



SAFE STATES

2003 EDITION

ABOUT STIPDA

The State and Territorial Injury Prevention Directors Association (STIPDA) is a national non-profit organization of professionals committed to protecting the health of the public by sustaining, enhancing and promoting the ability of state, territorial and local health departments to reduce death and disability associated with injuries. To advance this mission, STIPDA engages in activities to increase awareness of injury as a public health problem; provide injury prevention and control education and training; enhance the capacity of public health agencies to conduct injury prevention and control programs; and support public health policies designed to advance injury prevention and control.

For more information about STIPDA or *Safe States*, please visit the STIPDA website at www.stipda.org.

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When *Safe States* was first presented in the fall of 1997, many state injury prevention programs were moving from a very small level of “catalyst” funding, often involving just a few staff, to larger, more established programs. At that time, the State and Territorial Injury Prevention Directors Association (STIPDA) identified the core components of state injury programs and phases of development to help guide their evolution.

Although some state injury prevention programs are still relatively new and could be considered to be in the earlier stages of development, the landscape has changed considerably in the past five years – for the better. For example, building on the *Safe States* process and other consensus-building activities, STIPDA’s membership has organized a system of peer assessment called State Technical Assessment Teams (STAT). STAT assists states in developing and enhancing injury prevention programs. The process brings a team of injury prevention professionals into a state to assess the status of the state health department’s injury prevention program and to make recommendations for improvement. The combination of support, focus, and growing technical expertise has helped many state injury prevention programs expand their scope and contribute even more to injury prevention efforts across the country.

This version of *Safe States* updates the earlier document. The core components have changed slightly, but the underlying message remains the same: with adequate support from their parent agencies, legislators, and many stakeholders, **state injury prevention programs are poised to dramatically affect the burden of injury across the country.**

The examples and explanations in this document show how this is already underway in some states, and could happen on a greater scale with adequate resources. We hope that *Safe States* stimulates the interest of state-level decision makers, advocates, media representatives, and others in the public health approach to preventing injuries and in the ways that your state’s injury prevention program can contribute to this ambitious but achievable goal.

Introduction

When you get in your car, do you automatically buckle up? Chances are you, like most Americans, do so – but this wasn't always the case. Just a few short decades ago – and still frequently visible in film and television images – safety belt use was rare.

What changed? Legislative changes requiring seat belt use and increased educational efforts resulted in dramatic increases in seat belt use and significant declines in crash injuries and deaths. This is an illustration of injury prevention at work. The growing field of injury prevention applies an approach that emphasizes prevention and the health of entire populations whenever possible. In contrast, for example, traditional medical care emphasizes treatment of individuals after an injury or disease occurs. The approaches are complementary, but occur at very different points in the injury and disease process.

This document explains how state health department injury prevention programs (from this point forward referred to as state injury prevention programs) apply the public health model every day, achieving results that reduce injuries and save tens of thousands of lives. This is the challenge facing professionals in the fields of public health and injury prevention – to understand the causes of injury and disability, to take actions that prevent these consequences, and to extend the benefits of prevention not just to individuals but to entire communities and populations.

To prevent injuries and diseases, we must first understand their causes. This is where public health's unique approach has made so much progress possible, and will continue to do so in the future. Injuries (or accidents, as they are commonly called) are viewed as random acts of fate or something out of anyone's control. Car crashes, falls, drownings, fires, suicides, homicides, and other violent deaths are often perceived – and explained – as the worst of luck, being in the wrong place at the wrong time. But viewing these tragedies through a public health lens yields a different picture. Confronted with a problem affecting large numbers of people – whether it is motor vehicle crashes, suicides, meningitis outbreaks, or escalating obesity and diabetes rates – public health's core science of epidemiology asks similar questions:

- ◇ What exactly is the problem?
- ◇ Who has the problem? Who is affected by it?
- ◇ Why do they have it – what causes it?
- ◇ Where does it occur?
- ◇ When does it occur?
- ◇ What can we do about it, now and in the future?

Posing and answering these questions changes the injury picture dramatically, from random acts of fate to events that can be better understood, predicted and, in most circumstances, prevented altogether.

It is certainly true that each of us can still be in the wrong place at the wrong time, with dire consequences. But it is also true that we – and everyone around us – can take concrete, effective steps to minimize the chances these events will occur. We can wear safety belts and choose designated drivers instead of drinking and driving. We can support enforcement of laws that ask others to do so, for everyone's safety. We can insist that our children wear bicycle helmets (and set an example for them by wearing them ourselves). We can prevent falls, fires, poisonings, homicides, and suicides through a combination of education, changes in people's immediate surroundings, product modifications, and laws or other incentives to change behaviors and minimize risk factors.

The Burden of Injury

Figure 1 shows injury's rank among the 10 leading causes of death for different age groups. For Americans 1-34 years of age, injuries are in fact the leading cause of death. For those 15-24 years of age and those 25-34 years of age, the top three causes of death in each age bracket are injury-related.

Figure 1: 10 Leading Causes of Death, United States, 2000
(All races, both sexes)

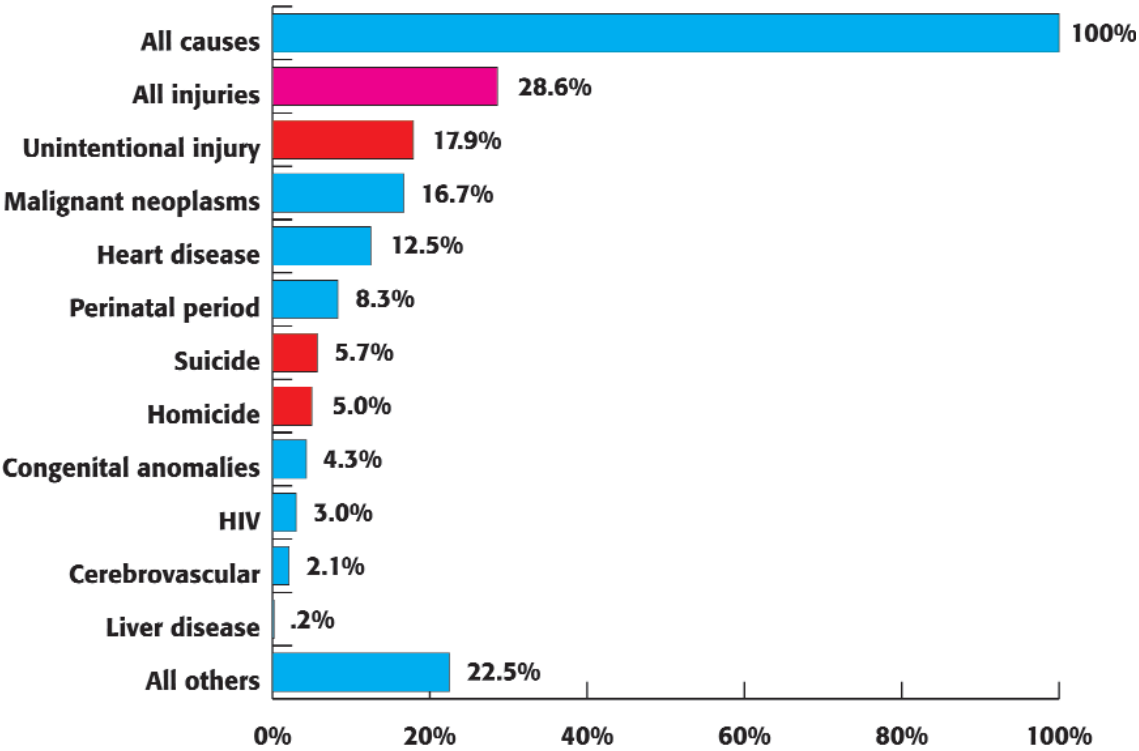
Age Groups

Rank	≤1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies 5,743	Unintentional Injury 1,826	Unintentional Injury 1,391	Unintentional Injury 1,588	Unintentional Injury 14,113	Unintentional Injury 11,769	Malignant Neoplasms 16,520	Malignant Neoplasms 48,034	Malignant Neoplasms 89,005	Heart Disease 593,707	Heart Disease 710,760
2	Short Gestation 4,397	Congenital Anomalies 495	Malignant Neoplasms 489	Malignant Neoplasms 525	Homicide 4,939	Suicide 4,792	Unintentional Injury 15,413	Heart Disease 35,480	Heart Disease 63,399	Malignant neoplasms 392,366	Malignant Neoplasms 553,091
3	SIDS 2,523	Malignant Neoplasms 420	Congenital Anomalies 198	Suicide 300	Suicide 3,984	Homicide 4,164	Heart Disease 13,181	Unintentional Injury 12,278	Chronic Low. Respiratory Disease 10,739	Cerebro-vascular 148,045	Cerebro-vascular 167,661
4	Maternal Pregnancy Comp. 1,404	Homicide 356	Homicide 140	Homicide 231	Malignant Neoplasms 1,713	Malignant Neoplasms 3,916	Suicide 6,562	Liver Disease 6,654	Cerebro-vascular 9,956	Chronic Low. Respiratory Disease 106,375	Chronic Low. Respiratory Disease 122,009
5	Placenta Cord Membranes 1,062	Heart Disease 181	Heart Disease 106	Congenital Anomalies 201	Heart Disease 1,031	Heart Disease 2,958	HIV 5,919	Cerebro-vascular 6,011	Diabetes Mellitus 9,186	Influenza & Pneumonia 58,557	Unintentional Injury 97,800
6	Respiratory Distress 999	Influenza & Pneumonia 103	Benign Neoplasms 62	Heart Disease 165	Congenital Anomalies 441	HIV 2,437	Liver Disease 3,371	Suicide 5,437	Unintentional Injury 7,505	Diabetes Mellitus 52,414	Diabetes Mellitus 69,301
7	Unintentional Injury 887	Septicemia 99	Chronic Low Respiratory Disease 48	Chronic Low Respiratory Disease 91	Cerebro-vascular 199	Diabetes Mellitus 623	Homicide 3,219	Diabetes Mellitus 4,954	Liver Disease 5,774	Alzheimer's Disease 48,993	Influenza & Pneumonia 65,313
8	Bacterial Sepsis 768	Perinatal Period 79	Influenza & Pneumonia 47	Cerebro-vascular 51	Chronic Low Respiratory Disease 190	Cerebro-vascular 602	Cerebro-vascular 2,599	HIV 4,142	Nephritis 3,100	Nephritis 31,225	Alzheimer's Disease 49,558
9	Circulatory System Disease 663	Benign Neoplasms 53	Septicemia Two Tied 25	Influenza & Pneumonia 40	Influenza & Pneumonia 189	Congenital Anomalies 477	Diabetes mellitus 1,926	Chronic Low. Respiratory Disease 3,251	Suicide 2,945	Unintentional Injury 31,051	Nephritis 37,251
10	Intrauterine Hypoxia 630	Chronic Low Respiratory Disease 51		Benign Neoplasms 37	HIV 179	Liver Disease 415	Influenza & Pneumonia 1,068	Viral Hepatitis 1,894	Septicemia 2,899	Septicemia 24,786	Septicemia 31,224

Source: National Center for Health Statistics (NCHS) Vital Statistics System.

Because fatal injuries dominate the causes of death of younger populations, they take a terrible toll in terms of years of potential life lost (YPLL).¹ Figure 2 shows how unintentional injuries (e.g., crashes, fires, drownings, and poisoning), homicides, and suicides rob Americans of millions of years of life every year. In 1999, of the 11,145,856 YPLL before the age of 65, 28.6% were due to injuries.

Figure 2: Percentage of Total Years of Potential Life Lost (YPLL) Before Age 65 United States, 1999 (All races, both sexes, all deaths) n=11,145,856 YPLL



Source: National Center for Health Statistics (NCHS) Vital Statistics System.

¹ Years of Potential Life Lost (YPLL) is an estimate of premature mortality that has been defined as the number of years of life lost among persons who die before a predetermined age.

Core Components of a State Injury Prevention Program

The core components of state health department injury prevention programs,² described in greater detail in this section, are:

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

Why these five? First, these components **mirror a typical public health approach**: learning about a problem by collecting and analyzing data, deciding what to do about it, and putting in place the programs, infrastructure, trained staff, and policies that will prevent injuries, deaths, and disabilities in the future.

Table 1 shows the public health approach to injury prevention. This approach is particularly relevant to injury prevention because it reflects the multiple, complex causes of injury – as well as the equally diverse, interrelated solutions that are needed.

These components are applicable to all types of injury. STIPDA views injury as encompassing unintentional injury as well as injury resulting from violence, such as suicide, homicide, and intimate partner violence. STIPDA recognizes that violence prevention is a public health challenge and an important element within a state's overall injury prevention efforts.

State injury prevention programs can contribute an important public health perspective and approach in addressing violence. They should be involved in violence prevention efforts, and when possible, can take a leadership role in the coordination and collaboration of these efforts. The concepts presented in *Safe States* apply to violence prevention programs and initiatives regardless of where they may be organizationally housed.

² The original *Safe States* document, published in October 1997, also identified five core components for state injury prevention programs. The components listed here are slightly different from the original list in order to reflect additional experience of the past five years. For example, a new component – Infrastructure – has been added. The Coordination and Collaboration component was considered so central to every aspect of state injury prevention programs that it is now included as part of each component, rather than as a separate one.



Core Components of a State Injury Prevention Program

Table 1: A Public Health Approach to Injury Prevention

1	2	3	4	5
<p>Determine the Burden and Develop a Plan of Action</p>	<p>Conduct prevention interventions at multiple levels</p>	<p>Provide Technical Support and Training</p>	<p>Work with Communities for Policy Change</p>	<p>Evaluate and Improve Programs</p>
<p>Determine the scope and magnitude of the state’s injury burden. Collect and analyze injury data such as vital records, hospital discharge data, reported crimes data, emergency department data, insurance claims, and surveillance data.</p> <p>Consider all manner of intentional and unintentional injury, including suicide, sexual assault, intimate partner violence, child and elder abuse, car crashes, falls, drowning, fires, and poisonings.</p> <p>Determine the incidence, causes, and circumstances of fatal and non-fatal injuries by collecting and analyzing injury data.</p> <p>Develop a strategic plan of action.</p> <ul style="list-style-type: none"> • Meet with partners to identify and discuss statewide priorities • Develop an intervention plan that includes an evaluation plan 	<p>Design, implement and evaluate interventions at multiple levels – individual, community, environmental, and organizational.</p> <p>Blend different types of behavior change strategies, including:</p> <p><u>Educational</u> interventions at the individual and community level to raise awareness that injuries can be prevented, and to motivate, enact and sustain behavior change. For example:</p> <ul style="list-style-type: none"> • Promote the benefits of mentoring programs to prevent violence • Conduct community outreach and media campaigns to promote the benefits of using smoke alarms in the home, child safety seats, and bicycle helmets <p><u>Environmental</u> interventions to address the external influences that contribute to or help prevent injury. For example:</p> <ul style="list-style-type: none"> • Improve visibility at dangerous intersections to prevent pedestrian injuries • Make simple home modifications to prevent falls and make living areas safer for older adults <p><u>Policy</u> interventions to change a standard procedure or way of operating that minimizes the risk of injury (see Column 4).</p> <p>Collaborate with others. Develop partnerships with community groups, local health departments, hospitals, fire departments, EMS, and law enforcement to disseminate injury prevention information and resources. For example:</p> <ul style="list-style-type: none"> • Partner with local fire departments to install smoke alarms • Work with community coalitions to provide child safety seats and bicycle helmets 	<p>Provide technical support and training to diverse program partners to:</p> <ul style="list-style-type: none"> • Ensure awareness of proven injury prevention interventions • Encourage the use of these best practices in local health departments, community agencies and programs • Enable program partners and organizations to design, implement, and evaluate their own injury prevention activities 	<p>Affect public policy through collaboration with community leaders to make the community safer. For example:</p> <ul style="list-style-type: none"> • Promote adoption of local ordinances and legislation that are effective at reducing injury – bike helmet laws, use of child safety seats and seat belts in motor vehicles • Promote policies to affect environmental changes – bicycle lanes, resilient surfaces under playground equipment, pedestrian bridges over busy streets • Work with school systems to include injury prevention in their curricula – such as those addressing bullying prevention, sexual harassment prevention, poison prevention, safety belt use, and bicycle helmets 	<p>Build a solid infrastructure for injury prevention programs through evaluation. For example:</p> <ul style="list-style-type: none"> • Measure and evaluate the impact of policy and program efforts by using data such as those used to determine the burden of injury (see Column 1) • Evaluate the cost-effectiveness of interventions and community strategies • Analyze data to help develop the best possible programs

Core Components of a State Injury Prevention Program

A second reason for focusing on these five core components is that they evolved during several years of experience with STIPDA's State Technical Assessment Team (STAT) process. STAT brings together a team of injury prevention professionals who provide a point-in-time assessment of the capacity and status of a state injury prevention program, and detailed recommendations for improvement. The assessment focuses on the five core components presented in this document. As state injury programs have matured, the STAT review process has helped state injury prevention program staff share their successes, and in turn, translate trial-and-error experiences into specific program components, standards, and indicators that can benefit many programs at once.

Third, each of the core components includes collaboration and coordination. Since injury has many different causes and multi-faceted solutions, collaboration and coordination are essential to every aspect of an injury prevention program.

These core components, as a group, represent what is currently known and understood about creating and sustaining effective state injury prevention programs.

It is also important to note that the core components work together to create effective state injury prevention programs. Each piece is critical; when all five components are in place and functioning well, the state injury prevention program is most likely to fulfill its potential to reduce injuries.

To show how the core components work together, the following sections highlight how each component contributed to one example of a successful, real-world injury prevention program in action: promoting smoke alarm use to prevent fire- and smoke-related injuries.

This symbol shows examples of the core components and how they worked together in a real-world example.



Collecting and Analyzing Injury Data



The first step in tackling any health problem is to investigate it, and injury is no exception. Answers to questions like “How serious is the problem?” “Who has the problem?” and “What are the circumstances under which it occurs?” help determine the answers to other important questions, such as “What causes it?” and “What can we do about it?”

Like the rest of the public health field, injury prevention programs need accurate, consistent data to track both old and new health problems. For example, without injury surveillance,³ we wouldn’t know the following facts:

- ❖ Drowning is the second leading cause of injury-related death for children (1-14 years of age), accounting for 940 deaths in 1998. In 1998, males comprised 81% of people who drowned in the United States.⁴
- ❖ Youth suicide rates have tripled since the 1950s, making suicide the third leading cause of death among youth 15-24 years of age.⁵
- ❖ In 1996, husbands, ex-husbands, or boyfriends perpetrated 30% of all female murders. Three percent of all male murder victims were killed by wives, ex-wives, or girlfriends.⁶
- ❖ In 1997, an estimated 567,000 Americans sustained a bicycle-related injury that required emergency department care. Approximately two-thirds of these cyclists were children or adolescents.⁷
- ❖ 9,600 people over the age of 65 died from fall-related injuries in 1998, making falls the leading cause of injury-related death among this age group.⁸
- ❖ Of the 42,556 traffic fatalities in 2001, 41% (or 17,448) were alcohol-related. In fact, 35% of all traffic fatalities during 2001 occurred in crashes in which at least one driver or nonoccupant – such as a pedestrian or bicyclist – had an elevated blood alcohol concentration of 0.08 grams per deciliter (g/dl) or greater.⁹

³ The term **surveillance** is used to describe systems that are designed to collect different types of public health data. Injury surveillance is the ongoing capacity for tracking and monitoring the incidence, causes, and circumstances of fatal and nonfatal injuries and the timely dissemination of this information to those who need to know for the planning and the implementation of measures to control, reduce, or eliminate injuries and to improve health outcomes. **Epidemiology** is the science of analyzing these data and drawing conclusions about what they mean.

⁴ National Center for Health Statistics (NCHS). National Mortality Data, 1998. Hyattsville (MD): NCHS 2000.

⁵ Centers for Disease Control and Prevention (CDC). *Injury Fact Book 2001-2002*.

⁶ Gazmararian JA, Lazorick S, Spitz AM, et al. Prevalence of violence against pregnant women. *JAMA* 1996;275:1915-1920.

⁷ U.S. Consumer Product Safety Commission. National Electronic Injury Surveillance System (NEISS). Washington, DC: Consumer Product Safety Commission; 1997.

⁸ Hoyert DL, Kochanek KD, Murphy SL. *Deaths: Final Data for 1997*. National Vital Statistics Reports; vol. 47 no. 19. Hyattsville, Maryland: National Center for Health Statistics, 1999.

⁹ National Highway Traffic Safety Administration (NHTSA). *Traffic Safety Facts 2001: Alcohol*. Washington, DC: NHTSA; 2002.

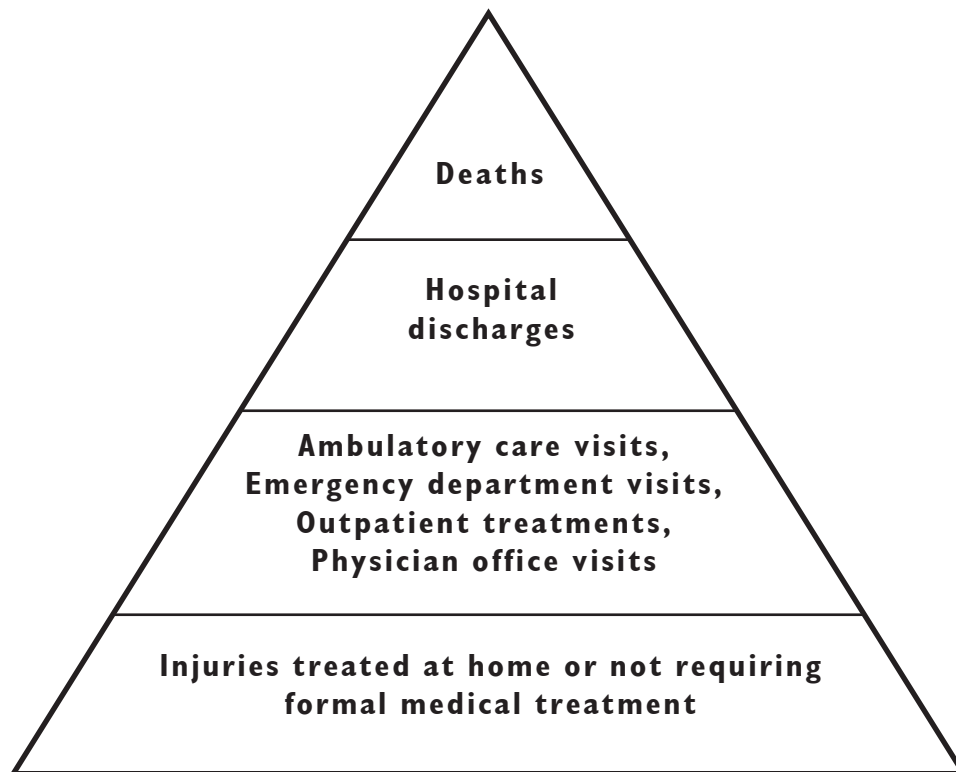


Sources of Injury Data

Injury covers a wide range of events and settings – including (but not limited to) car crashes, drownings, falls, fires, homicides, and suicides. Some of these lead to deaths and serious injuries, while others go untreated and/or unreported, as depicted in the injury pyramid (Figure 3).

Figure 3 shows that even though injuries are a significant cause of death, deaths are truly the proverbial “tip of the iceberg.” Nonfatal hospitalizations, emergency room visits, doctor’s office visits, and unreported injuries far outnumber fatal injuries. These nonfatal injuries, in turn, cause both temporary and permanent disability.

Figure 3: The Injury Pyramid





Collecting and Analyzing Injury Data



The wide range of circumstances under which injuries occur means that there are many different types of injuries, risk factors and degrees of severity. Consequently, there are many possible ways to collect information about each injury – from hospital emergency departments, vital records (death statistics), hospital discharge, crime reports, and special systems, such as spinal cord and traumatic brain injury registries.

Some injury data systems involve counting actual events (deaths, nonfatal injuries), or aspects of the injury (causes, location, severity). Other data collection efforts seek information on what factors might put someone at risk for an injury.

At the level of individual behavior, these “risk factors” might include whether or not someone wears a safety belt, uses child safety seats or booster seats for young children, wears a helmet and other protective gear, abuses alcohol or drugs, expresses suicide ideation, is a member of a gang, or has a history of juvenile justice involvement.

Individual behaviors, of course, are influenced by broader social norms as well as the environment – including regulations and their enforcement. This means that another set of risk factors could include attributes of one’s immediate environment (such as a safe neighborhood) or state policies and laws (such as approaches to intervening in intimate partner violence).

Another informative type of data comes from qualitative research, including focus groups and interviews that help researchers understand causal factors and possible interventions.



Collecting and Analyzing Injury Data

The bottom line is that no single data source can do it all. This means that states – like their counterparts at the local and federal levels – must collaborate closely with others and share information. To make this complex task easier and more consistent across the country, STIPDA convened a workgroup of state, federal, and academic injury prevention partners in 1998 to identify 11 core data sets and 14 injury conditions that should be analyzed. (These are described in detail in *Consensus Recommendations for Injury Surveillance in State Health Departments*¹⁰ and are summarized in Table 2.) The Injury Surveillance Working Group also identified consistent ways for states to count and report injuries so that multiple data systems could be integrated and the data would be more useful to different state, local, and federal audiences.

Table 2. Sources of Quantitative Injury Data

- ▶ Vital records; death certificates
- ▶ Medical examiner/coroner systems
- ▶ Fatality Analysis Reporting System (FARS)
- ▶ Child death review data
- ▶ Hospital discharge data
- ▶ Emergency department data
- ▶ Emergency medical services (EMS) data
- ▶ Uniform Crime Reporting (UCR) System
- ▶ National Occupant Protection Use Survey (NOPUS)
- ▶ Behavioral Risk Factor Surveillance System (BRFSS)
- ▶ Youth Risk Behavior Surveillance System (YRBSS)

Source: State and Territorial Injury Prevention Directors Association.

Ideally, injury data should:

- ❖ Be defined and collected in consistent ways, so trends can be monitored over time and compared across time and place. Routine evaluations of data quality can help programs improve not only their own systems but also their contributions to larger national efforts.
- ❖ Capture information about entire populations, where feasible. (Alternatives to population-based data collection include risk factor surveys, sample studies, community or hospital data, or other more specific assessments.)
- ❖ Protect confidentiality, especially because many injury data systems and policies require sharing information with partners in multiple organizations and across levels of government.

¹⁰ Planning Comprehensive Injury Surveillance in State Health Departments Working Group. *Consensus Recommendations for Injury Surveillance in State Health Departments*. Marietta (GA): State and Territorial Injury Prevention Directors Association; 1999.

Collecting and Analyzing Injury Data



Putting Injury Data to Use

Injury data, like other types of surveillance data, have many uses. Sometimes, these data confirm what we suspect – for example, that alcohol plays a role in many types of fatal and nonfatal injuries,¹¹ or that motor vehicle crashes are more common and severe among the youngest and oldest drivers.^{12, 13}

In other situations, injury data tell us something new and important that we would not have discovered otherwise – for example, that suicide is the third leading cause of death among American young people 15-24 years of age. Another example is a recent analysis of data from the National Electronic Injury Surveillance System All Injury Program (NEISS-AIP), operated by the U.S. Consumer Product Safety Commission, which found that as many as 4.3 million sports- and recreation-related injuries are treated each year in U.S. emergency departments – accounting for more emergency department visits than injuries among occupants of motor vehicles. The authors note that although sports and recreational activities generally confer the many health benefits of physical activity, these results suggest that a combination of protective gear, better conditioning, and safer environments for sports and recreation could help reduce these types of injuries.¹⁴

Often, data spark a new line of inquiry as researchers and policy makers seek more information and solutions. For example, in 1995, a special analysis of data collected through NEISS examined BB and pellet gunshot wounds among children treated in hospital emergency departments. The study identified a group at highest risk (boys 10-14 years of age), the most common type of injury (nearly a third were of the eye, face, head, and neck), and circumstances when injuries were most likely to occur (unsupervised playing in or around the boys' homes).

¹¹ National Highway Traffic Safety Administration (NHTSA), op cit.

¹² Insurance Institute for Highway Safety. 1998 Fatality Facts: Teenagers. Arlington, VA. Sept. 1999. [Online at: www.iihs.org/safety_facts/fatality_facts/]

¹³ Stevens JA, Hasbrouck L, Durant TM, Dellinger AM, Batabyal PK, Crosby AE, Valluru BR, Kresnow M, Guerrero JL. *Surveillance for Injuries and Violence Among Older Adults*. In: CDC Surveillance Summaries, December 17, 1999. *MMWR* 1999;48(No. SS-8):27-50.

¹⁴ CDC. Nonfatal Sports- and Recreation-Related Injuries Treated in Emergency Departments--United States, July 2000-June 2001. *MMWR* 2002; 51: 736-40.



Collecting and Analyzing Injury Data

“Unintentional BB and pellet gun-related injuries that occur during unsupervised activities are preventable,” the researchers concluded, suggesting parental supervision, education, protective eyewear, and locked storage of unloaded weapons.¹⁵

States are important providers *and* consumers of public health data. State health departments collect information on injury and disease-related deaths from county health departments or local jurisdictions, clinics, and hospitals, and share this information with national agencies like the Centers for Disease Control and Prevention (CDC). For example, three states recently completed a pilot program to test the feasibility of incorporating data elements related to intimate partner violence into existing injury surveillance activities. When every state provides similar data in the same format, we can see a national portrait of injury and disease trends as well as the situation in individual states and counties.

States and counties also use injury data to understand local trends, assess injury prevention needs at the community level, select proven or promising interventions, and measure whether or not the interventions are effective. An important use of surveillance data is identifying groups at high risk – such as those at risk for home-fire fatalities in low-income neighborhoods, or elevated suicide rates among Native American youth.¹⁶ These data can guide professionals in state injury prevention programs as they select proven or promising prevention strategies to target the groups that need them the most.

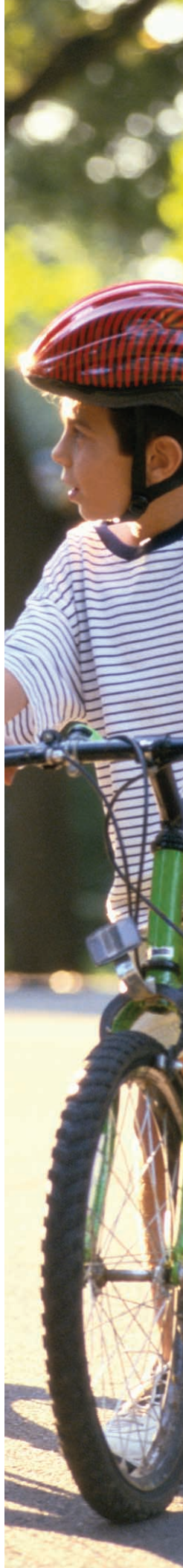
The Data Picture: Who Has the Problem, and Why?

In 1987, the Oklahoma State Department of Health launched surveillance of burn injuries by making burn injuries that resulted in hospitalization or death a reportable condition. After collecting and analyzing data from September 1987 through April 1990, the state was able to identify an area in south central Oklahoma City with the highest rate of residential fire injuries – 4.2 times higher than in the rest of Oklahoma City. Analysis of residential fire deaths and injuries also revealed a different pattern in the target area than in the rest of the city, with 47% of the fires caused by children playing with fire (compared to 8% in the rest of the city.) A survey by uniformed firefighters (of a sample of 1,615 homes in the target area, or 5%) revealed that 34% of the homes in the target area did not have smoke alarms.



¹⁵ CDC. BB and Pellet Gun-Related Injuries – United States, June 1992-May 1994. *MMWR* 1995; 44: 909-13.

¹⁶ Wallace LJD, Calhoun AD, Powell KE, O’Neil J, James, SP. Homicide and Suicide among Native Americans, 1979-1992. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, 1996. Violence Surveillance Summary Series, No. 2.





Designing, Implementing, and Evaluating Interventions

Using data to discover a new or emerging problem is part of the public health response. Ultimately, the data must lead to action – to programs, policies, environmental change, and information that can prevent injuries before they occur.

Deciding which actions to take is a complex and critical task for state injury prevention programs. Factors including timing, acceptability, and political climate must be taken into consideration. Ideally, selected interventions should be based on evidence-based research that they work. Interventions must not only be well-designed and implemented, but also assessed prior to their implementation to determine whether they are applicable and meet the needs of the targeted community. This applied research also needs to be evaluated.

Designing and Implementing Interventions

Many factors affect a program's choice of interventions. The public health model suggests several criteria to consider:

- ❖ Whether an effective, **evidence-based** intervention is available. For example, researchers have tested the intervention in other places.
- ❖ Its effect on the **burden of injury**. If an intervention reduces the most severe and costly injuries – such as traumatic brain and spinal cord injuries – this might serve as a rationale for choosing it. On the other hand, some interventions affect more common and perhaps less severe injuries such as back injuries; these, too, would be worthwhile in many situations.
- ❖ The specific **population(s)** affected and/or at risk. Does the intervention prevent injuries among children or the elderly? Does it help reduce the disparities in health status that exist in our country, e.g., between white and minority populations, urban and rural, recent immigrant and more assimilated populations?

In some cases, the causes of injury may include the so-called “root causes” – that is, not just the immediate failure to wear a helmet or seat belt, but more fundamental risks like living in sub-standard housing or working in dangerous factories or industries. While these contributing factors can seem overwhelming to programs already facing resource constraints, they do offer opportunities to work with non-traditional partners, such as advocates of “smart growth”¹⁷ and livable communities.

¹⁷ **Smart growth** is defined by the American Planning Association as “the planning, design, and development of communities to promote a sense of place, the preservation of natural and cultural resources, and the equitable distribution of the costs and benefits of development. Smart growth enhances ecological integrity over the short and long term and improves quality of life by expanding the range of transportation, employment and housing choices in the region in a fiscally responsible manner.”



Designing, Implementing, and Evaluating Interventions

It is also important for interventions (either individually or as a group) to blend different types of strategies – such as *educational* interventions that teach people how to cross streets safely, *environmental* interventions that improve the visibility at dangerous intersections, or *enactment and enforcement* of laws and ordinances (such as those that designate special school-zone crossings). Often, these strategies work together to motivate people to change behavior in different but complementary ways, supporting safer behaviors at many levels.

Although many injury trends rise and fall in tandem across the country, others are unique to certain areas or populations. As a result, each state and local community brings other factors to the complex task of choosing appropriate injury prevention interventions. These include:

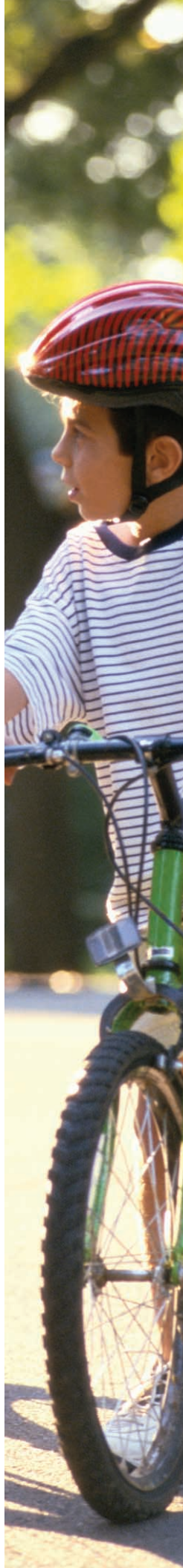
- ❖ The availability of resources – not only to cover the initial costs of an intervention, but also to sustain and evaluate it over time to determine the difference it makes.
- ❖ Local interest and support, including political readiness and timing (e.g., a recent injury that raised community interest and desire to make a change), community input into intervention design and selection (e.g., from a needs assessment process) and whether or not interventions are culturally appropriate.

Designing and Implementing an Intervention: The Lifesavers Program

The absence of a functional smoke alarm is a major risk factor for residential fire fatalities. In 1990, at the time the Oklahoma City intervention was implemented, approximately 80% of residential fire deaths occurred in homes without working smoke alarms. Homes at the highest risk of fire and fire-related death and injuries are those least likely to have smoke alarms – homes in poorer neighborhoods. This was the case in Oklahoma City's target area, where median household income, property values, and housing quality were all below averages for the rest of the city.



To get smoke alarms into the Oklahoma City homes that lacked them, the team devised a giveaway and educational program for residents in the target area. The program, called the Lifesavers Residential Fire Injury Prevention Program, began with a test of four different distribution strategies: door-to-door canvassing, in which a fire truck drove slowly down the street announcing the availability of free smoke alarms, and three different distributions of flyers alerting residents to the availability of free smoke alarms and educating them about fire risks. The three flyer distribution methods were in public places only, by mail, and by leaving them in residents' doorways.





Collaborating with Partners

Just as collecting injury data relies on the cooperation of many different organizations, so does the process of designing, implementing, and evaluating interventions. Collaboration helps integrate injury prevention into the work of other departments and organizations and helps ensure that scarce resources are used wisely.

Injury prevention programs may be located in a variety of areas or sections within a state department of health, but having an injury prevention program designated as the lead for injury prevention issues is crucial. That lead injury prevention program must collaborate with the other offices or areas that have a stake in injury prevention, because no one program or agency will have enough resources and expertise to adequately prevent injuries by itself.

Potential partners include:

- ❖ Offices within the state health department, such as Maternal and Child Health, Occupational Health, Epidemiology, and Emergency Medical Systems
- ❖ Other state agencies (e.g. Justice, Law Enforcement, Education, and Transportation)
- ❖ Advocacy groups
- ❖ Hospitals
- ❖ Professional groups (e.g. EMS providers, emergency department nurses and physicians, and police officers)
- ❖ County health departments or local jurisdictions
- ❖ Community-based and statewide organizations
- ❖ Federal agencies and national organizations
- ❖ Coalitions representing different groups with common purpose

Lifesaving Partnerships

The Oklahoma City Lifesavers Program was the result of a partnership among a number of community agencies and volunteers, including the state and local health departments, the local chapter of the American Red Cross, and the Oklahoma City Fire Department.





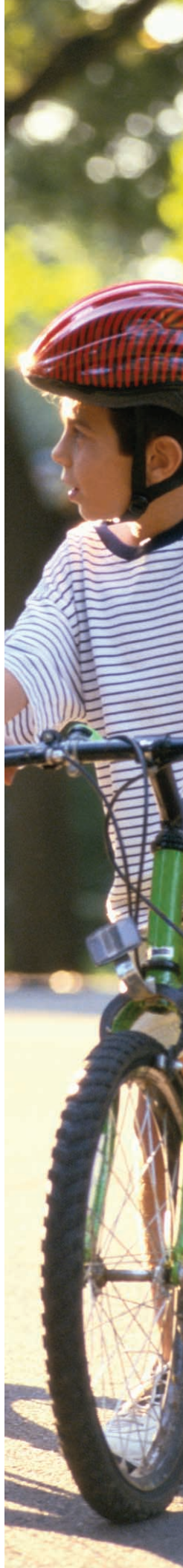
Designing, Implementing, and Evaluating Interventions

The relationship between state injury prevention programs and their local counterparts at the county or local jurisdictions are particularly critical, as most interventions are implemented at the local level. Because their success depends on local participation, state injury prevention programs should specify local program roles in state injury prevention plans and have procedures in place for supporting and monitoring local interventions.

Evaluating Interventions

In theory, many interventions sound promising. However, between the drawing board and the more complex environment of practical application, much can happen. Evaluation – built in from the very beginning of every intervention – helps us understand how and why an intervention worked, or why it did not. For this reason, interventions that may initially seem like failures are not a waste, for they help researchers and injury prevention program staff to adjust interventions so that they will have greater chances of success in the future. As discussed below, evaluations are important at every stage of intervention design and implementation.

Evaluation is a skill. Because it is a constant need in any type of program implementation, it is useful to cultivate this skill by building in-house capacity within state injury programs, or at least within the health department overall. However, if evaluation expertise is not available within a program, local evaluation consultants – based in universities, resource centers, or other settings – can help. Regardless of the source – within the program or not – every intervention deserves a solid evaluation design and resources to make sure the evaluation is conducted before, during, and after implementation.



Designing, Implementing, and Evaluating Interventions



Several different types of evaluation can tell program staff, funders, and policy makers what they need to know at different stages of implementation.

- ❖ **Formative** evaluations are typically used in the early developmental stages to give feedback – for example, during a pilot program, before broader implementation, so that programs can be improved as they are being developed.
- ❖ **Process** evaluations answer the questions, “What was done?” and “To whom, and how?” Process evaluations describe what happened and offer information such as the number of people served in different settings. These are particularly important for tracking variations or adaptations in different places or circumstances, so that program designers can learn whether these variations affected the program’s goals or outcomes.
- ❖ **Impact or outcome** evaluations are the most ambitious because they ask, “So what?” and “What difference did the program make?” Sometimes, these changes are difficult to detect because they occur over long periods of time. In other cases, it is difficult to attribute an effect to a specific intervention alone, because other factors may have influenced behavior. (For example, media coverage of a snowboarding death may stimulate helmet use among teenagers, at least for a short time.)

All three types of evaluation yield insights for state injury prevention program staff and for those who turn to them for guidance and data. Evaluations of state and local programs contribute not only to knowledge about programs within the state, but also to national databases of what works that can be used or adapted by others.

Evaluating an Intervention: What Happened?

The Oklahoma City Lifesavers Program conducted all three types of evaluations. The team was able to choose a canvassing method as the most effective means of reaching the target population after conducting a formative evaluation comparing different methods. In addition, a process evaluation showed that the canvassing method was by far the most effective, reaching more homes in need of a smoke alarm than the other three methods combined. As a result, the team decided to canvass the entire target area, with a total of 10,100 smoke alarms distributed to 9,291 homes – reaching at least 80% of the homes in need of a smoke alarm.



The team also conducted two other types of evaluations: an impact evaluation at three intervals during the four years following the intervention to see whether the alarms were installed and maintained (half still were, four years later) and an outcome evaluation to see whether the intervention had affected residential fire injuries and deaths. Indeed, fire-related injury rates decreased 81% in the target population, but only 7% in the rest of Oklahoma City during the same period. During the six years of the program, at least 60 fire-related deaths and injuries were prevented in the target area.



Building a Solid Infrastructure for Injury Prevention

Just as traditional “bricks-and-mortar” infrastructure supports roads and bridges, state injury prevention programs rely on a strong foundation of core capacity, leadership, and coordination. A state injury prevention program with a solid infrastructure and core funding provides focus and direction for the many aspects of an effective program, and makes the best use of the limited resources currently available.

Many state and local injury prevention programs have accomplished a great deal with just a few dedicated individuals – and often a sole individual – passionately targeting a particular injury issue. These efforts are inspiring and can be effective, but in order to address the many causes of injury in a systematic way – and to coordinate efforts with the multiple partners involved in these efforts – a strong program infrastructure is needed. Injury prevention is an extraordinarily diverse, multi-disciplinary field, affecting all walks of life, many different professions, and almost any setting in which people live, work, or play. Coordinating these disparate agendas and finding common ground among different individuals and organizations are tasks best accomplished by a strong, stable, and comprehensive program.

A solid infrastructure benefits the state by helping to reduce the burden of injury, and also by supporting national efforts. A consistent injury prevention capacity across many states is an advantage for both state and national initiatives. Strong state programs can participate in national surveillance systems and pursue the nuances of injury problems, or hidden pockets of injury among hard-to-reach populations. These programs have more potential to implement and evaluate what has worked elsewhere – and to offer their own innovations to others, serving as a model for other states.

Building a Solid Infrastructure for Injury Prevention



Three distinct but complementary aspects of a state injury prevention program's infrastructure are:

- ❖ **Organizational strength.** This means that the program takes a leadership role in understanding and responding to the state's burden of injury, using national guidelines and standards and customizing approaches as needed to local issues. The state injury prevention program should develop an injury prevention plan with specific objectives, which can serve as the basis for meaningful collaboration with other state agencies, organizations across the state, local programs, and national initiatives.
- ❖ **Staffing.** Key positions – in leadership, data collection and analysis, program development, evaluation, and education – should be permanent positions. Soft funding or time limited funding causes problems of staff turnover. Staff should be trained and diverse, and, whenever possible, dedicated exclusively to their injury prevention responsibilities.
- ❖ **Funding.** Some state injury prevention programs already have crafted innovative funding strategies, such as redirecting fines (from safety belt or drunk driving violations) to injury prevention programs. Federal funds and these creative solutions, however, are no substitute for sustained, stable funding that comes from inclusion as a line item in state budgets. Without stable funding, it is difficult to plan for the future, sustain current programs, and recruit and sustain talented staff needed to fulfill the injury prevention potential that exists in every state. As part of their efforts to collaborate with others, state injury prevention program staff should participate in the funding and priority setting processes of other groups who share injury prevention goals.

A Strong Infrastructure Yields Results

The Oklahoma City Lifesavers Program would probably never have left the drawing board without a strong state injury prevention program supporting it. As the lead agency, the state health agency's injury prevention program led the effort to make burn and smoke inhalation injuries that result in hospitalization or death be reportable conditions. This, in turn, yielded the data that allowed epidemiologists to pinpoint the geographic area of Oklahoma City – south central Oklahoma City – with the greatest burden of residential fire injuries and deaths. Through a CDC research grant, experienced program staff designed, implemented, and evaluated an effective intervention, working closely and productively with partners in a wide-ranging coalition. Finally, the staff secured and maintained funding from a variety of state and federal sources to keep the intervention – and several years of evaluation – on target.



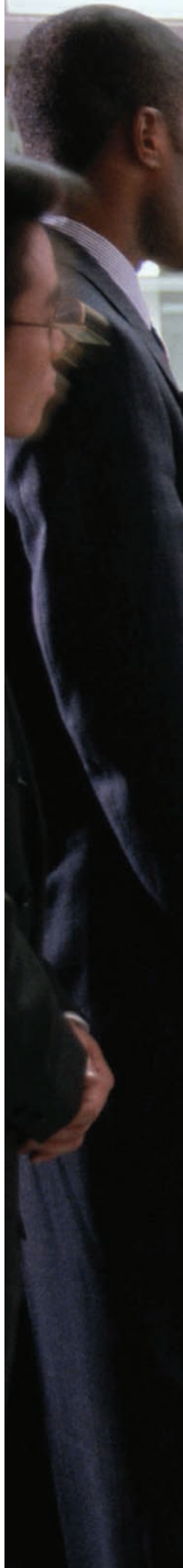


Providing Technical Support and Training

Trained and high-caliber staff are a key element of a state injury prevention program, contributing to the success of interventions as well as the program's overall strength and longevity. Since injury prevention is still a relatively new field, training is one way to enlarge the pool of skilled, competent staff. In turn, those who already have received training specific to the field can help meet the ongoing demand for technical assistance and support from colleagues at both state and local levels.

Within state injury prevention programs, staff need specific skill training in addition to the on-the-job training that is part of any profession. This includes skills in:

- ❖ Collecting, analyzing, and disseminating data from surveillance systems
- ❖ Using data to select appropriate proven or promising strategies for preventing specific injuries
- ❖ Evaluating programs and interventions over time
- ❖ Affecting public policy
- ❖ Providing training
- ❖ Providing leadership
- ❖ Planning strategically, and
- ❖ Building and sustaining coalitions and meaningful partnerships



Providing Technical Support and Training



In addition to building these capabilities within a program, state injury prevention staff often provide training to other state and local professionals, such as those in collaborating agencies (e.g. local health departments, EMS providers, hospitals, coalitions, highway safety, education), local professionals who deal with injury risk factors and consequences in their own work (e.g., emergency medical technicians, police, nurses, counselors, fire fighters, and school staff), and the general public.

In some cases, state injury prevention program staff act as consultants to others, providing technical assistance and support to collect or analyze data, or to design and evaluate programs.

Whether knowledge and skills are transferred through formal or informal training, or through specific technical assistance efforts, they help build capacity for injury prevention and draw talented professionals to this important and growing field.

Transferring Knowledge and Skills

Many different skills and talents contributed to making Oklahoma's Lifesavers Program a success: collecting and analyzing data, devising and evaluating strategies, working with coalition members to implement the most promising strategy and maintain momentum for many years, and evaluating the program at different junctures. At each step, these skills were not only used but shared with others who gained experience in each component of designing and implementing a successful injury prevention program. Presentations were made at national and international meetings and published in professional journals.





Affecting Public Policy

When an action affects many people at once by changing a standard procedure or way of operating, it moves into the realm of public policy. Policy can include legislation, regulation, guidelines, ordinances, and/or rules (established by governmental or non-governmental organizations). The role of the public health department is to protect and improve the public's health.

State injury prevention programs rely on many tools to reduce the burden of injury in each state and across the country, but policy changes – such as safety belt laws – are among the most powerful in terms of their impact. Once the scientific evidence suggests a course of action, it is much more efficient to mandate change across the board than to try to persuade people, one at a time, to change their behavior. Policy changes are a tremendously useful tool, but they are not to be used lightly. Typically, they represent the culmination of a long process of building a scientific evidence base, working with coalitions of stakeholders to determine the best policy solution to an injury problem, and convincing advocates and policy makers that the policy solution is appropriate and will save lives or reduce injuries.

Behaviors that place people at risk for injury are the result of complex and shifting mixes of personal values and beliefs, perceptions (or misperceptions) of risk, and reactions to rules and their enforcement. Even temporary influences like fatigue, alcohol, or anger can affect risk and behavior.

When injury prevention professionals consider the options for reducing the burden of injury, they have several from which to choose. First, they can try to persuade people to reduce their risk – by wearing helmets, buckling up, choosing a designated driver, and so on. For many segments of the population, this works some or most of the time. For others, a reminder can reinforce good intentions – such as a safety belt that deploys automatically when the driver or passenger is seated, or child safety seats or helmets distributed through a community program. In other cases, where people either absent-mindedly or willfully resist these measures, a stronger prompt may be needed, such as a safety belt law and, of course, its enforcement.





Affecting Public Policy



It should be noted that not all policy changes are punitive (like fines and license revocation), although these are indeed effective. In fact, many policy changes aim to create positive incentives for injury-reducing actions – such as insurance company rebates for schools with upgraded, safer playgrounds or insurance discounts for smoke alarms, fire sprinklers, and safe driving records.

Likewise, not all policies and regulations aim to change behavior with either carrots or sticks. Some aim to build in safer practices, making injury prevention automatic. For example, laws that set limits for the temperature of hot water can prevent scalding injuries regardless of how people behave or perceive their risk.

Most state injury prevention programs can affect public policy at three levels: the state government level, the local government level, and at the community level, often involving non-governmental organizations.

At the state government level, state injury prevention program staff can participate in several ways. For example, they can:

- ❖ Participate on boards and commissions
- ❖ Review or recommend proposed legislation
- ❖ Develop and/or provide oral or written testimony on issues relevant to injury prevention
- ❖ Propose legislation to be sponsored by the state's administration through the state health department's legislative process
- ❖ Provide information on the effectiveness of existing state policies (derived from state and/or national evaluations or literature reviews)
- ❖ Collaborate with groups representing diverse population segments within the state by providing information on the legislative process and state injury prevention priorities, or assisting with strategic planning and priority setting
- ❖ Offer findings from surveillance data to help identify priority injury problems within the state
- ❖ Track new initiatives or model legislation in other states that might be useful in their states
- ❖ Evaluate the effectiveness of policy changes



Policy Implications

The Oklahoma City Lifesavers Program and its evaluation showed that the problem of homes without smoke alarms can be addressed effectively with a strong, cost-effective intervention – one that saves lives as well as costs. Yet the distribution of smoke alarms to homes without them is only a piece of the solution. As the program’s designers readily acknowledge, the distribution of smoke alarms should occur in tandem with other measures: education about fire prevention, legislation that requires smoke alarms in all existing residences (along with fire sprinkler installation where possible), enforcement of existing codes, and the development and distribution of new and improved smoke alarms – such as those with longer battery life and fewer nuisance alarms (e.g., from cooking-related smoke).



This portfolio of interventions offers the potential of eliminating house fire deaths, but requires actions beyond a community or even a health department. Quickly and inevitably, injury prevention enters the policy realm – where much more can be accomplished, on a far larger scale, than where the intervention began.

State injury prevention program staff can support similar efforts at the local level, depending on resource availability and levels of activity in different counties or communities. This may include providing or helping to develop information on effective local ordinances, providing information on state and national priorities, identifying model legislation or ordinances, and providing oral or written testimony upon request.

Not all policies are set by government. Nongovernmental organizations – insurance companies, chambers of commerce, professional associations, and others – also make decisions with positive effects in terms of injury prevention for their clients, constituents, or memberships. Often, the impact of nongovernmental policy changes is underestimated; nonprofit agencies and businesses can set internal policies that have significant external effects. For example, one of the benefits of business injury prevention policies can be to decrease absenteeism of workers if they practice injury prevention at home and work. Collaboration with these groups is important for influencing behavior change and advocating for programs and policies.



Conclusion

No matter how they are measured – in terms of deaths, temporary and permanent disability, years of life lost, or health care costs – injuries take a tremendous toll in our society. Each injury-related death and disability is even more tragic because so many are preventable with tools we have already. Unlike other fields that await new scientific and technical breakthroughs, injury prevention has proven strategies ready to be applied.

Why have we not reaped the potential of injury prevention tools and techniques? In part, it is a problem of lack of awareness. Despite the efforts of local, state, and national injury prevention groups, many people still do not appreciate how many actions they can take to prevent injury.

But lack of awareness is not the only explanation. At the state and local levels in particular, the potential of injury prevention is hampered by a lack of resources. As this document shows, state injury prevention programs – and their partners – can make significant contributions at every point on the injury prevention continuum. They can collect and interpret data, promote proven methods of injury prevention, develop effective community programs, train and educate people, and design legislation that supports both individual and community injury prevention. Unfortunately, state and local injury prevention programs often lack the resources and basic infrastructure to make these contributions.

Injury prevention programs cannot accomplish their tasks alone. To help your state's injury prevention program, the State and Territorial Injury Prevention Directors Association (STIPDA) invites you to join us in our efforts to prevent injuries across the country. For starters, contact your state injury prevention director to learn more about injury prevention in your state. (A complete list of state injury prevention directors is available through STIPDA's web site: www.stipda.org.)

Conclusion

Other actions include:

- ❖ Join a local injury prevention coalition that is tackling an issue important to you and your family, such as bicycle safety (If a local coalition does not exist, consider starting one!)
- ❖ Share this document and discuss it with others
- ❖ Find out more about injury statistics in your state and community
- ❖ Support efforts to strengthen your state's injury prevention infrastructure: organization, staffing, and funding
- ❖ Participate in training for injury prevention and promote safety at your workplace or volunteer organization and at home
- ❖ Invite state injury prevention professionals to speak to groups of which you are a member to share information on how to prevent injuries and violence

Regardless of the specific actions you may take in the future, the members of STIPDA hope that this document has helped you learn about the impact of injury in our country and – more importantly – about the many ways state injury prevention programs help each of us prevent injuries in our own homes and communities.

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