

Toward an Injury-Free & Violence-Free Minnesota

A Working Plan for 2010



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MINNESOTA MDH DEPARTMENT OF HEALTH

Injury and Violence PREVENTION

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May 2008

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To the Reader:

We are pleased to present this plan to reduce injury and violence in Minnesota. Injury and violence are among the leading causes of death and disability in our state. As you will read in this plan, injuries and violence have a major impact on the health of our population and on health care costs. Needless death, disability, pain, and suffering caused by preventable injuries must be reduced immediately, and eventually eliminated.

This plan reflects the best thinking of many people in our state and throughout the nation. They have shared their insight on ways to prevent the severe burden of injury and violence on individuals and our society. The message is positive. We can prevent injury and violence, if we work together. There is a role for everyone in this plan.

We appreciate the work of our staff and the many agencies and organizations that have had a part in developing this plan. Now as we work toward implementation, we will cooperate with many more individuals, organizations, and agencies. Working together, we can move toward an injury-free, violence-free Minnesota!

Sincerely,

Dianne Mandernach
Minnesota Commissioner of Health
2005-07

HOW THIS PLAN WAS DEVELOPED

Since the early 1990s, the Injury and Violence Prevention Unit (IVPU) of the Minnesota Department of Health (MDH) has analyzed data and conducted programs to prevent injury and violence. This plan uses knowledge gained from these experiences to plan future work to prevent injury and violence.

IVPU staff developed the general concept and organization of the plan, but many others lent their expertise and opinions. See **Acknowledgments** for individuals who worked on each topic area. They include people from within MDH and from many external partner agencies and organizations. Staff also consulted with other sections of MDH that have developed plans for prevention of diabetes, cancer, and cardiovascular health; many of the risk factors and prevention strategies in these areas also apply to injury and violence.

For each topic in the plan, the IVPU determined the scope of the issue or problem by reviewing its own data and data from other state and national agencies and organizations. Goals were based on Healthy People 2010 and were made specific to Minnesota with the advice of people and agencies working in the appropriate areas. Prevention strategies were based on a literature search and contacts with partners to determine proven best practices in each area.

After initial drafts were developed, two advisory groups – The Minnesota Trauma Data Bank Advisory Committee and the Violence Surveillance Advisory Group – reviewed the plan and made recommendations based on their own knowledge and experience. Project officers at the Centers for Disease Control and Prevention also reviewed the plan.

As part of the process, the IVPU staff held a half-day retreat to refine the plan further. It also conducted an analysis of Minnesota's strengths and weaknesses in achieving the plan's goals, as well as opportunities and threats to implementation (SWOT analysis).

ACKNOWLEDGMENTS

The following individuals actively provided insight, knowledge, and resources as the plan was developed. See Appendix A for a roster of the advisory groups that were part of the development or review of the plan.

Bicycle Injuries
Carol Bufton, Minnesota Safety Council; Mary Nelsestuen, other members of Minnesota State Bicycle Advisory Committee; Mark Kinde, IVPU

Child Maltreatment
Anita Berg, Partners for Violence Prevention; Diane Benjamin, Director, KIDS COUNT, Children's Defense Fund Minnesota; Junie Svenson, Maureen Fuchs, and Nancy Reed, MDH Maternal and Child Health; Sara Seifert, IVPU

Drowning
Carol Bufton, Minnesota Safety Council; Staff, Minnesota Department of Natural Resources; Mark Kinde, IVPU

Falls
Carol Bufton, Minnesota Safety Council; Jean Wyman, School of Nursing, University of Minnesota; Heather Day and Jon Roesler, IVPU

Firearm Injuries
Rebecca Thoman, Citizens for a Safer Minnesota; Ayo Adeniyi, IVPU

Home Fires
Carol Bufton, Minnesota Safety Council; Dan Bernardy, Minnesota Fire Marshal; Mari Mevissen, IVPU

Intimate Partner Violence
Dave Mathews, Domestic Abuse Project; Marlene Jezierski and Anita Berg, Partners for Violence Prevention; Maureen Holmes, IVPU

Motor Vehicle Crashes
Carol Bufton, Minnesota Safety Council; Kathy Swanson, Office of Traffic Safety, Minnesota Department of Public Safety; Evelyn Anderson, IVPU

Poisoning
Steven Setzer, Minnesota Poison Control Center; Evelyn Anderson, IVPU

Sexual Violence
Carla Ferrucci, Minnesota Coalition Against Sexual Assault; Anita Berg, Partners for Violence Prevention; Amy Okaya, IVPU

Sports and Recreation Injuries
Wes Gravelle, South Carolina Department of Health and Environmental Control; Heather Day, IVPU

Suicidal Behavior
Anita Berg, Partners for Violence Prevention; Ann Gaasch, MDH Suicide Prevention Coordinator; Jon Roesler, IVPU

Traumatic Brain and Spinal Cord Injury
Thomas Gode, Brain Injury Association of Minnesota; John Schatzlein, Minnesota Spinal Cord Resources Network; Jon Roesler, Anna Gaichas, and Heather Day, IVPU

Youth Violence
Anita Berg, Partners for Violence Prevention; Sarah Nafstad, MDH Youth Health Coordinator; Amy Okaya, IVPU

PREFACE

Preventing Injury and Violence in Minnesota: A Working Plan for 2010

Is it possible to have an injury-free, violence-free Minnesota? It is a long-range goal, but no lesser goal would be acceptable. Individually and as a society, we can work toward preventing incidents of injury and violence. Because the causes of injury and violence are multifaceted, prevention efforts must be diverse. Everyone has a role to play.

This is a multi-year plan. Organizations, agencies, and individuals may choose to set their own timelines.

Why have a plan?

- It keeps us focused and helps us prioritize.
- It is based on information about:
  - The worst problems
  - The best solutions
- It helps us see our role.
- It defines the problems and the most effective ways to solve them.
- It suggests actions for individuals, organizations, and agencies.
- It helps us evaluate what has been done and what work is left to do.

How do we make the plan come alive?

- **Do not keep this plan on the shelf.**
- Review it now, and come back to it later.
- Implement those activities in which you have an interest, role, or responsibility.
- Find partners and collaborate to strengthen your efforts.
- Communicate with others; together, we can make a difference.
- Educate others about the major causes of injury and violence and about prevention.
- Start with what is now possible.
- Assess progress periodically.
- Modify work plans based on evaluation results.
- Share the news of your accomplishments.
- Celebrate your successes!
- Repeat the cycle.

INTRODUCTION

INTRODUCTION:
We Can Prevent Injuries and Violence!

What is injury?

The World Health Organization (WHO) defines injury as follows:

> *Injuries are caused by acute exposure to physical agents such as mechanical energy, heat, electricity, chemicals, and ionizing radiation interacting with the body in amounts or at rates that exceed the threshold of human tolerance. In some cases (for example drowning and frostbite), injuries result from the sudden lack of essential agents such as oxygen or heat.*[1]

WHO defines violence as:

> *… the intentional use of physical force or power against oneself, another person, a group, or community that results in injury, death, psychological harm, maldevelopment, or deprivation.*[1]

An injury can be described in a variety of ways:

By body part	*e.g., traumatic brain injury*
By cause	*e.g., motor vehicle crash*
By nature of injury	*e.g., burn*
By intent of injury	*e.g., intentional (assault, self-inflicted injury) vs. unintentional (a term preferable to "accidental")*
By risk factor	*e.g., alcohol, speed, helmet or seatbelt use*
By location, setting	*e.g., playground, home, or work*
By affected group	*e.g., children, elderly people, residents of specific county*
By activity	*e.g., diving or boating*

Injury includes violence. Knowing the intent of an injury can make prevention programs more effective. A firearm injury, for example, may be unintentional, an assault, or self-inflicted. Each is likely to require a different prevention approach. Some forms of violence may not result in a physical injury but are included here because they are of concern and are preventable.

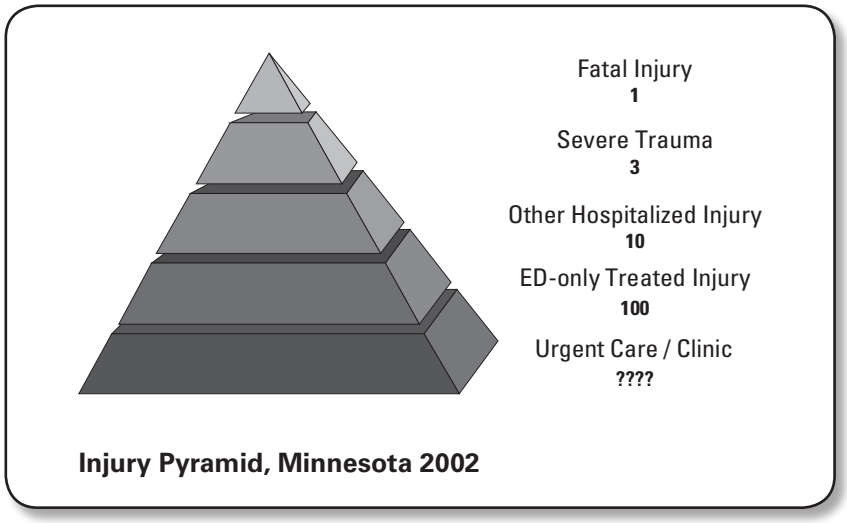
What is the magnitude of the problem?

Injuries threaten the health of all Americans, directly or indirectly.

- Injury is the leading cause of death for children and young adults **(Appendix B).**
- Deaths are a small proportion of the injury problem **(Figure 1).**
- Nine percent of all national health care spending results from initial and long-term care of injuries.
- The total cost in 2003 dollars of United States hospitalized and fatal injuries combined, based on incidence for the year 2000, is $1.1 trillion for all ages and injury intents.[2]

- People with disabilities, who make up 21 percent of Minnesota's population,[3] are particularly vulnerable to injuries and violence. For details, see *Promoting Better Health for Minnesotans With Disabilities,* at www.health.state.mn.us/injury.

Figure 1: Injury Outcomes in Minnesota



For every **death** resulting from an injury, there are three **severe traumas**, which include disabling injuries to the brain and spinal cord; ten other **hospitalized injuries**; and 100 injuries that result in **emergency department treatment** only. At the bottom of the pyramid, representing the largest numbers, are injuries treated in **urgent care, clinics or doctors' offices,** or **self-treated** by people who do not seek health care. At this time, the MDH does not collect or analyze clinic data.

What are our strengths, and what challenges do we face?

In developing this plan, the MDH Injury and Violence Prevention Unit conducted an analysis of Minnesota's present strengths and weaknesses in injury prevention, as well as the opportunities for future development and potential threats to success (SWOT analysis). This analysis was applied to each of the core competencies in injury and violence prevention, as developed by the State and Territorial Injury Prevention Directors Association:[3]

- Collecting and Analyzing Injury Data
- Designing, Implementing, and Evaluating Interventions
- Building a Solid Infrastructure for Injury Prevention
- Providing Technical Support and Training
- Affecting Public Policy

The results of this analysis are incorporated, where appropriate, in this plan.

Does prevention save money?

Injury prevention is a good investment. While prevention programs can cost money, not preventing injury costs much more:

- Every $10 bicycle helmet generates $570 in benefits to society.
- Every $46 child safety seat generates $1,900 in benefits to society.
- Every $31 booster seat generates $2,200 in benefits to society.
- Every $33 smoke alarm generates $940 in benefits to society.
- The average call to a poison control center costs $37 and saves $250 in medical costs At $37 a call, each $1 spent on poison control center services saves $7 in medical spending.[4]

Whose job is injury and violence prevention?

Everyone has a role. In Minnesota, the Injury and Violence Prevention Unit (IVPU) of the Minnesota Department of Health (MDH) coordinates injury prevention efforts. IVPU thus is taking leadership in developing a prevention plan. The mission of the IVPU is to strengthen Minnesota's communities in injury and violence prevention by:

- Collecting and interpreting data on injury and violence,
- Developing and evaluating prevention programs and policies, and
- Providing tools, technical assistance, and information to others.

The plan does not include farm and other occupational injuries. For information on current materials and programs of the IVPU, go to www.health.state.mn.us/injury.

But MDH does not work alone in injury and violence prevention. This plan is for all Minnesotans. Many individuals, agencies, and organizations care about and work toward prevention; they include other state agencies, advisory committees on trauma and violence data, and community organizations and individuals. Everyone will have a role as we work toward an injury and violence-free Minnesota. Whether you are working in a community or at the state level, the following people and organizations might be good partners in implementing strategies:

- health care facilities, health plans, health agencies;
- local or state public health staff;
- social services agencies or state agencies;
- schools or education agencies and organizations;
- faith communities;
- safety organizations; and
- groups that advocate for people who have experienced injuries or violence.

How does prevention work?

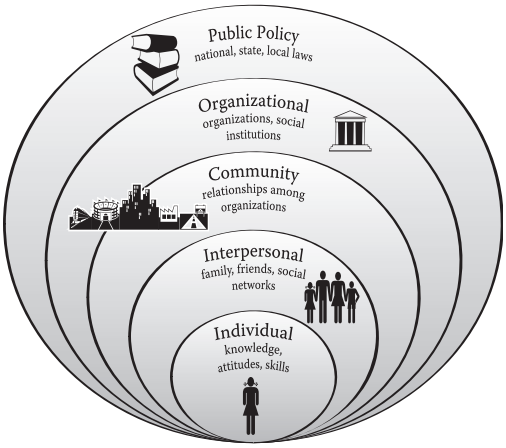
Preventing injuries and violence may seem overwhelming, since prevention …

- involves many different people and organizations;
- requires diverse strategies; and
- presents the difficult task of changing people's actions, attitudes, and beliefs.

This socio-ecological model shows a population-based approach. It puts prevention in a context that goes beyond the individual. Individuals are at the heart, because some of their

choices can either make them vulnerable to injuries and violence or can protect them. The other levels of the model – interpersonal, community, organizational, and public policy – can interact with each other and certainly influence individual behavior.

Figure 2: Population-Based Prevention Paradigm



One might also think of primary, secondary, and tertiary prevention strategies. Although much public health work focuses on **primary prevention** (preventing problems before they occur), we cannot ignore the other levels. **Secondary prevention** focuses on more specific risks and groups at risk, and on immediate treatment to prevent further injury; examples include emergency responders and improved trauma care. **Tertiary prevention** includes provision of services to survivors and families who are affected by, for example, traumatic brain injuries, violence, and suicide. It can prevent future injuries to them and others.

All three levels require partnerships. When the levels communicate, the organizations that do secondary and tertiary prevention work can provide advocacy and support for primary prevention. They see the needs "downstream," when injuries are occurring, and can encourage prevention "upstream," before injuries occur.

The most effective programs work at more than one level!

What should our priorities be?

The task of preventing injury and violence is enormous and multifaceted. What is most important, and where should one begin?

It is easy to decide priorities based on the topic that is making headlines in today's newspaper. Those threats can be real and dramatic, but the smaller news items – a car crash, a suicide, a serious fall, and a case of child abuse – quietly account for thousands of injuries and deaths in the U.S. every year.

This plan uses several criteria for setting priorities:

1. **Leading causes of injury.** The Leading Causes of Injury charts in **Appendix B** describe the injuries that affect the largest number of Minnesotans.

2. **Costs.**
   - Financial cost. In Minnesota, we can determine which injuries result in the highest charges for hospitalization and emergency treatment.
   - Long-term impact on people's lives. Certain types of childhood trauma lead to major health impacts in adulthood.[5] Preventing child maltreatment, for example, can save lifelong problems and costs.
   - Years of potential life lost to people who died prematurely.

3. **Disparities.** We know that risk of injury and violence varies with a person's age, gender, race or ethnicity, socio-economic status, and disability status. Different groups are affected to greater or lesser extents. That knowledge helps us prioritize and plan interventions.

4. **Effectiveness of intervention.** Priorities should be based on the approaches that are proven most effective or are shown to be promising. Many strategies for prevention have been tested and found effective. Others that would appear to be effective have not been shown to be so.

5. **Connection with other goals.** We evaluate how well our goals and strategies relate to national goals (Healthy People 2010) [6] and to goals that have been set by other agencies or by other states that have faced similar issues.

6. **MDH capacity.** The realities of current MDH funding and resources affect the selection of priorities.

How are goals and strategies defined in this plan?

For purposes of this plan, the items labeled "goals" combine an overall vision (what should happen in each topic area) with measurable objectives (such as percentage change anticipated by the year 2010). Most of the strategies listed – the means of achieving the goals – have been tested and proven effective. For some of the strategies, the evidence is not yet conclusive but early indications are positive. Those strategies are indicated as "promising," and further research is recommended.

How can we implement this plan?

This is more than an MDH plan. It is a plan for all of Minnesota. If everyone has a role, where do we start? As you read each section or topic in which you are interested, think of what can be done by:

- You as an individual and members of your family,
- People in your profession or interest group,
- The agency or organization for which you work,
- The organizations in which you participate outside of work, and/or
- Organizations or agencies you can contact to advocate for change.

See Preface for ideas on making the plan come alive.

How can I get further information?

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

See also **MDH Public Health Strategies,** which includes state data and strategies in unintentional injury and violence.
http://www.health.state.mn.us/strategies/index.html

See also **Promoting Better Health for Minnesotans With Disabilities,** MDH Injury and Violence Prevention Unit.
http://www.health.state.mn.us/injury/

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3 State and Territorial Injury Prevention Directors Association, Safe States,2003 Edition, Atlanta (GA).
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http://xnet.kp.org/permanentejournal/winter02/goldtolead.html
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http://www.healthypeople.gov/document/html/volume2/15injury.htm

PREVENTION STRATEGIES

Home and Community Injuries

Drowning
Falls
Firearm Injuries
Injuries and Deaths from Home Fires
Unintentional Poisoning

DROWNING

The Problem

Drowning ranks as the second leading cause of unintentional injury death for children ages 1 to 14. During 2000, about 3,500 Americans died in non-boat related, unintentional drownings.[1]

In Minnesota, 1 to 4 year-olds had the highest drowning rates from 1999-2003.

In Minnesota, 1 to 4 year-olds had the highest drowning rates from 1999-2003 **(Appendix B).** Children under age 1 are most likely to drown in bathtubs, buckets, or toilets. Children ages 1 to 4 are most likely to drown in residential swimming pools. According to the CDC, for each child drowning death, about six children need hospitalization or emergency-department care for their near-drowning or non-fatal submersion injury.

The next highest rates of drowning were among 15 to 24 year-olds. Risk-taking behavior, overconfidence in swimming ability, and alcohol use may play a role. Previous research[2] has estimated that 25 to 50 percent of adult and adolescent drowning deaths are alcohol-related.

Drowning rates are higher for Asian Americans, American Indians, and particularly for African Americans, when compared to whites. Males account for nearly 80 percent of drowning deaths.

Goals

The national goal for the year 2010, from Healthy People 2010,[3] is a rate of 0.9 drownings per 100,000 population, compared to a 1998 baseline of 1.6 drownings per 100,000 population.

The Minnesota goal is to reduce drowning deaths from the 1999-2003 annualized rate of 1.1 per 100,000, to a rate of 0.9 per 100,000 in 2010. For near-drownings, the goal is to reduce the rate from the annualized 1999-2003 rate of 2.0 per 100,000, to a rate of 1.5 per 100,000 in 2010.

How We Will Know We Are Making a Difference

To reach the 2010 goals, we will need to observe a decline each year.

Prevention Strategies

- Collect and analyze drowning data.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Supervise children closely around water.

- Promote, adopt, and enforce pool safety measures and laws, such as building fences, installing locked gates and guards, and providing accessible telephones and emergency retrieval equipment.
- Discourage alcohol use while swimming, hunting, fishing, boating, or with any water-related activity.
- Provide water safety and swimming instruction.
- Promote use of flotation devices.

For More Information

Visit the Minnesota Department of Health (MDH) Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury

CDC prevention sheet: Swim Healthy, Swim Safely. How to keep yourself, and your loved ones, safe and healthy as you head for the water.
www.cdc.gov/node.do/id/0900f3ec8016eb51

Injury Control Resource Information Network: Access data, other resources, and information on education and training.
www.injurycontrol.com

Injury Prevention Web: Link to injury data for all states and 1,100 government and nonprofit organizations worldwide
www.injuryprevention.org

National SAFE KIDS Campaign: Find information specifically related to the prevention of unintentional childhood injury.
www.safekids.org

U.S. Consumer Product Safety Commission, Pool and Spa Safety Publications, U.S. Consumer Product Safety Commission: Read how to prevent drowning through safety; some publications are available in Spanish.
www.cpsc.gov/cpscpub/pubs/chdrown.html

U.S. Consumer Product Safety Commission Warns about Pool Hazards, News Release: Learn about the launch of a drowning prevention initiative, which includes drowning prevention tips.
www.cpsc.gov/cpscpub/prerel/prhtml04/04142.html

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FALLS

The Problem

Falls are the leading cause of serious injury in Minnesota **(Appendix B)**. Minnesotans of all ages have fall mortality rates 60 percent higher than the U.S. rates (Minnesota, 2004: 9.9/100,000; US: 6.2).[1-3] In Minnesota, falls are the leading cause of injury for children, and for all adults aged 35 and older.[4,5] Falls account for almost half the hospitalized injuries and are the leading cause of injuries treated in emergency departments.[4,5]

The problem is especially acute for Minnesotans age 65 and over, whose fall death rates are more than double the national rate.

The problem is especially acute for Minnesotans age 65 and over, whose fall death rates are more than double the national rate.[6] One of every three Americans 65 years old or older falls each year, and falls are the leading cause of injury deaths among this age group nationally.[7-9] The impact of these injuries on the quality of life is enormous. Half of all elderly people who are hospitalized in the U.S. for a hip fracture cannot return home or live independently after the fracture.[10] This loss of independence has a major impact on the individual, his or her family, and on society. Falls are one of the most expensive injuries to society when one calculates hospital charges for the large number of people who sustain falls.

Trends

Fall mortality and nonfatal hospitalized falls have been increasing in recent years, although nonfatal hospitalized falls decreased slightly for the first time in 2005 (Figures 1 and 2).

Figure 1. Fall Mortality
Age-adjusted to US 2000 Population

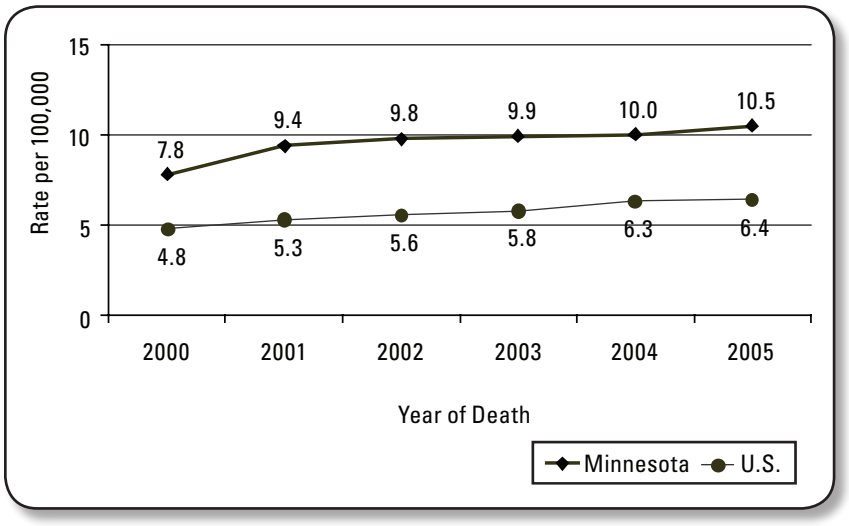
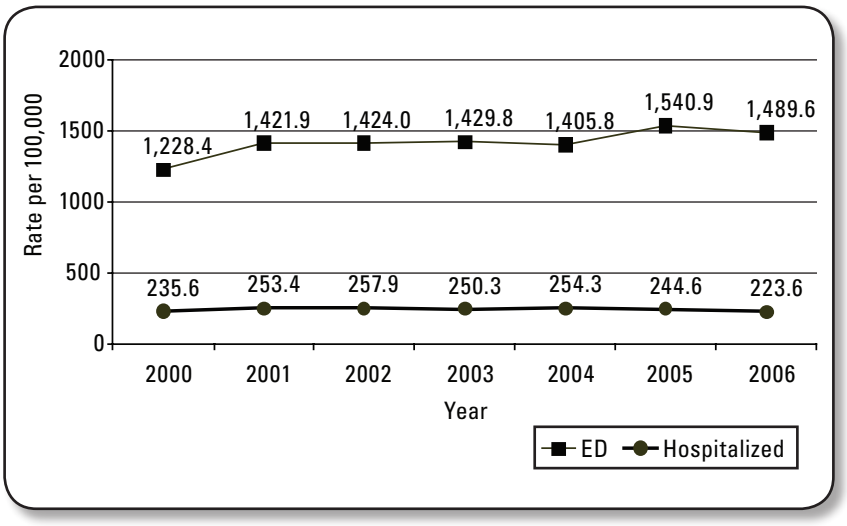


Figure 2. Nonfatal Hospital-Treated Falls
Age-adjusted to US 2000 Population



ED Treated: in emergency department and released

Goals

The **national goal**, as reported in Healthy People 2010,[11] is to reduce fall mortality to 3 deaths per 100,000 population, compared with 4.7 deaths in the year 2000.

The **Minnesota goals** are to reverse the current increasing trends in these three areas:
Reduce the fall mortality rate from 10 per 100,000 (2002) to 7 per 100,000 (2010).
Reduce the hospital-treated fall injury rate from 290 per 100,000 (2002) to 240 per 100,000 (2010).
Reduce the ED-treated injury rate from 1,356 per 100,000 (2002) to 1,000 per 100,000 (2010).

How We Will Know We Are Making a Difference

Annually review hospital and emergency department discharge data to assess the full burden of fatal and nonfatal fall-related injuries, including our progress towards stemming the rate of increase of fall-related deaths.

Prevention Strategies

- Collect and analyze fall data.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Provide home safety and injury prevention education and home safety supplies to the public, through partnerships with day care providers, community organizations, hospitals, and local community health service agencies.

- Conduct visits to assess the home environment. See the Minnesota Department of Health (MDH) Home Safety Checklist,[12] which is used for home visits throughout Minnesota by public health nurses.
- Do not leave infants/children unattended on changing tables, counters, or sofas.
- Install mesh-pattern gates at top and bottom of stairs.
- Do not buy or let infants/toddlers use rolling walkers.
- Provide fall-absorbent surfaces under play equipment.
- For older adults, increase regular physical activity in order to strengthen legs and improve balance (for example, tai chi exercise and walking).
- Review and effectively manage medications to prevent unanticipated interactions and side effects such as dizziness.
- Conduct regular eye examinations; obtain corrective lenses as needed.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

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http://www.biausa.org/word.files.to.pdf/good.pdfs/2002.Fact.Sheet.falls.pdf

Brain Injury Association of Minnesota: Website includes resources for brain injury survivors, including support groups and educational opportunities.
www.braininjurymn.org/

CDC overview: "Preventing Falls Among Older Adults" can be shared with people at risk for falls.
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FIREARM INJURIES

The Problem

On an average day, one Minnesotan dies from a firearm injury, and another has a nonfatal firearm injury.1 Firearms are the second leading cause of traumatic brain injury death in Minnesota. Firearm injuries are often severe; half of those who are injured die. Suicide by firearm is a major issue: 74 percent of the fatal firearm injuries are suicides rather than assaults or unintentional injuries.

On an average day, one Minnesotan dies from a firearm injury, and another has a nonfatal firearm injury

There is a huge racial disparity in firearm injuries in Minnesota. The death rate from firearm injuries is 83 times greater for 15-24 year old African American males than it is for the general population (all ages and races).[2]

Goals

The national goals, from Healthy People 2010,[3] have a 1998 baseline and a 2010 target:

- Reduce the rate (per 100,000 people) of firearm-related deaths from 11.3 to 4.1.
- Reduce the rate of nonfatal firearm-related injury from 24.0 to 8.6.
- Reduce the proportion of persons living in homes with firearms that are loaded and unlocked from 19 percent to 16 percent.

The Minnesota goals have a 2001 baseline and a 2010 target:

- Reduce firearm-related death rates from 6.6 to 4.1 deaths per 100,000 population.
- Reduce nonfatal firearm-related injury from 8.6 to 5.0 per 100,000 population.
- Reduce the proportion of persons living in homes with firearms that are loaded and unlocked, from the current Minnesota rate of 45 percent toward the proposed national goal, 16 percent. Continue the decrease, through aggressive education and enforcement, beyond 2010.
- Educate parents/guardians about the state law that prohibits unsupervised access to firearms by children (under age 18).
- Reduce racial disparities in assaultive firearm-related injuries and deaths.
- Continue the decrease in self-inflicted firearm-related injuries.

How We Will Know We Are Making A Difference

Firearm-related injuries and deaths will be calculated yearly.

Prevention Strategies

- Collect and analyze firearm injury data.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Promote safe storage of guns and ammunition and compliance with state laws prohibiting unsupervised youth access.
- Promote the use and distribution of trigger locks.

- Supervise all youth activity with firearms.
- Promote and provide gun and hunter safety training.
- Promote zero use of alcohol while hunting, carrying, or using a firearm.
- Provide age- and culture-appropriate counseling by primary care providers.
- Implement suicide prevention strategies, including improved access to mental health services.

For More Information

Visit the Minnesota Department of Health (MDH) Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

CDC National Center for Injury and Prevention Control
http://www.cdc.gov/ncipc/dvp/dvp.htm

Firearm & Injury Center at University of Pennsylvania:
http://www.uphs.upenn.edu/ficap/

Harborview Injury Prevention and Research Center: Includes information on tested firearm interventions.
http://depts.washington.edu/hiprc/

Injury Control Resource Information Network: Access data, other resources, and information on education and training.
http://www.injurycontrol.com/icrin/frameicrin.htm

Join Together Online: Devoted to prevention of gun violence and substance abuse. Contains links to news article, research reports, and grant opportunities.
www.jointogether.org/home/

Student Pledge Against Gun Violence: A nationwide campaign for secondary school students to sign a pledge not to bring guns to school and not to use guns to settle arguments.
www.pledge.org/

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http://www.health.state.mn.us/injury/topic/topic.cfm?gcTopic=2 (Publications page)
[2] Firearm-Related Injuries in Minnesota: An epidemiological perspective. Minnesota Department of Health Injury and Violence Prevention Unit.
http://www.health.state.mn.us/injury/topic/topic.cfm?gcTopic=2 (Publications page)
[3] CDC Healthy People 2010: Injury and Violence Prevention Goals.
http://www.healthypeople.gov/Document/HTML/Volume2/15Injury.htm

INJURIES AND DEATHS FROM HOME FIRES

The Problem[1]

Most fire-related injuries or deaths occur in people's homes. In 2003, 76 percent of Minnesota's fire fatalities and 81 percent of civilian injuries occurred in residential structures. While the total number of fire deaths dropped by 22 percent in 2003, residential fire deaths increased by 4 percent.

According to the State Fire Marshal's Office, the total cost of reported burn injuries was nearly $11 million. That figure only reflects fires where a fire department responded to a call. The cost of treating injury victims transported to the hospital by private car or ambulance is not included.

A properly placed, functioning smoke alarm plays a significant role in preventing fire-related fatalities.

Smoke Alarms

A properly placed, functioning smoke alarm plays a significant role in preventing fire-related fatalities. In 20 percent of the fire deaths in Minnesota homes in 2003, no smoke alarms were present or were present but not working. In 34 percent of residential deaths, it was not known whether alarms were present or functional. Only 34 percent of respondents to the Behavioral Risk Factor Surveillance Survey reported having tested their smoke alarms within the past month.

Response and Escape

In Minnesota, 29 percent of civilians injured in a fire reported that they were trying to control the fire when injured. Teaching residents how to safely respond to a fire and quickly exit the home are key to reducing those injuries.

Alcohol and Drugs

Alcohol or other drug use was an impairing factor in 37 percent of fire deaths, but since impairment is seldom reported, its role is probably larger. Being impaired increases the likelihood of starting a fire and then decreases the ability to respond to a fire safely.

Goals

The national goals, from Healthy People 2010[2]

- Reduce residential fire deaths from 1.2 per 100,000 population (1998) to 0.2 per 100,000 (2010).
- Increase the percent of residences with functioning smoke alarms on every floor from

87 percent (1998, self-reported) to 100 percent (2010).

The Minnesota goals:[3]

- Reduce the annualized fire-related death rate from 0.8 per 100,000 (1999-2003) to 0.5 per 100,000 (2010).
- Reduce the nonfatal fire-related injury rate from 23.4 per 100,000 (1999-2003) to 19 per 100,000 (2010).
- Reduce the annualized nonfatal hot object- or substance-related injury rate from 84.9 per 100,000 (1999-2003) to 65 per 100,000 (2010).
- Reduce the percentage of residential fire-related casualties where smoke alarms were absent or non-functioning from 20 percent to 10 percent.*

** The presence and functionality of smoke alarms are required to be reported only for residential fires investigated by the State Fire Marshal's Office. These reports usually deal with fires resulting in a fatality. Data collection strategies are needed to measure alarm functionality for additional Minnesota residences.*

How We Will Know We Are Making a Difference

- Review reports from the National Fire Incidence Reporting System (NFIRS), which collects information on fire rates, fires deaths, and injuries.
- Review MDH death certificate data and injury data for burn and scald rates for deaths and injuries not resulting in a fire call.
- Work with the State Fire Marshal's Office to develop data collection strategies to measure the percentage of homes with functional smoke alarms. Use that baseline to measure improvements in coverage.

Prevention Strategies

- Collect and analyze fire injury data.
- Link NFIRS and MDH data to capture the total picture of fire-related deaths and injuries and better estimate injury costs.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Seek funding to continue to install smoke detectors in high-risk Minnesota communities.
- Promote participation of all Minnesota fire departments in NFIRS.
- Educate the public about fire safety, including fire prevention, smoke alarm maintenance, the relationship of alcohol use to home fires, and the need for fire escape plans.
- Encourage and train health professionals to provide fire safety education messages to patients treated for fire-related injuries.
- Install fire suppression sprinkler systems in homes.
- Encourage older adults and individuals with disabilities to develop fire response skills and an escape plan that accommodate limited mobility or other impairments.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury

CDC Fire Deaths and Injuries Prevention Fact Sheet. Learn costs due to fires as well as prevention strategies.
www.cdc.gov/ncipc/factsheets/fire.htm

Consumer Product Safety Commission: Free and reproducible consumer publications on a variety of injury-related topics, including some Spanish language materials.
www.cpsc.gov

National SAFE KIDS Campaign: Information specifically related to the prevention of unintentional childhood injury.
www.safekids.org

NFPA (National Fire Protection Association): Fire safety and injury prevention catalog materials for sale, public education tips and research articles.
www.nfpacatalog.org

Minnesota Department of Health Public Health Strategies:
http://www.health.state.mn.us/strategies/injury.pdf (fires and falls)

The State and Territorial Injury Prevention Directors Association: Hundreds of links listed by injury topic (including fires), plus legislation, organizations, journals, and university research.
www.stipda.org

U.S. Fire Administration: Fire prevention materials at no charge.
www.usfa.fema.gov

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[1] Minnesota Department of Public Safety, State Fire Marshal Division, "2006 - Fire in Minnesota."
www.fire.state.mn.us
[2] CDC, Healthy People 2010, Chapter 15, Injury and Violence Prevention
http://www.healthypeople.gov/document/html/volume2/15injury.htm
[3] MDH Injury and Violence Prevention Unit, MIDAS – Minnesota Injury Data Access System.
http://www.health.state.mn.us/injury/midas/index.cfm.

UNINTENTIONAL POISONING

(For Self-Inflicted Poisoning, see section on Suicidal Behavior)

The Problem

Poisonings, both self-inflicted and unintentional, are leading causes of hospitalized injuries in Minnesota. When all age groups are combined, unintentional poisoning is the fourth leading cause of hospitalized injury (Appendix B). According to the CDC, U.S. poison control centers handle an average of one poison exposure every 15 seconds.[1] More than 90 percent of poison exposures occur in the home. Carbon monoxide results in more fatalities from unintentional poisonings in the United States than any other agent, with the highest number occurring during the winter months.

In the U.S., medical spending for poisoning treatment totaled $26 billion in 2000 and made up 6 percent of the economic costs of all injuries.[1] For every dollar spent on poison control centers, $7 in medical costs are saved.[2]

Fifty-five percent of poison exposure calls deal with children age 5 and under.

The youngest children are most vulnerable: for infants under age 1, poisoning is the first leading cause of hospitalized injury, and for those ages 1-4, it is the second leading cause. Fifty-five (55) percent of poison exposure calls deal with children age 5 and under. The most common poison exposures for children are household products such as cosmetics and personal care products, cleaning substances, pain relievers, foreign bodies, and plants. Childhood lead poisoning is very preventable; yet, about one million American children have elevated blood levels of lead.

Adolescents are at risk for both intentional and unintentional poisonings. About half of all poisonings among teens are classified as suicide attempts.[3]

For adults, the most common poison exposures are pain relievers, sedatives, cleaning substances, antidepressants, and bites/stings. Use of heroin or other illegal drugs is the leading cause of unintentional poisoning death for adults in their 30s and 40s. For seniors, more than 15 percent of hospitalizations are due to adverse drug effects. Food poisoning also is a risk for seniors.

Non-English speaking people make up 8 percent of Minnesota's population, and 70 percent of them live in the nine-county metropolitan area. Although interpreters are available, few people who speak languages other than English make use of poison control centers.

Rural people do not call poison control centers at the same rate as urban populations.

Goals

The national goals, from Healthy People 2010[4] are as follows:

- Establish and promote a single toll-free telephone number for access to poison control centers on a 24-hour basis throughout the United States.
- Eliminate elevated blood lead levels in children.
- Reduce pesticide exposures that result in visits to a health care facility.
- Reduce nonfatal poisonings from 184.8 per 100,000 (2003 baseline).
- Reduce fatal poisonings from 6.08 per 100,000 (2002).

The Minnesota goals are as follows:

- Reduce nonfatal hospital-treated poisonings from 84.2 per 100,000 (2003 baseline) to 65 per 100,000 (2010).
- Reduce fatal poisonings from 1.79 per 100,000 (average annualized rate, 1990 – 1999 as baseline) to 1.25 per 100,000 by 2010.

Prevention Strategies

- Collect and analyze poisoning data.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Maintain a high-quality poison information center with round-the-clock free service for the public and health care professionals. Document calls using an established database. Analyze caller data to look for emerging trends, location, ages, symptoms, and outcomes. Submit data to national database in real time for surveillance.
- Improve evaluation and outcome measurement, as well as collaboration with other organizations.
- Promote the national logo and telephone number (1-800-222-1222) which connects callers with the nearest poison control center.
- Educate health care plans and providers about the need to screen at-risk children.
- Educate populations at risk for poisoning:

  Children
  - Make presentations on prevention to parents and caregivers.
  - Develop efficient statewide distribution of videos for children and adults.

  Seniors
  - Make presentations and distribute videos to senior groups on adverse effects of medication and potential interactions.
  - Contact pharmacists' associations to educate seniors on safe use of medications.

  People who speak a language other than English at home
  - Develop strategies for making connections with non-English speaking people and encouraging use of poison control centers and information.
  - Develop new materials and translations as needed.

Rural communities

- Conduct continuing education training on poison prevention and poison center services, for public health nurses, social workers, EMS personnel, rural hospital staff, and Indian Health Services. Special topics of concern in rural areas include pesticides, farm hazards, and methamphetamine labs and their toxins.

For More Information

Visit the Minnesota Department of Health (MDH) Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

American Association of Poison Control Centers

Centers for Disease Control and Prevention

- Unintentional Poisoning Deaths, United States, 1999-2004, - February 2007 article in Morbidity and Mortality Weekly Review
  http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5605a1.htm
- General Poison Prevention Fact Sheet
  http://www.cdc.gov/ncipc/factsheets/poisonprevention.htm
- National Center for Environmental Health (NCEH) Fact Sheet: What Every Parent Should Know About Lead.
  http://www.cdc.gov/nceh/lead/faq/cdc97a.htm

MDH Lead Poisoning Elimination Plan
http://www.health.state.mn.us/divs/eh/lead/reports/2010report.pdf

Minnesota Poison Control System: Prevention information for parents, educators, and health professionals

National Poison Prevention Week Council
http://www.aap.org/family/poisonwk.htm

SafeKids Campaign

State and Territorial Injury Prevention Directors Association
(search "Poisoning")
www.stipta.org

References

[1] CDC National Center for Injury Prevention and Control, Poisonings: Fact Sheet, http://www.cdc.gov/ncipc/factsheets/poisoning.htm

[2] Poison Control Center Enhancement and Awareness Act. Public Law 106-174. February 25, 2000.

[3] CDC Healthy People 2010, Chapter 15, Injury and Violence Prevention http://www.healthypeople.gov/document/html/volume2/15injury.htm

[4] Litovitz TL, Klein-Schwartz W, White S, Cobaugh D, Youniss J, Omslaer J, Drab A, and Benson B. 2000 Annual Report of the American Association of Poison Control Centers Toxic Exposures Surveillance System. American Journal of Emergency Medicine, 19(5): 337 – 396; 2001.

PREVENTION STRATEGIES

Motor Vehicle Crashes

MOTOR VEHICLE CRASHES

The Problem

More people have died in motor vehicle crashes in the United States than have died in all this nation's wars. According to *Injury Prevention and Public Health,*[1] motor vehicle crashes account for 29 percent of all injury deaths in the U.S. and 47 percent of all unintentional injury deaths. More than 80 percent of crash deaths involve drivers or other occupants, and the remaining 20 percent are bicyclists, pedestrians, and motorcyclists.

More people have died in motor vehicle crashes in the United States than have died in all this nation's wars.

In Minnesota, motor vehicle-related injuries are the leading cause of injury-related death overall and in nearly every age group.[2] About half the serious traumatic brain injuries and 60 percent of spinal cord injuries are the result of motor vehicle crashes.[3] Those at greatest risk are young (15-24 year old) drivers, elderly drivers, male drivers, unbelted occupants, and unrestrained children. Pedestrian injuries are among the most expensive in terms of hospital charges, and elderly pedestrians are particularly at risk. Pedestrian injuries are among the five leading causes of traumatic brain injuries in children under age 19 and in all adults 55 and over.[4]

Despite earlier declines in motor vehicle crash fatalities, in recent years the rates have leveled off. Alcohol involvement in motor vehicle crashes has not declined significantly. This indicates a need for increasing efforts to promote seat belt use, to reduce rates of drinking and driving, to create safer road and vehicle designs, to improve emergency medical services, and to develop new acute care technologies.

Goals

National goals

Healthy People 2010[5] states these goals (for each, the baseline is 1998 and the goal is set for 2010):

- Reduce deaths per 100 million vehicle miles traveled from 1.6 to 0.8.
- Reduce pedestrian deaths on public roads from 1.9 to 1.0 per 100,000 population.
- Reduce nonfatal injuries caused by motor vehicle crashes from 1,818 to 933 per 100,000 population.
- Increase use of safety belts from 69 percent to 92 percent of the total population. (Minnesota seat belt usage was 83 percent for 2006).
- Increase use of child restraints from 92 percent of motor vehicle occupants aged 4 years and under, to 100 percent.
- Increase the proportion of motorcyclists using helmets from 67 percent to 79 percent of motorcycle operators and passengers. Focus on motorcycle safety.

Minnesota goals

The Toward Zero Deaths[6] coalition (organizations and agencies concerned with reducing motor vehicle crash deaths) set a goal of reducing deaths to 500 in 2008. In 2003, when the coalition began its work, there were 655 deaths, so the goal was a 24 percent reduction. Through strong efforts on many fronts, the death toll was reduced to 494 deaths by 2006, close to the goal for 2010.

Prevention Strategies

- Collect and analyze motor vehicle crash data.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Support legislation for primary enforcement of seat belts.
- Adopt legislation to require use of rear seat seatbelts by adults, as it now is for children ("every body, every seat, every time").
- Strengthen Minnesota's child passenger safety law to include children up to age nine in age-appropriate seats.
- Distribute car seats and teach correct fitting and use.
- Monitor and enforce speed limits.
- Strengthen graduated licensing (increasing privileges as the driver gets older), discuss raising the driving age to 18, and retest elderly drivers more frequently.
- Promote and enforce the law that sets 0.08 percent as the blood alcohol level for Driving Under the Influence.
- Promote public awareness about hazards of sleep deprivation and other driver distraction issues.
- Promote driver awareness of pedestrians and bicyclists.
- Promote use of alternative modes of transportation.
- Modify the physical environment (road design, signs, speed limits, vehicle safety standards, etc.).
- Enhance Minnesota's comprehensive trauma system.

Seatbelts: every body, every seat, every time.

For More Information

Visit the Minnesota Department of Health (MDH) Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury

CDC National Center for Injury Prevention and Control - Impaired Driving
www.cdc.gov/ncipc/factsheets/drving.htm

CDC National Center for Injury Prevention and Control - Teen Drivers
www.cdc.gov/ncipc/factsheets/teenmvh.htm

Minnesota Department of Public Safety - Office of Traffic Safety, Crash Data
http://www.dps.state.mn.us/ots
Minnesota Seat Belt Coalition
http://www.mnsafetycouncil.org/sbcoalition
National Highway Traffic Safety Administration - crash statistics, purchasing a safe car, other safety materials.
www.nhtsa.dot.gov

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[1] Cristoffel, T, Gallagher, S. Injury Prevention and Public Health: Practical Knowledge, Skills, and Strategies, Aspen Publishers, 1999.
[2] MDH Injury and Violence Prevention Unit, Ten Leading Causes of Nonfatal Hospitalized Injury by Age Group and Gender, Minnesota 2001
http://www.health.state.mn.us/injury/pub/ed2001/ed01cause23.pdf
[3] MDH Injury and Violence Prevention Unit: Nonfatal Injury in Minnesota, 1999. St. Paul: Minnesota Department of Health, January 2001.
http://www.health.state.mn.us/injury/pub/ed1999/index.cfm
[4] Brain Injury Association of Minnesota
www.braininjurymn.org
[5] CDC Healthy People 2010, Chapter 15, Injury and Violence Prevention
http://www.healthypeople.gov/document/html/volume2/15injury.htm
[6] Toward Zero Deaths
www.tzd.state.mn.us

PREVENTION STRATEGIES

Sports, Recreation, and Exercise

Bicycle Injuries
Sports and Recreation Injuries

BICYCLE INJURIES

The Problem

In Minnesota in 2001 nearly 5,000 people were treated for bicycle injuries in hospitals or emergency departments, according to data from the Minnesota Department of Health.[1] Nearly 500 Minnesota bicyclists were injured in crashes with motor vehicles. Nationwide in 2001, according to the Centers for Disease Control and Prevention, 45,000 people were injured on bicycles in crashes and 728 died. Young people were particularly affected: two-thirds of the injuries and one-third of the deaths were children or youth under 16.[2]

Simply wearing a bicycle helmet would reduce the risk of brain injury in a bicycle crash by at least 85 percent.[3] If each rider wore a helmet, an estimated 500 bicycle-related fatalities and 151,000 nonfatal head injuries would be prevented each year. This amounts to one death per day and one injury every four minutes.

Simply wearing a bicycle helmet would reduce the risk of brain injury in a bicycle crash by at least 85 percent.

Goals

The **national goal**, from Healthy People 2010,[4] is to increase the number of states and the District of Columbia with laws requiring bicycle helmets for bicycle riders (10 states had laws requiring bicycle helmets for bicycle riders under age 15 years in 1999).

In Minnesota, we will consider legislation to require helmet use by bicycle riders under age 16. In its Bicycle Modal Plan,[5] the Minnesota Department of Transportation (Mn/DOT) has set the goals of developing adequate and appropriate bicycle facilities so that, by 2010:

- Bicycle commuting rates in Minnesota communities of 5,000 or greater population will increase an average of 4 percent from 2000 levels, and
- Bicycle and pedestrian crash rates will be reduced from 2000 rates, contributing to the goals of the Minnesota Toward Zero Deaths program and the U.S. Department of Transportation.

Prevention Strategies

- **Promote bicycle helmet use by parents and children**

The most successful programs to increase helmet use combine education, helmet giveaways or discount programs, and state or local legislation requiring helmet use. Some evidence suggests that legislative efforts are more cost effective than school- or community-based programs. Promising strategies, for which research is not conclusive, include peer education and counseling by physicians.

To obtain funding for distribution of helmets, local groups might consider funding from:

1. Community Health Agencies or Maternal and Child Health Special Projects (MCHSP) grants
2. Insurance companies

3. Retail or service organizations
4. Bike clubs
5. Local police, sheriffs, or other law enforcement agencies

- **Promote social norm change regarding helmet wearing6**
  1. Target 11- to 19-year-old adolescents and 30- to 39-year-old adults.
  2. Support redesign of helmets to address comfort, ventilation, and fashion.
  3. Stress the importance of parental example.
  4. Educate adolescents on the protection from head injury offered by helmets.
  5. Educate the general public about the risks and severity of head injury from bicycle crashes.

- **Teach bike safety in schools and communities**

Law enforcement or state patrol staff members can conduct bicycle safety training at schools, city halls, police departments, or parking lots. Staff of bike repair shops can offer equipment checks.

- **Teach motor vehicle drivers to watch for and be aware of bicyclists**

- **Enforce traffic laws; cite bicyclists**

- **Adopt design and environmental improvements**
  1. Conduct a community audit of streets and highways to identify where there are barriers to walking or biking.
  2. Design streets with multiple, well-marked crossings to help pedestrians, bicyclists, and motorists see one another and anticipate each other's actions.
  3. Make streets more bicycle-friendly by installing bike lanes to allow bicyclists to more safely share the road with motorists.
  4. Build more trails along natural corridors, utility easements, canals and parkways, abandoned rail lines, and other appropriate locations.

Slow down motor vehicles

  5. Slow down motor vehicles. Speeding is a major concern for pedestrians and bicyclists. Many traffic-calming measures can lower vehicle speeds to safer levels.
  6. Develop safe routes to school. Determine the safest routes and give parents maps and information about the benefits of physical activity to encourage their children to walk or bike to school.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury

Bike Helmet Safety Institute: Learn the importance of wearing a helmet when bicycling and what to look for when purchasing a helmet.
www.bhsi.org

CDC National Bike Safety Network: Find information on bike safety programs, legislation, and research.
www.cdc.gov/ncipc/bike

The Law Officer's Guide To Bicycle Safety was developed by the Massachusetts Bicycle Coalitions through a grant from the National Highway Traffic Safety Agency.
http://www.massbike.org/police

League of American Bicyclists web site includes advocacy materials and fact sheets on a variety of topics.
http://www.bikeleague.org/index.cfm

Minnesota Department of Health Public Health Strategies, which has a chapter on prevention of bicycle injuries.
http://www.health.state.mn.us/strategies/injury.pdf

Minnesota Department of Health Bicycle Helmets: Make Sure They Fit!
Colorful poster on correct fitting of bicycle helmets:
http://www.health.state.mn.us/injury/pub/index.cfm?gcCategory=bike

Minnesota Safety Council. Bike Safe, Bike Smart Web site includes bike rodeo planner and other resources for communities and parents.
www.mnsafetycouncil.org/bicycle

References

[1] MDH Injury and Violence Prevention Unit: Nonfatal Injury in Minnesota, 2001. St. Paul: Minnesota Department of Health, 2003.
http://www.health.state.mn.us/injury/pub/ed2001/index.cfm
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[3]Brain Injury Association of Minnesota
http://www.braininjurymn.org/
[4] CDC, Healthy People 2010, Chapter 15, Injury and Violence Prevention
http://www.healthypeople.gov/document/html/volume2/15injury.htm
[5] Minnesota Department of Transportation, The Mn/DOT Bicycle Model Plan, 12/24/04 draft, p. 36,

SPORTS AND RECREATION-RELATED INJURIES

The Problem

Sports injuries exceed motor vehicle injuries as a cause of treatment in emergency departments.[1] Each year, more than 30,000 Minnesotans receive hospital or emergency department (ED) care for sports- and recreation-related injuries. One-third of these injuries involve the head or neck region. For each hospitalized sports- and recreation-injury, about 17 injuries are treated in EDs.

Children and adolescents aged 10 to 14 have the highest rates of these injuries (2,090 injuries per 100,000 population) followed closely by those aged 15 to 19 (1,773 injuries per 100,000 population). But it's not just children who are affected. According to the Consumer Product Safety Commission,[2] sports-related injuries among those ages 35 to 54 -- baby boomers -- increased about 33 percent from 1991 to 1998. Increases occurred in 16 sports activities, especially in bicycling and basketball, due primarily to increased participation by baby boomers.

Increases [in injuries] occurred in 16 sports activities … due primarily to increased participation by baby boomers.

According to national data, basketball was the most common sport or recreation activity causing injury in 1997 to 99, followed by bicycling, "recreational sports," exercising (e.g., jogging, weight lifting, aerobics, etc.), and football.[3] A 2007 article reports on sports-related injuries that cause traumatic brain injuries.[4]

Trends

Preliminary data show an increasing trend in sports- and recreation-related injuries, although surveillance methodology for these injuries needs further refinement.

Figure 1. Minnesota Hospital-Treated Sports and Recreation Injuries Age-Adjusted to the U.S. 2000 Standard Population

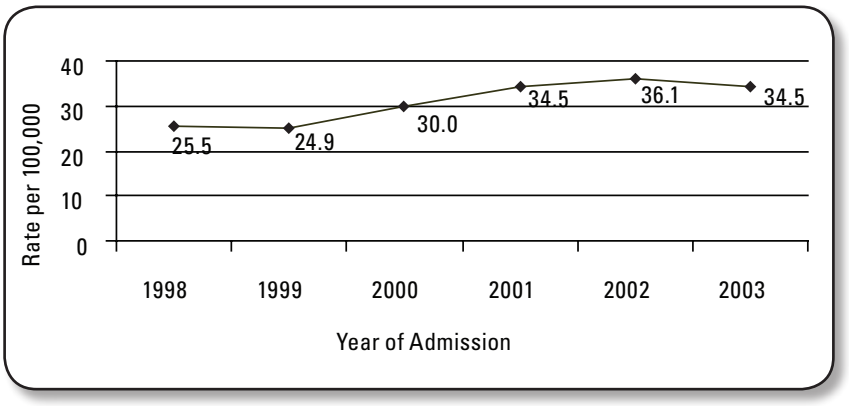
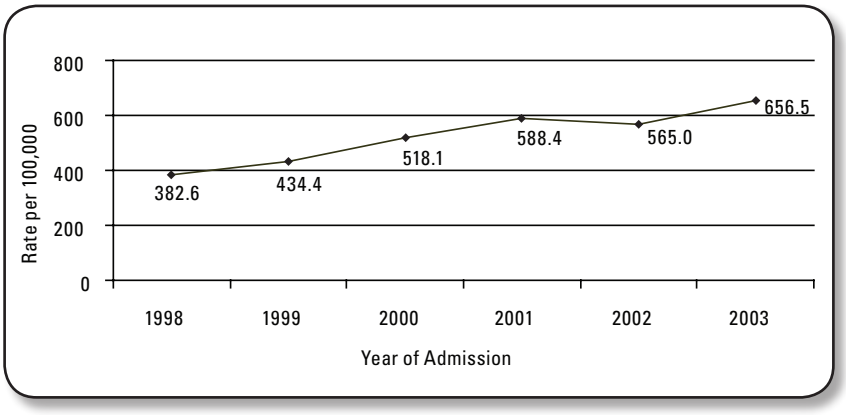


Figure 2. Treated Sports and Recreation Injuries Age-Adjusted to the U.S. 2000 Standard Population



ED Treated: Treated in emergency department and released.

Goals

Because public health surveillance of sports and recreation injuries is still evolving, it is difficult to set numerical goals. Many national estimates have depended on telephone survey and face-to-face interviews. Standard definitions and codes for the causes of these injuries do not yet exist. Our goal is to better quantify sports- and recreation-related injuries, by validating a definition, calculating rates, and identifying risk factors such as gender, age and type of activity specific to Minnesota residents.

In 2005, the MDH Injury and Violence Prevention Unit (IVPU) validated a sports and recreation cause of injury definition based on external cause of injury codes using traumatic brain injury (TBI) data. This allowed collection of data on traditional team and individual sports along with recreational activities such as use of all-terrain vehicles (ATVs), snowmobiling, hunting injuries, horseback riding, and playground injuries.

In 2006 the IVPU calculated a baseline estimate of the frequency and rate of fatal, hospitalized nonfatal, and emergency department-treated sports- and recreation-related TBIs. The IVPU will continue to analyze sports- and recreation-related TBIs and expand surveillance to other types of injuries such as fractures and dislocations.

Prevention Strategies

- Distribute information about return-to-play guidelines after head injury (see For More Information) to coaches, physical education teachers, and recreation leaders.
- Ensure that playground equipment and surfaces meet the standards of the Consumer Product Safety Commission (see For More Information).
- Evaluate injuries sustained by checking in school or youth hockey.

- Promote regular helmet usage by adults and children when bicycling, skateboarding and using scooters.
- Educate hunters and water sport participants about avoiding alcohol before and during the activity.
- Limit use of ATVs and off-highway motorcycles by young people (e.g., limit usage at night, increase minimum age for operation on private property).

Promote regular helmet usage by adults and children.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

Parents
SafeUSA. This national clearinghouse on injury prevention has links to fact sheets on a wide variety of sports or related activities that can occur at school.
http://www.safeusa.org/school/safescho.htm

The Consumer Product Safety Commission:
Home Playground Safety Checklist
http://www.cpsc.gov/CPSCPUB/PUBS/Pg1.pdf

Tips for Public Playground Safety
http://www.cpsc.gov/CPSCPUB/PUBS/Playfct.pdf

The journal of the National Institute of Arthritis and Musculoskeletal and Skin Diseases published Childhood Sports Injuries and Their Prevention: A Guide for Parents With Ideas for Kids
http://www.niams.nih.gov/Health_Info/Sports_Injuries/child_sports_injuries.asp

Physicians and other professionals
CDC has created two toolkits for evaluating concussions, one for physicians and the other for coaches. The coaches' toolkit focuses on return-to-play guidelines.
http://www.cdc.gov/ncipc/tbi/physicians_tool_kit.htm
http://www.cdc.gov/ConcussionInYouthSports/

A collaboration of medical organizations developed a policy on evaluating and treating sports concussions, The Team Physician and Return-To-Play Issues Consensus Statement, printed in the journal of the American Council on Sports Medicine:
http://www.acsm.org/AM/Template.cfm?Section=Search&section=Team_Physician_Consensus_Statements&template=/CM/ContentDisplay.cfm&ContentFileID=354

For other sports- and recreation-related injuries, see the units in this plan titled Drowning and Bicycle Injuries.

References

[1] Nonfatal sports- and recreation-related injuries treated in emergency departments--United States, July 2000-June 2001. MMWR Morb Mortal Wkly Rep 2002 Aug 23;51(33):736-40.
[2] U. S. Consumer Product Safety Commission, Baby Boomer Sports Injuries, April 2000.
http://www.cpsc.gov/LIBRARY/boomer.pdf
[3] Conn JM, Annest JL, Gilchrist J. Sports and recreation related injury episodes in the US population, 1997-99. Inj Prev 2003 Jun;9(2):117-23.
[4]Nonfatal Traumatic Brain Injuries from Sports and Recreation Activities --- United States, 2001--2005
MMWR Morb Mortal Wkly Rep July 27, 2007 / 56(29);733-37
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5629a2.htm

PREVENTION STRATEGIES

Traumatic Brain and Spinal Cord Injuries

TRAUMATIC BRAIN AND SPINAL CORD INJURIES

The Problem

Most of the topics in this plan are based on causes of injuries (e.g., falls, intimate partner violence). Traumatic brain and spinal cord injuries overlap with other topics; they may be caused by falls, motor vehicle crashes, assault, self-inflicted harm, sports and recreation injuries, or bicycle crashes.[1] Of all types of injuries, trauma to the central nervous system (brain and spinal cord) is most likely to result in death or lifelong disability.[2]

Each year more than 12,000 Minnesotans survive a traumatic brain or spinal cord injury (TBI/SCI); approximately 1,000 die with a TBI/SCI. Of those who are injured, nearly 4,000 are hospitalized for TBI and 200 for SCI. A TBI (or even an SCI) may be **mild**, with few apparent effects at the time of injury, although more effects and deficits may become evident later. It may be **moderate,** with a need for rehabilitation. Or it may be **severe,** affecting basic life functions for an individual's lifetime. About 100,000 Minnesotans are living with significant long-term effects of TBI, and another 3,500 with significant long-term effects of SCI. For information about the physical and social impact of disability, see *Promoting Better Health for Minnesotans With Disabilities,* www.health.state.mn.us/injury/pub/index.cfm?gcCategory=disability

About 100,000 Minnesotans are living with significant long-term effects of TBI, and another 3,500 with significant long-term effects of SCI.

Trends

While the rate of nonfatal hospitalized TBI has increased over the last few years, the rate of SCI has remained constant; see Figures 1 and 2.

Figure 1. Nonfatal Hospitalized TBI
Minnesota, Age-Adjusted to US 2000 Population

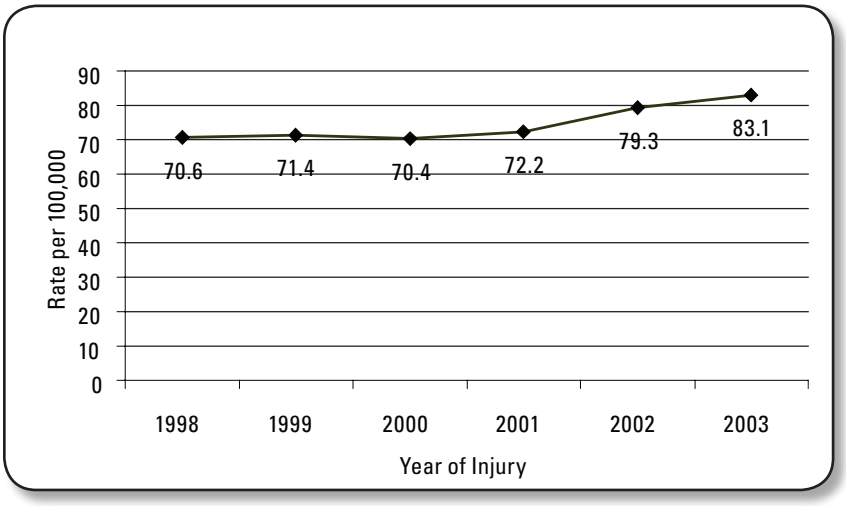
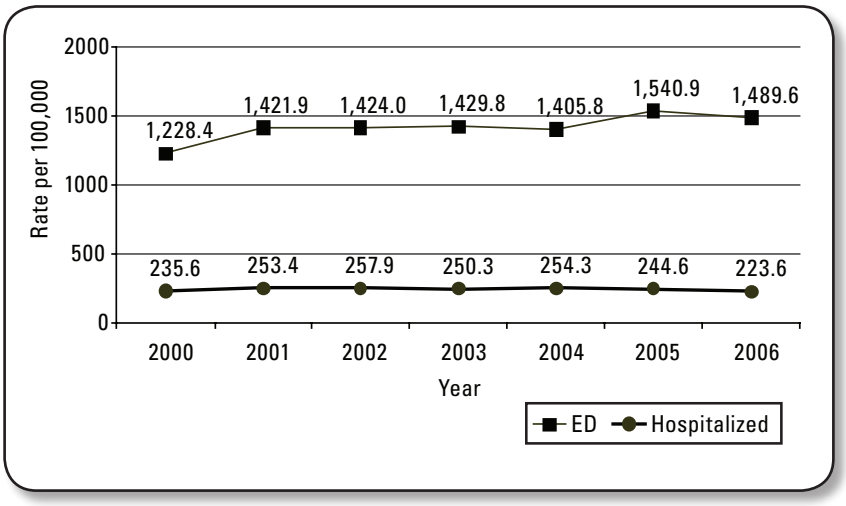


Figure 2. Nonfatal Hispitalized SCI
Minnesota, Age-adjusted to US 2000 Population



Goals

National goals, as reported in Healthy People 2010,[3] are as follows, with a 1998 baseline and a 2010 target:

- TBI nonfatal hospitalization: Reduce rate from 60.6 to 45 per 100,000 population.
- SCI nonfatal hospitalization: Reduce rate from 4.5 to 2.5 per 100,000 population.

Minnesota Goals:

- TBI nonfatal hospitalization: Reverse current increasing trends by reducing rate from 70.6 in 1998 (lowest seen in recent years) to 70 per 100,000 in 2010.
- SCI nonfatal hospitalization: Establish decreasing trend by reducing rate from 4.8 in 2001 (lowest seen in recent years) to 4.0 per 100,000.
- Inflicted TBI in children under age 1 (Shaken Baby Syndrome): Reduce by 10 percent.

How We Will Know We Are Making a Difference

Conduct yearly analysis of analyze trends in Minnesota, to assess whether we are meeting our goal. The Injury and Violence Prevention Unit can determine whether there is a trend for TBI/SCI treatment to shift from the hospital setting to emergency departments. Changes can be linked to our fall and motor vehicle crash prevention activities.

Prevention Strategies

We need to respond with prevention work and with assistance to people who have sustained these injuries, enabling them to readjust to a productive, enjoyable life. Through effective health promotion, we can prevent many of the secondary conditions that can cause unnecessary limitations for people with TBI or SCI.

- **Take action on the leading causes of TBI and SCI**
  By implementing strategies in the following areas, we can prevent many TBIs and SCIs (see appropriate chapters of this plan):
  Falls
  Motor vehicle crashes
  Bicycle injuries
  Firearm injuries

Take action on the leading causes of TBI and SCI.

Recommended strategies to promote the health of people with disabilities, including TBI and SCI, and to prevent secondary conditions, can be found in *Promoting Better Health for Health of Minnesotans With Disabilities*

In addition to these specific prevention strategies, the following system-wide actions are needed:

- **Study effectiveness of referrals to service and support systems**
  The system of services for people with TBI and SCI is currently fragmented in Minnesota. MDH continues to develop and evaluate improved communication with and assistance to TBI and SCI survivors through the Brain Injury Association of Minnesota (Resource Facilitation) and the Minnesota SCI Resources Network. Managed care options that provide health care for people with all disabilities should also be evaluated to determine whether readmissions are reduced for people who have had these services. Case management or referral systems should explore issues such as access to employment, transportation, education, emotional support, and housing as well as medical care.
- **Study disparities that affect people with TBI and SCI**
  Access to health care and related services by people with TBI and SCI appears to be affected by their ethnicity, language, socio-economic status, and rural-urban location. The impact of these factors needs to be studied.
- **Improve trauma response and treatment systems**
  A coordinated trauma care system would ensure that services run smoothly from emergency service through inpatient care through rehabilitation. As trauma care becomes available statewide, people can be cared for quickly and seamlessly. Training is essential for emergency responders.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury

Brain Injury Association of Minnesota
http://www.braininjurymn.org

Brain Injury Association of the United States
http://www.biausa.org

Centers for Disease Control and Prevention. Enter "TBI" or "SCI" in search box to obtain fact sheets, data, and prevention recommendations
http://www.cdc.gov

Minnesota SCI Resources Network
For referral, contact injury.prevention@health.state.mn.us

National Institute of Neurological Disorders and Stroke (NINDS)
http://www.ninds.nih.gov/ Enter "TBI" or "SCI" in search box.

National Spinal Cord Injury Association
http://www.spinalcord.or

References

[1] MDH Injury and Violence Prevention Unit, Traumatic Brain and Spinal Cord Injury in Minnesota, 1993 - 1997: Fatal and Hospitalized. St. Paul: Minnesota Department of Health; June, 2000.
http://www.health.state.mn.us/injury/pub/tbi9397/index.cfm

2 CDC Center for Injury Prevention and Control, State Injury Indicators Report, December, 2001.
http://www.cste.org/pdffiles/SCREENInjuryIndicatorsReport.pdf

3 CDC Healthy People 2010: Injury and Violence Prevention Goals. Injury and Violence Prevention
http://www.healthypeople.gov/Document/HTML/Volume2/15Injury.htm

PREVENTION STRATEGIES

Violence

Child Maltreatment
Intimate Partner Violence
Sexual Violence
Suicidal Behavior
Youth Violence

CHILD MALTREATMENT

The Problem

Child maltreatment, as defined by the Minnesota Department of Health (MDH) for hospital surveillance, includes physical, sexual, or psychological abuse or neglect to a child age nine or younger, by a person directly or indirectly responsible for the child, including a parent, legal guardian, parent's significant other, or caretaker.

According to Minnesota's Child Welfare Report, which uses a broader definition, more than 8,400 children were abused and neglected in Minnesota in 2005.[1] The report indicated that children who have been abused or neglected are far more likely to perform poorly in school, get involved in criminal activities, and abuse or neglect their own children. In addition, as indicated elsewhere in this report, adverse childhood experiences are associated with many health risk behaviors in adulthood.

More than 8,400 children were abused and neglected in Minnesota in 2005.

Relative to their proportion of the child population, African American and American Indian children were far more likely to be determined to be victims of maltreatment. Younger children were more likely to be victims of neglect, and older children were more likely to be victims of physical abuse.

MDH identified 366 inpatient and emergency department cases of maltreatment of children under age nine in 2001.[2] The largest group of cases were male and under age one.

Goals

National goals, from Healthy People 2010,[3] are as follows for children under age 18 (1998 baseline):

- Reduce the rate per 1,000 children of child maltreatment from 12.9 to 10.3.
- Reduce the rate per 100,000 children of fatal child maltreatment from 1.6 to 1.4.

Minnesota goals, proposed by the Violence Team of the MDH Injury and Violence Prevention Unit, are:

- Reduce by at least 10 percent the disparities between rates of physical abuse and neglect among African American and American Indian children under age 18, compared to White and Asian children.[4]
- Reduce by 10 percent inflicted traumatic brain injuries of children under age 5.[5]
- Continue the declining trend in child sexual abuse (both intra- and extra-familial).[6]
- Continue the declining trend in violence among school-age children and youth.[7]

How We Will Know We Are Making a Difference

To reach our 2010 goals, annual child maltreatment rates should remain at the same level or decline each year.

Prevention Strategies

- Collect and analyze child maltreatment data.
- Support existing and new community prevention efforts that are based on local data and needs and that utilize proven or promising programs.
- Evaluate prevention programs to determine "what works."
- Support the ongoing evaluation of Minnesota's Alternative Response Program.[8]
- Offer home visiting through the Nurse-Family Partnership.
- Train county child protection staff to assess for neglect and to differentiate between injuries caused by neglect and those that are unintentional. Educate mandated reporters on this issue, including law enforcement staff and medical examiners.
- Strengthen policies and community norms that support seeking help.
- Promote the development of child abuse prevention programs by agencies that work with families.
- Utilize the media to increase public awareness and for parent education.

Evaluate prevention programs to determine "what works."

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

Center for the Study and Prevention of Violence describes 11 model and 18 promising programs for prevention and intervention:
www.colorado.edu/cspv/blueprints/index.html

Centers for Disease Control and Prevention lists child maltreatment publications:
www.cdc.gov/ncipc/factsheets/cmpublications.htm

Minnesota Center Against Violence and Abuse provides research, education, and access to violence related resources:
www.mincava.umn.edu

Minnesota Department of Health Family Home Visiting Program prevents child abuse among many benefits:
www.health.state.mn.us/divs/fh/mch/fhv/

The Child Protection program of the Minnesota Department of Human Services:
http://www.dhs.state.mn.us/main/groups/children/documents/pub/DHS_id_000152.hcsp

Prevent Child Abuse America has prevention programs at national, state, and community levels:
www.preventchildabuse.org

References

[1] Minnesota Department of Human Services, Child Protection,
http://www.dhs.state.mn.us
[2] Minnesota Department of Health, Nonfatal Injury in Minnesota, 2001: Hospitalized and Emergency Department-Treated
http://www.health.state.mn.us/injury/pub/ed2001/index.cfm
[3] CDC, Healthy People 2010, Chapter 15, Injury and Violence Prevention
http://www.healthypeople.gov/document/html/volume2/15injury.htm
[4] Data sources: Minnesota Department of Human Services, MDH hospital data, Minnesota Student Survey.
[5] Data source: MDH hospital data, comparing three-year annualized rates from 1999-2001 to 2002-2004.
[6] Data source: Minnesota Student Survey.
[7] Data sources: MDH hospital data and death certificates, Minnesota Student Survey, Minnesota Supplemental Homicide Reports.
[8] Alternative Response is a demonstration program, including an evaluation, conducted in 14 counties. It involves a comprehensive family assessment to help families avoid the confrontational or intrusive investigation process when child abuse or neglect is suspected. The program ensures children's safety and family stability by building on families' strengths and responding to individual needs. Both children and parents get the help they need without being labeled. Evaluation article:
http://cbexpress.acf.hhs.gov/articles.cfm?section_id=2&issue_id=2006-02

INTIMATE PARTNER VIOLENCE

The Problem

Intimate partner violence (IPV) includes violence perpetrated by a current or former spouse, boyfriend, girlfriend or date, including same-sex partners. Domestic violence is a broader term and may cover abuse by non-partners, such as parents or children.

IPV can include physical, emotional, or psychological acts. Both men and women are victims. According to the CDC, nearly 5.3 million intimate partner victimizations occur each year among U.S. women ages 18 and older. This violence results in nearly 2 million injuries and nearly 1,300 deaths.[1] Unfortunately, few of the many incidents of IPV are reported and documented; therefore, the extent of the problem in Minnesota is unclear.

IPV can include physical, emotional, or psychological acts. Both men and women are victims.

In a telephone survey conducted by the Minnesota Department of Health (MDH) in 2004,[2] three percent of Minnesota women ages 18 to 44 reported having been physically assaulted by a current or former intimate partner in the past year. Seventy-four percent of those women sustained injuries as a result.

MDH published intimate partner violence data in 2002.[3]

Goals

The **national goal,** from Healthy People 2010,[4] is to reduce the rate of physical assault by current or former intimate partners from 4.4 physical assaults per 1,000 persons aged 12 years and older (1998) to 3.3 physical assaults per 1,000 persons aged 12 years and older (2010).

The Minnesota goal is to reduce, by at least 15 percent, physical assaults by an intimate partner among adults.[5]

How We Will Know We Are Making a Difference

To reach our 2010 goal, annual intimate partner violence rates should remain steady or decline each year. We also should be able to see progress in these areas:

- More men and women are screened for experiences of violence by their care providers.
- More schools adopt age-appropriate curricula, policies, and practices that promote healthy relationships.
- More victims of intimate partner violence make police reports and seek services.
- Services to support victims of intimate partner violence are funded so they can meet the needs of victims and their families.

Prevention Strategies

Work with decision makers and funders to increase services available to victims, perpetrators and family members.

- Collect and analyze data to inform policies and interventions.
- Promote models (specific to cultural norms and sexual preference) of healthy intimacy, coping skills, and community connectedness to prevent intimate partner violence.
- Promote community norms that support nonviolence at gatherings such as community events, sports and recreational activities, civic and volunteer organization meetings, religious services, and gatherings at workplaces and schools.
- Strengthen policies and community norms that support seeking help.
- Help individuals, families, and communities assess and build upon their strengths to understand and deal with risks for domestic and intimate partner violence.
- Increase the number of health care providers who routinely ask screening questions.

Promote healthy intimacy, coping skills, and community connectedness.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/
See especially:

Public Health strategies: Domestic Violence
http://www.health.state.mn.us/strategies/violence.pdf
Domestic and Sexual Violence in Minnesota: Strategies for Prevention and Intervention
http://www.health.state.mn.us/injury/pub/dsvstrategies.pdf

CDC Intimate Partner Violence home page: Fact sheets, resources, and highlights from projects funded by CDC.
http://www.cdc.gov/ncipc/dvp/IPV/default.htm

Family Violence Prevention Fund website. News articles on issues of sexual, domestic, and intimate partner violence; information on advocacy efforts nationwide
www.endabuse.org/

Minnesota Center Against Violence and Abuse website. Articles on a variety of violence topics, research on violence prevention programs.
www.mincava.umn.edu/vaw.asp

References

[1] CDC Center for Injury Prevention and Control, Costs of Intimate Partner Violence Against Women in the United States, 2003.
http://www.cdc.gov/ncipc/pub-res/ipv_cost/index.htm
[2] Minnesota Department of Health, Self-Reported Intimate Partner and Sexual Violence in Minnesota: Data Brief
http://www.health.state.mn.us/injury (Publications page)
[3] Minnesota Department of Health Intimate Partner Violence Data Brief: 1998 to 2001, Published 2004.
http://www.health.state.mn.us/injury (Publications page)
[4] CDC, Healthy People 2010: Injury and Violence Prevention Goals
http://www.healthypeople.gov/Document/HTML/Volume2/15Injury.htm
[5] Data sources: Minnesota Crime Victim Survey; Minnesota Behavioral Risk Factor Surveillance System; Minnesota Department of Health hospital data and death certificates; Minnesota Pregnancy Risk Assessment Monitoring System

SEXUAL VIOLENCE

More than 61,000 Minnesota children and adults were sexually assaulted in 2005.

The Problem

Sexual violence and sexual exploitation are costly and widespread, directly affecting millions of Americans and thousands of Minnesotans each year.

The Costs of Sexual Violence in Minnesota, 2007, [1] Minnesota's first-ever report on the estimated economic impact of rape and other forms of sexual assault, reported that:

- More than 61,000 Minnesota children and adults were sexually assaulted in 2005, some of them more than once, for a total of 77,000 assaults.
- Of the 61,000 people, 80 percent were female and 29 percent were under age 18. One in 70 Minnesota children was sexually assaulted, with the highest rate occurring among girls aged 13-17.
- Costs of sexual violence were almost $8 billion in 2005, including medical and mental health care for victims, lost work and other quality of life issues, victim services, and criminal justice costs. The report also included costs of issues that may arise after an assault, such as sexually-transmitted diseases, unplanned pregnancies, suicide, and substance abuse.
- This $8 billion is about three times the costs related to alcohol-impaired driving. Cost per sexual assault was estimated at $184,000 for children and $139,000 for adults.
- In 2005, Minnesota state government spent about $130 million on treatment and confinement of perpetrators of sexual violence and about $90 million on medical costs and other services for victims. Prevention spending was about $800,000 from a CDC grant to Minnesota.

In 2005 alone, sexual violence cost $8 billion in Minnesota.

Goals

National goals, from Healthy People 2010,[2] are based on annual rates per 1,000 population for persons 12 and older. The goals are to reduce the rate of rape or attempted rape from 0.8 in 1998 to 0.7 in 2010; and to reduce sexual assault other than rape from 0.6 per in 1998 to 0.4 in 2010.

Minnesota goals, from The Promise of Primary Prevention, A Five-Year Plan To Prevent Sexual Violence and Exploitation in Minnesota, will be posted on the MDH Web site at http://www.health.state.mn.us/injury.

Theme of the plan:
Imagine a world without sexual violence or sexual exploitation.

1. **Strengthen social norms that encourage healthy and respectful relationships.**
   Recommended Strategies:

Develop clear, consistent, shared messages that address the continuum of sexual violence, including internet crime, human trafficking, and pornography.

- Ensure that the messages are culturally appropriate and reflect unique populations such as faith communities, men, GLBT communities, and ethnic communities.
- Develop a pilot social marketing campaign to support healthy relationships, counter the normalization of sexual harm, and define men's unique opportunity to create change.
- Develop messaging that reflects the public and private institutional responsibility to prevent sexual violence.
- Develop local and statewide leaders and community groups designed to engage men in primary prevention.
- Communicate prevention messages and norms through existing organizations and new networks, and utilize the arts to communicate the messages.
- Teach and support the value of sexual respect and healthy relationships.
- Review organizational policies and procedures and the role that business and corporations play in contributing to sexually damaging norms.
- Create networking opportunities for communities, organizations, and individuals to expand the primary prevention message.

How We Will Know We Are Making a Difference

- Framing and messaging action Team is established.
- Groups at greatest risk are identified, and appropriate messages are created for each.
- Social marketing campaign is created and launched.
- Spokespersons are identified and trained.
- Model policies and programs are collected, assessed and shared.

2. **Identify and train leaders across the state to educate people about prevention.**
   Recommended Strategies:

Educate community leaders and elected officials; support an understanding that sexual violence is wrong, harmful, and preventable.

- Expand the number of male trainers.
- Identify and promote positive model prevention programs from various cultures.
- Develop, deliver, and evaluate training curriculum relevant to diverse communities and present to forums/meetings throughout the state.
- Provide tools, education, and training to enable leaders to implement strategies across the spectrum of prevention.
- Involve parents/guardians by increasing their confidence in taking action when children are at risk. Develop gender-specific prevention strategies relevant to mothers,

fathers, and care givers.
- Provide training on the role of respectful relationships, gender roles, and character development in preventing sexual violence.
- Educate community members about sexual violence. Turn bystanders into allies and witnesses to aid the victim and see that the perpetrator gets help and is held accountable.

How We Will Know We Are Making a Difference
- Leaders/trainers and elected officials have been identified and have begun education within their communities.
- Public forums/town meetings have been hosted in all regions of the state
- Sexual violence programs and other organizations are communicating consistent messages on primary prevention of sexual violence and exploitation.
- Parents are receiving sexual violence prevention information through existing organizations and through new prevention partners.
- Men are increasingly involved as allies.

3. **Ensure that all voices are heard in order to prevent sexual violence.**
Recommended Strategies:
- Ensure that people from under-represented communities (people with disabilities, GLBT persons, racial and ethnic minorities) have opportunities to share their unique issues and solutions.
- Work with leaders of diverse cultural groups to develop approaches and materials that are culturally appropriate and gender specific.
- Ensure that social marketing campaigns encompass the information provided by non-traditional communities and are appropriate to them.
- Share information about local resources and encourage community members to use them.
- Working through local public health, deliver messages about healthy, respectful relationships and sexuality, particularly in early childhood and adolescence.

How We Will Know We Are Making a Difference
- Information specific to diverse groups is reflected in sexual violence prevention work, and those groups are represented in the leadership structure.
- Concise, consistent prevention messages are delivered to diverse communities, through existing organizations and new networks.

4. **Increase the ability of individuals, groups and communities to prevent sexual violence.**
Recommended strategies:
- Provide talking points on healthy sexuality and prevention for health professionals, teachers, child care providers, youth workers, businesses and others, and sponsor educational opportunities on overcoming the normalization of sexual harm.
- Provide ongoing technical assistance and training on engaging men and boys in primary prevention.
- Develop tool kits and materials that can be adapted locally.
- Create geographic spread of messages and networking.

- Utilize statewide coalitions that are part of the Sexual Violence Prevention Program, which include state agencies, victim service organizations, sex offender treatment organizations, child abuse prevention and intimate partner violence prevention organizations. Strengthen coalitions that have been built at the local level through grant funding.
- Utilize public health infrastructure to develop new local and regional coalitions to prevent sexual violence.
- Identify prevention partners and build regional coalitions with:
  - Public health, to coordinate local planning efforts and to deliver prevention messages.
  - Corporations and local governments, to assess and change their own policies that support sexual violence and to support sexual violence prevention financially.
  - Law enforcement, to determine how best to prevent offenders from re-offending.
  - Substance abuse treatment and prevention programs, to underscore the relationship between alcohol and sexual violence.
  - Civic and community groups, to create opportunities for community education, fund-raising, and policy initiatives.
  - Faith communities, to learn about sexual violence prevention and discover how they can take effective, meaningful action.
  - Schools and colleges, particularly sports programs, to educate youth about healthy sexuality, relationships, gender, and changing norms regarding sexual violence.
  - Youth-serving organizations -- daycare associations, foster parents, Scouts, Boys and Girls Clubs, etc. – to learn about developmental assets, healthy sexuality, and risk and protective factors.

How We Will Know We Are Making a Difference

- Regional Community Organizing Coalitions exist and are networked statewide.
- Funding is increasingly available to support local and statewide efforts.
- Local public health staff is involved in collaborations to deliver prevention messages in their communities.
- New voices/champions are speaking publicly and are actively involved.
- Men are organized to implement primary prevention strategies with victim services and other organizations.
- Public and private institutions have reviewed their practices and adopted policies to support safe and equitable relationships.
- Training has occurred across the state for all prevention partners. Train-the-Trainer sessions are held annually to add new voices/champions who speak publicly at community events.
- There is less public display of sexually exploitative or abusive material and more representation of respectful male/female relationships.

5. **Seek action by local and state public policy entities.**
Recommended Strategies:
   - Create a multi-disciplinary, multi-cultural Policy Development Action Team to review all state agency policies and recommend changes that will prevent sexual violence and exploitation.
   - Network with state agencies to plan policy, analyze data, and disseminate information.
   - Educate county commissioners and local leaders and seek expanded county funding for local public health prevention programs.
   - Dedicate an ongoing state funding stream for sexual violence prevention, with appropriate measures of effectiveness.
   - Analyze and share model policies from public and private institutions and organizations.
   - Identify and change harmful practices within organizations or businesses and create policies that lead to healthy development.
   - Work to prevent the State of Minnesota from doing business with companies that promote sexual harm.
   - Work with Minnesota colleges and universities to share and disseminate prevention programs and to counter harmful messaging to men and women.
   - Implement CDC-recommended policies for preventing child sexual abuse within youth-serving organizations.[3]
   - Seek legislation to control human trafficking, prostitution, and child pornography.
   - Seek financial support from other public and private sources.
   - Encourage individuals to hold elected officials accountable for positive change.

Seek legislation to control human trafficking, prostitution, and child pornography.

How We Will Know We Are Making a Difference
   - Policy and Legislation Action Team is established.
   - Policies and practices assessment is completed; results are distributed.
   - County commissioners support prevention initiatives and create county plans to reduce sexual violence.
   - Successful model policies and practices are developed, documented, and replicated.
   - Companies have been informed about the effects of advertising that promotes sexual violence or exploitation.
   - The State of Minnesota has a written policy to prohibit doing business with companies that profit from pornography or sexual harm.
   - State and community funds are dedicated for sexual violence prevention.

6. **Implement and evaluate data and best practices for preventing sexual violence.**
Recommended Strategies:
   - Create a Data and Research Action Team of front-line professionals (see Goal 5) to identify research and literature on the best practices in sexual violence prevention.
   - Identify and evaluate past and current research and literature on the primary prevention of sexual violence.
   - Develop new research regarding incidence of sexual violence in specific high-risk communities.

- Measure the effectiveness of prevention strategies.
- Develop a pilot study of the risk factors for and system responses toward perpetration.
- Support a statewide epidemiological study of sexual violence to determine its prevalence and to implement prevention strategies.
- Improve data collection to better count sexual violence and its costs.
- Survey the general population on their views and experiences with pornography.
- Connect with national research efforts that are part of the National Sexual Violence Resource Center.
- Convene state, local, and national agencies to support ongoing research.

How We Will Know We Are Making a Difference

- Practical, realistic, accessible data and informed practices are posted on the MDH sexual violence prevention website and are being used by prevention partners statewide.
- Data and Research Action Team provides fact-based research to legislators and community groups through the Framing and Messaging and Policy Action Teams.
- Updated Costs of Sexual Violence report is released.

For More Information

MDH Injury and Violence Prevention Unit website:
http://www.health.state.mn.us/injury/
See especially Sexual Violence Prevention Program, which includes state plan and program activities, publications, opportunities to get involved in sexual violence prevention, and links to other organizations:
http://www.health.state.mn.us/injury/topic/svp/
Other resources
Healthy Minnesotans Strategies for Public Health, 2002. More detailed state strategies to prevent sexual violence.
http://www.health.state.mn.us/strategies/violence.pdf

CDC National Center for Injury Prevention and Control. Sexual violence prevention fact sheet.
http://www.cdc.gov/ncipc/factsheets/svfacts.htm

Minnesota Center Against Violence and Abuse. Articles on violence and research on violence prevention programs.
http://www.mincava.umn.edu/

Minnesota Coalition Against Sexual Assault. Services and information designed to affect public perception and policy related to sexual assault.
www.mncasa.org

Minnesota Department of Public Safety Office of Justice Programs. Local programs that serve victims of sexual violence.
http://www.dps.state.mn.us/OJP/MCCVS/SearchDirectory/Search.asp

National Sexual Violence Resource Center (NSVRC). Collection and distribution center for information, statistics, and resources related to sexual violence.
http://www.nsvrc.org/

Stop It Now! Minnesota. Public health campaign to prevent the perpetration of child sexual abuse, designed to empower adults to take action.
http://www.stopitnow.com/mn/

References

[1] Costs of Sexual Violence in Minnesota, July 2007, Minnesota Department of Health, http://www.health.state.mn.us/svp.

[2] Centers for Disease Control and Prevention. Healthy People 2010, 2nd ed. http://www.healthypeople.gov/Document/tableofcontents.htm#volume1.

SUICIDAL BEHAVIOR

The Problem

Suicide and other self-inflicted harm (SIH) is a larger problem in Minnesota than many people realize. Suicide/SIH is a public health problem that requires an evidence-based approach to prevention. This population-based approach, which describes suicide and suicidal behavior throughout a group or population, must work in concert with the clinical medical approach, which explores the history and health conditions that could lead to suicide in a single individual.

More than 90 percent of suicides are associated with mental illness and/or alcohol and substance abuse. This means that 10 percent of people who suicide do not have any known psychiatric diagnosis. Also, more than 95 percent of those with mental health problems do not complete suicide.

Suicidal behavior does not appear to respond to treatment in exactly the same way that mental disorders do. Reducing depressive symptoms by medicines or by counseling does not necessarily reduce suicidal behavior.

A feeling of hopelessness is related to suicide; this is borne out by more than 30 years of research. Hopelessness can persist even when other symptoms have abated. Impulsivity, especially among youth, is also linked to suicidal behavior. Resiliency and coping skills, on the other hand, can reduce the risk of suicide. Research suggests that coping skills can be taught.[1]

A feeling of hopelessness is related to suicide. Resiliency and coping skills … can reduce the risk of suicide.

Fatal (suicide)

- There are almost 500 suicides a year in Minnesota.[2]
- Suicide is the 10th leading cause of death in Minnesota, and the 11th nationally.
- More than three times as many Minnesotans die from suicide as from homicide.
- Almost half of suicides involve a firearm; three-fourths of firearm deaths are due to suicide.[3]

Nonfatal (self-inflicted harm)

- In Minnesota, more than 3,700 nonfatal hospitalizations and 2,400 emergency department (ED) treatments each year are due to self-inflicted injury.[4]
- Self-inflicted poisoning is the second leading cause of nonfatal, hospitalized injury in Minnesota. More than three-fourths of self-harm resulting in hospitalization is due to self-inflicted poisoning.
- Each year, the Minnesota Poison Control System receives more than 3,000 calls about intentional self-inflicted poisoning. Of these, fewer than ten cases are fatal.
- More than three times as many Minnesotans are hospitalized from self-inflicted harm as from assault.

Population groups most affected in Minnesota:

- Males comprise more than four-fifths of all suicide deaths.
- Suicide is the second leading cause of death among 15-34 year olds and the third leading cause of death for 10-14 year olds.
- For American Indians, the average mortality rate (15.6/100,000) is consistently higher than for any other racial and ethnic group, including white (11.0), black (8.4), Asian (8.1), and Hispanic (8.8).[5]
- Men 85 years of age and older have the highest suicide rate (42.3) of all age/gender groups.
- Women comprise more than two-thirds of all nonfatal, self-inflicted injury and poisoning resulting in hospitalization.
- Self-inflicted poisoning is the leading cause of nonfatal, hospitalized injury among 10-44 year old women.

Trends

Figures 1 and 2 suggest an increasing trend in suicide and SIH in the past few years. The 2000 mortality rate of 9.3 deaths per 100,000 reflected the end of a decades-long decline in suicide; it was the lowest annual rate for suicide in at least 20 years. The recent reversal of the decline is a serious concern.

Figure 1. Minnesota Suicide Mortality
Age Adjusted to US 2000 Population

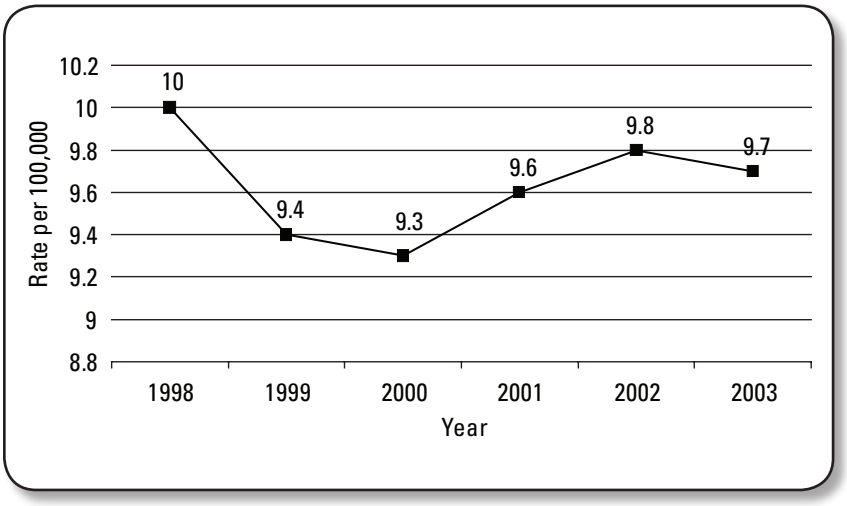
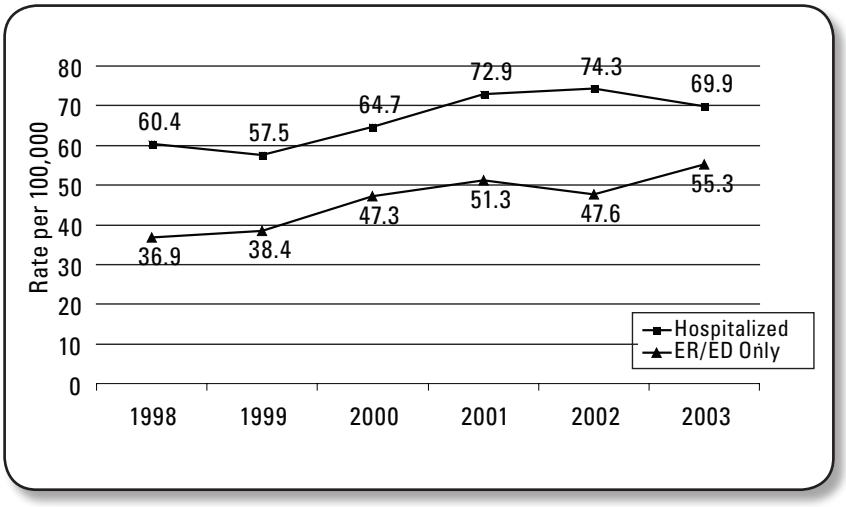


Figure 2. Minnesota Nonfatal Self-inflicted Harm
Age Adjusted to US 2000 Population



Goals

The national goal, as reported in Healthy People 2010,[6] as well as Minnesota's goal, is:
Reduce the rates of suicide and SIH.
U.S. Baseline (1998): 11.3 suicides per 100,000 population occurred in 1998 (age adjusted to the year 2000 standard population).
U.S. Target (2010): 5 suicides per 100,000 population.

Minnesota Baseline: 9.3 deaths in 2000 (Figure 1) and 57.5 hospitalized and 36.9 ED-treated in 1999 and 1998, respectively.
Minnesota Target (2010):

- Reduce rate to 9 suicides per 100,000 population; 55 hospitalized (nonfatal); 35 emergency department-treated (nonfatal).
- Maintain the decrease in self-inflicted poisonings.[7]

How We Will Know We Are Making a Difference

While prevention programs are being conducted, we will monitor suicide rates continually, to ensure that they first level off, then begin to decrease.

Prevention Strategies

The Minnesota Department of Health (MDH) prepared a **Suicide Prevention Plan**[8] that identifies the most promising prevention strategies for Minnesota. The priority activities are:

- Make suicide prevention a priority and continue coordination of efforts.
- Enhance and formalize statewide collaboration of multiple stakeholders.

Specific strategies reflect the combined efforts of more than 120 statewide contributors, guided by the key recommendations in the **U.S. Surgeon General's Call to Action to Prevent Suicide.**[9] Both the **Minnesota Plan** and the **Call to Action** highlight the need for approaches designed for an entire population. These include (1) identifying high-risk populations, (2) reducing risks, and (3) building on strengths in individuals and communities. Evidence-based and prioritized by leading experts, the recommendations are categorized as Awareness, Intervention, and Methodology, or AIM:

Awareness: Broaden the public's awareness of suicide and its risk factors.

- Broaden awareness and outreach to reduce stigma and increase help-seeking behaviors.
- Strengthen policies and community norms that support seeking help.
- Finance core community-based programs.

Mental health promotion strategies should be considered, to raise awareness, reduce stigma, and make it easier for people to obtain mental health care. MDH has identified public health strategies to promote, protect, and improve mental health,[10] as has the U.S. Surgeon General.[11]

Intervention: Enhance services and programs, both population-based and clinical care.

- Study access to mental health care.
- Promote education, training, and skill development in communities and schools.
- Ensure professional training.
- Strengthen crisis response, "safety net," and follow-up care, especially in schools.
- Strongly encourage people to call the Poison Control Center, 1-800-222-1222, or 911 in cases of intentional overdose, to obtain timely medical and psychological intervention.

Methodology: Advance the science of suicide prevention.

- Conduct study of suicide.
- Promote a Minnesota research agenda.
- Restrict access to highly lethal methods of suicide.

To accomplish its objectives in methodology, Minnesota should obtain funding to become part of the National Violent Death Reporting System (NVDRS). This will enhance Minnesota's capacity to access and analyze suicide data.

The Injury and Violence Prevention Unit is assisted in its suicide surveillance work by the Suicide Data Advisory Committee.

For More Information

Visit the MDH Injury and Violence Prevention Unit website for data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

National Alliance on Mental Illness, Minnesota. NAMI is a grassroots mental health organization dedicated to improving the lives of persons living with serious mental illness and their families through advocacy, research, support, and education.
nami-mn@nami.org
Suicide Awareness Voices of Education (SAVE), an organization whose mission is to prevent suicide through public awareness and education, eliminate stigma, and serve as a resource to those touched by suicide.
http://www.save.org/

Yellow Ribbon is a community-based program using a universal public health approach. This program empowers and educates professionals, adults and youth.
http://www.yellowribbon.org/

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YOUTH VIOLENCE

The Problem

Youth are disproportionately affected by violence. Between the ages of 12 and 17, they are twice as likely as adults to be victims of serious violent crimes and three times as likely to be victims of simple assault.[1] In 2001, 38 percent of 9th grade girls and 59 percent of 9th grade boys in Minnesota reported that they had been pushed, shoved, or grabbed at school during the past year.[2]

[Youth] are twice as likely as adults to be victims of serious violent crimes and three times as likely to be victims of simple assault.

Violence takes many forms, and includes verbal, emotional, sexual and physical abuse. The perpetrator usually is known to the victim, and may be a family member or peer. People may make distinctions between different violent behaviors and levels of severity, but the degree and nature of harm also can vary based on individual characteristics and on the response of other individuals, the community, and systems.

Being a victim is associated with many other health problems, including tobacco, alcohol and other substance use, injuries, psychological effects such as post-traumatic stress disorder and depression, and early pregnancy. There also is increasing evidence linking abuse during childhood to many other lifetime health risks and diseases, including obesity, substance abuse, chronic pain, heart disease and cancer.[3]

Goals

National goals, from Healthy People 2010[4] are:

- To reduce physical fighting among adolescents, grades 9-12, from 36 percent in 1999 to 32 percent in 2010;
- To reduce weapon carrying by adolescents, grades 9-12, on school property (during the past 30 days) from 6.9 percent to 4.9 percent.

Minnesota goals:

- Decrease violence victimization among school-age children and youth.[5]
- Decrease rates of sexual violence among youth intimate partners to levels below the 2004 rate.[6]
- Reduce racial disparities in assaultive firearm-related injuries and deaths of 15-34 year old males.[7]
- Reduce by 15 percent the number of youth who report perpetration of physical assault.[8]
- Collect data to assess the percentage of youth who report perpetration of sexual violence.

How We Will Know We Are Making A Difference

There will be increases in the following:

- Percentage of parents who have received parenting education relating to violence prevention
- Percentage of students reporting they feel safe at school
- Percentage of staff and parents involved in a comprehensive school violence prevention strategy
- Percentage of youth who say they have a relationship with at least one caring adult
- Community opportunities for youth to develop their interests and skills
- Successful local and state efforts to reduce youth access to alcohol and handguns
- Percentage of health care and public health providers that conduct comprehensive violence screening and referral

There will be decreases in the following:

- Percentage of youth who report experiencing or witnessing violence at home and at school
- Local sales of violent video games
- Number of youth living without permanent shelter
- Youth crime rate

Prevention Strategies

- **Collect and analyze data to inform policies and interventions.**

- **Promote a safe and supportive home environment**
  - Increase the capacity of parents and/or caregivers to understand youth development and to raise nonviolent youth.
  - Promote alcohol and chemical dependency treatment for family members or caretakers when needed.
  - Support and facilitate help-seeking where family violence occurs.
  - Educate families about ways to limit exposure to violent media.
  - Promote connectedness between family members and the community.

- **Work with schools to prevent violence**
  - Implement evidence-based youth violence prevention programs.
  - Promote on-site screening and intervention, including mental health services for trauma, loss, anger, use of alcohol and other drugs, and abuse.
  - Intervene early with students who have multiple risk factors for violence.
  - Create school climates that make students feel they belong and are included.

Intervene early with students who have multiple risk factors for violence.

- **Organize the community to reduce risks and increase protective factors.**
  - Provide youth with opportunities to develop healthy intimate relationships.
  - Promote community norms that support nonviolence at gatherings such

as community events, sports and recreational activities, civic and volunteer organization meetings, religious services, and gatherings at workplaces and schools.
    - Reduce access to alcohol.
    - Collaborate to find ways to reduce exposure to violent media.
    - Reduce the proportion of persons living in homes with firearms that are loaded and unlocked.
    - Strengthen community norms against violence, harassment, aggression, racism, sexism, gender discrimination, and bullying.
    - Strengthen policies that support seeking help.

- **Advocate with systems to address social conditions and improve system practices related to violence**
    - Advocate for policy initiatives to meet basic family support needs including income, housing, food and nutrition, prenatal and childcare.
    - Train professionals to recognize and respond to violence, and to refer individuals for support.
    - Decrease institutional racism and gender discrimination, and promote cultural respect, inclusivity, and competency.
    - Endorse and promote a comprehensive package of preventive health services for youth ages 11 to 21.
    - Advocate for funding to expand financing and reimbursement for preventive and primary adolescent health services.
    - Ensure safe housing and neighborhoods.
    - Provide housing and care for all youth who cannot live at home.

For Further Information

MDH Injury and Violence Prevention Unit website. Data, prevention information, publications, and links to other resources.
http://www.health.state.mn.us/injury/

Healthy Minnesotans Strategies for Public Health, 2002. MDH publication listing strategies to prevent youth violence.
http://www.health.state.mn.us/strategies/violence.pdf.

CDC National Centers for Injury Prevention and Control.
http://www.cdc.gov/ncipc/factsheets/yvprevention.htm
Links to prevention documents including Youth Violence: A Report of the Surgeon General and Best Practices of Youth Violence Prevention: A Sourcebook for Community Action.

Children's Defense Fund of Minnesota
http://www.cdf-mn.org.

First Call Minnesota. Information and referral to individual and family counseling, domestic violence advocacy, perpetrator treatment, chemical dependency treatment, and other community support. Call (800) 543-7709 or 211.

Minnesota Center Against Violence and Abuse. Articles and research on violence topics http://www.mincava.umn.edu/.

National Institute on Media and the Family. Influence of electronic media on early childhood education, child development, academic performance, culture and violence. www.mediaandthefamily.org.

National Youth Violence Prevention Resource Center. Resources for professionals, parents and youth working to prevent violence committed by and against young people www.safeyouth.org.

Search Institute, Minneapolis, Minnesota. Community-based tools and resources to build youth assets.
http://www.search-institute.org.

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PRIORITY RECOMMENDATIONS: A CALL FOR ACTION

PRIORITY RECOMMENDATIONS:
A Call For Action

The mission of the Injury and Violence Prevention Unit is to strengthen Minnesota's communities to prevent injury and violence. We accomplish our mission by:

- *Collecting and interpreting data on injury and violence,*
- *Developing, implementing and evaluating prevention programs and policies, and*
- *Providing tools, technical assistance, and information to others.*

How does prevention happen? Injuries and violence cover such a broad range of topics – from bicycle injuries to falls to sexual violence to self-inflicted poisoning - that prevention must use multiple and diverse approaches.

This report outlines strategies for injury prevention in many of these topic areas. But what activities will have the greatest impact? Are there strategies we can employ that are effective for both unintentional injury and violence? Can we measure how well we are accomplishing our mission?

The Minnesota Department of Health (MDH) works to a large extent in primary prevention, focusing on factors that can be addressed before problems occur. It is important to look beyond the specific cause (fire, motor vehicle crash, assault, etc.,) and examine what might make people vulnerable to injury and violence (risk factors), and what keeps people safe from injury and violence (protective factors).

As it carries out its mission, the Injury and Violence Prevention Unit (IVPU) of MDH has these visions:

VISION 1: Collect and analyze current and accurate data.

Maintain strong surveillance systems and linkages with multiple data sources, including traumatic brain and spinal cord injury, severe trauma, other hospital-treated injury, sexual violence, intimate partner violence, and child maltreatment.

Recommendations:

a. Strengthen the architecture (the systems for data collection) of the Minnesota Trauma Data Bank, which includes trauma data, death certificates, and hospital inpatient and emergency department data.
b. Improve the statewide system of trauma and emergency services.
c. Expand the science of surveillance by developing our capability to collect, analyze, and disseminate data on all forms of injury, violence, and disability in Minnesota.
d. Participate with the National Violent Death Reporting System.
e. Analyze and interpret data and publish results, particularly on Minnesota's reportable injuries: TBI, SCI, occupational injuries, burns, and firearm injuries.

f. Continue work with partners to determine how best to improve data collection, analysis and dissemination of results.

VISION 2: Develop effective partnerships with other agencies and organizations that are concerned with injury and violence prevention.

Prevention is not done in a vacuum. Strong partnerships will need to be maintained, and new ones will need to be developed.

Recommendations:

Continue collaboration with these and other groups:

a. The Brain Injury Association of Minnesota, Minnesota Spinal Cord Injury Resources Network, and various state departments (Human Services, Education, Employment and Economic Development, Corrections) to provide data on traumatic brain and spinal cord injury, to enhance provision of services to survivors, and to conduct prevention programs.
b. The Minnesota Coalition Against Sexual Assault, other advocacy organizations, and service agencies to provide data and to improve local and state services for people who have been affected by sexual violence.
c. Organizations and agencies concerned with motor vehicle crashes and bicycle injuries (support the work of the Departments of Public Safety and Transportation, collaborate with the Minnesota Safety Council, Safe Kids, the State Bicycle Advisory Committee, and others).
d. Local fire departments, the state Fire Marshal's Office, and other organizations and agencies concerned with prevention of home fires and burns.
e. Disability-related agencies and organizations that are part of the Minnesota Disability Health Promotion Program.

Develop new partnerships for work in **fall prevention,** such as long-term care providers, senior organizations, local public health agencies, and other state health departments.

Develop new partnerships for work in **self-inflicted poisoning prevention,** such as hospital emergency staff, poison control centers, local public health agencies, and other state health departments.

VISION 3: Provide timely information to respond to current issues and policies.

Legislative and other policy issues surface frequently. In addition to providing accurate, current data, MDH needs to be able to respond promptly with information about best practices and effective programs.

Recommendations:

a. Enhance timeliness of data being reported to the MDH.
b. Ensure that data entry and analysis within MDH are timely, so we are ready to respond as issues present themselves.
c. Prepare data briefs, news releases, articles, and other summary information relating to emerging issues.
d. Conduct regular research and literature searches for the current best practices in injury and violence prevention, and share them as appropriate.

VISION 4: Develop and evaluate sustainable prevention programs.

Some injury and violence prevention programs have been developed and evaluated in Minnesota; the challenge is to maintain a state-supported core operation for injury surveillance and prevention, with appropriate staffing and financial support.

a. Falls prevention.

Falls are the leading cause of nonfatal hospitalized injury in Minnesota, for ages 1-14 and for ages 35 and older and are the second or third leading cause in the other age groups. Despite this clear need, fall prevention efforts have not had stable funding in Minnesota.

Recommendation: Seek ongoing funding to develop the Minnesota Fall Prevention Initiative. This will include:

- Development of a plan
- Continued surveillance, data collection, and analysis
- Partnerships with safety organizations, elder care and advocacy organizations, physical activity organizations, day care and parenting organizations, appropriate state agencies, and industry
- Development and evaluation of pilot fall prevention programs
- Dissemination of information on best practices
- Development and promotion of statewide prevention programs such as outreach activities, media campaigns, training, materials, and promotion of physical activity

b. Alcohol-related injury and violence prevention

Data demonstrate strong links between alcohol use and many forms of injury and violence: motor vehicle crashes, falls, suicide, assault, intimate partner violence, and sexual violence.

Recommendations:

- Improve documentation and reporting of alcohol use
- Coordinate programs to link alcohol and violence prevention

c. Self-inflicted poisoning prevention

Self-inflicted poisoning is the leading cause of nonfatal hospitalized injury for youth and young adults ages 15-34, and the second leading cause for children ages 10-14 and adults 35-54. Even though self-inflicted poisoning is a major public health concern, there has been little financial support in Minnesota for surveillance, analysis, and prevention. Currently, IVPU collects data and obtains advice and input from a Suicide Data Advisory Committee. MDH has developed a Suicide Prevention Plan and has partnered with organizations representing survivors, mental health professionals, and others.

Recommendations:

- Obtain funding for surveillance and prevention
- Seek funding to study and link data on self-inflicted poisoning from the Minnesota Poison Control Center
- Develop self-inflicted poison prevention plans in cooperation with mental health programs

d. Sexual violence epidemiology

MDH has collected and analyzed sexual violence data. The IVPU works with the Violence Surveillance Advisory Committee, comprised of professionals with expertise in data collection and sexual violence. The Unit collects data from hospitals statewide and, through careful study of codes and definitions, has been able to improve our understanding of the epidemiology of sexual violence.

Prevention programs include development of materials, creation of the Sexual Violence Prevention Network, funding and technical assistance to local sexual violence prevention and awareness programs, and work on policy and funding issues. A statewide prevention plan has been developed and Action Teams are working on implementation.

Recommendations:

- Improve collection, analysis, interpretation, and dissemination of data related to sexual violence.
- Implement strategies from the sexual violence prevention plan.

APPENDIX A

Advisory Committees to Minnesota Department of Health Injury and Violence Prevention Unit

Minnesota Disability Health Project, Advisory Committee

Sexual Violence Prevention Action Council

Suicide and Self- Inflicted Injury Data Advisory Committee

Minnesota Trauma Data Bank Advisory Committee

Violence Surveillance Data Advisory Committee

Minnesota Disability Health Project, Advisory Committee 2008

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APPENDIX B

Leading Causes of Injury Charts

Ten Leading Causes of Mortality by Age Group, Minnesota Residents 2001 - 2005

Ten Leading Causes of Injury Mortality by Age Group, Minnesota Residents, 2000 - 2004

Ten Leading Causes of Non-fatal Hospital ED-Treated Injury by Age Group, Minnesota Residents, 2001 - 2005

Ten Leading Causes of Non-fatal Hospital Inpatient Injury by Age Group, Minnesota Residents, 2001 - 2005

Ten Leading Causes of Mortality by Age Group, Minnesota Residents 2001 - 2005

Rank	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85 and older	All ages
1	Congenital anomalies 455	Unintentional injury 102	Unintentional injury 77	Unintentional injury 126	Unintentional injury 500	Unintentional injury 514	Unintentional injury 726	Malignant neoplasms 1011	Malignant neoplasms 3323	Malignant neoplasms 6493	Malignant neoplasms 10049	Disease of the circulatory system 16516	Disease of the circulatory system 24822	Disease of the circulatory system 55711
2	Short gestation and low birth weight 185	Congenital anomalies 36	Malignant neoplasms 40	Malignant neoplasms 36	Suicide 174	Suicide 216	Suicide 380	Unintentional injury 954	Disease of the circulatory system 2374	Disease of the circulatory system 3714	Disease of the circulatory system 7030	Malignant neoplasms 12881	Malignant neoplasms 7598	Malignant neoplasms 41859
3	Sudden infant death syndrome (SIDS) 125	Malignant neoplasms 32	Congenital anomalies 14	Suicide 36	Homicide 68	Homicide 114	Malignant neoplasms 264	Disease of the circulatory system 901	Unintentional injury 1013	COPD 645	COPD 1859	COPD 3357	Alzheimer's disease 3603	Unintentional injury 8537
4	affected by maternal complications 101	Homicide 20	Disease of the circulatory system 6	Congenital anomalies 17	Malignant neoplasms 53	Malignant neoplasms 75	Disease of the circulatory system 204	Suicide 494	Suicide 467	Diabetes mellitus 604	Diabetes mellitus 1041	Diabetes mellitus 1903	COPD 2427	COPD 8448
5	Unintentional injury 83	Disease of the circulatory system 11	Infantile cerebral palsy 6	Disease of the circulatory system 12	Disease of the circulatory system 24	Disease of the circulatory system 57	Homicide 134	Chronic liver disease and cirrhosis 159	Chronic liver disease and cirrhosis 396	Unintentional injury 563	Unintentional injury 592	Alzheimer's disease 1730	Influenza and pneumonia 2382	Diabetes mellitus 5712
6	Placental complications 74	Diseases of the blood and blood-forming org 8	Asthma 4	Homicide 9	Congenital anomalies 18	Infantile cerebral palsy 13	Diabetes mellitus 42	Diabetes mellitus 134	Diabetes mellitus 335	Chronic liver disease and cirrhosis 344	Renal failure and other disorders of kidney 397	Unintentional injury 1328	Unintentional injury 1959	Alzheimer's disease 5677
7	Respiratory distress of newborn 52	In situ, benign, and uncertain neoplasms 7	Homicide 4	Infantile cerebral palsy 7	Infantile cerebral palsy 10	Congenital anomalies 12	Congenital anomalies 37	AIDS/HIV 90	COPD 130	Suicide 245	Chronic liver disease and cirrhosis 337	Renal failure and other disorders of kidney 1016	Diabetes mellitus 1637	Influenza and pneumonia 3919
8	Disease of the circulatory system 39	Influenza and pneumonia 7	Diseases of the blood and blood-forming org 3	Asthma 4	Asthma 7	Diabetes mellitus 11	AIDS/HIV 31	Homicide 88	Viral hepatitis 116	Renal failure and other disorders of kidney 136	Alzheimer's disease 284	Influenza and pneumonia 1004	Renal failure and other disorders of kidney 1405	Renal failure and other disorders of kidney 3056
9	Intrauterine hypoxia and birth asphyxia 35	Infantile cerebral palsy 6	Intrauterine hypoxia and birth asphyxia 3	Multiple ties	Diseases of the blood and blood-forming org 4	In situ, benign, and uncertain neoplasms 7	Chronic liver disease and cirrhosis 17	Congenital anomalies 62	AIDS/HIV 82	Influenza and pneumonia 109	Influenza and pneumonia 277	Parkinson's disease 886	Parkinson's disease 811	Suicide 2316
10	Certain conditions originating in the perin 34	Gastritis, duodenitis, and noninfective ent 4	Gastritis, duodenitis, and noninfective ent 2		Septicemia 4	Cystic fibrosis 5	In situ, benign, and uncertain neoplasms 15	In situ, benign, and uncertain neoplasms 35	Homicide 80	Septicemia 103	Parkinson's disease 236	In situ, benign, and uncertain neoplasms 437	Pneumonitis due to solids and liquids 540	Parkinson's disease 1960
Tie			In situ, benign, and uncertain neoplasms 2			Influenza and pneumonia 5	Influenza and pneumonia 15							
Unintentional	83	104	78	126	501	527	747	1000	1043	567	583	1196	1559	8114
Rate per 100,000	25	8	5	7	27	29	22	25	28	24	39	110	327	31
Suicide	0	1	0	36	175	216	380	495	469	246	122	137	46	2323
Rate per 100,000	-	0	-	2	9	12	11	12	13	11	8	13	10	9
Homicide	25	20	5	9	69	115	135	88	80	25	21	6	10	608
Rate per 100,000	8	2	0	0	4	6	4	2	2	1	1	1	2	2
Total injury deaths	1678	321	200	317	970	1205	2331	5020	10632	15987	27250	51676	64346	181937
Rate per 100,000	513	25	12	17	51	66	69	125	288	683	1,832	4,768	13,479	691
2001-2005 populatic	326,887	1,307,761	1,664,619	1,811,440	1,884,652	1,823,400	3,381,662	4,020,485	3,688,284	2,339,806	1,487,200	1,083,821	477,370	25,297,387

Ten Leading Causes of Injury Mortality by Age Group, Minnesota Residents, 2000 - 2004

Rank	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85 and older	All ages
1	Suffocation (U) 68	MV-occupant (U) 22	MV-occupant (U) 28	MV-occupant (U) 43	MV-occupant (U) 284	MV-occupant (U) 260	MV-occupant (U) 236	MV-occupant (U) 258	Poisoning (U) 272	Firearm (S) 123	Fall (U) 223	Fall (U) 727	Fall (U) 1245	Fall (U) 2523
2	Not specified (H) 12	Drowning (U) 14	Drowning (U) 14	Suffocation (S) 21	Firearm (S) 87	Firearm (S) 108	Firearm (S) 178	Poisoning (U) 258	MV-occupant (U) 238	MV-occupant (U) 123	MV-occupant (U) 112	MV-occupant (U) 147	Suffocation (U) 86	MV-occupant (U) 1827
3	MV-occupant (U) 6	Suffocation (U) 13	Fall (U) 6	Drowning (U) 12	MV-unspecified (U) 72	Firearm (H) 85	Poisoning (U) 149	Firearm (S) 224	Firearm (S) 221	Fall (U) 102	Firearm (S) 76	Firearm (S) 92	MV-occupant (U) 70	Firearm (S) 1154
4	Battering/ maltreatment (H) 5	Fire/ flame (U) 10	Fire/ flame (U) 6	Firearm (S) 12	Suffocation (S) 63	Suffocation (S) 67	Suffocation (S) 99	Poisoning (S) 132	Poisoning (S) 123	Poisoning (U) 67	MV-unspecified (U) 42	Suffocation (U) 83	Firearm (S) 33	Poisoning (U) 882
5	Suffocation (H) 4	Not specified (H) 10	MV-pedest (U) 6	Fire/ flame (U) 9	Firearm (H) 55	Poisoning (U) 60	Firearm (H) 91	Suffocation (S) 98	Fall (U) 101	Poisoning (S) 62	Suffocation (U) 39	MV-unspecified (U) 55	NEC (U) 29	MV-unspecified (U) 540
6	Drowning (H) 2	MV-pedest (U) 6	MV-unspecified (U) 6	bile, nontraffic (U) 8	Drowning (U) 22	MV-unspecified (U) 51	MV-unspecified (U) 84	MV-unspecified (U) 81	Suffocation (S) 82	MV-unspecified (U) 51	Poisoning (S) 21	MV-pedest (U) 29	MV-unspecified (U) 25	Suffocation (S) 501
7	Fall (U) 2	MV-unspecified (U) 6	Suffocation (U) 4	MV-pedal cyc (U) 8	Poisoning (U) 21	Poisoning (S) 24	Poisoning (S) 72	MV-mc (U) 61	MV-mc (U) 69	Suffocation (S) 39	Natural/ environment (U) 20	Poisoning (U) 22	Natural/ environment (U) 17	Poisoning (S) 475
8	Natural/ environment (U) 2	Other pedestrian (U) 6	Firearm (H) 2	Multiple ties	bile, nontraffic (U) 17	MV-mc (U) 23	MV-mc (U) 45	Fall (U) 56	MV-unspecified (U) 61	Suffocation (U) 30	Fire/ flame (U) 13	Natural/ environment (U) 21	Not specified (U) 16	Suffocation (U) 447
9	abandonment (H) 2	Fall (U) 5	NEC (H) 2		Poisoning (S) 17	MV-pedest (U) 22	Drowning (U) 37	Firearm (H) 44	Suffocation (U) 42	MV-mc (U) 26	Machinery (U) 13	Fire/ flame (U) 19	Fire/ flame (U) 15	Firearm (H) 335
10	Not specified (N) 2	Battering/ maltreatment (H) 4	NEC (U) 2		MV-pedest (U) 16	Drowning (U) 21	Fall (U) 28	Suffocation (U) 41	Fire/ flame (U) 29	MV-pedest (U) 23	MV-pedest (U) 13	NEC (U) 17	Poisoning (U) 15	MV-mc (U) 248
Tie	Suffocation (N) 2	Poisoning (U) 4	Other pedestrian (U) 2						Poisoning (N) 29		Suffocation (S) 13	Poisoning (S) 17		
Unintentional	83	104	78	126	501	527	747	1000	1043	567	583	1196	1559	8114
Rate per 100,000	25	8	5	7	27	29	22	25	28	24	39	110	327	31
Suicide	0	1	0	36	175	216	380	495	469	246	122	137	46	2323
Rate per 100,000	-	0	-	2	9	12	11	12	13	11	8	13	10	9
Homicide	25	20	5	9	69	115	135	88	80	25	21	6	10	608
Rate per 100,000	8	2	0	0	4	6	4	2	2	1	1	1	2	2
Total injury deaths	112	129	83	175	754	878	1289	1651	1645	860	735	1353	1621	11286
Rate per 100,000	34	10	5	10	40	48	38	41	45	37	49	125	340	43
2001-2005 populatic	326,887	1,307,761	1,664,619	1,811,440	1,884,652	1,823,400	3,381,662	4,020,485	3,688,284	2,339,806	1,487,200	1,083,821	477,370	25,297,387

Ten Leading Causes of Non-fatal Hospital ED-Treated Injury by Age Group, Minnesota Residents, 2001 - 2005

Rank	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85 and older	All ages
1	Fall (U) 6684	Fall (U) 48074	Fall (U) 33367	Struck by/ against (U) 36809	Struck by/ against (U) 38227	Struck by/ against (U) 22256	Fall (U) 33990	Fall (U) 37780	Fall (U) 35157	Fall (U) 24173	Fall (U) 19286	Fall (U) 25315	Fall (U) 19669	Fall (U) 363127
2	Struck by/ against (U) 1925	Struck by/ against (U) 23913	Struck by/ against (U) 24293	Fall (U) 33874	Fall (U) 24973	Cut/ pierce (U) 21514	Cut/ pierce (U) 30985	Cut/ pierce (U) 28219	Cut/ pierce (U) 19815	Cut/ pierce (U) 9916	Cut/ pierce (U) 4630	Struck by/ against (U) 2567	Struck by/ against (U) 1337	Struck by/ against (U) 235103
3	Foreign body enter eye-orifice (U) 811	Cut/ pierce (U) 7243	Cut/ pierce (U) 9425	Cut/ pierce (U) 11623	MV traffic (U) 19745	Fall (U) 20785	Struck by/ against (U) 30838	Struck by/ against (U) 26215	Struck by/ against (U) 16266	Struck by/ against (U) 7010	Struck by/ against (U) 3447	Cut/ pierce (U) 2394	Unspecified (U) 1113	Cut/ pierce (U) 164600
4	Unspecified (U) 792	Bites and stings (U) 6958	Pedal cyclist, other (U) 6260	Overexertion (U) 10328	Cut/ pierce (U) 17652	MV traffic (U) 17168	Overexertion (U) 25471	Overexertion (U) 23001	Overexertion (U) 14437	Overexertion (U) 5848	MV traffic (U) 2957	MV traffic (U) 2090	Cut/ pierce (U) 686	Overexertion (U) 124130
5	Hot object/ substance (U) 717	Foreign body enter eye-orifice (U) 6722	Bites and stings (U) 5166	Pedal cyclist, other (U) 7493	Overexertion (U) 16053	Overexertion (U) 15291	MV traffic (U) 20047	MV traffic (U) 16056	MV traffic (U) 11026	MV traffic (U) 5532	Overexertion (U) 2573	Overexertion (U) 1745	Overexertion (U) 654	MV traffic (U) 120696
6	Cut/ pierce (U) 498	Overexertion (U) 5191	Foreign body enter eye-orifice (U) 3580	MV traffic (U) 3750	Struck by/ against (A) 6270	Struck by/ against (A) 6961	Unspecified (U) 8044	Unspecified (U) 8231	Unspecified (U) 5764	Bites and stings (U) 3364	Bites and stings (U) 2150	Unspecified (U) 1620	MV traffic (U) 561	Unspecified (U) 47510
7	Bites and stings (U) 481	Caught in-between object (U) 4750	Caught in-between object (U) 3308	Bites and stings (U) 3735	Unspecified (U) 3854	Unspecified (U) 4600	Struck by/ against (A) 7778	Foreign body enter eye-orifice (U) 7437	Bites and stings (U) 5358	Unspecified (U) 2804	Unspecified (U) 1700	Bites and stings (U) 1322	Foreign body enter eye-orifice (U) 454	Bites and stings (U) 47025
8	Overexertion (U) 410	Unspecified (U) 4345	Overexertion (U) 3128	Caught in-between object (U) 2741	Caught in-between object (U) 3081	Foreign body enter eye-orifice (U) 3747	Foreign body enter eye-orifice (U) 6858	Bites and stings (U) 6230	Foreign body enter eye-orifice (U) 5070	Foreign body enter eye-orifice (U) 2370	Foreign body enter eye-orifice (U) 1277	Foreign body enter eye-orifice (U) 956	Bites and stings (U) 341	Foreign body enter eye-orifice (U) 43832
9	Caught in-between object (U) 386	Hot object/ substance (U) 3380	MV traffic (U) 2637	Unspecified (U) 2714	Bites and stings (U) 2989	Caught in-between object (U) 3377	Bites and stings (U) 5680	Struck by/ against (A) 5646	Caught in-between object (U) 3353	Caught in-between object (U) 1625	Machinery (U) 866	Caught in-between object (U) 495	Caught in-between object (U) 241	Caught in-between object (U) 33619
10	Poisoning (U) 322	Poisoning (U) 2968	Unspecified (U) 1929	Foreign body enter eye-orifice (U) 1990	Pedal cyclist, other (U) 2814	Bites and stings (U) 3251	Caught in-between object (U) 4834	Caught in-between object (U) 4658	Struck by/ against (A) 2560	Machinery (U) 1536	Caught in-between object (U) 770	Machinery (U) 451	Not classifiable (U) 207	Struck by/ against (A) 32041
unitentional	13,883	120,994	99,502	125,479	148,219	129,097	190,242	180,752	132,223	70,147	42,443	40,937	26,028	1,319,944
Rate per 100,000	4,247	9,252	5,977	6,927	7,865	7,080	5,626	4,496	3,585	2,998	2,854	3,777	5,452	5,229
Self-inflicted	-	5	28	1,139	3,559	1,901	2,007	1,479	668	128	38	23	10	10,987
Rate per 100,000	-	0	2	63	189	104	59	37	18	5	3	2	2	43
Assault	70	335	600	2,880	10,118	12,194	14,422	10,674	5,010	979	236	115	47	57,680
Rate per 100,000	21	26	36	159	537	669	426	265	136	42	16	11	10	224
Total	14,007	121,527	100,242	129,882	163,127	144,106	207,905	193,972	138,496	71,412	42,770	41,119	26,102	1,394,667
Rate per 100,000	4,285	9,293	6,022	7,170	8,656	7,903	6,148	4,825	3,755	3,052	2,876	3,794	5,468	5,519
2001-2005 population	326,887	1,307,761	1,664,619	1,811,440	1,884,652	1,823,400	3,381,662	4,020,485	3,688,284	2,339,806	1,487,200	1,083,821	477,370	25,297,387

Ten Leading Causes of Non-fatal Hospital Inpatient Injury by Age Group, Minnesota Residents, 2001 - 2005

Rank	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 to 84	85 and older	All ages
1	Fall (U) 308	Fall (U) 994	Fall (U) 1085	Fall (U) 1230	Poisoning (S) 2151	Poisoning (S) 1549	Poisoning (S) 2311	Fall (U) 3894	Fall (U) 5720	Fall (U) 5733	Fall (U) 8117	Fall (U) 16840	Fall (U) 17776	Fall (U) 66007
2	Foreign body enter eye-orifice (U) 208	Poisoning (U) 436	Struck by/ against (U) 274	Struck by/ against (U) 568	MV traffic (U) 1632	MV traffic (U) 1501	Fall (U) 2133	Poisoning (S) 2310	Poisoning (S) 1433	MV traffic (U) 855	Unspecified (U) 845	Unspecified (U) 1133	Unspecified (U) 798	MV traffic (U) 14995
3	Unspecified (U) 112	Hot object/ substance (U) 218	Pedal cyclist, other (U) 205	Poisoning (S) 514	Fall (U) 1164	Fall (U) 1013	MV traffic (U) 1745	MV traffic (U) 1575	MV traffic (U) 1338	Unspecified (U) 819	MV traffic (U) 687	MV traffic (U) 798	MV traffic (U) 293	Poisoning (S) 10768
4	Suffocation (U) 106	Struck by/ against (U) 173	MV traffic (U) 169	Pedal cyclist, other (U) 362	Cut/ pierce (S) 757	Cut/ pierce (S) 498	Poisoning (U) 742	Poisoning (U) 1102	Poisoning (U) 1170	Poisoning (U) 659	Poisoning (U) 494	Poisoning (U) 545	Poisoning (U) 272	Poisoning (U) 6476
5	Poisoning (U) 76	Bites and stings (U) 147	Bites and stings (U) 107	Cut/ pierce (S) 294	Struck by/ against (U) 736	Struck by/ against (A) 476	Struck by/ against (A) 581	Unspecified (U) 730	Unspecified (U) 863	Overexertion (U) 370	Overexertion (U) 353	Overexertion (U) 420	Overexertion (U) 233	Unspecified (U) 6367
6	Hot object/ substance (U) 62	Foreign body enter eye-orifice (U) 139	MV traffic (U) 101	MV traffic (U) 257	Poisoning (U) 392	Poisoning (U) 395	Cut/ pierce (S) 579	Struck by/ against (A) 563	Overexertion (U) 506	Poisoning (S) 334	Struck by/ against (U) 250	Struck by/ against (U) 303	Struck by/ against (U) 232	Struck by/ against (U) 4667
7	Battering/ maltreatment (A) 57	MV traffic (U) 100	Cut/ pierce (U) 76	ATV (U) 197	Struck by/ against (A) 320	Struck by/ against (U) 322	Struck by/ against (U) 489	Struck by/ against (U) 507	Struck by/ against (U) 484	Struck by/ against (U) 292	Bites and stings (U) 139	Foreign body enter eye-orifice (U) 137	Foreign body enter eye-orifice (U) 108	Overexertion (U) 3153
8	Unspecified (N) 55	Suffocation (U) 92	Foreign body enter eye-orifice (U) 63	Land transport, other (U) 141	ATV (U) 225	Cut/ pierce (A) 235	Unspecified (U) 473	Overexertion (U) 484	MV traffic (U) 433	MV traffic (U) 205	Not classifiable (U) 119	Suffocation (U) 137	Suffocation (U) 86	Cut/ pierce (S) 2907
9	Not classifiable (U) 51	Drowning (U) 67	Poisoning (U) 61	Poisoning (U) 132	Land transport, other (U) 219	Cut/ pierce (U) 202	Cut/ pierce (U) 357	Cut/ pierce (S) 430	Struck by/ against (A) 330	Land transport, other (U) 173	Natural/ environmental (U) 112	Natural/ environmental (U) 136	Natural/ environmental (U) 83	Struck by/ against (A) 2480
10	Unspecified (A) 44	MV traffic (U) 67	Land transport, other (U) 60	MV traffic (U) 108	Unspecified (U) 208	MV traffic (U) 202	Overexertion (U) 346	MV traffic (U) 416	Land transport, other (U) 300	Cut/ pierce (U) 169	Machinery (U) 107	Land transport, other (U) 120	Not classifiable (U) 83	Cut/ pierce (U) 2002
Tie		Unspecified (U) 67								Machinery (U) 169				
unitentional	1,052	2,855	2,680	3,929	6,120	5,369	9,006	12,151	13,660	10,798	12,091	21,312	20,280	121,303
Rate per 100,000	322	218	161	217	325	294	266	302	370	461	813	1,966	4,248	470
Self-inflicted	-	1	26	880	3,103	2,174	3,082	2,931	1,778	425	118	67	42	14,627
Rate per 100,000	-	0	2	49	165	119	91	73	48	18	8	6	9	57
Assault	135	83	24	167	791	1,060	1,360	1,133	637	149	48	36	19	5,642
Rate per 100,000	41	6	1	9	42	58	40	28	17	6	3	3	4	22
Total	1,262	2,990	2,739	5,038	10,257	8,812	13,800	16,608	16,365	11,471	12,307	21,463	20,361	143,473
Rate per 100,000	386	229	165	278	544	483	408	413	444	490	828	1,980	4,265	556
2001-2005 population	326,887	1,307,761	1,664,619	1,811,440	1,884,652	1,823,400	3,381,662	4,020,485	3,688,284	2,339,806	1,487,200	1,083,821	477,370	25,297,387