NATIONAL ACTION PLAN for CHILD INJURY PREVENTION

An Agenda to Prevent Injuries and Promote the Safety of Children and Adolescents in the United States

National Center for Injury Prevention and Control
Division of Unintentional Injury Prevention

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2012

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

Every day in the United States, two dozen children die from an injury that was not intended. Such tragedy often leaves families broken apart and changes the lives of those left behind. Injury deaths, however, are only part of the picture. Each year, millions of children in the United States are injured and live with the consequences of those injuries. These children may face disability and chronic pain that limit their ability to perform age-appropriate everyday activities over their lifetime.

These deaths and injuries need not occur because they often result from predictable events. The good news is that we have solutions that work to prevent child injury. The challenge is to apply what we know and work together to prevent these unnecessary tragedies to children, families, and communities.

To help address this challenge, we introduce the *National Action Plan for Child Injury Prevention.* It complements reports about child injury from the World Health Organization/UNICEF and the Centers for Disease Control and Prevention[1, 2, 3] and is the next logical step to address this challenge in the United States.

This plan is an overarching framework to guide the actions of those responsible for the health and safety of children and adolescents, including federal, state, and local agencies, philanthropies, and non-governmental organizations. Additional stakeholders include schools, child care centers, insurers, businesses, the media, medical institutions, policymakers and health care providers. Child injury prevention is achievable. Although the United States has seen declines in many injury causes over the past 25 years, more progress is needed.

This plan is intended to spark action across the nation in many areas to help children grow and thrive without injuries. Safety should be a human right. Let us redouble our efforts to achieve this vision.

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EXECUTIVE SUMMARY

Introduction

Childhood unintentional injuries are the leading cause of death among children ages 1 to 19 years, representing nearly 40 percent of all deaths in this age group. Each year, an estimated 8.7 million children and teens from birth to age 19 are treated in emergency departments (EDs) for unintentional injuries and more than 9,000 die as a result of their injuries—one every hour. Common causes of fatal and nonfatal unintentional childhood injuries include: drowning, falls, fires or burns, poisoning, suffocation, and transportation-related injuries. Injuries claim the lives of 25 children every day.

While tragic, many of these injuries are predictable and preventable. Diverse segments of society are involved in addressing preventable injuries to children; however, until now, no common set of national goals, strategies, or actions exist to help guide a coordinated national effort.

More than 60 partners joined the National Center for Injury Prevention and Control's (NCIPC) Division of Unintentional Injury Prevention (DUIP) in developing the *National Action Plan for Child Injury Prevention* (NAP) to provide guidance to the nation. The overall goal of the NAP is to lay out a vision to guide actions that are pivotal in reducing the burden of childhood injuries in the United States and to provide a national platform for organizing and implementing child injury prevention activities in the future.

The NAP provides a roadmap for strengthening the collection and interpretation of data and surveillance, promoting research, enhancing communications, improving education and training, advancing health systems and health care, and for strengthening policy. Elements of the plan can inform actions by cause of injury and be used by government agencies, non-governmental organizations, the private sector, not-for-profit organizations, health care providers, and others to facilitate, support, and advance child injury prevention efforts.

Burden

Every year, nearly 9 million children ages 0–19 are treated for injuries in emergency departments and more than 225,000 require hospitalization at a cost of around $87 billion in medical and societal costs related to childhood injuries. Child and adolescent unintentional injury deaths have not declined to the same extent as other diseases have, and resources directed at reducing child injury are not commensurate with the burden it poses.

Vulnerable Populations

Like diseases, injuries do not strike randomly. Males are at higher risk than females. Infants are injured most often by suffocation. Toddlers most frequently drown. As children age, they become more vulnerable to traffic injuries. Motor vehicle injuries dominate among teens. Poverty, crowding, young maternal age, single parent households, and low maternal educational status all confer risk and make children more vulnerable to injury. Death rates are highest for American Indians and Alaska Natives and lowest for Asians or Pacific Islanders. States with the lowest injury rates are in the northeastern part of the United States.

An Injury Prevention Framework

One framework for reducing childhood injuries is based on the public health model – a model that is used for preventing many other diseases. The public health approach includes identifying the magnitude of the problem through surveillance and data collection, identifying risk and protective factors, and, on the basis of this information, developing, implementing, and evaluating interventions, and promoting widespread adoption of evidence-based practices and policies.

Interventions can be implemented during various time frames before, during, or after an adverse event. Safety latches on medicine cabinets provide protection before an injury event, child safety seats minimize injury during the injury-causing event, and effective emergency response speeds treatment and improves outcomes after an injury event has occurred.

Purpose of the Plan

The NAP lays out a vision to guide actions that are pivotal in reducing the burden of childhood injuries in the United States and will be relevant to all those with an interest in children's health and safety, including:

- federal, state, and local agencies
- philanthropies, businesses and non-governmental organizations
- schools, educators, insurers, and health care providers
- policymakers

The plan is intended to help align priorities, to capitalize on existing strengths, to fill gaps, and to spark action across the nation that will result in measurable reductions in death and disability, and diminish the financial and emotional burden of childhood injuries in families and society. This outcome can only be realized if relevant stakeholders act on the plan.

Prevention Opportunity

While implementing the plan can potentially prevent many injuries to children and adolescents, the focus was on actions that would influence those injuries that are most burdensome to society, those for which there are feasible evidence-based interventions, those for which outcomes can be most easily measured, and those for which partners and stakeholders are likely available. Such injuries include:

- motor vehicle-related
- suffocation
- drowning
- poisoning
- fires/burns
- falls
- sports and recreation

Six Domains

The NAP is structured across six domains, which comprise a blueprint for action. Each domain, summarized below, consists of three to five goals. The actions recommended in each goal lay out broad areas for improvement. CDC and its partners will work together to identify implementation strategies for these actions by type of injury.

Data and Surveillance

Systematic surveillance is essential for accurate needs assessment. Only with good data can one estimate the relative magnitude of problems in order to set priorities. Current data collection systems are imperfect and incomplete. Better data can lead to better decisions, increased effectiveness (doing what works) and efficiency (avoiding waste). This plan calls for better data standardization (so that it is comparable across geography and time), better data quality (so that it is reliable and believable), and filling gaps (information about circumstances of injury events, outcomes, costs, and information that is local and community-specific). Information systems must allow for making existing data more available to those who can use and share it to design and implement interventions.

Some of the actions include developing an online access to key databases, collecting better data on the costs of injury, improving links between police, hospital, and emergency department data, and standardizing data collection and reporting.

Research

For more than four decades, the scientific study of childhood injuries has paid rich dividends. Effective interventions such as bike helmets, four-sided pool fencing, booster seats, smoke alarms, concussion guidelines, and teen driving policies have already saved many lives. Additional research to improve our prevention efforts will be required to further drive down child injury rates and is needed at three different levels: 1) *foundational* research (how injuries occur), 2) *evaluative* research (what works and what doesn't work to prevent injuries), and 3) *translational* research (how to put proven injury prevention strategies into action throughout the nation). Because research is a shared public, academic, and private endeavor, better *coordination* of research efforts will minimize waste and maximize return. Research can also help reduce health disparities through better understanding of the relationship between injuries and factors such as socioeconomic status, demographics, race and ethnicity.

Some of the actions include creating a national child injury research agenda, developing a national clearinghouse of child injury research, identifying key indicators related to child injury disparity, and increasing the number of child injury researchers through injury research training grants.

Communication

Raising awareness about childhood injuries is important at multiple levels. It can often trigger action, or support policies intended to reduce injuries. Better communication will better inform the actions by policy makers (enacting legislation to protect children), organizations (approaching injury prevention in a coordinated way), and by families (implementing evidence-based injury prevention strategies at home, on the road, on the playground, and in the community).

A balanced, coordinated communication strategy must be audience-specific and culturally appropriate, and use both traditional and innovative channels ranging from public relations campaigns to social media. Today more than ever, messages must be concise and relevant, and the messengers must be knowledgeable, credible, and easy to relate to. Various strategies can be used to deliver health messages to specific audiences, utilizing the talents of various injury partners.

Some of the actions include creating and implementing local and national campaigns on child safety, establishing web-based communications tool kits, finding local young people to be spokespersons for prevention, and using local businesses to support communication efforts to employees and their families.

Education and Training

Education and training is a cross-cutting strategy that can impact other facets of injury prevention. While some overlap between communications and education exists, education is considered here in a more formal context, with the intention to motivate change. Training specifically refers to the acquisition and use of skills. Education and training in injury prevention can benefit children and families, health care providers, public safety officials, and other professionals such as engineers, architects, journalists, teachers, and scientists. Education and training are intertwined because educators need to not only be deeply familiar with the topic they are teaching (subject matter expertise), but they need to know how best to transfer that information to the client (skill training). Identifying educational gaps and developing training capacity are current challenges.

Priorities include integrating injury prevention education into broader educational programs, developing effective educational materials, cataloging and sharing what works (best practices), and paying attention to educational needs and gaps at all levels from primary education to professional continuing education. The use of community based organizations to deliver education and training and the exploration of innovative media and new educational technologies are important to make educational opportunities more accessible to public health practitioners. Education for professional credentialing of practitioners—such as doctors, nurses, teachers, and others who interact with children—should include appropriate competencies in preventing childhood injuries (knowledge and skills).

Some of the actions include integrating injury prevention into health promotion programs, developing metrics, like “report cards” to measure school progress in educating about child injury prevention, establishing an injury prevention clearinghouse, and including prevention education into minimum standards for health and safety professionals.

Health Systems and Health Care

Health care providers treat injuries, but they are also partners in prevention through health care systems. While responding to and treating trauma, health care providers are critical for accurately documenting external causes of injuries and circumstances. Beyond the clinical setting, health care providers are credible advocates for child safety and can facilitate change in communities and families. Health care systems can address child injury by providing anticipatory guidance to health care providers and collecting clinical data.

Trends and changes to health care delivery models, including adoption of electronic medical records, the medical home model, and quality improvement efforts should all be utilized to augment injury reduction goals and objectives by improving data collection while also ensuring quality and continuity of medical care for children. Best practices for delivery of preventive services should be identified and disseminated. Furthermore, opportunities exist for new technologies and information systems to improve injury outcomes. Information systems can equip providers with evidence-based data and protocols to strengthen the quality of clinical decision-making and improve trauma care.

Some of the actions suggested include incorporating child injury risk assessment into home visitation programs, creating injury prevention quality measures that apply to the medical home, and using linked data systems to improve treatment decisions.

Policy

The policy domain is important because it is system-based, affecting populations by changing the context in which individuals take actions and make decisions. Historically, policies regarding safe environments and products (swimming pool fences and safe cribs), and safe behaviors (sober driving and bike helmets), have changed norms in communities and nationally. Policy includes aspects of law, regulation, or administrative action and can be an effective tool for governments and nongovernmental organizations to change systems with the goal of improving child safety.

The NAP informs policymakers about the value of adopting and implementing evidence-based policies. It calls for better compliance and enforcement of existing policies to protect children, such as infant car seats or four-sided pool fencing where these policies exist. The NAP underscores the importance of documenting and disseminating the effective and cost-saving policies at the broadest level.

Some of the actions include developing national leadership training in policy analysis for child injury prevention, documenting successful policies that save lives and prevent injuries to children, and supporting state capacity building for implementing policy-oriented solutions that reduce childhood injuries.

Conclusion

The successful implementation of the NAP will require bold actions, effective leadership, and strong partnerships. We cannot afford to wait any longer. Child injuries are preventable, and improvements in the safety of children and adolescents can be achieved if there is an effort by various stakeholders to adopt and promote known, effective interventions—strategies that can save lives and money.

BACKGROUND

Children are exposed to many hazards and risks as they grow and develop into adulthood, and unintentional injuries are the leading cause of death and disability for children and teenagers in the United States. The physical, social, cultural, political and economic environments in which they live can significantly increase or decrease their injury risks.

What is the Definition of a Child?

Although the definition of *child* is culturally determined and variable, this plan uses the definition adopted by the World Health Organization (WHO) and defined in the United Nations' Convention on the Rights of the Child, Article 1, "A child means every human being below the age of 18 years."[5] Therefore, in general, this plan defines a child as a person younger than 18 years of age. Because some data cannot be separated to fit this age group, however, the plan sometimes uses the age cutoff of younger than 20 years. WHO and CDC also define *child* in this way in their 2008 reports on child injury.[1, 2]

What is an Unintentional Injury?

Because of their size, growth and development, inexperience, and natural curiosity, children and teenagers are particularly vulnerable to injury. This plan defines injury as "the physical damage that results when a human body is suddenly subjected to energy in amounts that exceed the threshold of physiologic tolerance—or else the result of a lack of one or more vital elements, such as oxygen."[6]

Addressing all causes of child injury is important. However, for practical purposes, this plan is limited to *unintentional injuries*. Unintentional injuries are predictable and preventable when proper safety precautions are taken – they are not "accidents." The plan does not cover injuries that result from harm being inflicted on purpose, such as those sustained in a suicide attempt, by child maltreatment, or among children with special needs who may require a different set of injury prevention strategies.

External Causes of Unintentional Child Injuries

- Rates of traffic-related injuries are highest for children from age 5–19 years.
- Falls are the leading cause of nonfatal injuries.
- Death rates for drowning exceed those from falls, fires, pedal cycle injuries, pedestrian injuries, and poisoning.

Unintentional injuries in this action plan refer to the following causes or mechanisms of injury:

1. Motor vehicle
2. Suffocation
3. Drowning
4. Poisoning
5. Fire/Burns
6. Falls
7. Sports and recreation

Unintentional Child Injuries Among 0–19 Year-olds

- More than 9,000 children die each year (equivalent to 150 school busses all loaded with children each year).
- More than 225,000 children are hospitalized annually.
- Almost 9 million children are treated for their injuries in hospital emergency departments (EDs) each year.

We chose these seven types on the basis of several factors:

- Burden of injury
- Cost to society
- Existence of evidence-based prevention programs and policies
- Feasibility of action
- Potential for prevention that is demonstrable and measurable
- Stakeholder/partner support for prevention efforts

The seven types of injuries do not represent all causes of unintentional injury-related disability and death to children. However, they are some of the most common types found among children in the United States. For specific steps to prevent some of these leading causes of child injury, please see CDC's *Protect the Ones You Love* website at www.cdc.gov/safechild.

What is the Overall Burden of Child Injury?

Both fatal and nonfatal child injuries are costly in many ways. In addition to the profound burden of death and disability, injuries to children can also result in substantial economic costs, including medical care for the injured child and lost productivity for his or her caregivers.

What is the Burden of Fatal Child Injuries?

The number of children dying from unintentional injuries is staggering. In the United States, more than 9,000 children die each year—about 25 deaths a day—from such injuries.[4] In 2009 alone, 9,143 U.S. children died from unintentional injuries.

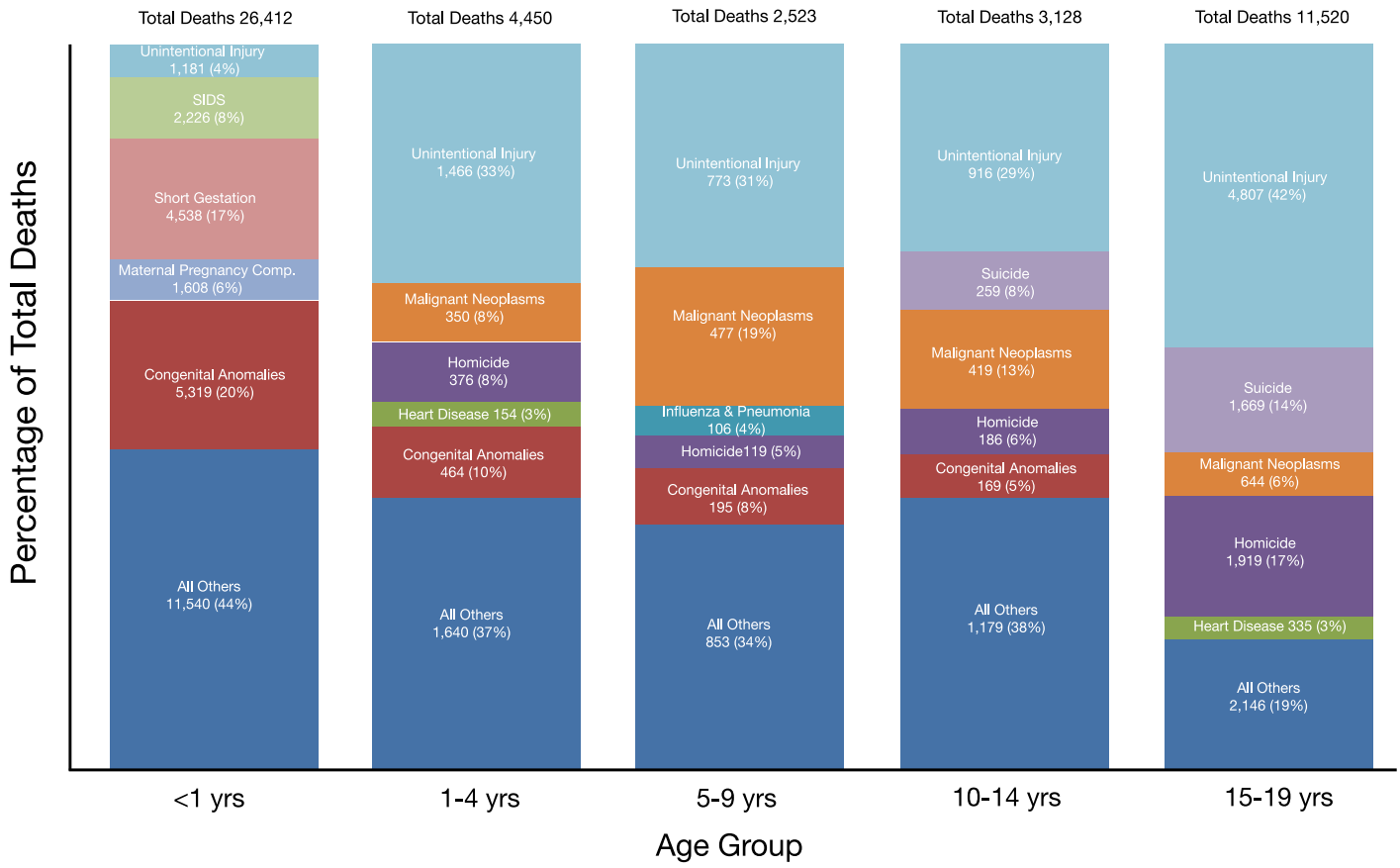
Unintentional injuries are the leading cause of death among children 1–19 years of age (Figure 1). They account for nearly 37 percent of all deaths to children after infancy.[4]

How the United States Compares to Other Countries

Sweden, the United Kingdom, Italy, and the Netherlands have the lowest rates of child injury deaths among 1 to 14 year olds. In contrast, the United States and Portugal have some of the highest rates of child injury deaths with rates that are more than twice that of the highest-ranking countries.

If the United States had child injury rates as low as Sweden's from the period 1991–1995, we would save 4,700 U.S. children annually.[7]

Figure 1. The five leading causes and number of child deaths, by age group, United States, 2009



Percentage totals may not equal 100% due to rounding

Source: National Vital Statistics System from the National Center for Health Statistics, Centers for Disease Control and Prevention; accessed through WISQARS .[4]

Table 1. The five leading causes and number of child deaths, by age group, United States, 2009

Rank*	Age <1	Ages 1-4	Ages 5-9	Ages 10-14	Ages 15-19
1	Suffocation 907 (77%)	Drowning 450 (31%)	Motor Vehicle (MV) Traffic 378 (49%)	MV Traffic 491 (68%)	MV Traffic 3,242 (67%)
2	MV Traffic 91 (8%)	MV Traffic 363 (25%)	Drowning 119 (15%)	Transportation – Other 117 (15%)	Poisoning 715 (15%)
3	Drowning 45 (4%)	Fire/Burns 169 (12%)	Fire/Burns 88 (11%)	Drowning 90 (10%)	Drowning 279 (6%)
4	Fire/Burns 25 (2%)	Transportation – Other 147 (10%)	Transportation – Other 68 (9%)	Fire/Burns 53 (6%)	Transportation – Other 203 (4%)
5	Poisoning 22 (2%)	Suffocation 125 (9%)	Suffocation 26 (3%)	Suffocation 41 (5%)	Fall 58 (1%)

*Source: National Vital Statistics System from the National Center for Health Statistics, Centers for Disease Control and Prevention; accessed through WISQARS.[4] *Percent of all age-specific deaths in parentheses*

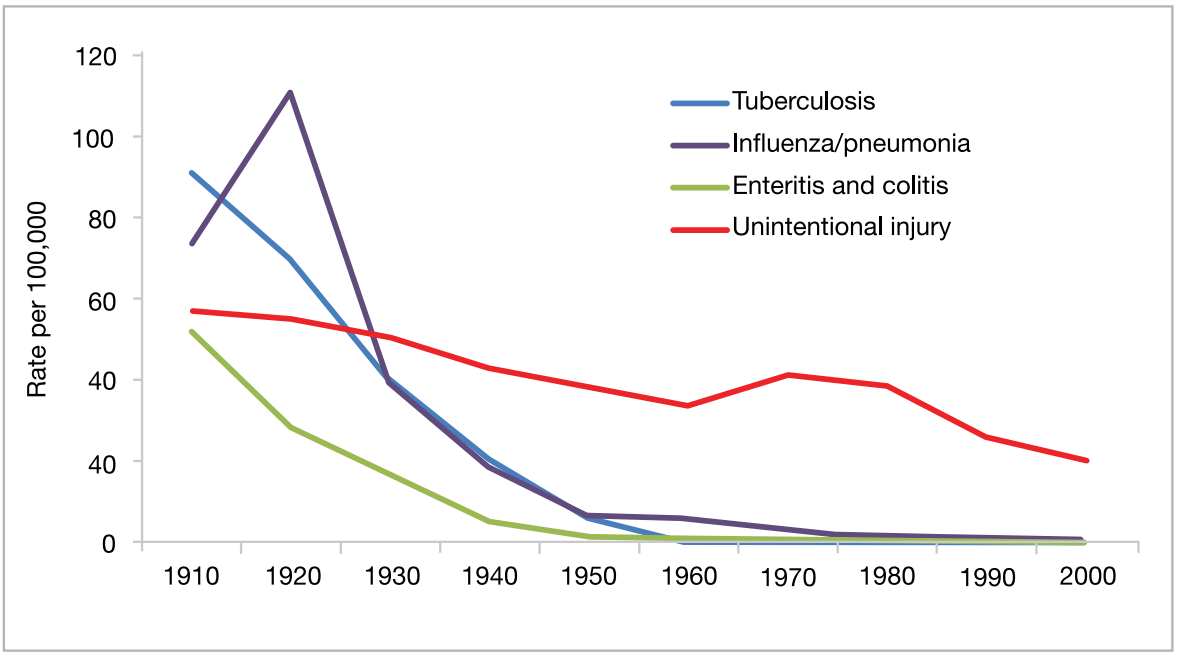
The most common causes of unintentional injuries leading to death among children include motor vehicle crashes, suffocation, drowning, poisoning, and fire- and burn-related injuries (Table 1).

Years of Potential Life Lost (YPLL) is an estimate of the average number of years a person would have lived if he or she had not died prematurely. In the United States between 2000–2009, unintentional injuries among children aged 1–19 years accounted for 42 percent of all YPLL. The YPLL rate due to unintentional injuries among children was five times higher than the rate for cancer, 13 times higher than the rate for heart disease, and 31 times higher than the rate for influenza and pneumonia.[2]

During the past 90 years, the rate of unintentional injury-related death among young people in the United States has decreased. However, the magnitude of this reduction has significantly lagged behind death due to other preventable causes, such as influenza, tuberculosis, and other infectious diseases over the same time period (Figure 2).

Since 1910, reductions in unintentional injury deaths (in red) have lagged behind reductions in other health conditions affecting U.S. children.

Figure 2. Reduction in death rates for persons 1-24 years of age, by cause and year, United States, 1910-2000.



Source: National Vital Statistics System from the National Center for Health Statistics, Centers for Disease Control and Prevention.[8]

What is the Burden of Nonfatal Child Injuries?

Injury deaths tell only part of the tragic story. Each year, millions of children are injured and live with the consequences of those injuries. In 2009, more than 8.7 million children and teenagers were treated for an injury in U.S. Emergency Departments (ED), and more than 225,000 of these children had injuries severe enough to require hospitalization or transfer to another hospital for a higher level of care.[4]

The most common reasons for a child injury-related ED visit are falling, being struck by or against a person or object, overexertion, a motor vehicle, and being cut or pierced (Table 2).[4] For some children, injury causes temporary pain and functional limitation, but for others, injury can lead to one or more of the following: permanent disability, traumatic stress, depression, chronic pain, and a profound change in lifestyle or decreased ability to perform age-appropriate activities.

Table 2. The five leading causes and number of nonfatal unintentional injuries among children treated in emergency departments, by age group, United States, 2009

Rank*	Age <1	Ages 1-4	Ages 5-9	Ages 10-14	Ages 15-19
1	Fall 147,280 (59%)	Fall 955,381 (45%)	Fall 631,381 (37%)	Fall 615,145 (29%)	Struck by/ against 617,631 (24%)
2	Struck by/ against 31,360 (13%)	Struck by/ against 372,402 (18%)	Struck by/ against 406,045 (24%)	Struck by/ against 574,267 (27%)	Fall 468,967 (18%)
3	Bite/sting 10,922 (4%)	Bite/sting 137,352 (7%)	Cut/pierce 104,940 (6%)	Overexertion 276,076 (13%)	Overexertion 372,035 (14%)
4	Foreign Body 8,860 (4%)	Foreign Body 126,060 (6%)	Bite/sting 92,590 (5%)	Cut/pierce 118,440 (6%)	Motor Vehicle Occupant 341,257 (13%)
5	Fire/Burns 7,846 (3%)	Cut/pierce 84,095 (4%)	Pedal Cyclist 84,590 (5%)	Pedal Cyclist 118,095 (6%)	Cut/pierce 184,972 (7%)

*Source: National Electronic Injury Surveillance System–All Injury Program (NEISS-AIP) from the Consumer Product Safety Commission; accessed through WISQARS.[4] *Percent of all age-specific deaths in in parentheses.*

What are the Financial Costs of Child Injury?

In 2000, the United States paid more than $87 billion in medical and other costs, including work loss by family members who cared for injured children. When the reduced quality of life of injured children and their families is added in, unintentional injuries cost more than $200 billion each year.[9]

Table 3 summarizes the estimated total medical and work loss costs for the five leading causes of child deaths, and Table 4 summarizes the estimated total medical and work loss costs for the five leading causes of nonfatal unintentional injuries resulting in an ED visit in 2005, the latest year that cost data were available.[4]

Table 3. Number of deaths and estimated lifetime medical and work loss costs for the five leading causes of fatal unintentional injury, both sexes, ages 0–19, United States, 2005

Mechanism of Injury, Number of Deaths, and Costs			
Mechanism	Number of Deaths	Total Medical Cost	Total Work Loss Cost
Motor Vehicle - Traffic	6,781	$56 million	$8.2 billion
Drowning	1,120	$5.7 million	$1.2 billion
Suffocation	1,047	$5.4 million	$987 million
Poisoning	729	$3.4 million	$924 million
Fire/Burn	529	$7.1 million	$547 million
TOTAL	10,206	$77.6 million	$11.9 billion

NOTE: Estimated unit (per injury) of lifetime medical cost (e.g., treatment and rehabilitation) and lifetime work loss cost (e.g., lost wages, benefits, and self-provided household services) associated with injury-related deaths were developed for CDC by the Pacific Institute for Research and Evaluation (PIRE).[10] For more information, go to http://www.cdc.gov/injury/wisqars.[4]

Table 4. Number of emergency department visits and preliminary estimated lifetime medical and work loss costs for the five leading causes of nonfatal unintentional injury, both sexes, ages 0–19, United States, 2005

Mechanism of Injury, ED Visits, and Costs			
Mechanism	Number of ED Visits	Total Medical Cost	Total Work Loss Cost
Falls	2,624,153	$5.0 billion	$10 billion
Struck By/Against	1,875,890	$2.6 billion	$5.2 billion
Overexertion	799,129	$787 million	$1.6 billion
Motor Vehicle – Occupant	588,689	$496 million	$991 million
Cut/Pierce	571,269	$361 million	$722 million
TOTAL	6,459,130	$9.2 billion	$18.5 billion

SOURCES: NEISS All Injury Program operated by the U.S. Consumer Product Safety Commission (CPSC) for numbers of nonfatal injuries
NOTE: Estimated unit (per injury) of lifetime medical cost (e.g., treatment and rehabilitation) and lifetime work loss cost (e.g., lost wages, benefits, and self-provided household services) associated with injury-related ED visits (treated and released) were developed for CDC by the Pacific Institute for Research and Evaluation (PIRE).[10] Updated costs for ED visits will be available from CDC in April, 2012. For more information, go to http://www.cdc.gov/injury/wisqars.[4]

What are the Other Costs?

The consequences of these fatal and nonfatal injuries to children carry a physical and emotional cost to the individual and our society. An injury affects more than just the injured child—it affects many others involved in the child's life. With a fatal injury, family, friends, coworkers, employers, and other members of the child's community feel the loss. With a nonfatal injury, family members must often care for the injured child, which can cause stress, time away from work, and lost income. The community also feels the cost burden of child injuries, as does the state and the nation.

Who is Most Vulnerable?

Some children are at greater risk than others for an injury. Injury-related death and disability are more likely to occur among males, children of lower socioeconomic status, those living in specific geographic regions, and in certain racial/ethnic groups. The vulnerabilities in each category vary according to:

Gender

- In every age group across all races and for every cause of unintentional injury, death rates are higher for males.
- Male death rates are almost twice that of females.
- Males aged 15–19 years have the highest rates of ED visits, hospitalizations, and deaths.

Race/Ethnicity

- Unintentional injury death rates are highest for American Indians and Alaska Natives.
- Unintentional injury death rates are lowest for Asians or Pacific Islanders.
- Unintentional injury-related death rates for whites and African Americans are approximately the same (except for drowning).

Age

- Children less than 1 year of age who die from an injury are predominantly victims of unintended suffocation or accidental strangulation.
- Drowning is the main cause of injury deaths among children aged 1–4 years.
- Most deaths of children aged 5–19 years are due to traffic injuries, as occupants, pedestrians, bicyclists, or motorcyclists.

Socioeconomic Status

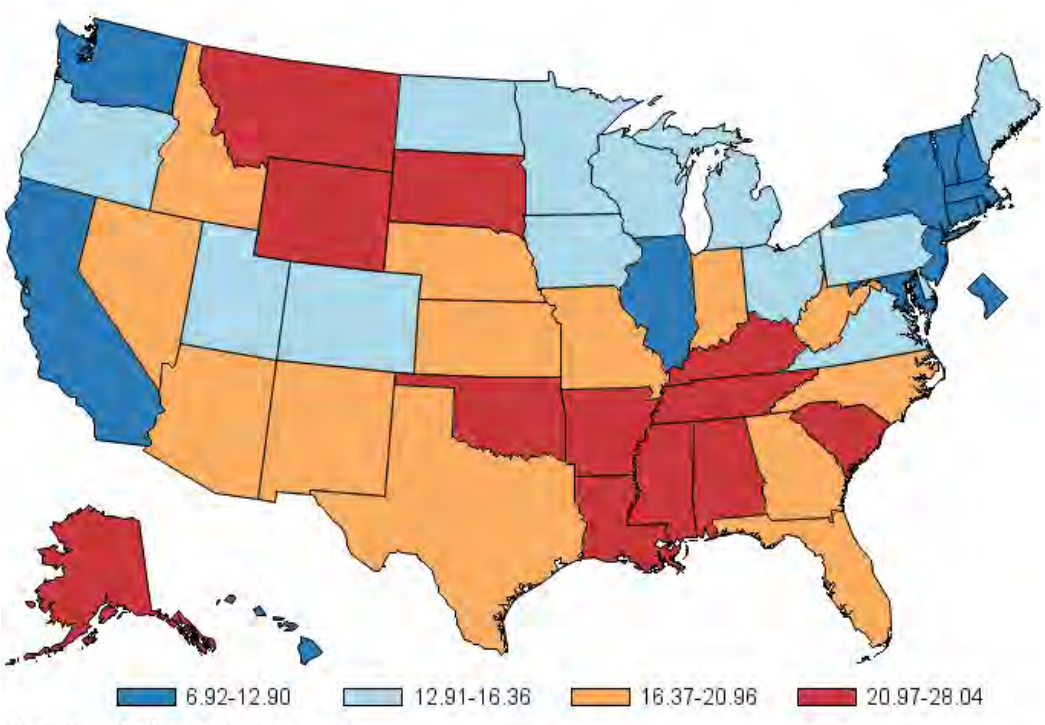
- Children whose families have low socioeconomic status or who live in impoverished conditions and are poor have disproportionately higher rates of injury.
- A broad range of economic and social factors are associated with greater child injury including:
  - *Economics*: lower household income.
  - *Social factors*: lower maternal age, increased number of persons in household, increased number of children in household under 16 years, lower maternal education, single-parents.
  - *Community*: multi-family dwelling, over-crowding, and low income neighborhoods.

Geography

- States with the lowest injury rates are in the northeast.
- The number of fire and burn deaths is highest in some of the southern states.
- The number of traffic injuries is highest in some southern states and in some of the upper plains.
- The lowest traffic injury rates are found in states in the northeast region.

Figure 3 illustrates the geographic distribution of childhood (0–19) unintentional injury death rates per 100,000 population for all races and ethnicities in United States counties for the period 2000–2006. The shaded red portions of the country have the highest rates and dark blue indicates some of the lowest rates.

Figure 3. Age-adjusted unintentional injury death rate per 100,000 population-all races, all ethnicities, both sexes, ages 0-19 years, United States, 2000-2006



SOURCES: CDC National Center for Injury Prevention and Control, Office of Statistics and Programming. Deaths from the NCHS Vital Statistics System. Population estimates from the U.S. Census Bureau.
NOTE: Rates based on 20 or fewer deaths may be unstable. These rates are suppressed for counties. The standard population age-adjustment represents the year 2000 – all races, both sexes. Rates appearing in the map have been geospatially smoothed. For more information, go to http://www.cdc.gov/injury/wisqars/.[4]

What is the Burden of Child Injury, by Cause of Injury?

Motor Vehicle-related Injuries

Motor vehicle-related injuries are the leading cause of death for U.S. children aged 5–19 years. These injuries account for 24 percent of deaths from all causes in this age group and for most (63%) unintentional injury-related deaths.[4] In addition, 514,604 children were treated in hospital EDs in 2009 for nonfatal injuries from motor vehicle crashes.[4] These children sustained injuries as motor vehicle occupants, bicyclists, motorcycle riders, and pedestrians.

> The fatal crash rate per mile driven for 16 to 19 year-olds is four to six times the risk for older drivers (aged 30–59 years), and the fatal crash risk is highest at age 16 years.[13]

Teen drivers are at particular risk for motor vehicle-related injury. Although they drive less than most others, they are involved in a disproportionately higher number of crashes. Among the biggest risk factors for a teen crash are inexperience, driving with other teen passengers, and driving at night.

In addition, motor vehicle crashes also contribute to traumatic fetal injury deaths during pregnancy. Stronger efforts to ensure that pregnant women are properly restrained in safety belts may reduce this problem.

Suffocation

Unintentional suffocation is a leading cause of fatal and nonfatal injury among infants and young children. More than three-quarters of injury deaths among those younger than 1 year old are due to suffocation.[4] Differences between deaths attributed to Sudden Infant Death Syndrome and unintentional suffocation are not always clear.

The number of nonfatal suffocation and choking incidents among children is difficult to estimate because many of these events are not reported. Young children are more likely than adults or older children to choke because their airways are narrower, their chewing and swallowing coordination is not fully developed, and they often put non-food items in their mouths.[11]

Drowning

Drowning is a leading cause of unintentional injury death among all age groups of children, but especially among those aged 1–4 years.[4] In 2009, African-American children had age-adjusted drowning rates that were 45 percent higher than whites (1.6 versus 1.1 per 100,000, respectively).[4] The location of drowning varies based on the age of the child. Infants tend to drown in bathtubs, children aged 1–4 years in swimming pools, and older children in natural bodies of water (e.g., lakes, ponds, and rivers).[12]

Poisonings

In 2009, 824 U.S. children died and an additional 116,000 were treated in hospital EDs due to poisoning.[4] In 2008, U.S. poison control centers received more than 1.6 million calls for children younger than 20 years of age. Nearly 80 percent of these calls were for children younger than 5 years old.[14] Young children are especially at risk for unintentional exposure to prescription and over-the-counter medications.[15]

The number of poisoning deaths among children has doubled since 2000, with almost all of the additional deaths occurring among adolescents. For adolescents 15–19 years of age, poisoning was second only to motor vehicle crashes as a cause of unintentional injury death.[4] The tremendous burden of poisonings among adolescents is partially driven by the recent steep rise in unintentional prescription drug overdose deaths among this age group.

Fire and Burns

Fire- and burn-related injuries are a common cause of unintentional injury death among children of all ages.[4] In 2009, almost 119,000 U.S. children were injured severely enough due to unintentional fires and burns that they had to visit an ED.[4] Fire and burn injury rates are highest among young children because of their natural curiosity, impulsiveness, and lack of experience in assessing danger and risk.[16] In addition, young children cannot typically escape from a residential fire on their own and must rely on others for rescue.

Falls

Falls are the leading cause of child injury-related ED visits, accounting for more than 2.8 million emergency department visits in 2009 and about 150 child deaths per year.[4] Most fall-related injuries occur at home.[17] Children commonly fall from many locations, including windows and structures, playground equipment, and bunk beds.[18, 19, 20]

Sports- and Recreation-related Injuries

In 2009, an estimated 2.6 million children aged 0–19 years were treated in U.S. EDs for sports- and recreation-related injuries. Although the health benefits of physical activity are clear, children who participate in sports and recreational activities are exposed to various injury risks. High school athletes are at particular risk. High school students participating in nine sports (boys' football, soccer, basketball, wrestling, and baseball, and girls' soccer, volleyball, basketball, and softball) sustained an estimated 1.2 million injuries during the 2008–2009 school year.[21]

Preventing Childhood Injuries

Many injuries are predictable events that can be prevented and can be addressed in the same fashion and with the same fervor as preventing other public health problems. The public health approach includes identifying the magnitude of the problem through surveillance and data collection, identifying risk and protective factors, and, on the basis of this information, developing, implementing, and evaluating interventions, and promoting widespread adoption of evidence-based practices and policies.

As with other public health issues, injury prevention includes strategies on many levels, such as preventing the injury event in the first place (e.g., avoiding drinking and driving, removing hazards in the home), preventing or minimizing injury after an event has occurred (e.g., child safety seat in a crash, smoke alarms in a fire, soft playground surfaces in a fall, bike helmets when cycling), and reducing long-term consequences of injury (e.g., emergency medical services, trauma care, rehabilitation).

Another approach to injury prevention is a focus on the "Three Es": education, enforcement, and engineering. The most effective injury prevention efforts use a combination of these strategies:

> "Every child lost to injury or severely disabled will cost the future economy of that country. Putting into practice what is known about reducing child injury…will reduce costs in the health care system, improve the capacity to make further reductions in injury rates, and will most importantly protect children."[1]

1. **Education** is the foundation of much of public health. It can inform the public about potential risks and safety options and help people behave safely. An example would be teaching expectant parents how to properly use a child safety seat when transporting their newborn.

2. **Enforcement** uses the legal system to influence behavior and the environment and can be very effective in preventing injuries, especially when combined with education. Examples include laws and ordinances requiring the use of child safety seats and bicycle helmets and enforcement of speeding limits and healthy housing codes. Adequately enforcing laws, ordinances, and regulations increases their effectiveness.

3. **Engineering** uses environmental and product design strategies to reduce the chance of an injury event or to reduce the amount of energy to which someone is exposed. The best engineering solutions are passive: those that do not require any effort from the person being protected. Examples include flame-resistant sleep-wear for children, safety surfacing on playgrounds, and toys without small parts. Other technological solutions require repeated action by the user, for example, installing a child safety seat, using booster seats, and installing and maintaining a working smoke alarm.

What Costs can be Saved by Preventing Child Injury?

Besides the enormous benefit of saving children from injury-related death and disability, preventing child injury also results in cost savings to society. The cost effectiveness of interventions that prevent childhood injury compares favorably to that of many widely used public health interventions, such as immunization and water fluoridation programs.

Child injury prevention strategies such as child occupant protection laws, smoke alarm distribution programs, and standards for child-resistant cigarette lighters are not only effective, but can be cost saving as well. Significant financial savings are associated with the use of safety products, such as smoke alarms, bicycle helmets, and child passenger restraints, as described in Table 5.

This Table shows the significant savings realized in health care and other costs for every U.S. dollar spent on a proven injury intervention.

Table 5. Estimated cost savings by select child injury intervention, 2009[22]

Every Dollar Spent On	Saves Society
Childproof Cigarette Lighter	$72
Booster Seat	$71
Bicycle Helmet	$48
Child Safety Seat	$42
Zero Alcohol Tolerance, Driver Under 21*	$25
Smoke Alarm	$17
Pediatrician Counseling	$9
Poison Control Center	$7

Children's Safety Network. Injury prevention: what works? A summary of cost outcome analysis for injury prevention programs (2010 update) [online]. 2010. [cited 2011 Mar 1]. Available from URL: http://www.childrenssafetynetwork.org/publications_resources/PDF/data/Injury PreventionWhatWorks.pdf.

STRATEGIC FRAMEWORK

How was the National Action Plan Developed?

CDC initiated work on the *National Action Plan for Child Injury Prevention* (NAP) in 2009, in conjunction with its partners in the child injury prevention field. To help develop this plan, six work groups led by a chair and/or co-chair consisting of five to eight members prepared outlines of sections of the report. Work group members included experts in child health, emergency medical care, child advocacy, epidemiology, injury research, behavioral science, engineering, communication, and policy, and represented 35 government agencies and non-governmental organizations (NGOs) and Universities.

CDC held a stakeholders meeting in 2010 to respond to the drafts and receive additional input. The 62 public health professionals in attendance reviewed the plan and provided substantive input into the goals and strategies. (See Acknowledgements for a complete roster of action plan participants). CDC and a steering committee used this input to revise the plan as needed. A follow-up meeting with the steering committee, workgroup chairs, and CDC staff was held August 10–11, 2011 to provide final input and to discuss potential implementation plans and next steps for partner organizations.

These efforts led to the NAP, which lays out a vision and a framework for addressing childhood injury prevention in the United States. It also furthers efforts to meet Healthy People 2020 objectives related to child injury prevention.[23] Ultimately, the plan provides:

- a coordinated, multi-sector approach to child and adolescent injury prevention,
- a roadmap that aligns priorities, capitalizes on strengths, and targets gaps to fill,
- a process that builds commitment and buy-in,
- a framework for child injury activities of government agencies, NGOs, universities, and others interested in preserving and protecting the health of children and adolescents, and
- an approach to providing clear priority areas as a focus of investment in the future.

Our hope with this plan is that key partners—policy makers, parents, health care practitioners, educators, child care providers, corporate America and small businesses, insurers, the media, philanthropies, advocates, and the general public—take action to keep children in the United States safe from injury-related death and disability.

What is Our Vision?

The vision of the NAP is to prevent injuries to children where they live, learn, play, work, and travel by setting a national strategic direction for moving from awareness to action. The NAP will inform actions cutting across all forms of child unintentional injury and can be leveraged to delineate more specific actions by injury type.

What Values Informed Our Work?

The five key values complementing this vision that underlie a successful public health approach to child injury are:

- **Opportunity:** Every child has the right to grow up injury-free.
- **Prevention:** Preventing child injury is possible and will save lives.
- **Science:** Actions to prevent child injuries must be evidence-based.
- **Social Equity:** Preventing child injury is an ethical imperative and will reduce health disparities.
- **Partnerships:** No one organization can effectively address all child injuries. A strong coalition is necessary to galvanize a national effort.

What are Our Goals?

The overall goal of the NAP is to stimulate a national coordinated effort to reduce child and adolescent injury and its accompanying death and disability. Specific goals include:

- **Raise awareness:** Raise awareness about the magnitude, risk factors, and effects of child injuries in the United States in the context of other health issues.
- **Highlight prevention opportunities:** Draw attention to the preventability of child injury and unite stakeholders around a common set of goals and strategies.
- **Create recommendations for action:** Provide recommendations to accelerate child injury prevention efforts through improved data and surveillance, research, communication, education and training, health systems and health care, and policy. These cross-cutting recommendations inform a more comprehensive list of actions by type of injury.
- **Develop and mobilize a plan:** Outline a plan of action as a platform for organizing and implementing child injury prevention actions for the United States.
- **Evaluate and monitor progress:** Evaluate and monitor the progress made in the United States in the coming years after attending to recommendations laid out in the plan.

What is Our Framework for Action?

The plan is structured across six domains relevant to child injury prevention, each containing goals and actions based on what we know, where we need to go, and how to get there. The following six domains comprise the blueprint for action:

1. **Data and surveillance:** includes the ongoing and systematic collection, analysis, and interpretation of child health data for planning, implementing, and evaluating injury prevention efforts.

2. **Research:** includes research gaps and priorities in risk factor identification, interventions, and program evaluation, and dissemination strategies needed to reduce injuries.

3. **Communications:** includes effective strategies to design and transmit messages and information through relevant delivery channels to target audiences, and to promote injury prevention to others.

4. **Education and training:** includes organized learning experiences for increasing knowledge, attitudes, and behavior change conducive to preventing injuries.

5. **Health systems and health care:** includes the health infrastructure required to deliver quality care and clinical and community preventive services.

6. **Policy:** includes laws, regulations, incentives, administrative actions, and voluntary practices that enable safer environments and decision making.

Taken together, this blueprint calls attention to cross-cutting actions needed. Equally important, it can inform stakeholders with an interest in a specific type of injury about the domains requiring targeted action.

DATA AND SURVEILLANCE

Why are Data and Surveillance Important?

Surveillance systems and data are crucial to helping us understand who is affected by child injury, who is at greatest risk, the factors that increase or reduce risk, the cost of providing care, and how injury affects a child's health, education, quality of life, and well-being. We use data to estimate the magnitude of specific injury problems, characterize trends over time, detect epidemics or emerging issues, suggest appropriate prevention activities, evaluate existing programs and initiatives, suggest hypotheses for further research, identify knowledge gaps, and to point us toward innovative policies, practices, and prevention strategies.

The ultimate goal of injury surveillance is to improve child health. People and organizations who could help prevent child injury include legislators, government officials, public safety agencies, health care providers and health care systems, employers, the business community, community-based organizations, schools, journalists, and media groups. Surveillance helps provide an empirical basis for child injury prevention efforts, monitors progress in reducing injury, and enables a focus on the most compelling problems. Working together to collect data the community needs, making the data readily accessible, and translating the data into products and messages form the basis of effective program development.

Data and Surveillance Goals and Actions

Goal: Improve existing data collection systems.

Several challenges exist for current surveillance activities in child injury prevention. Many hospital-based systems allow for collecting external causes of injury or E-codes, which are critical in moving beyond the physical diagnosis (e.g., broken leg) to understanding how the injury occurred (e.g., child struck by a vehicle); however, E-code data are often either missing or incomplete.

Criteria for including hospitals, individuals, and data elements into specific systems are often inconsistent, resulting in difficulties in comparing and combining different data systems. Many data systems are not population-based or do not represent specific areas of interest (such as states, counties, and local communities). This limits the data's usefulness in understanding the child injury issue among specific populations.

Actions:

- Improve data quality (completeness and validity), with a focus on using E-codes to better understand the circumstances surrounding injuries.
- Evaluate and improve key data systems to represent the breadth and diversity of the U.S. population.
- Standardize data collection and reporting key data systems such as child death reviews. Child death reviews can be most effective if they utilized standard data collection methods and when they are used to inform decision making about interventions.
- Enhance collaboration among key agencies and organizations that collect data. Better collaboration on data systems can create a more comprehensive understanding of child injuries to inform program and policy decisions.

Goal: Upgrade and enhance systems to address gaps in data.

Data collected in existing systems can be enhanced by improving the methods used to obtain, aggregate, and expand the information collected. New tools to measure the economic costs and comparative effectiveness of child injury prevention, treatment, and rehabilitation can provide data that can inform policy and resource allocation. Data on how injured children fare over time is critical to planning and delivering services. Understanding the circumstances and details of child injury events would help us identify key contributors to injury and promising prevention strategies. In-depth investigations tell the story behind the statistics and are more compelling to lay audiences than numbers alone. Additionally, linking different databases together avoids duplication and fills data gaps of individual data systems. Innovative approaches include linking electronic health records to preventive behaviors or using in-vehicle systems that record risk factors associated with near-crash events.

CDC's WISQARS™ (Web-based Injury Statistics Query and Reporting System) is a user-friendly, interactive, online database that provides information regarding fatal and nonfatal injury, violent death, and costs of injury. Researchers, the media, public health professionals, and the public can access and use WISQARS™ to characterize the public health and economic burden of injury in the United States. Users can search, sort, and view the injury data and create reports, charts, and maps. Queries can be run based on mechanism (cause) of injury, body region and nature of injury, geographic location, and sex, race/ethnicity, and age of the injured person.

Learn more at:
www.cdc.gov/injury/wisqars

Actions:

- Use stakeholders to identify specific deficiencies and gaps in data.
- Add additional injury questions or modules into existing national and state surveillance systems.
- Collect better data on true economic costs and long-term disability.
- Collect more information about circumstances (e.g., activity at the time of injury, use of protective equipment) through approaches such as case studies and qualitative methods.
- Assess data needs for states, local communities, and underrepresented populations, and develop strategies to address such needs.
- Improve links among injury databases through sharing information, improving and sharing linking algorithms and approaches, and supporting the development of new technologies.

Goal: Improve access to data.

Data must reach people in a position to prevent child injury; however, this does not always happen. The time between when the data are collected and released can be months to years and are often maintained as complex computer files that require code books and specific computer programs to decipher.

Several examples exist of highly functional, user-friendly, interactive database systems for child injury, that allow users without programming skills to easily access and query data based on individual needs. These include WISQARS, the Youth Risk Behavior Surveillance System, and the motor vehicle Fatality Analysis Reporting System. These systems can serve as models for data sources that are not currently interactive, such as the National Health Interview Survey, National Health Care Surveys, poison control center data, and state-specific data systems, such as traumatic brain injury surveillance and emergency care.

Injury Risk Factors and Field Investigations

Field based investigations of young worker deaths and a follow-back survey of adolescents treated in emergency departments for work related injuries identified issues with worker training, supervision and compliance with child labor laws that were not identified in population-based surveillance alone

-National Institute for Occupational Safety and Health

Actions:

- Use stakeholder input to understand data access barriers.
- Assess and address barriers for timeliness of data release/availability.
- Develop online access systems for key databases; systems should include enhanced functionality to query, analyze, and display data.
- Encourage sharing designs, protocols, procedures, software, and programs for data access systems.
- Develop and maintain a central, Web-based clearinghouse for key population-based databases.

Goal: Improve analysis, interpretation, and dissemination of surveillance data.

Public health surveillance not only involves systematic data collection, it also involves analyzing, interpreting, and disseminating data to drive public health priorities and action. Findings from surveillance data can be used to estimate the magnitude of specific injury problems, characterize trends over time, detect epidemics or emerging issues, recommend appropriate prevention activities, evaluate existing programs and initiatives, and suggest hypotheses for further research.

Managing high quality child injury data and surveillance systems requires persons who are trained in public health surveillance, injury control, and state of the art methods to manage, analyze, and disseminate data. Unique aspects of injury surveillance and epidemiology often require customized training and education. This may include advanced graduate training and continuing education opportunities for existing public health professionals on unique data sources such as trauma registries and occupational injury databases, external-cause-of-injury coding, and injury severity and disability measures.

Actions:

- Build capacity by training local public health practitioners and agencies to conduct analysis and interpret results. This can be done by federal agencies, state or local health departments, or nongovernmental organizations with an expertise in this area.
- Develop plans for regular analysis and reports of key surveillance data.
- Tailor data reports for specific audiences and develop dissemination strategies for key decision makers.
- Support the use of local data, such as data from local hospital systems, to evaluate local prevention efforts.

RESEARCH

Why is Research Important?

During the last four decades, research has contributed to developing the science of injury prevention and control. Research has helped us create and implement new, effective interventions to prevent child injury, such as bicycle helmets, child passenger restraint devices, smoke alarms, and graduated licensing programs. However, additional research is needed to advance prevention efforts and to address new and emerging child injury issues.

Public health research falls into three general areas: 1) foundational, 2) intervention development and evaluation, and 3) translational. *Foundational research* explains why injuries occur to children and adolescents and identifies risk and protective factors. *Evaluation research* provides evidence of what works and can help guide the use of limited resources available for prevention. Once those interventions have been developed and proven effective, they must be disseminated and broadly implemented. *Translational research* examines the best ways to increase widespread adoption of proven effective prevention strategies. All three types of research are needed to advance our knowledge about reducing childhood injuries.

Each cause of unintentional injury—(i.e. motor vehicle crashes, drowning, and fires/burns) require different types and levels of investment in research. This is because what we know about risk and what prevention strategies work varies for each of these causes. For example, we particularly need foundational research to understand new and emerging hazards such as cell phone use and texting while driving, walking, and biking. Yet with smoke alarms and bicycle helmets, we need translational research to find ways to ensure that these lifesaving technologies are available to everyone who needs them.

Research Goals and Actions

Goal: Fill gaps in knowledge about preventing child injuries by conducting multidisciplinary research on risk and protective factors, intervention effectiveness, and knowledge translation.

New basic research drives the development of new tools and strategies to address the ongoing problem of child injury. Advances in understanding risk taking behaviors and evaluation research can be made by incorporating disciplines that have not typically been involved in injury research—such as cognitive and developmental psychology, computer science, neuroscience, and genetics—with those that have been traditionally involved—such as engineering, biostatistics, epidemiology, demography, behavioral sciences, and law.

Although there is some understanding in the field about the effectiveness of specific prevention strategies (e.g., legislation, commercial products and technologies, behavior change, skills training), research is needed on the most cost-effective and sustainable ways to apply and disseminate these strategies. Communities need translational research on methods and resources that support efficient and sustainable applications of proven injury prevention strategies.

Actions:

- Conduct interdisciplinary research on the causes of child injury and basic descriptive epidemiology on emerging hazards.
- Conduct research on risk-taking behavior of children and the relationship among developmental status, parent and caregiver behaviors and sociodemographics, and their influence on child injury.
- Conduct engineering and behavioral science research to delineate the factors influencing child injury occurrence and severity to inform intervention development.
- Conduct quantitative, qualitative, multifaceted, and economic analyses to identify the most efficacious, effective, and cost-effective interventions for children and youth.
- Use advanced statistical tools, methodologies, and comparative effectiveness trials in child injury research and incorporate evaluation components into all programmatic funding.
- Incorporate participatory and community-based methods and include end users in the design and conduct of child injury research.
- Conduct dissemination research to understand how to successfully promote effective prevention strategies (e.g., using social media and the Internet).

> There is a need for a better fit between research findings and current practices in child injury prevention programs. Many proven strategies that could save children's lives are inadequately implemented or simply never adopted.
>
> - Grant Baldwin, PhD, MPH

Goal: Harmonize and coordinate child injury research at the national and state levels.

Public health needs coordinated, multidisciplinary expertise—at both the national and state levels—to build effective prevention strategies for addressing child injury. In particular, partnerships among the federal government, state public health agencies, academia, and the private sector, among other stakeholders, are at the core of child injury prevention research and practice. We need stronger partnerships to perform all types of injury research—foundational, evaluation, and translational.

Specifically, we need to collaborate at the national and state levels to address the fact that no single research project or data collection effort can provide information about all types of child injury. However, funding opportunities do not often give researchers incentive or encouragement to collaborate or partner with other stakeholders. For example, academic researchers typically have few opportunities to collaborate with the business community where innovation in technology often happens rapidly.

Actions:

- Develop a national research agenda for child injury prevention and a plan to enhance partnerships for conducting research.
- Increase the number of agencies and components of the federal government that include child injury in their research portfolios.

- Increase the number of child injury researchers and research grants through broad cross-agency program announcements, joint funding mechanisms, public-private initiatives, and through including child injury into child health funding opportunity announcements (FOAs).
- Use existing activities (e.g., National Children's Study) and sources of funding (e.g., Children's Trust and Prevention Funds and home visiting funds) to support child injury prevention research.
- Increase support to states and territories to conduct primary research and program evaluation and coordinate multi-state research initiatives.
- Establish a national clearinghouse for child injury research findings and applications.

Goal: Conduct research to reduce disparities in child injury.

Public health practitioners have developed many proven, effective countermeasures to child injury, and overall child deaths due to unintentional injuries in the United States have been declining. However, certain populations in this country have not shared these gains. Injury risks vary by socioeconomic status, ethnicity, and geography. For example, low-income and minority children suffer an unequal burden of injury. In addition, the types of injuries that rural and urban children experience vary considerably.

Actions:

- Identify the key indicators related to child injury disparities and develop strategies to reduce them.
- Include child injury research in federal and state funding that addresses strategies to reduce health disparities in the population.
- Support the preparation of a report on the status of health and injury disparities among children and youth, and mechanisms and programs to reduce such disparities.

COMMUNICATION

Why is Communication Important?

Raising awareness of the impact of child injuries and effective strategies for injury prevention is an important goal of the NAP. Communication is essential to this process.

Communication strategies can be used to accomplish many objectives. For example, they can increase awareness of injury prevalence, relevance, and preventability. They can also increase awareness of and desire for solutions that prevent injuries and of the resources needed to implement solutions. Communication strategies can also influence perceptions of the benefits and help overcome barriers to implementing effective interventions, eventually increasing their use. Achieving these various objectives at the local, state, and national level can help reduce child injuries.

Delivering actionable, persuasive communication strategies to those who can affect change is crucial for reaching these objectives. At the core, communication strategies need to target the primary audiences of children, teenagers and their families (and their schools and communities), who need to adopt, implement, and maintain effective injury prevention practices. Communication strategies that reach those who influence these primary audiences and those who can influence broader structural change are equally vital. Injury prevention communication needs to reach leaders and decision makers with consistent, compelling, and accurate messages.

Finally, essential steps need to be incorporated throughout the communication planning process. Target audiences need to be clearly identified, and messages need to be tailored specifically to them. Formative research should be conducted to gain a better understanding of the audience's injury related-attitudes, beliefs, and behaviors, and their information and communication needs. This audience research will guide decisions about all aspects of communication planning, including messages, channels, spokespersons, and timing. Establishing clear goals and measurable objectives for the communication strategy will help articulate what the intended effort will achieve and help to evaluate its impact. Behavioral and communication science principles and best practices should be employed throughout the planning, implementation, and evaluation process.[24]

Communication Goals and Actions

Goal: Develop and use targeted, compelling, and consistent child injury prevention messages.

Increasing awareness is one of the easiest communication objectives to achieve and it can sometimes be accomplished using multiple messages simultaneously. For example, through one communication intervention, awareness can be increased about the burden of injuries, risk factors, and the appropriateness of public health approaches to reduce injury.

Depending on the attitudes, beliefs, values, and needs of the intended audience, the message can be tailored to ensure it is relevant, appropriate, and compelling. Success is more likely when the target audience is involved in shaping the message.

One effective way to achieve widespread awareness is through diffusion of messages that are simple, easy to recall, and attention getting. At the awareness-building stage, it is important to gain and keep audience interest. This can be challenging in the current media environment where health messages have strong competition for time and space.

Actions:

- Create or implement local and national campaigns on child safety (such as CDC's Protect the Ones You Love initiative, www.cdc.gov/safechild).
- Create a bank of messages by topics and themes that are relevant to the public and timed to events and seasons (e.g., holiday shopping and toy safety at the end of the year). Stories can then be used to bring key messages to life.
- Establish Web-based, comprehensive communication tool kits for child injury topics. The tool kits can include links to ready-to-use messaging and materials (including various languages and reading levels, and pieces tailored for hard-to-reach or at-risk populations), research studies, contact information for experts, sources for local and national statistics, issue briefs, and links to government agencies and other organizations.
- Develop and implement a coordinated message strategy across all child injury topics (one resource for this is *Adding Power to Our Voices: Framing Guide for Communicating about Injury*—see box).

Communication Planning

CDC's publication *Adding Power to Our Voices: Framing Guide for Communicating about Injury* is designed to help organizations speak with a consistent voice to build the social and political will needed to save lives and reduce injuries. The framing guide's premise is that the collective voice of many injury and violence professionals across several disciplines is much louder than that of an individual or single organization. The information and tools provided in this guide can be used to build messages for press releases, speeches, annual reports, and research articles to improve communications.

Learn more at:
www.cdc.gov/injury/framing

Goal: Use relevant, audience-specific communication channels and sources to deliver child injury prevention messages.

How an injury message is delivered (channel) and from whom or where it comes (source) can influence whether the message reaches the target audience and if they pay attention to it.

Examples of different channels include interpersonal, small group, organizational, community, and mass reach media (such as magazines, newspapers, radio, television, and the internet/social media). Using multiple channels increases the chance of reaching more of the target audience. It can also make it more likely that the target audience will be exposed to the message multiple times, increasing the chance that they will absorb and act on it.

When selecting the source of a message, consider which person or group has influence with your audience and will attract the most of their attention and interest. Depending on the target audience, the best sources may include celebrities and public figures, medical experts and scientists, colleges and universities, and government agencies. Spokespersons with credibility or high status can improve the effectiveness and chances that messages will be heard and believed.

Actions:

- Find local young people and parents who have been injured, or had a near-miss experience, who are willing to speak out publicly about the importance of injury prevention.
- Create a network (at local, state, and/or national levels) of available professional spokespeople (such as pediatricians, trauma surgeons, emergency personnel, lawyers, judges, educators) and victim and safety advocates who are trained to deliver compelling, evidence-based messages to the media.
- Use local businesses that value safety for injury prevention events and distribution sites (e.g., smoke alarms available at fire houses or child safety seat checks at local auto dealers).
- Encourage children's hospitals and other health care facilities to use their communication channels (e.g., the phone system's on-hold message or televisions in waiting areas) to share safety information.
- Sponsor local injury prevention events to raise awareness about a specific cause (e.g., a bike-a-thon to raise money to provide children with helmets).
- Identify opportunities for media coverage in unexpected places (e.g., a national automotive writer can cover car seat use or ways to keep teenagers from driving while texting, or a sports program or channel can reach out to teens about recreational safety).

The CDC *Injury Center Success Stories Portal* is an online collection of real stories about injury prevention successes. The portal is an innovative collection of stories detailing the work supported by CDC's Injury Center and illustrating the impact of injury prevention programs and research.

The portal includes:

- Free, easy-to-use software that helps you develop your story
- Helpful guidance as you collect essential details to include in your success story
- Examples of model programs that have been effective
- Enables you to create a polished, professionally designed product
- Hosts a growing archive of success stories that you can search and share

Learn more at:
www.cdc.gov/injury/SuccessStories

Goal: Strengthen and engage local, state, and national partnerships and coalitions to support the implementation of communication strategies.

National strategies to build support for child injury prevention must have strong coordinated efforts by many partners. One strategy for accomplishing this is to create a broad alliance of safety coalitions that are willing to connect their cause to the larger child injury problem and to use coordinated messages. Additional strength can come from leveraging the reach of non-injury organizations and networks focused on children, teenagers, and families who can deliver injury prevention messages.

The injury prevention message will be strongest if it comes from many partners simultaneously or in a coordinated way. Inconsistent or competitive messages among groups can result in disjointed action, confusion, or no action at all. Partners can work together to correct any inaccurate or inconsistent child injury messages in the media.

Actions:

- Create a task force (at local, state, and/or national levels) of nongovernmental organizations, decision makers, researchers, public health agencies, safety experts, and other stakeholders to share knowledge, expertise, and resources.
- Generate a collaborative plan for refining, prioritizing, and implementing communication recommendations in the NAP at the state or local level.
- Develop a shared system to track and publicize progress made in adopting, implementing, or enforcing recommendations in the NAP. These can be used in partner briefings.
- Identify and partner with organizations for which safety is already part of their mission and highlight their efforts as examples others should follow.

EDUCATION and TRAINING

Why Are Education and Training Important?

Education and training can teach knowledge and skills necessary to influence behaviors, change policies, modify environments, and design products to improve safety for children and adolescents. Education functions as a primary, cross-cutting intervention that has a direct or indirect impact on all other facets of injury prevention. Training is used to improve skills and to apply knowledge to reduce children's risk for injury and to respond to such injuries when they occur.

Education and training are needed not only for children, but for those who care for or influence children, such as physicians and nurses, teachers, coaches, decision makers, the public, parents, and public safety officials. Early child educators, engineers, journalists, city planners, state and local officials, and home inspectors can benefit by knowing more about child injury, and steps that can be taken to prevent injury. Advanced education and training in child injury prevention principles and strategies will be needed for professionals to apply the most recent evidence-based strategies in their own settings.

> Literacy plays an important role in educating parents and children about safety. More than 93 million adults in the United States read below basic or at basic literacy levels. Ensuring that child safety materials are easy-to-read and highly pictorial will help low-literacy children and adults understand key safety messages.

Curricula gaps, staff training, and the need for in-service programs are among the challenges to integrating child injury prevention education and training into existing educational systems. In addition, child injury prevention may compete with other existing training and education needs in schools and in professional organizations.

When developing a strategic framework for improving education and training for child injury prevention, each of the different levels of education and training—early child education, primary and secondary school education (both private and public), higher education (undergraduate and graduate), vocational training, and adult education need to be included. The NAP recognizes that high-quality child injury education and training at these levels is fundamental to success.

Education and Training Goals and Actions

Goal: Educate the public about injury risks and effective strategies to prevent child injuries.

Knowledge is a foundation to help prepare and guide parents, caregivers, and institutions to make better choices for children's health and safety. Formal education can equip the professions and the public with tools to reduce child injuries. In addition to increasing knowledge and skills, child injury education can help caregivers and the public take the necessary steps to create safer environments at home, at play, and while on the road. Education about child injury prevention can serve as a basis for improving safety devices and changing policy and practices in the community.

Actions:

- Integrate injury prevention education into broader child health promotion efforts such as the Maternal, Infant and Early Childhood Home Visitation Programs.
- Educate decision makers (e.g., lawmakers, school administrators, business leaders) about the burden of child injuries, the importance of prevention, its cost savings potential, and public health benefit.
- Strengthen the translation of knowledge into practice by establishing or strengthening collaborations between researchers, people working in injury prevention, and those working directly with children and families.
- Educate textbook and periodical publishers, newspaper editors, and freelance writers about the importance of child injury prevention and provide them with materials to develop stories and features about child injury prevention.

Goal: Develop and test evidence-based materials, tools, and resources to educate and train target audiences.

Those working in child health and safety need accurate and timely information tailored to their roles in preventing child injury. These audiences include schools, medical practitioners, health and safety workers, students, social workers, law enforcement, and those working with high risk and hard to reach populations; however, not all educational materials are properly tested for impact, or properly evaluated for accuracy.

Because education cannot be the sole strategy for reducing child injury, it can be combined with other approaches, such as better implementation of existing laws, making safety products like booster seats more available, or changes in trauma care for children. Educational approaches can complement and reinforce these others, but only if they are developed and implemented using the best educational theory and practices.

One important target audience is the formal educational system, including preschool, elementary, middle, and high school teachers and the students they influence. Injury prevention can be integrated into many courses and settings, not just health education and safety. Clear knowledge exists about what works to prevent unintentional injuries, but it is often difficult to access the information in one convenient place.

Actions:

- Develop specific materials for schools of education, public health, medicine, allied medical fields, law enforcement, and others and incorporate them into existing professional training.
- Develop health and safety education curricula and programs for use in preschool, elementary, middle, and high schools (within the framework of a comprehensive school health education program).
- Develop resources to assist concerned citizens, parents, school personnel, health and safety professionals, and others to promote child injury prevention in their communities.
- Develop criteria for national, state, and local report cards on child injuries to focus communities on improving their scores.
- Establish a clearinghouse to catalogue and provide access to accurate educational information and resources for professionals and the public.
- Catalogue all available school and professional curricula related to child injury prevention and create an evaluation framework for assessing quality and accuracy.

Goal: Implement and disseminate child injury education and training programs in allied health professions.

Education and training materials on child injury prevention not only need to be evidence-based, but widely disseminated and used in various learning environments. Opportunities to build-in incentives for taking child injury prevention training and education can be accelerated through continuing education offerings, CEU credits, professional accreditation, and licensing requirements. Expanding opportunities for learning can be further enhanced through partnerships between education and training institutions and by adopting education-assisting information and communication technology.

Actions:

- Improve coverage of child injury prevention in undergraduate and graduate education and training programs.
- Incorporate child injury prevention information in health, education, and safety professionals training by offering continuing education credits.
- Include child injury prevention into minimum standards for competency for selected credentialing, licensing, and certification in health and safety.
- Provide ongoing education and training for disaster and injury response, including first aid and CPR, for all school and childcare/foster care personnel and students.
- Develop consortia among education, training, and technology services and providers.

Goal: Develop venues for delivering child injury education programs in schools and communities, and among new professionals.

Child injury prevention educational material should occupy a more prominent place in educational curricula and in professional training and practice. Injury prevention can be integrated into many courses and settings and should not be limited to health education and safety promotion. For example, child injury prevention education can take place in adult learning settings, immigrant language training, vocational training, parenting classes, etc.

Actions:

- Establish child injury prevention internship opportunities at agencies and organizations at the national, state, and local levels.
- Develop training modules on child injury program implementation, evaluation, risk communication, and advocacy.
- Use technology such as the Internet to improve access to child injury prevention training.
- Improve the training of professionals around child injury data collection, and its value for documenting the problem and monitoring child injury trends (e.g., law enforcement, medical examiners, medical practitioners, county and state child death review representatives).
- Provide training that is relevant to child injury in fields such as engineering, architecture, environmental science, and transportation safety.
- Provide education and training in child injury prevention and emergency response to all expectant mothers and their families, pre- and post-term.

Goal: Use community-based organizations to educate the public about strategies for child injury prevention.

Communities can often have a greater impact on health and well-being than providers if there is sufficient community support to establish a "safe community." Educating businesses, social service agencies, and the health care system on behalf of child safety can serve local needs and increase access to populations with special needs. Child injury prevention can be part of a communities' service to its citizens as a way of improving and sustaining community well-being.

Actions:

- Support nonprofit organizations to promote child injury prevention education at local, state, and national levels.
- Integrate prevention education into community health programs that serve new residents, immigrants, and low-income families.
- Integrate child safety education into pediatric visits, well-baby visits, and at post-partum discharge.
- Design and disseminate child safety education materials to educate employees about family safety off-the-job through corporate health and wellness programs.
- Engage community-based organizations, voluntary groups, non-governmental organizations, and merchants in sponsoring injury prevention events and educational campaigns.

HEALTH SYSTEMS and HEALTH CARE

Why Are Health Systems and Health Care Important?

The modern health care system not only treats child injuries, but is an important partner in *preventing* them. Nearly 99 percent of all infants are born in hospital and health care settings, affording the first opportunity for maternal and family guidance on child safety and injury prevention. Health care professionals' principal injury intervention is the provision of "anticipatory guidance" focused on family-centered, developmentally-appropriate education and information that can help families prevent unintentional injuries, starting with the first ride home in a car safety seat. Anticipatory guidance is intended to alert families to children's health issues now and those that may be encountered in the future.

Most child injuries are seen by a first responder, primary care provider, or an emergency department—the first line of defense for managing injury care. These are powerful venues for prevention messaging and for gathering data on causes and contributing factors to injuries. Safety centers and well-baby clinics in hospitals or within other health care environments can provide hands-on safety training, guidance in selecting safe products, and resources such as low cost safety products to keep children safe in the community.

Health systems and health care providers can be more actively involved in injury prevention beyond the clinical care setting through efforts including community education, the use of advanced technology in diagnosis and treatment, and implementing innovative models of care. Primary care training programs in injury prevention could be expanded. In addition, tools such as electronic health records (EHR), integrated databases, and innovations such as the use of real-time medical monitoring devices can improve children's health and can often be included in modifications to health care plans. Changes in health care and the health care system are important components of any plan to prevent child injuries.

Bright Futures

Bright Futures is a national health promotion and disease prevention initiative developed by the American Academy of Pediatrics that addresses children's health needs in the context of family and community. In addition to use in pediatric practice, many states implement Bright Futures principles, guidelines and tools to strengthen the connections between state and local programs, pediatric primary care, families, and local communities. Bright Futures offers an opportunity to improve and maintain the health of all children and adolescents by focusing on the importance of preventing injuries.

Health Systems and Health Care Goals and Actions

Goal: Identify opportunities in health care reform to improve child health through injury prevention.

Health care reform has brought with it a number of potential changes that could improve child safety and reduce injuries—changes that could result in more coverage for preventive services, better access to care, more affordable care, increased patient safety, and improvements in patient outcomes resulting from skilled care. Health care reform has the potential to advance health, reduce injuries, and improve injury care for all children.

Actions:

- Implement child injury prevention programs through community-based prevention funding and through *Bright Futures*.
- Support the inclusion of child injury risk assessment, counseling, and remediation in the Maternal, Infant and Early Childhood Home Visitation Program.
- Develop guidelines for adopting and promoting best practices in child injury prevention throughout the health care system.
- Augment state and local health department capacity to address child injury prevention.
- Accelerate the translation and implementation of evidence-based interventions into the health care setting.

Goal: Integrate child injury prevention into the medical home movement.

According to the American Academy of Pediatrics, the medical home is the model for 21st Century primary care of children. A medical home is a partnership among children, their families, and their pediatric primary care teams.

Medical homes provide preventive, acute, and chronic care from birth to adulthood. Their goal is to deliver primary care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective for every child. When patients receive care from their medical homes, their health status, timeliness of care, and family functioning improve. Recent studies show that the medical home reduces the difficulty of accessing medical care after regular business hours, improves the exchange and flow of critical medical information among health care providers, and reduces the duplication of medical testing and the rates of medical errors. Child injury prevention should become an integral part of this important model of care.

Actions:

- Create and implement injury prevention quality measures that apply to the medical home.
- Support the development of injury indicators for children and youth in the medical home.
- Create partnerships between health care providers and those serving disadvantaged populations to increase availability and affordability of child safety devices for reducing injury disparities. Establish partnerships for integrated follow-up care after discharge from the hospital.
- Promote safety devices, like child safety seats, as "durable medical equipment" so they can be prescribed and are reimbursable expenses.
- Implement quality improvement measures for injury prevention in health plans and for medical care in the medical home, hospital, and outpatient settings (e.g., Health care Effectiveness Data and Information Set [HEDIS], National Committee for Quality Assurance [NCQA], Early and Periodic Screening, Diagnosis, and Treatment [EPSDT], and National Quality Forum [NQF]).

Goal: Expand effective health care-based services and systems to improve injury outcomes for children and youth.

Several health services and systems are already well established in U.S. health care. These include preventive care, screening for risk factors, and Maternal and Child Health services. Other systems such as Emergency Medical Services for Children (EMSC) and comprehensive trauma care systems require support and expansion to improve injury outcomes for children. Actions such as integrating injury prevention into hospital and birthing centers' discharge planning, implementing comprehensive child safety standards for child care center operation, and incorporating injury prevention models in advanced certification programs for perinatal patient care can go far to improve prevention efforts. Other systems should be identified and analyses performed to identify similar opportunities for improving injury outcomes for children.

Actions:

- Increase universal access to poison control centers, comprehensive trauma care systems, pre-hospital care, and preventive services.
- Expand the scope and reach of EMSC to adequately serve rural residents and disadvantaged high-risk children and youth.
- Enhance the capacity of maternal and child health care practices throughout the United States to fully support child injury prevention.
- Integrate injury prevention programs, such as *Bright Futures,* into patient safety, well-child visits, WIC services, and hospital discharge planning.
- Create comprehensive statewide networks for home- or clinic-based care for every seriously injured child.

Goal: Increase the development and use of advanced technologies in the health care environment to prevent injuries and improve child injury outcomes.

Several advanced technologies are promising in their potential for improving access to quality care, and thus to improve patient outcomes. These technologies include electronic medical records, linked medical data systems, and technology-based preventive and therapeutic interventions. Advanced technologies can be used and enhanced to improve injury care and injury outcomes for children. Innovations involving communication devices that record and securely transmit medical information from various settings directly to individuals' electronic health records (EHR) is one example. Physicians and other health care providers can establish medical thresholds for individual injuries and their complications that can be tailored to each patient, allowing real time monitoring of their conditions. When medical conditions change, the provider can be alerted and treatment orders can be modified. Another important application of the EHR is integrating and embedding injury prevention anticipatory messages in every well-child visit. Innovations in technology show great promise for improving the care of child injuries and reducing associated costs.

Actions:

- Use medical information systems and EHR to improve the speed, efficiency, and quality of care for injured children and adolescents.
- Explore the use of linked data systems to improve treatment decisions and outcomes for injured children and adolescents.
- Advance the use of technology-based preventive and therapeutic interventions to improve care, treatment, and rehabilitation from injury.
- Define standards for the use of advanced technologies to improve awareness of major risks of injury during gestation and in the first year of life.

POLICY

Why is Policy Important?

The effectiveness of policy in protecting children from injury cannot be underestimated. Many effective interventions to control child injury, whether they are directed toward modifying the environment, products, or individual behavior, are rooted in policy.

Policy is a law, regulation, procedure, administrative action, incentive, or voluntary practice of governments and other institutions. Policies are needed to influence systems, promote organizational change, influence social norms, and to modify individual behavior to prevent child injuries. For example, supportive policies can improve environments, remove unreasonable risks from products, and support cultural norms that promote child-safe behaviors.

Policies that require child restraint and seat belt use, bicycle and motorcycle helmet use, graduated driver licensing, smoke alarm installation, child-resistant caps on medicines, hot water heater temperature settings, and pool fencing have saved thousands of lives. Widespread adoption and enforcement of policies, such as those listed above, can save even more lives.

Types of Policy

Organizational policy: rules or practices established within an agency such as schools, hospitals or health care sites, community or faith-based organizations, businesses or corporations.

Regulatory policy: rules, guidelines, principles, or methods created by government agencies to regulate products or services.

Local laws and ordinances such as local speeding laws.

State legislation such as children's health insurance.

Federal legislation such as occupational safety and health standards.

Policies are particularly valuable because they are systems-based and affect populations by changing the context in which individuals take action.[25] Policy interventions can influence decisions and can create environments for safer living.

Policy Goals and Actions

Goal: Identify child injury prevention needs and priorities for policy leaders and decision makers.

Federal, state, and local policies can affect child injury in different ways, and each level can provide protection to different populations. Federal crash standards for motor vehicles, standards for road construction, or airbag warning labels, for example, affect all who travel with children in cars. State policies can govern vehicle inspections, driver's licensing, and highway speed limits according to the needs and demographics of the population. Local policies, such as neighborhood speed controls, pool fencing, school district requirements for using protective equipment in sports, and fire safety codes are determined by community priorities and norms. Some states authorize the collection of child injury data to monitor trends and to evaluate interventions to inform policy. Playground safety inspections, for example, might reveal the need for local and state ordinances that require public playgrounds to conform to safety guidelines outlined by the Consumer Product Safety Commission.

Actions:

- Track and assess child injury prevention policies and environmental supports.
- Conduct environmental and health impact assessments to highlight child injury prevention needs and identify potential for policy-level interventions to reduce the injury burden. For example, health impact assessments of a proposed neighborhood development could highlight the need for additional crosswalks so children can safely walk and bike to school.
- Develop a set of "policy priorities" to improve the safety of children within communities based on the data that show where children are at greatest risk of injury.
- Conduct policy development workshops, lectures, and summits on the leading causes of child injuries and deaths for decision makers to improve policy-based decisions.
- Estimate the impact and cost savings from policy-oriented child injury interventions.
- Improve national leadership training for child injury policy analysis, implementation, and evaluation.

Goal: Support the adoption and implementation of evidence-based laws and policies that prevent child injuries.

Legislators, non-government agencies, and grass-roots organizations, all have unique key roles in improving the effectiveness of policy or accelerating the adoption of safety behaviors. Schools and educational institutions that train professionals who work with children are important in this effort. However, other organizations, such as workplaces with adolescent employees or agricultural associations with rural constituents can seek and use evidence-based policies that prevent child injuries. Several remaining challenges to using policy-based approaches include identifying evidence-based policies, supporting implementation of evidence-based policies, ensuring strong enforcement of policies that protect children, and exploring opportunities for applying the policies that work to different levels of government and in different organizational settings. A critical need exists to evaluate the effectiveness of policies to reduce child injury and to promote an environment where knowledge regarding what works can be shared freely. Such action can also assure that effective policies are replicated by others and that ineffective policies are avoided.

Actions:

- Develop a clearinghouse that identifies federal, state, and organizational policies designed to protect children from injury.
- Integrate child injury prevention into other policy initiatives at the organizational, local, tribal, state, and national levels. For example, policy initiatives designed to increase physical activity and reduce obesity could also integrate injury prevention components.
- Support new policies that address injuries at and around child care settings, schools, and worksites employing youth.
- Expand and improve product safety, housing, and neighborhood/infrastructure policies that influence children's health, safety, and mobility. For example, policies

that require four-sided fencing for homes with swimming pools are important in preventing drowning.

- Increase the capacity of states, local coalitions, and formal alliances to support policies that prevent childhood injuries.
- Increase the role of the private sector in developing and implementing effective policies to protect children. For example, businesses that house child care centers can implement policies within their playgrounds or other care settings that increase the safety of these spaces.

Goal: Support compliance with and enforcement of existing child injury prevention policies.

Enforcing policies can be an important part of changing the social environment and can improve compliance. Imposing high fines for non-compliance may work in some settings, but not in all. Sometimes stronger enforcement, or even the perception of stronger enforcement alone may deter unsafe acts.

Actions:

- Increase employers' and adolescent workers' awareness of regulations and standards that address the prevention of workplace injuries to youth and the importance of enforcement.
- Establish training capacity to provide technical assistance to law enforcement personnel in best practices to enforce child safety policies.
- Develop and improve compliance with a standardized methodology for conducting child death reviews in accordance with a state's authorizing legislation, and encourage all states to investigate all injury-related child deaths.

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Participating Organizations

American Academy of Pediatrics

American Association of Poison Control Centers

Arkansas Children's Hospital

Association of Maternal & Child Health Programs

Association of State and Territorial Health Officers

California Department of Public Health

Centers for Disease Control and Prevention

- Office of the Director, CDC
- Office of the Director, National Institute of Occupational Safety and Health
- Office of the Director, National Center for Injury Prevention and Control
- Office of Health Communication Science, National Center for Injury Prevention and Control
- Office of Policy, Planning and Evaluation, National Center for Injury Prevention and Control
- Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion
- Division of Injury Response, National Center for Injury Prevention and Control
- Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion

Child Injury Prevention Alliance

Children's Hospital of Philadelphia

Children's Hospital of Pittsburgh of the University of Pittsburgh

Children's Safety Network

Columbia University

Consumer Product Safety Commission

Connecticut Children's Medical Center

Drago Expert Services

Emergency Medical Services for Children, National Resource Center

FIA Foundation/Make Roads Safe

Group Health Cooperative

Harvard University School of Public Health

Home Safety Council

Health Resources and Services Administration, Bureau of Maternal and Child Health

Healthy Mothers, Healthy Babies

Indian Health Service

Indiana University, Bloomington

Injury Free Coalition for Kids

University of Kentucky
Johns Hopkins University Bloomberg School of Public Health
Michigan Public Health Institute
National Association of Children's Hospitals and Related Institutions
National Association of County and City Health Officials
National Center for Rural & Agricultural Health & Safety
National Center for Safe Routes to School
National Drowning Prevention Alliance
National Healthy Mothers, Healthy Babies Coalition
National Institute for Healthcare Management
National Institute of Child Health and Human Development, NIH
National Organization for Youth Safety
National Safe States Alliance
National Safety Council
Nationwide Children's Hospital, the Ohio State University
Northwestern University
Pennsylvania State University
Prevention Institute
Safe Kids Worldwide
Safe States Alliance
Seattle Children's Hospital
Society for Advancement of Violence and Injury Research
State and Territorial Injury Prevention Directors Association
The Children's Hospital, Denver
Trauma Foundation
U.S. Department of Health and Human Services
U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA)
University of Alabama
University of California, Irvine
University of Chicago
University of Iowa
University of Washington, Harborview Medical Center

GOALS and ACTIONS SUMMARY

Data and Surveillance Goals and Actions

Goal: Improve existing data collection systems.

Actions:

- Improve data quality (completeness and validity), with a focus on using E-codes to better understand the circumstances surrounding injuries.
- Evaluate and improve key data systems to represent the breadth and diversity of the U.S. population.
- Standardize data collection and reporting key data systems such as child death reviews. Child death reviews can be most effective if they utilized standard data collection methods and when they are used to inform decision making about interventions.
- Enhance collaboration among key agencies and organizations that collect data. Better collaboration on data systems can create a more comprehensive understanding of child injuries to inform program and policy decisions.

Goal: Upgrade and enhance data systems to address gaps in data.

Actions:

- Use stakeholders to identify specific deficiencies and gaps in data.
- Add additional injury questions or modules into existing national and state surveillance systems.
- Collect better data on true economic costs and long-term disability.
- Collect more information about circumstances (e.g., activity at the time of injury, use of protective equipment) through approaches such as case studies and qualitative methods.
- Assess data needs for states, local communities, and underrepresented populations, and develop strategies to address such needs.
- Improve links among injury databases through sharing information, improving and sharing linking algorithms and approaches, and supporting the development of new technologies.

Goal: Improve access to data.

Actions:

- Use stakeholder input to understand data access barriers.
- Assess and address barriers for timeliness of data release/availability.
- Develop online access systems for key databases; systems should include enhanced functionality to query, analyze, and display data.
- Encourage sharing designs, protocols, procedures, software, and programs for data access systems.
- Develop and maintain a central, Web-based clearinghouse for key population-based databases.

Goal: Improve analysis, interpretation, and dissemination of surveillance data.

Actions:

- Build capacity by training local public health practitioners and agencies to conduct analysis and interpret results. This can be done by federal agencies, state or local health departments, or nongovernmental organizations with an expertise in this area.
- Develop plans for regular analysis and reports of key surveillance data.
- Tailor data reports for specific audiences and develop dissemination strategies for key decision makers.
- Support the use of local data, such as data from local hospital systems, to evaluate local prevention efforts.

Research Goals and Actions

Goal: Fill gaps in knowledge about preventing child injuries by conducting multidisciplinary research on risk and protective factors, intervention effectiveness, and knowledge translation.

Actions:

- Conduct interdisciplinary research on the causes of child injury and basic descriptive epidemiology on emerging hazards.
- Conduct research on risk-taking behavior of children and the relationship among developmental status, parent and caregiver behaviors and sociodemographics, and their influence on child injury.
- Conduct engineering and behavioral science research to delineate the factors influencing child injury occurrence and severity to inform intervention development.
- Conduct quantitative, qualitative, multifaceted, and economic analyses to identify the most efficacious, effective, and cost-effective interventions for children and youth.
- Use advanced statistical tools, methodologies, and comparative effectiveness trials in child injury research and incorporate evaluation components into all programmatic funding.
- Incorporate participatory and community-based methods and include end users in the design and conduct of child injury research.
- Conduct dissemination research to understand how to successfully promote effective prevention strategies (e.g., using social media and the Internet).

Goal: Harmonize and coordinate child injury research at the national and state levels.

Actions:

- Develop a national research agenda for child injury prevention and a plan to enhance partnerships for conducting research.
- Increase the number of agencies and components of the federal government that include child injury in their research portfolios.
- Increase the number of child injury researchers and research grants through broad cross-agency program announcements, joint funding mechanisms, public-private initiatives, and through including child injury into child health funding opportunity announcements (FOAs).
- Use existing activities (e.g., National Children's Study) and sources of funding (e.g., Children's Trust and Prevention Funds and home visiting funds) to support child injury prevention research.
- Increase support to states and territories to conduct primary research and program evaluation and coordinate multi-state research initiatives.
- Establish a national clearinghouse for child injury research findings and applications.

Goals: Conduct research to reduce disparities in child injury.

Actions:

- Identify the key indicators related to child injury disparities and develop strategies to reduce them.
- Include child injury research in federal and state funding that addresses strategies to reduce health disparities in the population.
- Support the preparation of a report on the status of health and injury disparities among children and youth, and mechanisms and programs to reduce such disparities.

Communication Goals and Actions

Goals: Develop and use targeted, compelling, and consistent child injury prevention messages.

Actions:

- Create or implement local and national campaigns on child safety (such as CDC's Protect the Ones You Love initiative, www.cdc.gov/safechild).
- Create a bank of messages by topics and themes that are relevant to the public and timed to events and seasons (e.g., holiday shopping and toy safety at the end of the year). Stories can then be used to bring key messages to life.
- Establish Web-based, comprehensive communication tool kits for child injury topics. The tool kits can include links to ready-to-use messaging and materials (including various languages and reading levels, and pieces tailored for hard-to-reach or at-risk populations), research studies, contact information for experts, sources for local and national statistics, issue briefs, and links to government agencies and other organizations.
- Develop and implement a coordinated message strategy across all child injury topics (one resource for this is *Adding Power to Our Voices: Framing Guide for Communicating about Injury)*.

Goals: Use relevant, audience-specific communication channels and sources to deliver child injury prevention messages.

Actions:

- Find local young people and parents who have been injured, or had a near-miss experience, who are willing to speak out publicly about the importance of injury prevention.
- Create a network (at local, state, and/or national levels) of available professional spokespeople (such as pediatricians, trauma surgeons, emergency personnel, lawyers, judges, educators) and victim and safety advocates who are trained to deliver compelling, evidence-based messages to the media.
- Use local businesses that value safety for injury prevention events and distribution sites (e.g., smoke alarms available at fire houses or child safety seat checks at local auto dealers).
- Encourage children's hospitals and other health care facilities to use their communication channels (e.g., the phone system's on-hold message or televisions in waiting areas) to share safety information.
- Sponsor local injury prevention events to raise awareness about a specific cause (e.g., a bike-a-thon to raise money to provide children with helmets).
- Identify opportunities for media coverage in unexpected places (e.g., a national automotive writer can cover car seat use or ways to keep teenagers from driving while texting, or a sports program or channel can reach out to teens about recreational safety).

Goals: Strengthen and engage local, state, and national partnerships and coalitions to support the implementation of communication strategies.

Actions:

- Create a task force (at local, state, and/or national levels) of nongovernmental organizations, decision makers, researchers, public health agencies, safety experts, and other stakeholders to share knowledge, expertise, and resources.
- Generate a collaborative plan for refining, prioritizing, and implementing communication recommendations in the NAP at the state or local level.
- Develop a shared system to track and publicize progress made in adopting, implementing, or enforcing recommendations in the NAP. These can be used in partner briefings.
- Identify and partner with organizations for which safety is already part of their mission and highlight their efforts as examples others should follow.

Education and Training Goals and Actions

Goal: Educate the public about injury risks and effective strategies to prevent child injuries.

Actions:

- Integrate injury prevention education into broader child health promotion efforts such as the Maternal, Infant and Early Childhood Home Visitation Programs.
- Educate decision makers (e.g., lawmakers, school administrators, business leaders) about the burden of child injuries, the importance of prevention, its cost savings potential, and public health benefit.
- Strengthen the translation of knowledge into practice by establishing or strengthening collaborations between researchers, people working in injury prevention, and those working directly with children and families.
- Educate textbook and periodical publishers, newspaper editors, and free-lance writers about the importance of child injury prevention and provide them with materials to develop stories and features about child injury prevention.

Goal: Develop and test evidence-based materials, tools, and resources to educate and train target audiences.

Actions:

- Develop specific materials for schools of education, public health, medicine, allied medical fields, law enforcement, and others and incorporate them into existing professional training.
- Develop health and safety education curricula and programs for use in preschool, elementary, middle, and high schools (within the framework of a comprehensive school health education program).
- Develop resources to assist concerned citizens, parents, school personnel, health and safety professionals, and others to promote child injury prevention in their communities.
- Develop criteria for national, state, and local report cards on child injuries to focus communities on improving their scores.
- Establish a clearinghouse to catalogue and provide access to accurate educational information and resources for professionals and the public.
- Catalogue all available school and professional curricula related to child injury prevention and create an evaluation framework for assessing quality and accuracy.

Goal: Implement and disseminate child injury education and training programs in allied health professions.

Actions:

- Improve coverage of child injury prevention in undergraduate and graduate education and training programs.
- Incorporate child injury prevention information in health, education, and safety professionals training by offering continuing education credits.
- Include child injury prevention into minimum standards for competency for selected credentialing, licensing, and certification in health and safety.

- Provide ongoing education and training for disaster and injury response, including first aid and CPR, for all school and childcare/foster care personnel and students.
- Develop consortia among education, training, and technology services and providers.

Goal: Develop venues for delivering child injury education programs in schools and communities, and among new professionals.

Actions:

- Establish child injury prevention internship opportunities at agencies and organizations at the national, state, and local levels.
- Develop training modules on child injury program implementation, evaluation, risk communication, and advocacy.
- Use technology such as the Internet to improve access to child injury prevention training.
- Improve the training of professionals around child injury data collection, and its value for documenting the problem and monitoring child injury trends (e.g., law enforcement, medical examiners, medical practitioners, county and state child death review representatives).
- Provide training that is relevant to child injury in fields such as engineering, architecture, environmental science, and transportation safety.
- Provide education and training in child injury prevention and emergency response to all expectant mothers and their families, pre- and post-term.

Goal: Use community-based organizations to educate the public about strategies for child injury prevention.

Actions:

- Support nonprofit organizations to promote child injury prevention education at local, state, and national levels.
- Integrate prevention education into community health programs that serve new residents, immigrants, and low-income families.
- Integrate child safety education into pediatric visits, well-baby visits, and at post-partum discharge.
- Design and disseminate child safety education materials to educate employees about family safety off-the-job through corporate health and wellness programs.
- Engage community-based organizations, voluntary groups, non-governmental organizations, and merchants in sponsoring injury prevention events and educational campaigns.

Health Systems and Health Care Goals and Actions

Goal: Identify opportunities in health care reform to improve child health through injury prevention.

Actions:

- Implement child injury prevention programs through community-based prevention funding and through *Bright Futures*.
- Support the inclusion of child injury risk assessment, counseling, and remediation in the Maternal, Infant and Early Childhood Home Visitation Program.
- Develop guidelines for adopting and promoting best practices in child injury prevention throughout the health care system.
- Augment state and local health department capacity to address child injury prevention.
- Accelerate the translation and implementation of evidence-based interventions into the health care setting.

Goal: Integrate child injury prevention into the medical home movement.

Actions:

- Create and implement injury prevention quality measures that apply to the medical home.
- Support the development of injury indicators for children and youth in the medical home.
- Create partnerships between health care providers and those serving disadvantaged populations to increase availability and affordability of child safety devices for reducing injury disparities. Establish partnerships for integrated follow-up care after discharge from the hospital.
- Promote safety devices, like child safety seats, as "durable medical equipment" so they can be prescribed and are reimbursable expenses.
- Implement quality improvement measures for injury prevention in health plans and for medical care in the medical home, hospital, and outpatient settings (e.g., Health care Effectiveness Data and Information Set [HEDIS], National Committee for Quality Assurance [NCQA], Early and Periodic Screening, Diagnosis, and Treatment [EPSDT], and National Quality Forum [NQF]).

Goal: Expand effective health care-based services and systems to improve injury outcomes for children and youth.

Actions:

- Increase universal access to poison control centers, comprehensive trauma care systems, pre-hospital care, and preventive services.
- Expand the scope and reach of EMSC to adequately serve rural residents and disadvantaged high-risk children and youth.
- Enhance the capacity of maternal and child health care practices throughout the United States to fully support child injury prevention.
- Integrate injury prevention programs, such as *Bright Futures,* into patient safety, well-child visits, WIC services, and hospital discharge planning.
- Create comprehensive statewide networks for home- or clinic-based care for every seriously injured child.

Goal: Increase the development and use of advanced technologies in the health care environment to prevent injuries and improve child injury outcomes.

Actions:

- Use medical information systems and EHR to improve the speed, efficiency, and quality of care for injured children and adolescents.
- Explore the use of linked data systems to improve treatment decisions and outcomes for injured children and adolescents.
- Advance the use of technology-based preventive and therapeutic interventions to improve care, treatment, and rehabilitation from injury.
- Define standards for the use of advanced technologies to improve awareness of major risks of injury during gestation and in the first year of life.

Policy Goals and Actions

Goal: Identify child injury prevention needs and priorities for policy leaders and decision makers.

Actions:

- Track and assess child injury prevention policies and environmental supports.
- Conduct environmental and health impact assessments to highlight child injury prevention needs and identify potential for policy-level interventions to reduce the injury burden. For example, health impact assessments of a proposed neighborhood development could highlight the need for additional crosswalks so children can safely walk and bike to school.
- Develop a set of "policy priorities" to improve the safety of children within communities based on the data that show where children are at greatest risk of injury.
- Conduct policy development workshops, lectures, and summits on the leading causes of child injuries and deaths for decision makers to improve policy-based decisions.
- Estimate the impact and cost savings from policy-oriented child injury interventions.
- Improve national leadership training for child injury policy analysis, implementation, and evaluation.

Goal: Support the adoption and implementation of evidence-based laws and policies that prevent child injuries.

Actions:

- Develop a clearinghouse that identifies federal, state, and organizational policies designed to protect children from injury.
- Integrate child injury prevention into other policy initiatives at the organizational, local, tribal, state, and national levels. For example, policy initiatives designed to increase physical activity and reduce obesity could also integrate injury prevention components.
- Support new policies that address injuries at and around child care settings, schools, and worksites employing youth.
- Expand and improve product safety, housing, and neighborhood/infrastructure policies that influence children's health, safety, and mobility. For example, policies that require four-sided fencing for homes with swimming pools are important in preventing drowning.
- Increase the capacity of states, local coalitions, and formal alliances to support policies that prevent childhood injuries.
- Increase the role of the private sector in developing and implementing effective policies to protect children. For example, businesses that house child care centers can implement policies within their playgrounds or other care settings that increase the safety of these spaces.

Goal: Support compliance with and enforcement of existing child injury prevention policies.

Actions:

- Increase employers' and adolescent workers' awareness of regulations and standards that address the prevention of workplace injuries to youth and the importance of enforcement.
- Establish training capacity to provide technical assistance to law enforcement personnel in best practices to enforce child safety policies.
- Develop and improve compliance with a standardized methodology for conducting child death reviews in accordance with a state's authorizing legislation, and encourage all states to investigate all injury-related child deaths.

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