

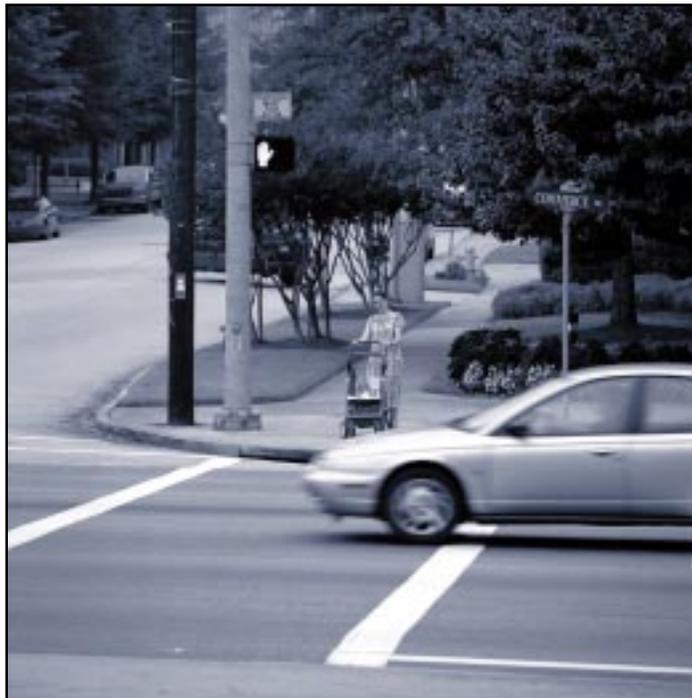
Continuation of Sections A-O
Sections P-Z

Pedestrian Injuries

The Problem

In 1999, nearly 5,000 pedestrians died from traffic-related injuries and another 85,000 sustained nonfatal injuries.

- Children 15 and younger accounted for 12% of all pedestrian fatalities and 32% of all nonfatal pedestrian injuries.
- People 65 and older accounted for 22% of all pedestrian deaths and approximately 8% of nonfatal pedestrian injuries. The pedestrian death rate for this age group is higher than for any other age group.
- The pedestrian fatality rate is more than twice as high for men as for women.
- Hit-and-run incidents account for one out of five pedestrian deaths.
- In 1999, approximately one-third of pedestrians 14 and older who were killed by a motor vehicle were intoxicated, with blood alcohol concentrations of 0.10% or more.



In 1999, nearly 5,000 pedestrians were killed in traffic.

In 1999, nearly 5,000 pedestrians died from traffic-related injuries.

CDC's Accomplishments

Strategies to improve child pedestrian safety

CDC, the National Highway Traffic Safety Administration, and the National SAFE KIDS Campaign co-sponsored a meeting of experts to discuss barriers and potential solutions to the problem of child pedestrian injuries. This group—the Panel to Prevent Pedestrian Injuries—consisted of nearly 100 experts from the United States, Canada, the United Kingdom, and Australia and represented more than 25 professions, including city planning, motor vehicle safety, public health, child development, school safety, health education, and engineering. The product of the meeting, *National Strategies for Advancing Child Pedestrian Safety*, was published in October 2001. The strategies will guide national and community efforts to increase safety for our nation's youngest pedestrians.

Investigating a high-risk area

In 1999, CDC staff investigated why the pedestrian death rate in metro Atlanta had increased between 1994 and 1998 while the national rate decreased. Their findings led to several recommendations to improve pedestrian safety. These ranged from engineering interventions such as separating pedestrians from traffic (e.g., sidewalks) and traffic-calming measures (e.g., speed bumps, lower speed limits), to safer ways to cross the street and improved street lighting. CDC staff also recommended educating both drivers and passengers about the dangers of exiting a vehicle in traffic and increasing awareness of the Highway Emergency Response Operator (HERO) program, designed to assist stranded motorists. Other strategies included raising awareness about the risks of injury to pedestrians who have been drinking and more strictly enforcing driving laws.

Just The Facts

Child Pedestrians: A High-Risk Group

Children are at increased risk for pedestrian injuries for several reasons:

- Their smaller size makes them difficult for drivers to see, especially if they are standing between parked cars on the side of the road.
- Because young children are often unable to judge distances and vehicle speeds accurately, they can easily misjudge whether it is safe to cross a street.
- Parents can over-estimate their children's ability to cross the street. Many elementary school-aged children don't understand traffic signals and don't know how to anticipate drivers' actions.
- Drivers and child pedestrians each assume (incorrectly) that the other will yield the right-of-way.

Understanding community characteristics
Researchers at Johns Hopkins University are studying community characteristics that may affect interventions to prevent child pedestrian injuries. They are comparing four neighborhoods that vary by both risk of pedestrian injury and median household income to assess—

- Environmental characteristics, such as traffic patterns, roadways, and play areas;
- Parents' perceptions of risk;
- Parents' knowledge of and willingness to support environmental changes and other pedestrian safety programs;
- Level of parental supervision;
- Amount and patterns of walking by children in the community;
- Injury experiences of child pedestrians.

Data from this CDC-funded study will help researchers and practitioners identify potential strategies to reduce injury risks among child pedestrians, as well as barriers against such efforts. Results of this project can help guide development of safety interventions for child pedestrians in similar communities.

Future Steps

To improve pedestrian safety, we must continue to engage the efforts of many diverse groups and encourage development, implementation, and evaluation of a variety of strategies to prevent pedestrian injuries, including:

- Strategies to improve road-sharing and to separate pedestrians from traffic;
- Pedestrian safety education programs;
- Traffic-calming measures such as roundabouts and speed bumps;
- Enforcement strategies, such as red light cameras and ways to stop drivers from illegally passing school buses.

We must also find effective ways to educate parents and drivers about children's developmental abilities to interact safely with traffic.

Just The Facts

Different People, Different Risks

Certain racial and ethnic groups are at increased risk for pedestrian injuries. Compared with the pedestrian fatality rate for whites—

- The fatality rate for Hispanics is 1.8 times higher;
- The rate for African Americans is nearly twice as high;
- The rate for American Indians and Alaska Natives is close to three times as high.

Researchers believe that the differences in rates are due, in part, to differences in walking patterns and frequency of walking. For example, the Nationwide Personal Transportation Survey, conducted in 1995 by the Department of Transportation, found that African Americans walk 82% more than whites. Environmental and socioeconomic factors are also likely to contribute to these rate differences.

Playground Safety

The Problem

Each year in the United States, more than 200,000 children 14 years of age and younger are treated in emergency departments for playground-related injuries.

- About 15 children age 14 and under die from playground-related injuries each year. Almost half of these deaths result from strangulation, and about one-quarter are from falls to the playground surface.
- More than one-third of all playground-related injuries are severe—fractures, internal injuries, concussions, dislocations, and amputations.
- Almost 70% of injuries related to playground equipment occur on public playgrounds.
- Most injuries that occur on playgrounds are associated with climbing equipment, slides and swings.
- In schools, most injuries to students ages 5 to 14 occur on playgrounds.
- In 1995, costs associated with playground-related injuries among children under 15 were estimated at \$1.3 billion.

CDC's Accomplishments

National organization dedicated to playground safety
Since 1995, CDC has funded the National Program for Playground Safety (NPPS), a nonprofit organization based at the University of Northern Iowa. Through training programs, educational materials, a hotline and web site, NPPS teaches parents, teachers, manufacturers, and others about supervision of children on playgrounds, age appropriateness of equipment, proper surfacing to prevent injuries from falls, and equipment maintenance. They have also developed and promoted a National Action Plan for the Prevention of Playground Injuries. In 2000, NPPS developed a safety survey; sponsored a Playground Safety School to promote playground safety and advocacy at the community level; and conducted a conference about age-appropriate playground design, which generated equipment recommendations for designers, manufacturers, and consumers.

Each year more than 200,000 children are treated in emergency departments for playground-related injuries.

Testing playground surfaces

Shredded rubber performed best in a test of loose-fill playground surfacing materials, according to a study by NPPS and CDC, published in 2000. Sand, wood fibers and wood chips also performed adequately, with little difference among the three. Pea gravel provided the least resilience, making it a poor choice for playground surfacing. The researchers used a standard testing procedure (ASTM F1292) to evaluate the various playground surfaces. They found some problems with the procedure—namely, that test results may be influenced by factors such as size of the test box, temperature, and compression of material. They suggested further investigation of the procedure.



Future Steps

Playgrounds pose a significant injury risk for America’s children. CDC must devote resources to developing and using safer playground equipment and surfaces and to educating the public about playground safety issues. Action steps include:

- Define priority research areas and recommend research methods.
- Assess the effectiveness of various cushioning surfaces for outdoor and indoor playgrounds.
- Pilot test models for implementing recommendations in the National Action Plan for the Prevention of Playground Injuries.
- Foster public and private partnerships to implement the national action plan.
- Train school administrators, teachers, nurses, child care specialists, and recreation professionals about playground safety.
- Evaluate playground safety programs and help communities adopt effective ones.
- Identify “best practices” for supervising children on playgrounds.

Poison Control

The Problem

In 1999, poison control centers in the United States reported approximately 2.2 million poison exposures, 873 of which resulted in death.

- Most poisoning deaths are caused by pills, alcohols, gases and fumes, and chemicals.
- More than 90% of poison exposures occur in the home.
- Of all poison exposures in 1999, 52.5% occurred among children younger than 6.
- In 1999, 570,000 people were treated in health care facilities for poison exposures.
- U.S. poison control centers suffer from the pressures of a rapidly changing health care delivery and financing system that increasingly depletes funding sources. Additionally, public and professional access to the emergency service is hampered by a confusing array of telephone numbers and disjointed local prevention efforts for the 70 poison control centers nationwide.



More than half of all poison exposures occur among children under 6.

In 1999, poison control centers in the U.S. reported approximately 2.2 million poison exposures.

CDC's Accomplishments

Nationwide, toll-free number for poison control
With funding from CDC and the Health Resources and Services Administration (HRSA), the American Association of Poison Control Centers (AAPCC) is implementing a single, toll-free poison control number nationwide. All state poison centers are expected to implement this toll-free number by the end of 2001. Having one nationwide number will improve access to poison control services for all Americans, including those in underserved areas.

Campaign to raise awareness of poison control services
CDC and HRSA have also funded AAPCC to establish a nationwide public education program and public service media campaign to inform Americans about the new number and to raise awareness of the services that poison control centers provide. The campaign will promote consistent, positive, and effective messages both nationally and locally. Promotional items such as stickers and magnets will promote the toll-free number.

Future Steps

The Poison Center Enhancement and Awareness Act of 2000 provided \$20 million in FY 2001 to enhance poison prevention and treatment services. These funds will support the national education and awareness campaign and evaluate its effectiveness in increasing the number of U.S. residents who call the toll-free poison control number.

Another priority is developing uniform patient-management guidelines for poison control centers to ensure that all callers receive consistent, accurate guidance and information. In addition, further work is needed to enhance poison control centers' capacity for early detection and reporting of clusters of toxic exposures.

Just The Facts

Poison Exposure or Poisoning?

Poison Exposure:
Ingestion of or contact with a substance that can produce toxic effects.

Poisoning:
A poison exposure that results in physical harm.

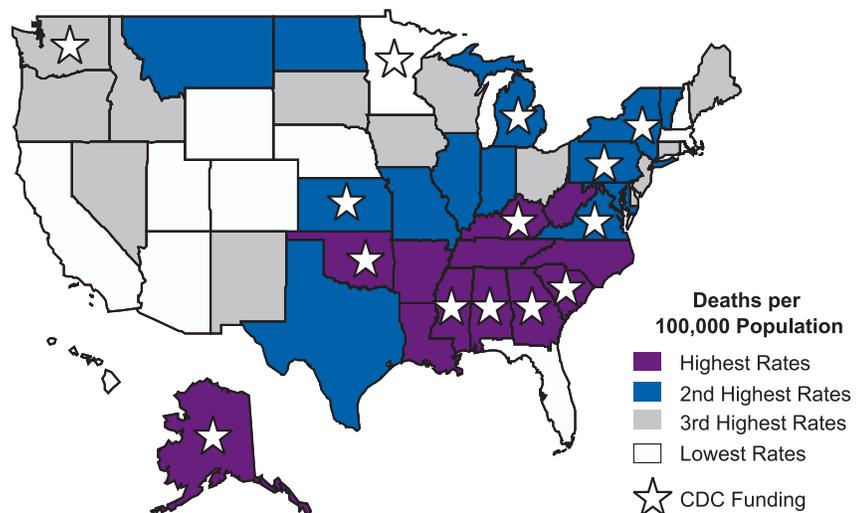
Residential Fires

The Problem

Every 27 minutes someone is killed or injured in a home fire.

- About 79% of all fire deaths occur in the home.
- In 1999, approximately 383,000 residential fires killed about 2,900 people and injured another 16,050 in the United States.
- Alcohol contributes to about 40% of residential fire deaths.
- Residential fires result in direct property damage of roughly \$5 billion each year.
- Preventing fire-related injuries costs far less than treating them: \$1 spent on smoke alarms can save \$69 in fire-related costs.

Unintentional Fire and Burn-Related Death Rates United States, 1995-1998



Source: National Center for Health Statistics, 2000

CDC's Accomplishments

Funded partnership saves lives

Nearly 150 lives potentially have been saved as a result of CDC-funded smoke alarm programs. For three years, CDC funded 14 states to install smoke alarms in high-risk homes and educate residents about fire safety and the importance of having and practicing an escape plan. Local health departments worked with fire departments and community-based organizations to identify high-risk homes, particularly those with residents ages 5 years and younger or 65 years and older. Between October 1998 and March 2001, these programs canvassed more than 145,000 homes, installed 100,000 smoke alarms, and reached more than 7 million people with fire education campaigns.

Below are three stories of how these programs helped save lives:

In Arkansas, three children had been left home alone for only a few minutes when a fire started. The two older children, ages 9 and 5, heard the smoke alarm and followed the escape plan they had learned through a CDC-funded fire safety and smoke alarm program. The youngest child, age 4, crawled under a bed; neighbors who heard the smoke alarm rushed in and saved the child.

In Virginia, the life of Franklin resident Virginia Carr was spared, thanks to a smoke alarm the Franklin Fire and Rescue Department installed through a CDC-funded program. On an August night just two weeks after installation, the smoke alarm woke 83-year-old Ms. Carr, who was home alone. The alarm's warning gave her enough time to escape her burning home without injury.

In Washington, through a CDC-funded program, firefighters installed a smoke alarm in the mobile home of Shoreline mother Carrie Struthers and her 3-year-old son. Weeks later, the alarm woke Ms. Struthers, who found a portion of her home ablaze. She grabbed her sleeping child and escaped before the home became fully engulfed. Ms. Struthers was treated for smoke inhalation and released; her son was unharmed.

Study finds smoke alarm battery replacement a problem

Injury Center scientists working with state health departments in Minnesota, North Carolina, and Oklahoma recently found that only two-thirds of homes receiving smoke alarms through a distribution program had a working alarm three to four years later. Researchers concluded that future programs should distribute alarms that do not require annual battery changes or find ways to ensure that batteries are changed routinely. This evaluation project is one of the first to look at the long-term effectiveness of smoke alarm distribution programs. The research also demonstrated practical advantages of home visits to evaluate fire injury prevention programs.

Program to prevent fire- and fall-related deaths among older adults

In October 2000, CDC began funding Arkansas, Maryland, Minnesota, North Carolina, and Virginia to implement and evaluate a program to teach older adults how to prevent fires and falls. Remembering When: A Fire and Fall Prevention Program for Older Adults is based on a curriculum developed by the Injury Center, the National Fire Protection Association, the U.S. Consumer Product Safety Commission, and other partners. It uses lesson plans, brochures, fact sheets, game cards, and other educational materials to present 16 life-saving lessons. This program is new in that it combines education for fire and falls prevention for older adults for the first time. Results of this study are not yet available.

CDC-funded research leads to smoke alarms with 10-year batteries

CDC-sponsored research resulted in the development of smoke alarms that use 10-year lithium batteries. The alarms feature a "hush button" to stop nuisance alarms, such as those caused by cooking. Studies have shown that traditional alarms (those requiring 9-volt batteries) often stop functioning because owners fail to replace the batteries with new ones or disconnect the batteries because of nuisance alarms. Because lithium battery-powered alarms eliminate the need for yearly battery changes, they will continue to be an effective warning device for many years. These alarms have been used in life-saving, CDC-sponsored programs (see CDC Accomplishments, pg. 87).

Informing consumers about smoke alarm options

Consumers will soon have important information about the performance of smoke alarms. CDC is working with the U.S. Consumer Product Safety Commission, National Institute of Standards and Technology, National Fire Protection Association, Underwriters' Laboratory, U.S. Fire Administration, U.S. Department of Housing and Urban Development, and other partners to evaluate current and prototypic smoke alarm technologies. Researchers are testing the alarms' responses to serious residential fires and their resistance to nuisance alarms. Testing should be completed by 2002; an official report documenting the findings will then be produced.

Future Steps

To eliminate residential fire-related injuries and deaths in this country, we must expand our efforts to include the following:

- Convene federal and nonprofit partners to develop a national action plan to eliminate fire deaths.
- Across the country, track the number of homes with an adequate number of correctly placed, working smoke alarms, and the number of homes with sprinkler systems; and identify communities with legislation and local ordinances related to fire-injury prevention (for example, requirements for hard-wired smoke alarms and sprinkler systems).
- Research fire prevention technology, such as more effective, long-lasting smoke alarms; residential sprinkler systems; safer portable heaters; stoves with automatic shut-off features; and fire-retardant housing materials.
- Research risk and protective factors for fire-related deaths and injuries.
- Fund state programs to educate residents about fire prevention and to install smoke alarms in high-risk homes.

Just The Facts

Who Is at Greatest Risk for Fire-Related Deaths?

- **Children 4 and under**
- **Older adults 65 and older**
- **The poorest Americans**
- **African Americans and Native Americans**
- **Persons living in rural areas**
- **Persons living in manufactured homes or substandard housing**

School Violence

Just The Facts

What Are School-Related Violent Deaths?

School-related violent deaths are those that occur on school grounds, on the way to and from school, and on the way to and from school-sponsored activities.

The Problem

Fewer than 1% of all homicides among school-age children occur on or around school grounds or on the way to and from school.

- Nearly two-thirds of school-associated violent deaths were students; about one-tenth were teachers or other staff; and nearly one-quarter were community members killed on school property.
- Eight out of 10 school homicide or suicide victims were males.
- 28% of the school-related deaths occurred inside the school building; 36% occurred outdoors on school property; and 35% occurred off campus.

CDC's Accomplishments

Study tracks school-associated violent deaths

With the Departments of Education and Justice, CDC has conducted a national study of school-associated violent deaths since 1992. Data from 1992 to 1994 were published in the Journal of the American Medical Association in 1996. (Several results from that study are presented in "The Problem" section above.) Preliminary data from 1994 to 1999 reveal that 220 incidents of school violence occurred between July 1, 1994, and June 30, 1999. The majority of these incidents were homicides involving firearms. While the total number of events has decreased steadily since the 1992–1993 school year, the total number of multiple victim events appears to have increased. This study plays an important role in monitoring trends in school violence, identifying risk factors for school violence, and assessing the effects of prevention efforts.

Intervention helps children cope at home and in school

The EARLY ALLIANCE project in South Carolina promotes problem solving skills among 1st- and 2nd-grade children as a means of preventing violence, delinquency, and substance abuse. Although statistical data from this CDC-supported study do not yet exist to measure the program's long-term effectiveness, EARLY ALLIANCE shows promise. So far, 90% of participating children and families

The total number of violent events at school has decreased, but the number of multiple victim events has increased.

have remained in the program, and researchers have seen some positive changes in the behavior of all participants. The program involves not only the children at risk, but their families, teachers, peers, and mentors. If proven successful, EARLY ALLIANCE will provide a good school-based model for early efforts to prevent youth violence. Working with the Injury Center on this project are the National Institutes of Mental Health at the National Institutes of Health, and the Office of Juvenile Justice and Delinquency Prevention at the Department of Justice.

Multi-site project evaluates school-based prevention effort
A CDC-funded project is testing a violence prevention program in four middle schools. Each project site is implementing and evaluating the same school-based program to determine which elements work and under what circumstances. The program teaches students conflict resolution and problem solving skills, trains teachers about violence prevention, and engages family members in program activities. This multi-site project—affiliated with Virginia Commonwealth University, University of Illinois Chicago, University of Georgia, and Duke University—represents one of the largest efforts to date to assess the effectiveness of school-based violence prevention among middle school students.

Future Steps

We must improve the capacity of local and state authorities, community-based organizations, and private sector partners to support services and policies that work to prevent school violence.

Steps to prevent school violence include:

- Work with partners like the Departments of Education and Justice to better track and monitor school violence.
- Identify factors that increase or decrease risk of school violence.
- Develop and test new strategies to prevent school violence.

Just The Facts

Violent Behavior at School

Among students surveyed in a 1999 CDC study:

- 14% had been in a physical fight on school property one or more times in the preceding 12 months.
- 8% had been threatened or injured with a weapon on school property during the preceding 12 months.
- 7% carried a weapon on school property during the preceding 30 days.
- 5% had missed one or more days of school during the preceding 30 days because they felt too unsafe to go to school.

Sexual Violence

The Problem

An estimated 683,000 rapes occur each year. Only 16% of rape victims report the offense to police.

- More than half of lifetime rapes occur before age 18, and nearly one-third occur before age 12.
- In a national survey, 28% of college women reported a sexual experience since age 14 that met the legal definition of rape or attempted rape; 8% of college men reported perpetrating aggressive behavior which met the legal definition of rape.



51% of lifetime rapes occur before age 18; 29% occur before age 12.

- Nearly half of the rapes and sexual assaults reported to police by women of all ages are committed by friends or acquaintances. As many as 95% of the rapes that occur on college campuses are committed by someone the victim knows.
- Victims of rape often experience chronic headaches, fatigue, sleep disturbances, recurrent nausea, decreased appetite, eating disorders, menstrual pain, sexual dysfunction, and suicidal behavior. Sexual assault may more than double the risk of substance abuse.
- The National Violence Against Women Survey estimates that more than 200,000 women 18 and older were raped by intimate partners in the 12 months preceding the survey.
- Victims of marital or date rape are 11 times more likely than non-victims to be clinically depressed and 6 times more likely to experience social phobia. Some victims experience psychological problems as long as 15 years after the assault.

An estimated
683,000 rapes
occur each year.

CDC's Accomplishments

Uniform definitions and data elements for sexual violence
In FY 2000, CDC published Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements to improve and standardize data collected on violence against women. Work is underway to develop similar standards for sexual violence. Without these standards, researchers have used varying terms to describe acts of violence against women. These inconsistencies have contributed to confusion and a lack of consensus about the magnitude of the problem. Consistent data allow researchers to better gauge the scope of the problem, identify high-risk groups, and monitor the effects of prevention programs.

Exploring social norms about violence against women
The Injury Center is exploring opportunities to create communities in which violence against women is unacceptable and intolerable. In October 2000, formative research began to identify social norms that support or discourage intimate partner violence and sexual violence. This research will increase knowledge about modifiable risk factors and the consequences of intimate partner and sexual violence. It will also identify target audiences, techniques for information sharing and prevention strategies. The research findings will guide CDC's development of a comprehensive campaign with elements for implementation at both national and local levels. The campaign to change social norms that support violence will use carefully crafted messages delivered through public service announcements, television spots, educational materials, and other communication methods.

Resource center for sexual violence prevention
With CDC funding, the Pennsylvania Coalition Against Rape established the National Sexual Violence Resource Center to provide sexual assault programs, state and local organizations, community volunteers and the media with comprehensive information about sexual violence, policy analysis and development, and technical assistance. The Center compiles, synthesizes and distributes research and evaluation findings that can help practitioners develop appropriate programs for preventing and controlling sexual violence.

Just The Facts

What Is Sexual Violence?

Sexual violence is a sex act completed or attempted against a victim's will or when a victim is unable to consent due to age, illness, disability, or the influence of alcohol or other drugs. It may involve actual or threatened physical force, use of guns or other weapons, coercion, intimidation or pressure. Sexual violence also includes intentional touching of the genitals, anus, groin, or breast against a victim's will or when a victim is unable to consent, as well as voyeurism, exposure to exhibitionism, or undesired exposure to pornography. The perpetrator of sexual violence may be a stranger, friend, family member, or intimate partner.

Technical assistance enhances states' use of funds
CDC's Injury Center offers technical assistance to state health departments and sexual assault coalitions to help them more effectively use funds received through the Violence Against Women Act. The funds—designed to enable states to educate communities about sexual assault and develop programs to prevent it—support educational seminars, hotlines, training programs for professionals, development of informational materials, and special programs for underserved communities. At least 25% of funds for the rape prevention and education programs must target junior high and high school students. With CDC's support, states and territories have strengthened their infrastructure to address sexual violence, provide more extensive services to survivors of sexual assault and rape, and implement prevention and education programs.

First national conference on sexual violence
The first National Sexual Violence Prevention Conference, "Coming Together to End Sexual Assault," convened in Dallas, Texas, May 16–19, 2000. The conference—a joint effort of CDC, national community-based organizations, agencies of the Department of Health and Human Services, the Department of Justice, and other federal agencies—was designed to strengthen communication and partnerships to prevent sexual violence. Approximately 700 professionals representing diverse disciplines attended. CDC is planning a second national conference for June 2002.

Network increases information sharing
The Violence Against Women Electronic Network (VAWnet) helps practitioners share data and lessons learned about VAW prevention and intervention efforts. The CDC-funded network improves communication among state domestic violence and sexual assault coalitions and allied organizations. It offers hands-on technical assistance and provides forums for discussing applied research, public policy, and a variety of other issues. The network also features a database promoting state-to-state electronic networking and a library of resources about violence against women.

Survey to assess prevalence and incidence of sexual violence
CDC and several partners have developed two surveys to help states better assess the problem of intimate partner and sexual violence and resulting injuries, as well as related attitudes and norms. Data gathered will guide policy decisions and allow for comparison of statistics across states. The surveys are currently being pilot tested. After testing, Injury Center staff will submit the surveys to be considered as optional modules in the Behavioral Risk Factor Surveillance System. If accepted, the modules will be offered to all states to help collect and analyze state-level data.

Projects address needs of diverse populations. CDC funds 10 projects to prevent intimate partner violence and sexual violence among various racial and ethnic minority populations, including African Americans, American Indians and Alaska Natives, Hispanic Americans, and Asian Americans and Pacific Islanders. The projects were selected based on their capacity to identify and respond to the special needs of the target groups. Project staff will develop and evaluate programs for children, victims and perpetrators; programs to prevent dating violence among school-aged youth; or programs that link victims with community-based service providers. Components of each of the projects will vary.

Study evaluates program to prevent re-victimization

Researchers at the University of Georgia are evaluating a program to reduce the risk of sexual assault among women who have already been victimized. The CDC-funded program includes training in problem-solving skills, assertiveness and personal risk factors. Researchers anticipate that this program will be most effective for participants with a single experience of sexual assault versus those who have been assaulted multiple times.

Future Steps

Like intimate partner violence, sexual violence often goes unreported because of embarrassment, denial or fear of retaliation, especially when the perpetrator is someone known to the victim. This under-reporting masks the magnitude of the problem of sexual assault in the U.S. Even when incidents are reported, they may not be identified or recorded as sexual violence. Similarly, victims seeking medical care after rape or sexual assault may not disclose the true cause of their injuries. Even if they do, the information may not be recorded in the medical record. To better document the scope of the problem of sexual violence and identify trends in incidence and prevalence, we must improve the quality of data collection at national, state, and local levels. Development of uniform definitions and recommended data elements for sexual assault is critical.

Scientists, public health professionals, advocates and others in this field must increase efforts to stop sexual violence from occurring. To this end, CDC should support evaluation of interventions to prevent sexual violence and communicate sound, science-based recommendations about programs and practices that work. At the same time, CDC and its partners must support and enhance victims' services, including developing and implementing culturally appropriate services for diverse populations.

Spinal Cord Injury

The Problem

Nearly 200,000 people in the United States live with a disability related to a spinal cord injury.

- Approximately 11,000 Americans are hospitalized for a spinal cord injury (SCI) each year.
- The leading causes of SCI vary by age. Among persons under age 65, motor vehicle crashes are the leading cause. Among persons over 65, falls cause most SCIs.
- SCIs cost the nation an estimated \$9.7 billion each year. Pressure sores alone, a common secondary condition among people with SCI, cost an estimated \$1.2 billion.
- In addition to pressure sores, secondary conditions from SCI include respiratory complications, urinary tract infections, spasticity, and scoliosis.



More than half of the people who sustain spinal cord injuries are 16 to 30 years old.

Approximately 11,000 Americans are hospitalized for a spinal cord injury each year.

CDC's Accomplishments

Surveillance begins for SCI

With CDC funding and technical support, seven states—Colorado, Louisiana, Minnesota, Missouri, Oklahoma, South Carolina, and Utah—began collecting data about spinal cord injury (SCI) in 2000. These data will enable CDC to estimate the magnitude and severity of SCI nationally and to assist states in developing and implementing prevention efforts.

Prevention education realizes impressive results

Over a one-year period, participants in an CDC-funded intervention experienced a 46% decrease in pressure sore occurrence and a 36% decrease in pressure sore severity. The intervention, part of the Arkansas Spinal Cord Commission's Consumer Action to Prevent Pressure Sores (CAPPS) project, eliminated sores among one-third of the intervention group and saved \$660,000 in hospital costs associated with pressure sores. The goal of the CAPPS project was to determine whether in-home education could prevent new pressure sores and reduce the number and severity of existing pressure sores among a rural, underserved population of persons with spinal cord injury. Public health nurses, trained using a Pressure Sore Prevention Education Manual developed by CAPPS project staff, visited participants' homes to teach them about pressure sore prevention and treatment. A similar group of persons with SCI who did not receive the intervention served as a control group. The findings from this project may shape efforts to prevent SCI-related pressure sores in similar communities.

Behavioral intervention improves outcomes

CDC funded the Rehabilitation Institute of Chicago to examine the efficacy of a behavioral intervention to prevent pressure sores after spinal cord injury. Researchers recruited study participants during acute rehabilitation and followed them after discharge. The control group received usual care, while the intervention group received usual care and a behavioral intervention that included a personal contract for behavior change and routine feedback to promote self-care after discharge. At one-year follow-up, only 2.5% of the

intervention group had developed severe pressure sores compared with 19.4% of the control group; and 2% of intervention participants had been hospitalized, while 18% of the control group had been hospitalized for pressure sores.

SCI strategic plan outlined

In November 1999, approximately 20 SCI researchers and public health officials attended the CDC-sponsored meeting "Future Directions for Community-Based Spinal Cord Injury Program Research and Development" in Atlanta. Meeting participants reviewed community-based methods for preventing secondary conditions of SCI and began developing a research agenda. One of their key recommendations was to convene an interagency meeting of professionals to further develop a strategic plan for addressing SCI; that meeting was held in March 2001. Participants discussed the progression of health needs following spinal cord injury and identified gaps in current service delivery for persons with SCI; developed an inventory of activities being conducted across federal agencies and explored a coordinated response to better serve this population; and set priorities for CDC to address such needs as increased SCI surveillance, improved documentation of access to services both following the acute SCI event and over the life span, assessment of impact of service access on outcome, and dissemination of prevention information.

Remote-control device to aid injured persons
In Ohio, CDC's Injury Center supports a research project to develop a remote-control device to help persons with traumatic brain and spinal cord injuries open doors. The device, created by grantee TKM Unlimited, can remotely lock or unlock doors that have a standard door handle and deadbolt. With the addition of a compact receiver unit, the device can also operate lights, alarm systems, and other electrical devices. TKM Unlimited will continue to develop and test this device with the goal of marketing a convenient, rugged, multifunctional product.

Improving accuracy and ease of SCI reporting
CDC is studying methods to improve the accuracy of electronic SCI data reporting. Because current hospital discharge codes for SCI tend to produce inaccurate or incomplete data, all states that receive funding for SCI tracking must review individual medical records to verify SCI cases, a labor-intensive and costly process. Researchers will develop and test an algorithm that uses multiple hospital discharge codes to detect SCI cases with greater sensitivity and accuracy. If successful, this study could eliminate the need to validate cases of SCI by hand.

Future Steps

Because SCI can be both socially and economically devastating, we must expand efforts to prevent it and the disabling conditions that often result. CDC can make important contributions to understanding and reducing the incidence and severity of SCI-related disabilities. However, resources for conducting SCI activities are limited. With additional resources, CDC could increase efforts to collect population-based data about the incidence, prevalence and costs of SCI, as well as data about outcomes and access to services. CDC could also increase research into the risk factors for SCI and the secondary conditions associated with it. Findings from such research would shape the development, implementation, and evaluation of community-based prevention programs.



Males are four times more likely than females to sustain a spinal cord injury.

Just The Facts

Who Is at Greatest Risk for Spinal Cord Injury?

Young, black males are at highest risk for spinal cord injuries (SCI).

- **More than half of the people who sustain SCIs are 16 to 30 years old.**
- **Males are four times more likely than females to sustain a SCI.**
- **Blacks are at higher risk for SCI than whites.**

Suicide

The Problem

More people die from suicide than from homicide in the United States.

- In 1998, 30,575 Americans took their own lives, an average of 84 each day. That's almost twice the 17,893 homicides that occurred that year.
- In 1998, suicide was the eighth leading cause of death in this country. For 10- to 24-year-olds, it was the third leading cause.
- The highest suicide rates of any age group occur among people ages 65 and older. On average, an older adult commits suicide every 90 minutes.
- While females attempt suicide more often than males, males are at least four times as likely to die from suicide. In 1998, males accounted for 80% of all completed suicides in the United States.
- Among youth 15 to 19, boys were five times as likely as girls to commit suicide; among 20- to 24-year-olds, males were seven times as likely as females to commit suicide.
- The number of completed suicides reflects only a small portion of the impact of suicidal behavior. In 1998, an estimated 671,000 visits to U.S. hospital emergency departments were due to self-directed violence.



Males are at least four times more likely than females to die from suicide.

CDC's Accomplishments

Unique study broadens understanding of suicide risk factors
Traditionally, to learn about causes of and motivators for suicide, researchers relied on accounts of victims' families and friends. Family members and friends, however, may not know all the factors that lead to suicide. In a landmark study conducted from 1992 to 1995 in Harris

County (includes Houston), Texas, researchers interviewed persons ages 13 to 34 who had survived a suicide attempt. Injury Center scientists analyzed results of those first-person interviews. They found that, in addition to mental health factors like depression, many non-mental health factors may influence suicidal behavior. These include alcohol use, geographic mobility, exposure to suicidal behavior, hopelessness, help-seeking behavior, impulsiveness, and physical illness. The data from this unique study will help guide development of programs to prevent suicide.

Surgeon General's Call to Action

Researchers at CDC co-authored the Surgeon General's Call to Action to Prevent Suicide, released in 1999. This blueprint for addressing suicidal behavior outlines 15 recommendations organized around three themes: awareness, intervention and methodology (AIM). Since the Call to Action was released, many states have begun developing and adopting statewide plans to prevent suicide. For example, Minnesota used the AIM framework to appoint a suicide prevention coordinator, develop a statewide suicide prevention plan, appropriate state funding to support prevention, and train several organizations in prevention.

Partner in national suicide prevention strategy

The Injury Center plays a key role in the Federal Steering Group for the Surgeon General's National Suicide Prevention Strategy. This group coordinates federal initiatives to prevent suicide, funds research, supports workshops, and shares information about suicide facts and prevention activities through such channels as public hearings and the Internet. In early 2001, it published goals and objectives for the strategy, which include promoting awareness about suicide as a preventable public health problem; developing and evaluating prevention programs; improving the portrayal of suicide, mental health and drug use in the entertainment and news media; promoting research about suicide and its prevention; and enhancing tracking systems for suicide.

Integrating data for more accurate suicide measures

CDC has established a Suicide Prevention Research Center at the Trauma Institute of the University of Nevada School of Medicine. The Center has developed a pilot surveillance system to help states

integrate data from death certificates, emergency departments, and mental health departments. When fully operational in 2003, this new system will provide a more accurate and complete measure of suicide rates than the current surveillance system, which relies on mortality data alone.

Studying the effectiveness of outreach programs

In New York and South Carolina, CDC-funded researchers are evaluating interventions that may influence one or more of the factors that lead to suicidal behavior among high-risk populations. New York researchers are looking at programs designed to enhance awareness, use, and efficacy of telephone crisis intervention services among high school students. In South Carolina, researchers are evaluating a program targeting adults ages 65 and older with minor depression. Program counselors help participants recall positive events in their lives or times when they made a difference to someone else. If effective, these programs could be replicated in other communities or be used as models for developing similar efforts.

Center to support prevention among American Indians and Alaska Natives

By supporting the American Indian and Alaska Native Suicide Prevention Center and Network, CDC and the Indian Health Service help reduce the burden of suicide among American Indians and Alaska Natives. The network assists communities in conducting suicide prevention activities and operates a suicide prevention program for teens, a population at increased risk of suicide and related behavior.

Researchers identify factors that contribute to suicide

To determine the factors that contribute to suicidal behavior and related injuries, CDC funds the following:

- Researchers at Emory University have been working to identify risk factors for suicide and to determine which interventions effectively prevent suicide. Their research compared African Americans ages 18 to 44 who have attempted suicide with African Americans in the same age group who have not. The researchers found a strong connection between intimate partner violence and suicidal behavior among African American women. Based on these findings, in 2000, Emory researchers began a project to develop interventions for suicidal, battered women to reduce injuries and deaths associated with both intimate partner violence and suicide.
- In Seattle, Washington, a study is evaluating safe practices for firearm storage. Studies have shown that the presence of a gun in the home increases residents' risk of suicide. Access to firearms has also been directly associated with unintentional gunshot wounds among children and teens. The Seattle study will help determine the best ways to reduce youths' access to guns and prevent firearm-related injury and death among that age group. Researchers are compiling data about the feasibility and effectiveness of gun-storage boxes, gun safes, trigger locks, and practices such as storing guns unloaded and storing guns and ammunition in separate locations.

- Researchers at the Harvard Injury Control Research Center are studying intentional injury among 6,000 Chicago youths. Their goals are to determine the prevalence of intentional injury and to examine the relationship between this type of injury and problems such as psychiatric disorders and access to medical treatment. Study results will increase understanding of the risk factors for and the incidence and prevalence of intentional injury, including suicide.

Future Steps

Many suicides go unreported, masking the magnitude of the suicide problem in the United States. Medical examiners cannot always determine whether or not a person's death was deliberate. Even if suicide is suspected, the official cause of death may be listed as unintentional. To better document the scope of the problem, identify high-risk groups, and identify trends in incidence and prevalence, we must improve the quality of data collection at national, state, and local levels.

While we have learned a lot about the factors that contribute to suicidal behavior, we must continue research in that area to develop more effective prevention strategies. We must also continue to evaluate current interventions and develop and test new ones. And as data become available about what works, we must communicate that information to practitioners in the field. Research, program development, evaluation, and communication—all call for CDC to work with public and private partners.

Just The Facts

Suicide and Older Adults

Since 1933, the first year states began reporting deaths, adults 65 and older have had the highest suicide rate of all age groups. While older adults make up 13% of the U.S. population, they account for nearly 20% of suicide deaths. Suicide rates tend to rise with age and are highest among white men 65 and older.

Suicide and Young People

The rate of youth suicides has tripled since the 1950s, and today, suicide is the third leading cause of death for 15- to 24-year-olds. In 1998, more teenagers and young adults died of suicide than from cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza, and chronic lung disease combined.

Teens Behind the Wheel

The Problem

Two out of five deaths among the teens in the United States are the result of a motor vehicle crash.

- In 1999, 5,749 teens died of injuries caused by motor vehicle crashes. On average, that's one teen death on the nation's roadways every 91 minutes.
- The risk for motor vehicle crashes is higher among 16- to 19-year-olds than any other age group. In fact, per mile driven, a 16-year-old driver is seven times more likely to crash than a driver 25 to 29 years old.
- In 1999, the economic cost of police-reported crashes (both fatal and nonfatal) involving drivers ages 15 to 20 was about \$32 billion.

CDC's Accomplishments

Quick response to a deadly trend

CDC responds rapidly to emerging health issues in communities. For example, a Gwinnett County (GA) task force, concerned about a series of teen traffic fatalities, asked CDC's National Center for Injury Prevention and Control to help them obtain data to shape prevention efforts in the county. Injury Center staff determined that the county's death rate among teen drivers was much higher than that of other Georgia counties. They studied driving behaviors among Gwinnett County teens to identify potentially modifiable risk factors and found that three behaviors were associated with increased risk for motor vehicle crashes: driving 20 mph over the speed limit, passing a car in a no-passing zone, and taking risks while driving in traffic because it makes driving more fun. Using these data, Gwinnett County school officials developed interventions to reduce motor vehicle-related injury risks among teens. CDC published the findings from this study in its Morbidity and Mortality Weekly Report.

Examining parents' influence on teen driving behavior

Injury Center scientists are working with the National Institutes of Health to examine how parents' actions affect their teens' driving behavior and motor vehicle crashes. This research will help determine whether persuasive communication, setting clear driving expectations, supervising teens' driving, limiting driving in high-risk conditions, and penalizing unsafe driving will result in teens' engaging in fewer risky driving behaviors, having fewer traffic violations and, most important, having fewer crashes.

Evaluating effects of restrictions on youngest drivers

With CDC funding, researchers at the University of California at Los Angeles are investigating the effects of legislation in California that restricts the time of day when teens can drive and the age of passengers allowed in a minor driver's vehicle. By comparing the incidence and circumstances of crashes among 16- and 17-year-old drivers before and after the law was put into place, researchers will estimate the effects of the law in reducing crashes and injuries. The findings from this research will guide other states in deciding whether to enact similar legislation.

Future Steps

Driving safely is a complicated skill that takes time and practice to master. Graduated licensing is one strategy that allows for development of driving skills while minimizing risk of injury. With graduated licensing, a young and/or inexperienced driver receives a license to drive with specific restrictions; these restrictions are lifted systematically as the driver gains experience and demonstrates competence. Most states currently have some form of graduated licensing laws in place, but the strength of the components varies widely. CDC is supporting research to examine the effectiveness of particular components of graduated licensing. Results from this study will help policy makers make informed, science-based decisions. However, graduated licensing by itself is not the final answer to the problem. We must also engage in research to identify how family, peers, and others influence teen driving behavior.

Just The Facts

Why Are Teens at Risk for Motor Vehicle Crashes?

Inexperience

- Teens are more likely than older drivers to underestimate the dangers in hazardous situations, and they have less experience coping with such situations.

Low rates of seat belt use

- Only 33% of high school students report they always wear seat belts when riding with someone else.

Alcohol

- At all levels of blood alcohol concentration, the risk of being involved in a motor vehicle crash is greater for teens than for older drivers.

Trauma Care Systems

The Problem

In the United States, as many as 35% of trauma patients who die do so because optimal acute care is not available. Despite evidence that trauma care systems save lives, existing systems serve only one-fourth of the U.S. population.

CDC's Accomplishments

Improving care through partnerships and research

To increase the number and quality of trauma systems around the nation, CDC works extensively with

public and private sector partners responsible for planning and developing such systems. For example, CDC collaborates with the National Highway Traffic Safety Administration on a project called "Trauma Vision," which engages experts and stakeholders in a consensus-building process to design optimal trauma care systems that meet community needs and, ultimately, reduce the adverse effects of injuries. CDC has also supported systematic reviews of scientific literature about patient outcomes in trauma systems and is currently funding a national study comparing outcomes and costs in hospital trauma centers and non-trauma center hospitals. Findings will enable community leaders to make informed decisions about establishing and supporting trauma centers and trauma care systems.

Program to establish single source of trauma data

When the American Trauma Society brings the CDC-funded Trauma Information and Exchange Program on line, policy makers, stakeholders, researchers and the public will have a convenient, single source for accessing trauma care data. This pilot program will offer data gathered through a variety of channels and promote more effective exchange of information.



Existing trauma care systems serve only one-fourth of the U.S. population.

CDC support leads to funding for Texas trauma care system

Responding to public interest, the 2000 Texas Legislature established a \$10.5 million endowment using tobacco settlement money to support trauma care and continue injury prevention activities in that state. Public support for comprehensive trauma care grew when the Bureau of Emergency Management, Texas Department of Health, developed the Texas Trauma System. The system—established with CDC’s consultation and funding—used regional area councils, composed of local health care providers and administrators, to increase community awareness of the importance of an integrated trauma care system.

Evaluation assesses complete system

With CDC funding and technical assistance, leading experts from the American College of Surgeons, the American College of Emergency Physicians, and other organizations evaluated the statewide trauma care system developed by the Montana Department of Health and Human Services. The evaluation looked at the trauma care network and injury prevention programs. It was the first effort to assess the total system, rather than focusing on trauma centers alone. Results of this evaluation will help improve the Montana system and guide the development of other state or regional trauma systems.

Study measures costs and outcomes of trauma care

CDC is funding the three-year National Study of Costs and Outcomes of Trauma to examine variations in care provided by both trauma centers and non-trauma center hospitals, to estimate the cost for patients treated at these centers, and to describe the relationship between costs and outcomes. Researchers will obtain medical and billing data for initial and subsequent injury-related hospitalizations and will conduct telephone interviews with patients to gather additional information about injury outcomes.

Addressing patient safety

The Injury Center is already working to prevent falls and pressure ulcers among patients in rehabilitation and long-term care settings. It is currently exploring how to extend this work to address patient safety more broadly.



The majority of trauma systems are found in urban areas.

Future Steps

There is much we don't know about the effectiveness of trauma care systems. Further evaluation is needed to better define their benefits and costs to society, to provide operational guidance for system planners, and to furnish practical measures for evaluating system performance.

The Health Resources and Services Administration has lead federal responsibility for trauma care systems. However, CDC, with its experience working with data systems, is well-positioned to make significant contributions in this critical public health area. With additional resources, CDC can help set research priorities, provide technical assistance for research programs, and translate new findings into practical measures and methods for evaluating trauma care systems.

CDC has helped develop tracking systems for detecting patient safety issues such as hospital-acquired infections. The Injury Center has the expertise needed to help extend these tracking and monitoring activities to injuries occurring in health care settings. With appropriate resources, Injury Center staff could work with other CDC professionals and with federal partners to develop operational definitions of specific types of patient injuries and incorporate them into tracking and reporting systems at the institutional, local, state, and national levels.

Just The Facts

What Is a Trauma Care System?

A trauma care system is an organized effort, coordinated by a state or local agency, to deliver the full spectrum of care (from acute care to rehabilitation) to injured persons in a defined geographic area. Such a system requires specially trained practitioners as well as adequate resources, equipment, and support personnel.

Trauma care systems are in various stages of development, implementation, and evaluation, nationwide.

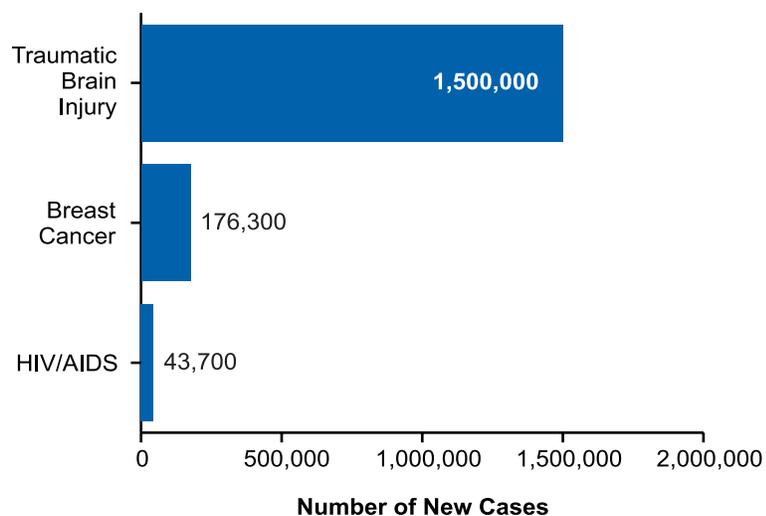
Traumatic Brain Injury

The Problem

Each year, about 1.5 million Americans sustain a traumatic brain injury (TBI). That's 8 times the number of people diagnosed with breast cancer and 34 times the number of new cases of HIV/AIDS each year.

- An estimated 5.3 million Americans—2% of the U.S. population—currently live with disabilities resulting from TBI.
- Among children and young adults, TBI is the type of injury most often associated with deaths from unintentional injuries.
- Estimated TBI rates for African American children ages 0 to 4 are about 40% higher than those for white children.
- Approximately 1 in 4 adults with TBI is unable to return to work one year after injury.
- TBIs requiring hospitalization cost the nation about \$56.3 billion each year. Included in this cost are decreased tax revenues and increased welfare costs that result when injured persons or their caregivers are unable to return to work.

Incidence of Selected Health Problems in the United States



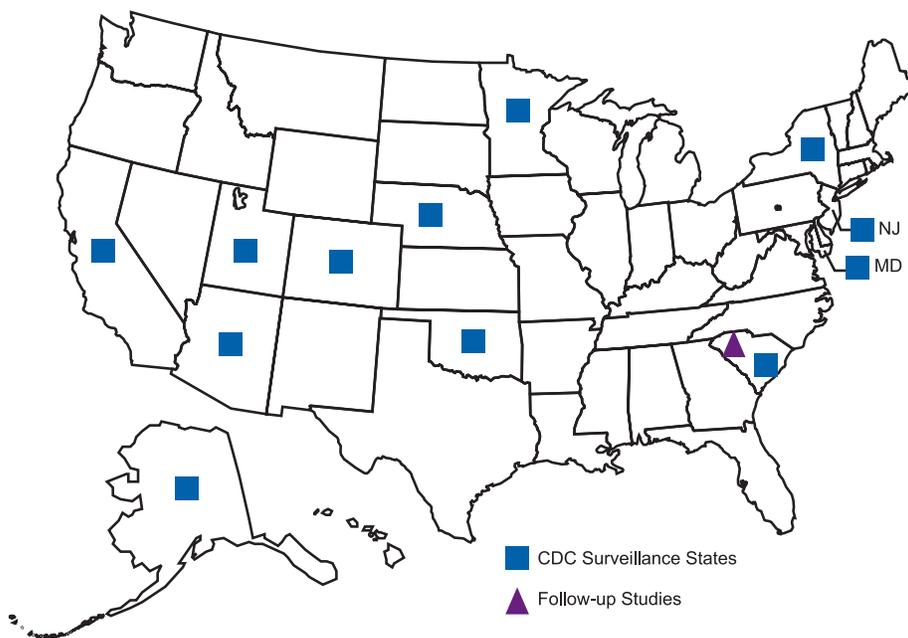
Source: Traumatic Brain Injury, 1991 (CDC) — Breast Cancer, 1999 (American Cancer Society) — HIV/AIDS, 1998 (CDC)

Each year, about 1.5 million Americans sustain a traumatic brain injury.

CDC's Accomplishments

Congressional funding began with the TBI Act of 1996. Since then, CDC has supported data collection and follow-up studies in selected states to track and monitor TBI, to link people with TBI to information about access to services, and to find ways to prevent TBI-related disabilities.

CDC-Funded TBI Surveillance States and Follow-Up Studies



States' surveillance yields valuable data

For several years, CDC has funded 15 states to track and monitor traumatic brain injuries. The Center's researchers will soon publish a review of TBI deaths for 1989–1998 and an update on TBI hospitalizations for 1996–1997. Data in these reports will inform decisions about TBI prevention efforts and provision of services for brain injured persons.

Data lead to increased funding

TBI data from CDC-funded surveillance inform policy, increase prevention efforts, and improve the lives of people with TBI. South Carolina used its data to demonstrate a need to increase services for people with TBI. After seeing estimates of the number of state residents who will likely experience TBI-related disabilities, decision makers significantly increased the budget for TBI services. South Carolina's FY 2001 budget included more than \$9 million to be used for a variety of TBI and spinal cord injury services—that's a 900% increase over the 1995 budget for such services.

Guiding research about TBI among children and youth

TBI is described as the leading cause of disability among children, but evidence to support this assertion is lacking. In October 2000, the Injury Center sponsored a meeting of injury researchers, professionals and advocates to discuss methods for better assessing outcomes of TBI in children and youth. The meeting report, which summarizes participants' recommendations for further research in this area, was released in May 2001. CDC will soon fund a study to find out how many children have TBI-related disabilities and how those disabilities affect them and their families. The study will build upon the recommendations generated at the October 2000 meeting.

Brochure helps families

In 1999, CDC published *Facts About Concussion and Brain Injury*, a brochure addressing the needs of people with less severe TBI and the needs of their families and caregivers. Hospital emergency department staff, other health care providers, and community organizations have used the brochure to help explain what can happen after a mild brain injury (or concussion), how to get better and where to go for help. CDC recently translated the brochure into Spanish and tested the translation with focus groups. The Spanish version will be published in early 2002.

Revisions to surveillance guidelines underway

CDC's *Guidelines for the Surveillance of Central Nervous System Injury*, published in 1995, established standards for collecting data on traumatic brain and spinal cord injury. These standards have been used throughout the U.S. and abroad. CDC is currently revising the guidelines to incorporate improved methods for TBI surveillance. The revision will be published in early 2002.

CDC-funded researchers address prevention, outcomes, and service provision

CDC funds TBI research in several academic institutions. Results of these projects will guide development of programs to prevent TBI and the secondary conditions associated with it as well as programs to link persons with TBI with needed services.

- The University of Pittsburgh is working to incorporate the “Think First for Kids” program in at least 50% of the city’s elementary schools. The program teaches children about preventing traumatic brain and spinal cord injury through lessons about violence prevention and motor vehicle, bicycle, playground and water safety. Researchers will evaluate both the process and outcome of the program’s implementation.
- Baylor College of Medicine in Houston investigated depression among people with a mild to moderate TBI. They found that 20% of patients developed depression within 3 to 6 months after injury. This is twice the frequency of depression found among patients who sustained trauma that did not involve the brain. Almost 40% of TBI patients in this study had at least one of the following secondary conditions within 3 to 6 months after injury: depression, post concussive disorder, or post traumatic stress disorder.
- Colorado State University and the University of South Carolina are researching ways to link people with TBI to information that can help them get the services they need. Preliminary findings released in 2000 indicate that 1 in 3 people with reported disability received no services after discharge from the hospital. The findings of these projects will shape recommendations for state policies to improve access to available services.

Future Steps

Brain injuries are a major problem with devastating consequences to both injured individuals and society at large. The impact of TBI in the U.S. indicates a need for ongoing monitoring and dedicated prevention efforts. In response to the TBI Act Reauthorization, part of the Children’s Health Act of 2000, CDC is moving forward in the following areas:

TBI in children

CDC has investigated the best methods for obtaining information about TBI outcomes in children and is funding research to improve these methods. CDC will soon fund a registry/follow-up study in one state to learn more about what happens to children after a TBI.

“Mild” TBI

By April 2002, CDC will report to Congress about methods for identifying people with TBI, including those who do not receive medical care. Injury Center scientists have completed a literature review of 500 articles about mild TBI, and they are currently preparing a methods document to be used to generate discussion about the issue. In September 2001, they convened a panel of experts to make recommendations for addressing the issue of identifying people with mild TBI.

Education and awareness

In addition to publishing a Spanish version of its brochure *Facts About Concussion and Brain Injury* (discussed previously), CDC is working closely with the National Brain Injury Association to develop new public education, media, and training materials.

Water-Related Injuries

The Problem

In 1998, 4,406 people drowned in the United States, an average of 12 people per day.

- More than 80% of drownings occur among males.
- The drowning rate among African Americans is about 1.6 times that among whites.
- Alcohol use is involved in about 25% to 50% of adolescent and adult deaths associated with water recreation. It is a major contributing factor in up to 50% of drownings among adolescent boys.
- According to the U.S. Coast Guard, 734 people died in recreational boating incidents in 1999.
- Nearly three-quarters of boating-related deaths were due to drowning; 89% of people who drowned were not wearing personal flotation devices.



Drowning is the second leading cause of injury death among children ages 1 to 14.

CDC's Accomplishments

Report assesses lifeguards for drowning prevention

A 2001 report by CDC's Injury Center assesses lifeguards as a strategy for preventing drowning and water-related injuries. The report is the product of a meeting of experts and a review of data from the United States Lifeguard Association (USLA) and other sources. Data show that during 1988–1997, more than three-quarters of drownings at USLA sites occurred when beaches were unguarded and that the chance of drowning at a beach protected by lifeguards trained under USLA standards is less than 1 in 16 million. This report will help communities, local government officials, and owners of private water recreational areas make informed decisions about whether to begin, retain, or discontinue lifeguarding services.

Survey assesses swimming ability

Injury Center researchers analyzed data collected during the first Injury Control and Risk Survey to assess how well American adults thought they could swim. They found—

- More than one-third of the adult population reported that they were unable to swim at least one pool length or 24 yards.
- Self-reported swimming ability declined as age increased; it increased as level of education increased.
- African Americans reported the most limited swimming ability.
- More women than men reported limited ability, despite much lower drowning rates among women.

These data, published in the journal *Public Health Reports*, will help public health practitioners identify groups at greater risk for drowning and better target water safety messages and swimming education efforts.

Pool fencing not enough to prevent drowning among young children

The majority of drownings among the youngest Americans would not have been prevented if all pools in the U.S. had adequate fencing. In a CDC-funded study, researchers estimated that proper pool fencing would have prevented about one-fifth of drownings among children under 5. This finding suggests that additional strategies (e.g., pool covers, alarms, community education) are needed to prevent drowning.

Injuries from boat propellers highlight need for education

Injuries from boat propellers can result in permanent scarring, significant blood loss, broken bones, amputation, or death. Injury Center scientists worked with Texas public health professionals and the Texas Parks and Wildlife Department to characterize injuries from boat propellers in that state. During the three-month study of four Texas lakes, researchers identified 13 people who had been injured by boat propellers. Three of them died; those nonfatally injured sustained lacerations and broken bones. The results of the study, published in CDC's *Morbidity and Mortality Weekly Report*, indicate that severe boat propeller-related injuries may be more common than previously reported, underscoring a need to increase public awareness of safety measures and to improve tracking of such injuries.

Injuries associated with personal water craft
As sales of personal water craft (e.g., jet skis) skyrocketed in the early 1990s, so did associated injuries. Injury Center researchers found in a 1997 study. Of the estimated 33,000 people treated in hospital emergency departments between 1990 and 1995 for injuries related to personal water craft (PWC), nearly three-quarters were males. Most injuries were blunt trauma to the legs, lower torso, and head. Researchers recommended that PWC users receive specific training, that parents or other adult caregivers supervise children and teens who use PWCs, and that PWCs not be used where people are swimming or wading. Use of personal flotation devices (e.g., life jackets, life vests) can also reduce injuries among PWC users.



Most people injured on personal water crafts are males.

Future Steps

Many questions remain unanswered about the risk factors for drowning and other water-related injuries. Additional research is needed to—

- Evaluate the effectiveness of legislation (e.g., pool fencing) and community-based programs to prevent drowning.
- Assess levels of water safety knowledge and swimming ability among drowning and near-drowning victims.
- Assess levels of water safety knowledge and swimming skill among the general population and among high-risk groups.
- Describe the frequency and circumstances of water activities among the general population and among various groups.
- Assess the effectiveness of personal flotation devices.

Just The Facts

Children and Drowning

Drowning is the second leading cause of injury-related death for children ages 1 to 14.

- **In 1998, more than 1,300 children and young people (ages 0–18) died from drowning.**
- **For every child who drowns, another four are hospitalized and 16 receive emergency department care for near-drowning.**
- **Among children ages 1 to 4, most drownings occur in residential swimming pools. Most children who drowned in pools were last seen in the home, had been out of sight less than five minutes, and were in the care of one or both parents at the time.**
- **African American children ages 5 to 19 drowned at 2.5 times the rate of white children in this age group in 1998. However, African American children ages 1 to 4 had a lower drowning rate than white children, largely because drownings in that age group typically occur in residential swimming pools, to which African Americans have less exposure.**

Youth Violence

The Problem

Although homicide rates have dropped in recent years, they remain unacceptably high. Homicide rates for young people are higher in the United States than in any other developed nation.

- Homicide is the second leading cause of death for young people ages 15 to 19 overall. It is the number one cause of death among African Americans ages 15 to 24.
- From 1992 to 1998, for every homicide victim over age 12, approximately 121 people were injured, 16 of them severely.
- More than one-third of high school students who participated in a CDC study reported being in a physical fight in the past 12 months, and 4% had been injured seriously enough in a physical fight to require medical treatment by a doctor or nurse.
- Almost one-fifth of high school students taking part in that study had carried a weapon during the 30 days preceding the survey.
- Most young homicide victims are killed with guns. In 1998, 82% of homicide victims 15 to 19 years old were killed with firearms. The firearm homicide rate for this age group increased 44% between 1987 and 1998.

Just The Facts

What Is Youth Violence?

CDC's Injury Center defines violence as threatened or actual physical force or power initiated by an individual that results in, or has a high likelihood of resulting in, physical or psychological injury or death. Youth violence is not limited to violence between young people; it may involve a youth victim and an adult perpetrator, or vice versa.

Key Risk Factors for Youth Violence

One of the first steps toward preventing violence, according to the public health approach, is to identify and understand the factors that place young people at risk for violent victimization and perpetration. Previous research shows that there are a number of individual and social factors that increase the probability of violence during adolescence and young adulthood. Some of these factors include:

Individual

- History of early aggression
- Beliefs supportive of violence
- Social cognitive deficits

Family

- Poor monitoring or supervision of children
- Exposure to violence
- Parental drug/alcohol abuse
- Poor emotional attachment to parents or caregivers

Peer/School

- Association with peers engaged in high-risk or problem behavior
- Low commitment to school
- Academic failure

Neighborhood

- Poverty and diminished economic opportunity
- High levels of transiency and family disruption
- Exposure to violence

CDC's Accomplishments

Academic centers link researchers and communities

Ten colleges and universities have received CDC funding to establish National Academic Centers of Excellence on Youth Violence. These centers will foster joint efforts between university researchers and communities to address the problem of youth violence. Five centers will focus on developing and implementing community response plans, training health care professionals and conducting small, pilot projects to evaluate effective strategies for preventing youth violence. The other five centers will conduct more comprehensive activities, including researching risk factors for youth violence and evaluating prevention strategies.

National resource center offers wealth of information

In January 2001, CDC launched a new web-based resource for people who want to prevent youth violence and suicide. The National Youth Violence Prevention

Resource Center

serves as a central source for information and materials gathered from institutions, community-based organizations and federal agencies working to prevent violence among our nation's youth. The Center's web site, toll-free hotline, and fax-on-demand service offer access to information

**National
Youth Violence
Prevention
Resource Center**

**www.safeyouth.org
1-866-SAFEYOUTH
(1-866-723-3968)
TTY 1-800-243-7012**

about prevention programs, publications, research and statistics, and fact sheets. The web site links parents, teens and researchers to materials designed specifically for those audiences.

Surgeon General's report examines youth violence

The Surgeon General's Report on Youth Violence, released in January 2001, examines risk factors for youth violence, reviews factors that protect youth from perpetrating violence, and identifies effective research-based preventive strategies. CDC's Injury Center provided technical assistance and helped coordinate the report, which was developed with the Substance Abuse and Mental Health Services Administration, the National Institute of Mental Health, and other youth violence experts. Injury Center staff also wrote the epidemiology chapter and provided funding to produce the report.

Multi-site project evaluates prevention effort
A CDC-funded project is testing a violence prevention program in four middle schools. Each project site is implementing and evaluating the same school-based program to determine which elements work and under what circumstances. The program teaches students conflict resolution and problem solving skills, trains teachers about violence prevention, and engages family members in program activities. This multi-site project—affiliated with Virginia Commonwealth University, University of Illinois Chicago, University of Georgia, and Duke University—represents one of the largest efforts to date to assess the effectiveness of school-based violence prevention among middle school students.



Fewer than 1% of all homicides among school-age children occur on or around school grounds.

Study tracks school-associated violent deaths
With the Departments of Education and Justice, CDC has conducted a national study of school-associated violent deaths since 1992. Data from 1992 to 1994 were published in the *Journal of the American Medical Association* in 1996. Preliminary data from 1994 to 1999 reveal that there were 220 incidents of school violence between July 1, 1994, and June 30, 1999. The majority of these incidents were homicides involving firearms. While the total number of events has decreased steadily since the 1992–1993 school year, the total number of multiple victim events appears to have increased. This study plays an important role in monitoring trends in school violence, identifying risk factors for school violence, and assessing the effects of prevention efforts.

Reporting system to provide objective, timely violence data

State and local agencies have detailed information that could answer important fundamental questions about trends and patterns in violence, but the information is fragmented and currently difficult to access. CDC is working to establish the National Violent Death Reporting System to gather and share state-level data about violent deaths in America. This system would enable us to pull together this vital information in order to gain a more accurate understanding of the problem of violence in the U.S. Such a system would enable policy makers and community leaders to make educated decisions about violence prevention strategies and programs, including those that address youth violence.

Intervention helps children cope at home and in school

The EARLY ALLIANCE project in South Carolina promotes problem solving skills among 1st- and 2nd-grade children as a means of preventing violence, delinquency, and substance abuse. Although statistical data from this CDC-supported study do not yet exist to measure the program's long-term effectiveness, EARLY ALLIANCE shows promise. So far, 90% of participating children and families have remained in the program, and researchers have seen some positive changes in the behavior of all participants. The program involves not only the children at risk, but their families, teachers, peers, and mentors. If proven successful, EARLY ALLIANCE will provide a good model for early efforts to prevent youth violence. Working with CDC on this project are the National Institutes of Mental Health at the National Institutes of Health, and the Office of Juvenile Justice and Delinquency Prevention at the Department of Justice.

Projects target high-risk youth

CDC funds two projects to prevent violence among high-risk youth. The projects use varying strategies to address the needs of diverse population groups.

- The University of North Carolina has implemented a school-based program for predominantly African American 6th-, 7th- and 8th-grade students living in rural Alabama. The program engages youth in school and community activities as a means of preventing their involvement in violence activities. It involves not only students but also parents and teachers.

- In Boston, an emergency department-based project works with youth of all ages and cultural backgrounds. Youth entering the hospital emergency department for treatment of intentional injuries are contacted by social workers who address post-injury issues. Both the youth and their parents are offered referral services according to their specific needs.

Sourcebook guides community efforts to prevent youth violence

Best Practices of Youth Violence Prevention: A Sourcebook for Community Action is now available to help communities develop programs to prevent youth violence. The sourcebook provides the most promising approaches to implementing youth violence prevention programs using four key strategies: school-based programs, mentoring programs, parenting and family-based programs, and home visits by nurses. The sourcebook builds upon lessons learned from the first CDC-funded evaluation projects and draws upon the expertise of more than 100 of the nation's leading scientists and practitioners. It is the first publication to provide communities with step-by-step instructions for developing, implementing, and evaluating a variety of prevention programs. Girls and Boys Town in Kentucky, whose parenting program and school-based social skills and problem solving training have recently received national attention, has incorporated Best Practices into training workshops the organization will conduct across the country.

Examining costs of youth violence-related injuries

The Boston Pediatric Emergency Department Injury Surveillance Project, funded by CDC, will guide development of injury-prevention efforts that target the most costly injuries. Project staff is collecting data about children ages 3 to 18 who are treated in a Boston emergency department for violence-related injuries. These data—to be grouped by hospital, residence, age and sex of patient, means of injury, and type of injury—will be used to estimate the costs of such injuries to the healthcare system.

Understanding violence among urban youth

With funding from CDC, Harvard University is conducting a long-term study of interpersonal violence among 6,000 youth living in 80 Chicago neighborhoods. This project will assess rates of intentional injury at the community, school, family and individual levels and increase the understanding of risk factors for intentional injury among urban youth. Study findings will help practitioners develop interventions to prevent violence in this and similar settings.

Future Steps

We still have a lot to learn about what causes some youth to become violent and how to prevent such violence from occurring. To better address the problem of youth violence, CDC must:

- Increase tracking and monitoring of youth violence;
- Research factors that increase or decrease youths' risk of violence;
- Evaluate whether existing youth violence prevention strategies work;
- Develop and test new strategies to prevent youth violence.

We must also improve the capacity of local and state authorities, community-based organizations, and private sector partners to support services and policies that effectively prevent youth violence.