminates timely information on major issues related to children's well-being, with special emphasis on providing objective analysis and evaluation, translating existing knowledge into effective programs and policies, and promoting constructive institutional change.

Insurance Institute for Highway Safety website at www.highwaysafety.org. A nonprofit research and educational organization funded by the auto insurance industry to perform safety testing, collect statistical data, and fund and publish research on highway and motor vehicle safety issues such as selecting a safer car.

Kids Page at www.nhtsa.dot.gov/people/outreach/KidsPage. A useful website with materials to teach kids to ride safely.

Mothers Against Drunk Driving (MADD) at www.madd.org. A grassroots organization with more than 575 chapters nationwide (214-744-6233) that focuses on public awareness, victim services, and advocacy against impaired driving. They provide speakers, brochures, posters, and contact names for local chapters.

National Bike safety network website at www.cdc.gov/ncipc/bike/. A coalition of public and private organizations and agencies working together to increase safe bicycle use by reducing the incidence of traumatic brain injuries from bicycle use, promoting safe cycling as a viable transportation alternative, and preventing injuries to sites other than the head. This group provides information on programs, legislation and research, develops national programs on bicycle safety, and shares resources.

The National Center for Injury Prevention at www.cdc.gov/ncipc/default.htm

National Health and Traffic Safety Administration website at www.nhtsa.dot.gov. Traffic Safety Programs: 202-366-1755. Auto Safety Hotline: 888-327-4236. Traffic Safety materials: 202-366-5399. Safety Countermeasures: 202-366-2062. Responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes by setting and enforcing safety performance standards for motor vehicles, and by providing grants to conduct effective highway safety programs. Provides resource materials, technical assistance, training and data.

National Safety Belt Coalition at www.nsc.org/traf/sbc.htm or 202-296-6263. A network of organizations that promote the lifesaving benefits of correctly used safety belts and child safety seats, focusing on the importance of correct safety belt use and effective occupant protection laws. The Coalition provides support and assistance in implementing highway safety programs as well as useful materials, ideas, speakers, and technical assistance.

PEDS website at www.peds.org. A member-based advocacy group founded to change community attitudes to favor pedestrians; to increase walking and other pedestrian activity; to ensure the design of pedestrian-oriented communities; to advance the equitable use of transportation funds; and to reduce the risk to pedestrians of injury and death. They sponsor the Neighborhood PACE Car Program; you can join PACE on their website.

SafeKids website at www.safekids.org or 202-662-0600. The home of the National Safe Kids Campaign, protecting kids from their number one killer: unintentional injury. Funded by corporate partners such as Johnson & Johnson and General Motors. The Campaign supports a network of injury prevention professionals and more than 270 coalitions around the country. Includes a link on selecting child seats.

Safety Council, Seniors Fall Prevention website at <http://www.safetycouncil.org/info/seniors/fallprev.html>.

Students Against Destructive Decisions (SADD) at ACCSDalton@aol.com. SADD is a youth-powered organization with 25,000 chapters across the country. They offer programs to middle schools, high schools, and colleges, to promote safe driving and warn against substance abuse and underage drinking. Group activities on a local basis vary as interested students pass through high school.

Washington State Department of Health Injury Prevention Program website at <http://www.doh.wa.gov/cfh/INjury/Default.htm>. This site has tables with injury data for deaths and hospitalizations.