

Preventing Injuries and Violence

AN UPDATED GUIDE FOR STATE AND TERRITORIAL
HEALTH OFFICIALS





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Foreword – To Our Members

Injuries and violence affect everyone, regardless of race, sex, or economic status. More Americans die in the first half of life from violence and injuries, including motor vehicle crashes, falls, and homicides, than from any other cause, including cancer, HIV, and influenza. Each year, more than 3 million people are hospitalized, 27 million people are treated in emergency departments and released, and more than 192,000 people die as a result of unintentional and violence-related injuries.¹

In 2013, the total cost of injuries and violence in the United States was \$671 billion.²

Injuries and violence are also responsible for lost years of productive life when one considers the millions of people who survive injuries each year with resulting persistent, lifelong challenges that ultimately affect their health, including physical pain, disability, and emotional and financial problems. The United States needs effective prevention strategies in order to lift the immense health and societal burden of injuries and violence and create a society where people can live to their full potential.

Extensive research shows that a science-based approach is an effective way to prevent injuries: injuries are no longer simply considered “accidents,” because there are identified risk and protective factors that make them preventable. In addition, comprehensive approaches involving policy implementation, environmental changes, and education are necessary in order to effectively prevent injuries.

Similarly, violence can no longer be viewed as solely a “police or criminal justice problem.” The communities people live in can both protect them from violence or increase their risk of violence.

We’ve learned that efforts to prevent all forms of violence must address social, emotional, and behavioral elements, as well as family and community environments.

The field of injury and violence prevention has seen remarkable progress. Many important medical, scientific, and public health advances in recent years were made possible by credible science, strong leadership, and committed partners.

State and territorial health departments have an opportunity to improve health and strengthen prevention efforts by integrating health into the work of other sectors. By helping agencies incorporate what is known about injury and violence prevention strategies into effective policies, together we can help ensure the health and safety of individuals, families, and communities nationwide.



Preventing Injuries Through Policy Change

State health departments are frequently called upon to support different types of policy initiatives, including organizational, regulatory, and legislative policies. From child safety to occupational health to traffic laws, we're all familiar with injury prevention policies. But how do you determine the best policy approach for your jurisdiction?

Equipped with a comprehensive understanding of both the burden of injuries in their states and where the opportunities for positive change lie, state health departments can focus their efforts on pursuing the most needed, evidence-based injury prevention policies. Partnerships, such as those with public safety officials, healthcare providers, transportation officials, social services, businesses, and faith-based organizations can help identify and build support for policy, regulatory, and programmatic strategies for preventing and reducing injuries.

When surveying the context of injury prevention in your state, include assessments of potential champions and potential barriers. What have other states experienced? Ask and resolve as many tough questions as you can before determining your course and taking action:

- *How feasible is it to implement this strategy in your state?*
- *Are there resources available to implement it or political will to support it?*
- *Are local communities prepared for the strategy? Will they support it?*
- *Does the strategy address health inequities?*
- *How will the strategy influence the environmental, social, and economic conditions that impact health?*

Many factors influence a policy intervention's effectiveness, such as public awareness and compliance and adequate financial and other resources to support the policy's implementation (e.g., enforcement capacity, education and training, and availability of programs to support and enhance the policy).

Public policies—even those grounded in seemingly popular, scientifically-supported principles—are frequently met with challenges. However, the likelihood of facing challenges doesn't make a public health problem any less worthy of becoming a top priority. It is important to consider your state's priorities and resources along with evidence of the potential solution's effectiveness. Involving a broad group of stakeholders, including local data and subject matter experts and members of the community you want to serve, can help you select the most optimal strategy for your state.

An excellent way to start planning a policy strategy is by contacting the division in your state health department that oversees and administers injury and violence prevention programs. Injury prevention coalitions or networks can also be key collaborators, as many states already have planning groups that engage communities in injury and violence prevention efforts. ASTHO partners with affiliate organization Safe States Alliance, which is the only national nonprofit organization representing state-level injury and violence prevention professionals.

State health departments participate in all of the following aspects of the policy change process:

- Identifying problems or issues.
- Identifying appropriate policy solutions:
 - » Identifying and describing policy options.
 - » Assessing policy options.
 - » Prioritizing policy options.
- Developing strategies for further adoption of policy solutions.

Progress in Injury and Violence Prevention

Over the last several years, injury and violence prevention has become an increasingly integral part of the national public health dialogue. Injury and violence prevention goals fit nicely with other public health priorities, including maternal and child health, the built environment, transportation, and healthy communities. Injury prevention is a priority for CDC, which provides significant resources for researching, translating, disseminating, and evaluating interventions that work.



It stands as an indication of progress that injury and violence prevention is being incorporated into large, cross-sector initiatives to improve population health. For example, the [National Prevention Strategy](#) was developed through the Affordable Care Act and is a blueprint for federal agencies to work across sectors to address health and safety. “Injury and Violence Free Living,” a chapter within the National Prevention Strategy, presents strategies being used across the transportation, justice, health, education, and many other sectors to address injuries and violence. Other chapters within the overall strategy also address injuries and violence, and this has provided an increasing opportunity for cross-agency and cross-departmental collaboration around shared health and safety goals.

Violence prevention collaborative efforts have included work with the U.S. Department of Justice, which has aligned resources and strategies to prevent youth violence (instead of just responding to violence) by increasing positive opportunities for young people. Today, violence is recognized as a major public health problem. These collaborative efforts have also assisted in the development of uniform definitions for topics such as child maltreatment, sexual violence, and suicide in order to improve data collection.

Priorities in Injury and Violence Prevention: An Overview

Policy interventions are important and effective community and societal level strategies for improving the public’s health. ASTHO is releasing this new guide as an update to its 2011 report [Spotting Injury and Violence Prevention on Your Radar Screen: Creating a Legacy in Public Health--A Guide for State and Territorial Health Officials](#). It includes new data and state examples that can be used to affect policy to prevent injuries and violence.

This document will discuss strategies to:

- Assess community needs surrounding injury and violence prevention priority areas and related data.
- Increase the use of evidence-based injury and violence prevention interventions statewide.
- Strengthen state and community level infrastructure, partnerships, and competencies for injury and violence prevention.
- Improve the capabilities of states, local coalitions, and formal alliances to support policies that prevent injuries and violence.

In 2015, CDC’s National Center for Injury Prevention and Control revisited its focus areas and potential opportunities for growth, considering several factors including capability for impact, scalability, external support, and existing evidence-based interventions.

Two issues remain CDC-wide priorities and will continue to be top priorities for the injury center:

- [Motor vehicle injuries](#)
- [Prescription drug overdose](#)

In addition, the injury center identified several areas for increased growth and development:

- [Child abuse and neglect](#)
- [Older adult falls](#)
- [Sexual violence](#)
- [Youth sports concussions and traumatic brain injury](#)

These areas present immediate opportunities for state health officials to begin to reduce the burden of injuries and violence in their states. Within each of these six topic areas, we'll examine what works and identify approaches that states can take to keep people safe, healthy, and productive.

SECTION I. Motor Vehicle Injuries

BACKGROUND

Each year, motor vehicle crashes claim the lives of more than 32,000 people in the United States. More than 2.5 million Americans went to the emergency department and nearly 200,000 were then hospitalized for crash injuries in 2012.³

The economic cost of motor vehicle crashes is estimated at \$242 billion—or roughly \$784 for every person living in the United States—a figure that takes into account lost productivity, property damage, and costs associated with medical care, legal fees, emergency services, and insurance.⁴

Many environmental, behavioral, and medical factors have contributed to declining motor vehicle crash death rates, including technological changes and engineering efforts that improved the safety of vehicles and highways. Federal transportation laws require each state to develop a strategic highway safety plan that focuses the efforts of all state agencies and partners on the highest priority traffic safety needs statewide. Although many lives have been saved due to these advances, individuals who survive crashes may still experience physical pain, disability, and emotional impacts that greatly reduce the quality of their lives.

Fortunately, thanks to decades of research, programs, evaluation, and changes in governmental policies, today we have a much greater understanding of who is most at risk of being involved in crashes and what strategies work to help keep drivers, passengers, bicyclists, motorcyclists, and pedestrians safe.

CREATING A CULTURE OF SAFETY

Although motor vehicle crashes clearly have a health impact on individuals and society, traffic safety has often been considered an issue for the transportation sector. However, CDC has been working with transportation safety as a public health issue for more than 20 years. Collaboration between traffic safety and public health has been successful in framing motor vehicle injuries in the context of other preventable causes of death and disease and in influencing the notion of a “culture of safety.”



Policy changes are most effective when they take place within a culture of safety, which state health departments can help create by working with state department of transportation and state highway safety offices, law enforcement, advocates, and community partners to support programs, raise awareness, and change the behaviors that contribute to reducing motor vehicle-related injuries. Health departments can help educate the community about the importance and effectiveness of the laws and their enforcement.

MOTOR VEHICLE INJURY PREVENTION: A WINNABLE BATTLE

Motor vehicle injury prevention is recognized as one of CDC's Winnable Battles.⁵ Each Winnable Battle priority has a clear set of targets and a method to track and measure progress. The Winnable Battle targets also support related federal priorities and initiatives, such as Healthy People 2020.

Winnable Battles-Related Healthy People 2020 Objectives: Motor Vehicle Safety⁶

IVP 13.1 Reduce motor vehicle crash-related deaths

2020 Target: 12.4 deaths per 100,000 population

Baseline: 13.8 deaths per 100,000 population (2007)

IVP 14 Reduce nonfatal motor vehicle crash-related injuries

2020 Target: 694.3 nonfatal injuries per 100,000 population

Baseline: 771.4 nonfatal injuries per 100,000 population (2008)

KEY STRATEGIES

There are several types of prevention strategies and policies that states may consider to reduce motor vehicle crash injuries and death.

Strategy #1: Reduce injuries and deaths in motor vehicle crashes by increasing the use of seat belts and child safety seats and booster seats.

Strategy #2: Protect teen drivers with comprehensive graduated driver licensing systems and parental monitoring.

Strategy #3: Reduce alcohol-impaired driving with evidence-based prevention strategies, such as ignition interlock programs.

Each of these strategies is discussed in the following sections.

Strategy #1: Reduce injuries and deaths in motor vehicle crashes by increasing the use of seat belts and child safety seats and booster seats.

The strategies presented below are effective for increasing seat belt, car seat, and booster seat use. They are recommended by [The Community Guide](#) or have been demonstrated to be effective in reviews conducted by the National Highway Traffic Safety Administration.⁷ In 2013, the Obama administration released [Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices](#), which helps select effective, science-based traffic safety countermeasures for major highway safety problem areas.



(1) Seat Belts

Seat belts reduce serious crash-related injuries and deaths by approximately half. In 2013, seat belts saved an estimated 12,584 lives among passenger vehicle occupants ages 5 and older. The national seat belt use rate in 2013 was 87 percent, up slightly from 86 percent in 2012.⁸ However, among those who died in motor vehicle crashes, nearly half were not buckled up.

Primary enforcement laws have been shown to do more to increase seat belt use and reduce deaths than secondary enforcement laws. States that switch from secondary to primary seat belt enforcement laws have increased their rates of seat belt use after primary enforcement laws went into effect.

A 2015 study published in the *Annals of Internal Medicine* compared motor vehicle-related fatality rates among persons age 10 or older between 2001-2010 in states with primary seat belt laws and in states with secondary laws. The fatality rate was 17 percent lower in states with primary seat belt laws.⁹ Another study published in *The Journal of Safety Research* found that primary enforcement covering all seating positions is an effective intervention that can be employed to increase seat belt use and, in turn, prevent motor vehicle injuries to rear-seated occupants.¹⁰

The most comprehensive policies are primary seat belt laws that cover all occupants regardless of where they are sitting in the vehicle.

According to CDC, to increase seat belt use among adults, states can:¹¹

- Make sure that police and state troopers enforce all seat belt laws. Consider steeper penalties, like higher fines. Excessively low penalties may have little effect.
- Support seat belt laws with visible police presence and awareness campaigns for the public. Studies show that publicized enforcement campaigns such as “Click It or Ticket” can help sustain high levels of compliance over time.
- Educate the public to make seat belt use a social norm.

As of October 2015:¹²

- Thirty-four states, Washington, D.C., American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands have primary seat belt laws for front seat occupants.
- Fifteen states have secondary laws. In many of these states, the law is primary for younger drivers and passengers.
- Twenty-eight states, Washington, D.C., Guam, and the Northern Mariana Islands have laws requiring belt use for all rear seat passengers. The law is primary in 17 of these states, Washington, D.C., Guam, and the Northern Mariana Islands.

In some states, there is substantial opposition to changing a secondary law to a primary belt use law. Some opponents claim that primary laws impinge on individual rights and provide opportunities for law enforcement to single out certain groups on the basis of race. However, studies that have examined this issue have found no evidence of racial profiling with respect to primary belt laws.^{13, 14} States have also added anti-harassment language to their primary seat belt laws to reduce the risk of differential enforcement.^{15, 16}

Rhode Island's Primary Seat Belt Law

Rhode Island enacted a primary seat belt law in June 2011. Although the initial law had a two-year sunset provision, it was made permanent in 2013 with a \$40 fine for offenders. The 2014 seat belt use rate for Rhode Island was 87.4 percent for drivers and passengers combined.¹⁷ These rates have fluctuated over time, but have shown an overall upward trend in seat belt use. The largest increase (from 77.5 percent in 2012 to 85.6 percent in 2013) was likely due to the law becoming permanent and the presence of enforcement-based messaging around the state.¹⁸

Enactment of the law made Rhode Island eligible for an additional \$3.7 million in federal funding for incentive grants to increase seat belt use. Rhode Island has increased statewide awareness of the law through media campaigns and committed one million dollars to support minority community education on seat belt use.

(2) Child Passenger Safety

Any restraint is better than none at all, but when correctly used child restraints provide the best protection in a crash until children are large enough for adult seat belts to fit properly.¹⁹ Buckling children in age- and size-appropriate car seats, booster seats, and seat belts reduces serious and fatal injuries.²⁰ Child restraints also reduce fatalities in passenger cars by 71 percent for infants younger than 1 and by 54 percent for children 1 to 4 years old.²¹

In 2011, the American Academy of Pediatrics released its updated child passenger safety recommendations, which call for children to remain in rear-facing child safety seats until they reach age 2 or until they outgrow the height and weight limits determined by the manufacturer of their rear-facing child safety seat. Although intended to educate parents on the best practices to protect their children from death or injury while traveling in a vehicle, these recommendations also provide guidance to state policymakers.²²

Today, all states and territories have child passenger safety laws, although requirements of the laws vary widely. State laws and regulations generally use a child's age, height, and weight to determine whether a car seat, booster seat, or seat belt should be used.

Child passenger restraint laws that increase the age for car seat or booster seat use result in more children being buckled up. Among five states that increased the required car seat or booster seat age to 7 or 8 years, car seat and booster seat use tripled, and deaths and serious injuries decreased by 17 percent.²³

Many state child restraint laws contain gaps in coverage or provide exemptions that allow children to go unrestrained in certain circumstances. For example, even when states have laws covering older children, many of them fail to distinguish child passengers in need of rear-facing infant seats from those who should use booster seats.

States can support child passenger restraint laws that require car seat or booster seat use for children ages 8 and under or until seat belts fit properly (lap belt lays across upper thighs and shoulder belt lays across the shoulder, not the neck or face).²⁴

As of October 2015:²⁵

- All states and territories require child safety seats for infants and children fitting specific criteria, but requirements vary based on age, weight, and height.
- Forty-eight states, Washington, D.C., and Puerto Rico require booster seats or other appropriate devices for children who have outgrown their child safety seats but are still too small to use an adult seat belt safely.
- Three states (California, New Jersey, and Oklahoma) require that children younger than 2 years of age be in a rear-facing child seat.
- Five states (California, Florida, Louisiana, New Jersey, and New York) have seat belt requirements for school buses.

States can take several approaches to keep costs reasonable and help parents obtain restraints. States can also support car seat and booster seat give-away programs that include education for parents or caregivers.

California's "Who's Got Car Seats?" and Vehicle Occupant Safety Program

California's child passenger safety laws require all children under 8 years old to be buckled in a car seat or booster seat in the rear seat of the vehicle and all children under 16 years old to be in a car seat, booster seat, or vehicular seat belt properly restrained. For each child who is not properly secured, drivers can be fined more than \$475 (minimum fine is \$100) and get a point on their driving records.²⁶

The funds from the fines collected under this law are allocated such that 60 percent (and up to 85 percent) goes to local health departments for community education and assistance programs. There is a child passenger safety coordinator in each California county health department who works directly with the court systems, hospitals, law enforcement, and other local agencies and oversees the transfer of funds into the program.

When state or local law enforcement issue child passenger safety citations, the courts have the option to refer drivers to violator education programs, community programs that include education on the proper installation and use of child passenger restraint systems for children of all ages. These programs are managed and supported by the California Department of Public Health's (CDPH) Vehicle Occupant Safety Program (VOSP), which works closely with local health departments, hospitals, community agencies, child care providers, law enforcement, municipal court systems, and other state and local agencies to develop child passenger safety educational programs and offer low cost or loaner car seats for low-income families. VOSP developed violator education program curriculum guidelines to enhance standardization of these programs statewide.

In 2013, California amended its law to require that public or private hospitals, clinics, or birthing centers provide parents or caregivers with information on current child passenger safety state laws, the use of proper child restraints, and transportation of children in the rear seats.

CDPH maintains a list of "Who's Got Car Seats?" which is mandated in statute to be updated annually and posted to the VOSP website. It shows a list of child passenger safety programs and services by county and whether the county has a violator education program. This information is provided to local courts, birthing centers, community child health and disability prevention programs, county clinics, prenatal clinics, agency locations for the Special Supplemental Nutrition Program for Women, Infants, and Children, county hospitals, and the public.²⁷

Strategy #2: *Protect teen drivers with comprehensive graduated driver licensing systems and parental monitoring.*

Teen Drivers

Motor vehicle crashes are the leading cause of death for U.S. teenagers.²⁸ The risk of motor vehicle crashes is higher among 16 to 19-year-olds than among any other age group, and that risk is highest during the first year that a teen has his or her license. Young drivers tend to overestimate their driving abilities and underestimate the dangers on the road. Immaturity leads to speeding and other risky habits, and inexperience means that teen drivers often don't recognize or know how to respond to hazards.²⁹

Graduated licensing helps new teenage drivers gain skills under low-risk conditions.³⁰ Graduated driver licensing (GDL) programs grant driving privileges in three stages: a supervised learner's period, an intermediate license (after passing a road test) that limits driving in high-risk situations except under supervision, and a license with full privileges.

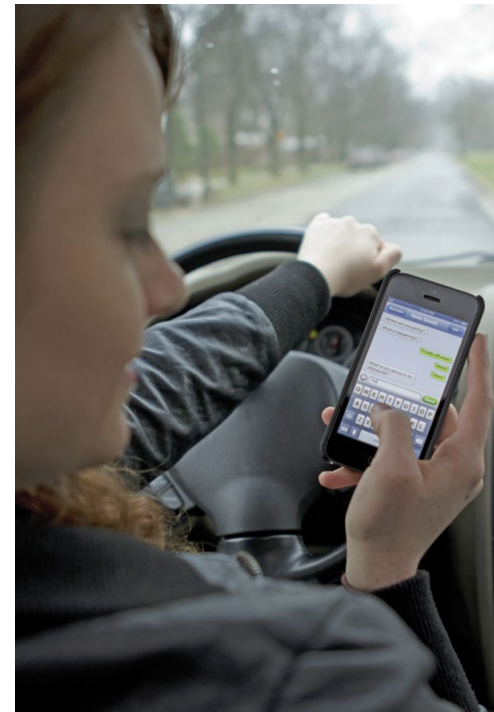
There is no national GDL system, and state laws vary. Research indicates that more comprehensive GDL systems prevent more crashes and save more lives than less comprehensive GDL systems. On the basis of this evidence, research funded by the National Institutes of Health found that the most effective legislation had at least five of the following seven key elements:³¹

- Minimum age of 16 years for a learner's permit.
- Mandatory waiting period of at least six months before a driver can apply for an intermediate license.
- Requirement for 50 to 100 hours of supervised driving before testing for an intermediate license.
- Minimum age of 17 years for an intermediate license.
- Restrictions on nighttime driving.
- Limit on the number of teenage passengers allowed in the car.
- Minimum age of 18 years for licensure with full privileges.

Some states have applied additional restrictions on young drivers, including:

- Cell phone use bans.
- Texting bans.
- Seat belt requirements.
- Zero tolerance for driving under the influence of drugs or alcohol.
- Stronger penalties for offenses that occur during the intermediate licensing stage.
- Minimum standards for driver education.

An online calculator developed by the Insurance Institute for Highway Safety shows how much each state could reduce the fatal crash rate for teens if it adopted the strongest policies in five GDL components, including permit age, practice driving hours, license age, and restrictions on night driving and teen passengers.³²



CDC's [Parents Are the Key](#) campaign helps parents, pediatricians, and communities keep teen drivers safe on the road.³³

As of October 2015, states mitigate these risks in the following ways:³⁴

- **Cell Phones and Texting:** 38 states and Washington, D.C. ban all cell phone use by novice drivers.
- **Nighttime Driving Restriction:** 48 states and Washington, D.C. restrict nighttime driving during the intermediate licensing stage.
- **Passenger Restriction:** 46 states and Washington, D.C. restrict the number of allowed passengers during the intermediate licensing stage.
- **Novice Driver Decal:** New Jersey is the only state with a measure requiring individuals younger than 21 without full-privilege licenses to display a decal on their vehicle identifying them as new drivers.

The Parents Are the Key campaign identifies the eight major risks affecting teen drivers as:

- Driver inexperience.
- Driving with teen passengers.
- Nighttime driving.
- Not using seat belts.
- Distracted driving.
- Drowsy driving.
- Reckless driving.
- Impaired driving.

Nebraska's Driver Education Program Results in Fewer Crashes

In Nebraska, driver education appears to be an important tool within the context of GDL, reducing crashes and violations for teen drivers in their first two years of driving.³⁵ Nebraska has a modified three-stage GDL system where a teen can apply for a provisional operators permit following the one-year learner's permit stage. To apply for the provisional operators permit, the teen must either complete a Department of Motor Vehicles-approved driver education safety course and pass written and driving tests obtain a 50-hour Certification Form log signed by a parent, guardian, or licensed driver who is at least 21 years old.

The Nebraska Prevention Center for Alcohol and Drug Abuse received a grant from the Office of Highway Safety to study Nebraska teen drivers from 2003-2010. The study found that teens who participated in the driver education program had significantly fewer overall crashes, crashes involving injuries or fatalities, traffic violations, and DUIs in both the first and second year of driving than teens who obtained their provisional license by completing 50 hours of adult supervised driving.³⁶ Driver education appears to enhance the effectiveness of GDL as a complementary strategy, and state policies might consider how to strengthen educational requirements within the GDL environment.

Utah's Teen Driving Task Force

The Utah Department of Health's Injury Prevention Program, with support from CDC's Core Violence and Injury Prevention Program, analyzed 20 years of data on motor vehicle crashes and found a decrease in teen crash fatalities over the last 20 years, with a 61 percent decrease occurring after the 1998 passing of a GDL policy.³⁷

According to a statewide randomized survey, 56 percent of adults in Utah were not aware of nighttime driving restrictions for teen drivers, and 21 percent were not aware of passenger restrictions. A further review of Utah's in-school teen driver education program, overseen by the Utah Office of Education, found that the driver education curriculum was outdated and lacked parental involvement despite national recommendations to the contrary.

Through the Utah Teen Driving Task Force, the Utah Department of Health worked closely with the Office of Education to rewrite Utah's driver education curriculum so that it is now based on evidence, informed by local data, supported by local and national resources, and includes parent classes. The Utah Department of Health also contracted with local health departments and trained staff at each to collaborate with the Zero Fatalities Program and their high school driver education instructors to teach parent classes throughout the state on teen driving and passenger restrictions.

Strategy #3: *Reduce alcohol-impaired driving with evidence-based prevention strategies, such as ignition interlock programs.*

Impaired Driving

In 2013, more than 10,000 people died in alcohol-impaired driving crashes in the United States—one every 51 minutes.³⁸ Alcohol impairment accounts for nearly one-third (31%) of all traffic-related deaths in the United States. Strategies for reducing alcohol-impaired driving, as well as the associated injuries and deaths, may include legislation and policy approaches, sobriety checkpoints, and school-based programs.

Ignition interlocks, when appropriately used, reduce repeat offenses for driving while intoxicated (DWI) by approximately 70 percent, resulting in increased safety for everyone on the road.³⁹ All states have enacted legislation requiring or permitting the use of breath alcohol ignition interlock devices to prevent alcohol-impaired driving. An ignition interlock is a device connected to a vehicle's ignition that prevents the vehicle from starting unless the driver blows into the interlock and has a blood alcohol concentration (BAC) below a pre-set low limit, usually .02 BAC.

Impaired driving is often linked to a bigger problem: alcohol misuse and abuse. Data collected by the interlock can provide substance abuse treatment providers with information regarding the person's consumption and behavior, which helps support better treatment outcomes. Costs associated with interlock devices are usually paid by the offenders and average \$3-4 per day in addition to the average initial installation charge of approximately \$70-90 and additional monthly fees to download and report the interlock data.⁴⁰ One challenge that state programs face is that some offenders cannot afford the fees associated with an interlock sanction.

How can states increase ignition interlock use?

CDC and the National Highway Traffic Safety Administration collaborated on an evaluation conducted by the Preusser Research Group and managed by the Governors Highway Safety Association that aimed to provide information and best practices to states for ignition interlock programs. The evaluation looked at key features of interlock programs and use of interlocks in 28 states from 2006–2011.⁴¹

States may consider using the following eight program keys to strengthen state alcohol ignition interlock programs. Implementing just one of these program keys is likely to increase interlock use, and implementing multiple program keys is associated with even higher increases in interlock use.

Eight Program Keys for Strong State Alcohol Ignition Interlock Programs

Program Key	Characteristics of a Strong Program Key	Example
Require or incentivize use.	Requirement or strong incentive to install interlocks.	A law covering all offenders with significant reduction of hard license suspension period if interlock is installed.
Levy strong penalties.	Strong, swift, and appropriate penalties.	Extension of interlock time, home monitoring, or jail time if refuse to install, fail breath test, or tamper or otherwise circumvent interlock.
Monitor interlocks to ensure proper use.	Careful monitoring to assure interlocks are installed and used as intended.	Random checks by DMV, probation, or treatment centers to ensure offender has installed and is using an interlock.
Implement uniformly across state.	Uniform and consistent implementation, statewide.	All agencies report data regularly in compatible format, using uniform definitions of violations in same time frame.
Coordinate across agencies.	Close coordination and communication across all agencies.	Regular communication with representatives from all interlock program involved agencies.
Educate stakeholders about the program.	Regular training or education for all interlock agency staff and management.	Regular trainings between interlock program managers, law enforcement, vendors, DMV, and court staff.
Provide adequate resources.	Adequate staff and funding resources.	Designated interlock program manager and staff, and financial assistance for offenders.
Use data for action.	Excellent data records (including level of offense, BAC level at time of arrest, number of prior arrests, installation and removal dates, and violations).	Combined annual data on offenders available from all agencies to monitor offenders, report violators, and evaluate program effectiveness.

SECTION II. Prescription Drug Overdose

BACKGROUND

The misuse and abuse of prescription drugs in the United States is widespread and the impact it has on states and communities is troubling. From 1999 to 2013, the amount of prescription opioids prescribed and sold in the United States nearly quadrupled, and overdose deaths quadrupled in lockstep.⁴² In the United States, drug poisoning has now surpassed motor vehicle crashes as the leading cause of injury death. These deaths are attributable largely to an increase in overdoses involving prescribed controlled substances, especially opioid analgesics.⁴³

Opioids have a role in treating some types of pain, but the misuse and abuse of these drugs is a serious public health concern. Although recent data suggests that nonmedical use of prescription opioids among adults ages 18-64 years has decreased, the prevalence of prescription opioid use disorders increased, as did the number of “highly frequent” users, or individuals with 200 days or more of nonmedical opioid use in the past year.⁴⁴

Using multiple drugs, such as alcohol and sedatives, can increase overdose risk. Studies have shown a strong relationship between inappropriate opioid prescribing and negative health outcomes. Higher daily doses (as calculated by the morphine milligram equivalent dose per day, generally >100 morphine milligram equivalent per day) have been associated with misuse, emergency department visits, and overdoses.^{45,46} Now, growing evidence suggests that people who misuse prescription opioids are shifting to heroin, which is cheaper and, in some communities, easier to obtain. Heroin deaths are increasing sharply, with the number of fatal overdoses tripling since 2010.⁴⁷

Prescription drug abuse is costly for communities, leading to increased healthcare costs and greater risk of homelessness, incarceration, placement of children into foster homes, drug exposed pregnancies, and early death. Comprehensive strategies must take into account the complex interplay of factors and social determinants of health that are driving this epidemic. Some people who misuse prescription drugs believe that these substances are safer than illicit drugs because they are monitored and distributed through the healthcare system. This misperception may contribute to individuals, particularly youths, initiating first-time nonmedical use of prescription drugs.

In the same way that public health officials would approach other disease outbreaks, reversing the trend in prescription drug overdoses requires a comprehensive approach. To be most effective, this approach should be multidisciplinary, with strategies that include prevention and education, surveillance and monitoring with tools such as prescription drug monitoring programs (PDMPs), diversion control through law enforcement and licensure efforts, and a focus on treatment and recovery.



KEY STRATEGIES

As states continue to explore policy options to address prescription drug abuse and misuse, it will be crucial to ensure a focus on prevention as well as treatment. It is important to think about (1) establishing systems to monitor the prevalence of prescription drug abuse and to use data to ensure coordinated policies and programs across key agencies, and (2) using data-driven approaches to eliminate or reduce the impact of prescription drug misuse and abuse.

At the policy or regulatory level, states can:

- Enhance surveillance and monitoring through PDMPs to improve prescribing, inform clinical practice, and protect at-risk patients.
- Promote clinical practice tools that support clinicians in preventing unintended dangerous or inappropriate use of prescription drugs.
- Use oversight approaches to prevent multiple provider episodes (“doctor shopping”), pain clinic operation, and other prescriber practices outside of accepted medical standards.
- Improve access to overdose prevention tools such as naloxone, a medication designed to counter the effects of opioid overdose, as well as to drug abuse treatment and rehabilitation.

State health departments can continue to provide leadership and support efforts to prevent prescription drug overdose by:

- Conducting surveillance and monitoring to identify individuals at highest risk of prescription misuse or overdose.
- Communicating with policy and decisionmakers regarding the overall burden of prescription drug overdoses within the state and policy strategies for preventing overdose and death.
- Raising awareness among the general public regarding the prescription drug overdose epidemic and steps that individuals can take to prevent addiction and overdose.
- Developing and disseminating clinical support tools to strengthen practices and prevent dangerous prescribing, while assuring access to legitimate pain management.
- Monitoring, evaluating, and sharing results of actions taken to reduce prescription drug overdoses.

Prescription Drug Monitoring Programs

PDMPs can serve both public health and public safety objectives in a collaborative manner. Appropriately prescribing and dispensing controlled substances can reduce their diversion and abuse, and law enforcement efforts to limit drug diversion can protect public health. This is similar to the collaborative efforts between public health and law enforcement to reduce motor vehicle-related injuries and deaths.

Primary areas in which PDMPs can be used to meet public health objectives include:

- **Education:** Providing information on prescribing trends and raising general awareness of the prescription drug abuse epidemic.
- **Epidemiological Surveillance:** Using PDMP data to understand prescribing trends and the prevalence of controlled substance use statewide and by county, region, or city.
- **Prevention:** Enabling healthcare providers to avoid prescribing duplicate therapies and creating deterrents to drug diversion.
- **Early Intervention:** Detecting patients at risk of drug abuse at initial stages of drug-seeking behavior.

Using state PDMPs is a valuable way to enhance patient care when prescribing and dispensing controlled substances. States have many different models of administrative oversight, specific drugs targeted for monitoring, methods of data collection, and levels of information sharing. Although PDMP best practices and recommendations have not been firmly established nationwide, many states are moving forward with a set of promising strategies and implementing core program elements, including:⁴⁸

- **Universal Use:** Prescribers use PDMP each time they prescribe opioids and other controlled substances.
- **Real-Time:** PDMP reduces the prescription drug data transmission time between dispensers and PDMPs, with the goal of real-time access (i.e., under five minutes).
- **Actively Managed:** Agencies are using PDMP data for public health surveillance and to send proactive reports to authorized users to protect patients at the highest risk. The system is linked in a way that allows for comprehensive interstate data sharing.
- **Easy to Use Available Access:** PDMPs are easy to use and integrated into the clinical workflow, which eliminates practical, bureaucratic, and legal barriers to prescription drug information sharing.



Prescribing Guidelines

Improving the way opioids are prescribed through clinical practice guidelines can promote safe, effective treatment while reducing opioid-related abuse and overdose. Prescribing practices that may be addressed through guidelines include: determining when to initiate or continue opioids for chronic pain outside of end-of-life care; adjusting opioid selection, dosage, duration, follow-up, and discontinuation; and assessing the risk and addressing the harms of opioid use.⁴⁹

Prescribing guidelines can present different treatment approaches for acute and chronic pain; assess potential abuse risk before prescribing; help prescribers develop “contracts” that clarify pain

management expectations, goals, and responsibilities for patients and prescribers; and encourage use of the lowest effective dose of pain medication for the shortest possible duration.⁵⁰

Pain prevention, assessment, and treatment is a challenge for both health providers and systems. Professional organizations, states, and federal agencies, including the American Academy of Pain Medicine, the Washington Agency Medical Directors Group, and the U.S. Department of Veteran Affairs, have all developed guidelines on opioid prescribing.^{51,52,53} Addressing inappropriate prescribing through guidelines can potentially disrupt the cycle of opioid pain medication misuse and abuse that contribute to the overdose epidemic.

Regulatory Action – Pain Clinics and Oversight

Many states have increased their enforcement efforts in order to curb prescription drug abuse. State medical boards are typically composed of physician and public members who are often appointed by the governor. Some boards are independent, exercising all licensing and disciplinary powers, while others are part of a larger state agency, such as the state health department, which may act as an advisory body. Regulatory actions can also help change behaviors among both providers and patients. Because states have the ability to regulate healthcare practices and monitor prescriptions, many of the critical policy levers exist at the state level.

A state's policy response should include coordination among many agencies and stakeholders with interests or responsibilities related to prescription opioid use, including health departments, insurance and workers' compensation bureaus, boards or agencies that regulate and license pharmacists and prescribing physicians, law enforcement, and other governmental entities that may play a role monitoring and enforcing policies.

To understand the legal authority needed to address inappropriate prescribing, doctor shopping, and "pill mills," states should review the existing statutes, rules, and relevant policies of non-government agencies, such as medical professional societies, that address opioid prescribing. A balanced approach is also important. States should be aware of unintended or potentially harmful consequences associated with establishing new standards of practice or changing the statutory and regulatory requirements for pain management clinics.

Many jurisdictions have developed interagency task forces to specifically address opioid abuse. One example of interagency collaboration is the Agency Medical Directors' Group (AMDG) in Washington state. AMDG was responsible for the development of the **Opioid Dosing Guideline for Chronic Non-Cancer Pain** (originally published in 2007) which was intended as an educational pilot to address how opioids were used to treat chronic pain. AMDG included medical directors of five Washington state agencies: Corrections, Health, Health Care Authority, Labor and Industries, and the state's Medicaid program. Boards and commissions that set practice standards reviewed the guideline, and the workgroup also received input from others in state government and the medical and scientific community.

Use of the AMDG Guideline, along with other robust statewide efforts, resulted in a 29 percent decrease in prescription opioid-related deaths between 2008 and 2013. Hospitalizations for prescription opioid overdose also decreased 29 percent between 2011 and 2013. The guidelines have since been evaluated and updated (in 2010 and 2015) to reflect current medical evidence and trends in opioid prescribing patterns.

Texas' Closed Formulary

Formularies can influence prescribing practices by requiring physicians to obtain authorization to prescribe non-formulary drugs, like benzodiazepines and some opioids that are often used inappropriately, by certifying that the drugs are medically necessary to treat the injured patient. Some states have also implemented closed formularies for prescription drugs in an effort to control overutilization of expensive opioid medications. Closed formularies, such as those in Ohio, Texas, and Washington state, allow a limited list of covered medications for workers' compensation claims. In 2014, Oklahoma's Workers' Compensation Commission established a formulary under "emergency rules."

Texas adopted one of the nation's first workers' compensation pharmacy closed formularies in September 2011. It took time to get the program up and running: Texas started the process in 2005 by passing HB 7, which created the Division of Workers' Compensation (DWC) within the Texas Department of Insurance and authorized a closed formulary for prescription medications. After establishing the necessary regulatory infrastructure and developing treatment guidelines, the state is beginning to see results. In August 2014, DWC reported that under the closed formulary, the total number of claims receiving not-recommended "N" drugs (drugs that are not appropriate for first-line therapy) was reduced by 65 percent between 2010 and 2011.

The closed formulary has also significantly reduced prescription drug costs in the Texas workers' compensation system and impacted prescribing patterns for Texas physicians treating workers' compensation claims. The frequency of all opioid prescriptions was reduced by 11 percent and the frequency of "N" drug opioids was reduced by 64 percent between 2010 and 2011. Although more medications now require pre-authorization as a result of the closed formulary, DWC has worked on its administrative processes to improve communication and care coordination between insurance carriers and prescribing physicians, which has resulted in fewer consumer disputes since the formulary took effect.

Overall, total pharmacy costs for 2011 were reduced by approximately \$6 million when compared to 2010 claims. These cost reductions were even more significant for "N" drugs, which saw reductions of up to 82 percent.⁵⁴

Overdose Prevention

States are pursuing a number of strategies to reduce and prevent fatal opioid overdose. Naloxone, an opioid antagonist medication used to treat overdose, is an important part of a continuum of substance abuse services that includes prevention and intervention efforts, access to treatment, and recovery support services.

Improving access to emergency intervention—and, in particular, naloxone—has shown to be effective in reducing negative consequences associated with drug use. There have been efforts at both the federal and state levels to ensure naloxone availability, but access and cost barriers remain: the price of intranasal naloxone more than doubled in the second half of 2014. More than half of states have passed laws expanding naloxone access and offer some level of immunity from prosecution for seeking help for someone during an overdose occurrence. Because a large number of overdose deaths involve pharmaceuticals, it is critical that appropriate overdose response services are available in conjunction with protection from prosecution in emergency help-seeking situations.

In 2014, New York equipped 19,500 police officers with naloxone to combat overdoses across the state.⁵⁵ The U.S. Office of the Attorney General recommends that federal law enforcement agencies train personnel who may interact with opioid overdose victims and equip them with naloxone. Citing the Network for Public Health Law, state and local public health officials, regulatory boards, and other stakeholders are considering many legal and policy questions regarding overdose prevention, such as:⁵⁶

- What are the emerging best practices regarding “Good Samaritan” drug overdose laws?
- Are there liability concerns related to police officers administering naloxone?
- Are nurse practitioners in my state permitted to write naloxone prescriptions?
- What are the rules governing pharmacist collaborative practice agreements for naloxone?

Early evidence indicates that efforts to prescribe and dispense naloxone have been successful. According to a report published by the Harm Reduction Coalition, by June 2014, at least 644 local, community-based opioid overdose prevention programs in the United States provided naloxone to laypeople, including drug users, their friends and family, and service providers who had the potential to witness an overdose. More than 26,463 drug overdose reversals using naloxone were reported between 1996 and June 2014.⁵⁷

Vermont’s Care Alliance for Opioid Addiction

Vermont has taken a multipronged approach to addressing opioid addiction that includes multiple community partners, regional prevention efforts, drug take-back programs, recovery services at 11 recovery centers across the state, and naloxone kit distribution to prevent overdose deaths. In 2013, the Vermont Legislature tasked the Vermont Department of Health with developing and administering a statewide pilot program for distributing the naloxone kits.

The [Care Alliance for Opioid Addiction](#) is at the heart of Vermont’s comprehensive treatment system, responsible for regional centers (hubs) that provide intensive addiction treatment to patients and consultation support to medical providers (spokes) treating patients in the general practice community.⁵⁸ Because patients treated in the hubs and their families may have contact with people at high risk of overdose, the hubs are uniquely positioned to enroll people in the program and provide training and intervention resources. By January 2015, the state health agency had distributed 2,385 overdose rescue kits to the pilot sites. More than 1,400 have been dispensed to patients and family members, and more than 100 kits have been used to save lives.⁵⁹

SECTION III. Preventing Child Abuse and Neglect

BACKGROUND

Child maltreatment is a significant public health problem that requires a multifaceted approach across healthcare, education, child welfare, and juvenile justice. Child maltreatment and other adverse childhood experiences (ACEs) are non-specific risk factors for multiple diseases and conditions. Adversity in childhood also contributes to multigenerational illnesses and disparities. Because children who experience maltreatment

CDC has classified four common types of abuse:

- Physical abuse
- Sexual abuse
- Emotional abuse
- Neglect



are more likely to endure persistent and negative health outcomes later in life, it is critical to address the broader social and economic causes of child maltreatment through prevention-focused efforts. Effective prevention strategies can help stop child abuse and neglect before it happens.

Preventing child maltreatment requires a two-pronged approach: behavior change at the individual level, and at the same time, a focus on creating healthy relationships between families and neighbors, supporting community involvement, and promoting policies and societal norms to create safe, stable, and nurturing environments.

Brain development is shaped by different biological, psychological, social, and environmental factors, and traumatic experiences in early childhood are correlated with changes in brain physiology and functioning. When children feel safe and nurtured, their brains can focus on learning instead of focusing solely on survival-oriented tasks. Prolonged, chronic stress in early childhood can set children on a lower learning and achievement trajectory, adversely impacting an entire country's social and economic development in the long run.

States can take several steps now to ensure a foundation for healthy families in the next generation. When combined with policies that allow for equal access for all for families and communities, evidence-based programs and services can have a very broad impact.

Findings from the Adverse Childhood Experiences Study

Research shows that the long-term effects of ACEs are reflected in adults' health status and behavior. The [Adverse Childhood Experiences study](#), conducted by CDC and Kaiser Permanente's Health Appraisal Clinic in San Diego, is a multi-year, large-scale research study exploring the associations between childhood adversity and later-life health and wellbeing. Between August 1995 and October 1997, more than 17,000 enrollees in Kaiser Permanente's HMO completed a survey with questions related to categories of adverse childhood experiences, including experiencing abuse (emotional, physical, and sexual) and neglect (emotional or physical), witnessing domestic violence, and growing up with substance abuse, mentally illness, parental discord, or crime in the home.⁶⁰

The study confirmed widespread prevalence of childhood trauma: almost two-thirds of study participants reported at least one adverse childhood experience, and many reported having three or more. The CDC-Kaiser study uses the ACE score, a total count of the number of ACEs reported by each respondent, to assess the total amount of stress during childhood. As the number of ACEs increases, so does a person's risk for many serious physical and behavioral health problems, including chronic disease, depression, alcoholism, drug abuse, smoking, severe obesity, risky sexual behavior, poor anger control, and attempted suicide.⁶¹

ACEs have an impact on individual health and well-being in adolescence and adulthood, including physical and mental health, substance abuse, healthcare utilization, psychotropic medication use, and autoimmune diseases. There have been numerous studies to suggest that people who are involved in service systems, such as child welfare, criminal justice, and Medicaid, show even higher rates of trauma and exposure to multiple traumatic experiences. The CDC-Kaiser study illustrates how the cumulative stress of ACEs can be a powerful determinate of the public's health and a major driver of physical and behavioral health costs.

Data from Alaska suggest that 40.6 percent of the state's adult Medicaid enrollment is linked back to ACEs, which means that in 2012, approximately \$350 million of adult Medicaid (age 20 or older) costs in Alaska could have been prevented if ACEs were eliminated.⁶² In another example highlighting the staggering costs associated with ACEs, Maine spends more than \$3 billion dollars annually on ACEs-related outcomes, not counting lost work productivity. The state estimates that more than \$500 million of this estimate is attributed to people who have four or more ACEs.⁶³

States may consider the following opportunities and resources to prevent ACEs:

Collect state – and county-level data on ACEs prevalence. More than 20 states currently collect information about ACEs by adding related questions to their Behavioral Risk Factor Surveillance Survey.

- Use data to examine the relationship between ACEs and other systems that impact the lives of children, including child welfare and juvenile justice.
- Designate funds to continue the collection, analysis, and dissemination of state ACEs data.
- Compile a statewide inventory of community ACEs prevention initiatives to use as a strategic tool to inform decision making and move from awareness to action.

Increase awareness about ACEs and their impact on health and wellness.

- Develop and share information about ACEs and their connections to specific health outcomes.
- Talk with other state agencies about the health, social, and economic benefits of reducing and preventing ACEs.
- Engage community members through ACEs and resilience trainings, public forums, community task forces, focus groups, and other facilitated conversations.

Increase access to healthcare, including mental health services.

- Study the regional distribution of mental health providers.
- Explore methods for improving reimbursement rates.
- Utilize telemedicine.
- Developing integrated models for behavioral healthcare (e.g., co-location of services).
- Work with primary care providers to screen for ACEs.

Support efforts to prevent and treat ACEs.

- Expand and evaluate programs that increase healthy family relationships, improve parenting behaviors, and decrease rates of child abuse and neglect.
- Increase the use of trauma-informed practices by social service agencies through training and technical assistance.

KEY STRATEGIES

Prevention Approaches

Assuring safe, stable, nurturing relationships and environments for children can have a positive impact on health and well-being and develop skills to help children reach their full potential. Entry points to influencing child development are situated in multiple sectors, including health and nutrition, education, and social services, and can be directed toward pregnant women, young children, and parents and caregivers.



Prevention programs that address the needs of children and their families include:

- Home visiting programs.
- Parental skill-building and social support programs.
- Intimate partner violence prevention.
- Teen pregnancy prevention programs and support programs for parenting teens.
- Mental health treatment programs.
- Substance abuse treatment programs for parents.

Policy Approaches

Social and economic policies can affect poverty, unemployment, and housing. It is clear that investments in early childhood are needed for children to reach their full potential. For example, policies can help ensure more equitable opportunities for families, resulting in better outcomes for education, health, and economic productivity. More specifically, policies can help families access various services and community supports to make sure that they have the resources they need so that their children can be healthy and thrive.

“Family-friendly” workplaces, for example, can help support healthier communities. Family-friendly policies make it possible for employees to more easily balance family and work in order to fulfill both their family and work obligations.⁶⁴ Policies such as flexible parental leave allow parents to participate in their children’s lives, and having more time with their children helps parents and caregivers form positive bonds and relationships. These practices also produce societal benefits, because family-friendly policies lead to better outcomes for children and more stable families who have time to contribute to their communities.⁶⁵

State health departments can help employers understand organizational family-friendly policy options and how to implement them. Health departments can also encourage more businesses to adopt these policies by working with employers who have implemented family-friendly programs and tapping them as spokespersons to talk to wider audiences about how these policies have benefited both them and their employees.

CDC’s [Essentials for Childhood](#) initiative proposes a menu of strategies that communities can consider to promote the types of relationships and environments that help children become healthy and productive citizens.⁶⁶

Generally speaking, state health departments may find it useful to develop agency policies or regulatory recommendations that serve to:

- Require joint planning, implementation, and data sharing among child and family serving systems.
- Codify relationships between state agencies to ensure data exchange and resource commitment.

State policymakers are also seeing an increase in ACEs-related legislation. Several recent legislative activities are summarized below.

◆ [California ACR 155](#)

This legislation, passed in August 2014, encourages statewide policies to reduce children's exposure to ACEs and stress. California is the second state to pass a resolution on ACEs. It is modeled after a Wisconsin resolution that encourages state policymakers to consider the impact of early childhood adversity on long-term health.

◆ [Wisconsin SJR 59](#)

This legislation, passed in January 2015, notes that "Policy decisions enacted by the Wisconsin state legislature will take into account the principles of early childhood brain development and will, whenever possible, consider the concepts of toxic stress, early adversity, and buffering relationships, and note the role of early intervention and investment in early childhood years as important strategies."

◆ [Vermont H 596](#)

When an original version of this bill, H 762, was first introduced, there were seven provisions in the bill proposing that an ACEs questionnaire be used by Vermont Blueprint for Health providers (as part of Vermont's statewide health services model) to expand ACEs screening and educate healthcare providers on ACEs and trauma-informed care. Although the bill initially failed on the last day of the legislative session in May 2014, the Vermont General Assembly then passed a broad healthcare reform bill (H 596) that contains several ACEs-focused measures, including a mandate for the Director of the Vermont Blueprint for Health to review the evidence base on the relationship between ACEs and population health and recommend whether ACEs-informed medical practice should be integrated into Blueprint practices and community health teams. This report was finalized in January 2015 and presented to the Vermont General Assembly.

◆ [Washington HB 1965](#)

Washington state passed this legislation in 2011 to identify and promote innovative strategies to prevent or reduce ACEs and form public-private partnerships to support these efforts. It established a statutory definition of ACEs and codified the state's commitment to incorporating ACEs in state policy. In accordance with the law, the Washington State ACEs Public-Private Initiative was launched and is currently conducting a two-year retrospective evaluation of community-level work in five communities: North Central Washington (Wenatchee), Okanogan, Skagit, Walla Walla, and Whatcom.

Essentials for Childhood offers several examples of the types of policies states may consider to support children and families. By targeting multiple settings where children grow up, these policy strategies can help ensure access to essential services that address family-specific needs.

- Provide needed flexibility at work, such as paid time off (family and sick leave, including paid time off after the birth of a child).
- Align eligibility and recertification dates for benefits packages (e.g., income supports and housing assistance and nutrition programs).
- Expand accessibility to high-quality, affordable child care and early education.
- Establish affordable housing and housing protections for poor and low-income families.
- Provide protections against predatory lending practices.

SECTION IV. Older Adult Falls

BACKGROUND

Falls are not an inevitable part of aging, but they can have a significant impact on health-related quality of life and function among older adults. One out of every three adults aged 65 or older falls each year, making falls a leading cause of injury deaths, hospitalizations, and emergency department visits for this age group.⁶⁷ People who fall once are two to three times more likely to fall again. On average, the hospitalization cost for a fall injury is more than \$35,000.⁶⁸ Falls cost an estimated \$34 billion in healthcare spending annually and are considered a risk factor for needing long-term care services at home or entering a nursing facility.⁶⁹ With such costs projected to reach \$67.7 billion by 2020, public health officials, aging services, and housing authorities have a shared interest in reducing falls among older adults.

Many people who fall, even if they are not injured, develop a fear of falling. As a result, they may self-limit their activities and social engagements, which affects physical fitness and mobility and can contribute to depression, social isolation, and feelings of helplessness. Given the aging population, developing and implementing cost-effective programs to prevent falls is vitally important in order to limit the burden of fall-related injuries over the next several decades.

Research on preventing older adult falls and injuries has identified important and modifiable risk factors, including muscle weakness, gait and balance problems, psychoactive medication use, poor vision, and environmental hazards. There are several types of interventions that, if implemented on a large scale, can prevent a significant number of falls and fall-related injuries, including: group exercise programs (e.g., Tai Chi), home-based exercise programs (e.g., Otago), and home safety modifications (e.g., installing non-slip rubber mats or additional lighting), combined with behavioral changes recommended by an occupational therapist.



CDC's third edition of the [*Compendium of Effective Fall Interventions*](#) describes single interventions that address a specific fall risk factor (e.g., treating gait and balance issues with physical therapy). In total, the compendium discusses 29 single interventions (15 exercise interventions, four home modification interventions, and 10 clinical interventions) and 12 multifaceted interventions, which address multiple risk factors.

A cost-benefit analysis shows that community-based fall interventions generate a positive return on investment (ROI):⁷⁰

- Otago Exercise Program costs \$339.15 per participant, has an average expected benefit of \$768.33, and an ROI of 127 percent for each dollar invested when the intervention is targeted to persons age 80 and older.
- Tai Chi: Moving for Better Balance costs \$104.02 per participant, has an average expected benefit of \$633.90, and an ROI of 509 percent for each dollar invested.
- The Stepping On program costs \$211.38 per participant, has an average expected benefit of \$345.75, and an ROI of 64 percent for each dollar invested.



Fall Risk Assessments

Awareness of individual risk is also an important factor in falls prevention. In addition, healthcare providers play an important role in screening for and assessing their older adult patients' fall risk. The challenge for providers is to make older people aware of their potential risk of falling without causing distress or denial of a problem. Therefore, a self-assessment can be a good tool. Reviewing the patient's self-assessment provides useful information about what he or she believes to be the cause of any falls, and prompts a discussion about his or her priorities.⁷¹

There are also a number of suggested clinical interventions to reduce falls. For example, providers can review medications and stop, reduce, or alter drugs that increase a patient's fall risk. They can recommend daily vitamin D supplements and refer to community based fall prevention programs. A fall risk assessment is a covered benefit in Medicare's Annual Wellness Visit.

CDC has a multi-pronged approach to better engage and partner with the medical community in order to integrate falls screening, assessments, and interventions into the clinical setting.

CDC's **STEADI (Stopping Elderly Accidents, Deaths, & Injuries)** toolkit is a comprehensive resource based on the American and British Geriatrics Societies clinical practice guidelines for fall prevention. The STEADI toolkit helps primary care physicians and other healthcare providers incorporate fall screening, assessment, and management into their clinical practice. The toolkit includes basic information about falls, case studies, conversation starters, and standardized gait and balance assessment tests (with instructional videos). There is also a free continuing education course available to train providers on how to implement STEADI practice.

If they adopt STEADI, providers in New York state, Colorado, and Oregon are now eligible to earn part IV Maintenance of Certification credits through the American Board of Family Medicine and American Board of Internal Medicine. CDC estimates that if 5,000 healthcare providers adopt STEADI, over a five-year period it could lead to as many as:

- 6 million additional screened patients.
- 1 million prevented falls.
- \$3.5 billion in saved direct medical costs.

Broome County, New York and United Health Services Health System – STEADI in Primary Care

The New York State Health Department worked with the United Health Services (UHS) Medical Group, located in Broome County, New York, to implement CDC's STEADI toolkit and optimize the UHS electronic health records (EHR) system to integrate fall risk screening as a standard component of the primary care visit. The Broome County Health Department conducted a community health assessment and found that the county's rates of deaths and emergency department visits due to older adult falls were higher compared with the state's overall rates. Based on this data and the aging demographics of the region, the state health department selected Broome County to receive funding for the STEADI pilot.

When the pilot began in 2012, the team first needed to figure out how to fit the STEADI algorithm into the workflow of the clinician and the office. There was no screening tool built into the EHR at the time, so IT administrators at UHS added fall risk screening questions and built them directly into the nurses' intake form. As a result, during the intake process, if a patient answers "yes" to any of the screening questions, an alert will now appear on the screen prompting the nurse to perform a timed "up and go" walking test. If the patient demonstrates an increased fall risk, the nurse records this information in the EHR system. The EHR then generates information that is sent to the physician, including educational materials and potential interventions to consider, such as community-based exercise and balance programs and vitamin D supplementation. Medication reconciliation also takes place during the nursing intake.

In the final step of the visit, the physician will perform a targeted assessment, develop a care plan, and make appropriate referrals. In Broome County, patients are given information about the "In Balance" program offered by the UHS Home Care home health agency, which assigns them a physical therapist and uses a customized approach to help them regain strength and balance. Patients may also be referred to Tai Chi, offered by the YMCA, or the Stepping On program run by Independence Awareness and the Broome County Health Department, in partnership with the Office for Aging.

EHR customization was considered an important attribute and key to the success of this program. It also allows UHS providers to track and monitor the "date of last fall risk assessment" to identify patients that have not been screened in the past year. Future plans include recruiting care coordinators to collect follow-up data and establish hand-offs between patients and local resources and services.

KEY STRATEGIES

Preventing Older Adult Falls: State Approaches

In order to have an effective and sustainable falls prevention statewide initiative, it is essential to have strong, committed partners at the leadership level between the department of health, the state agency on aging, and coalitions at the state and local levels. In July 2015, the National Council on Aging released the [2015 National Falls Prevention Action Plan](#), which builds on a version originally released in 2005. The updated plan includes 12 broad goals, 40 strategies, and more than 240 action steps focused on increasing physical mobility, improving medication management, enhancing home and environmental safety, increasing public awareness and education, and funding and expanding falls risk screening, assessment, and interventions to prevent falls.⁷²

Led by the National Council on Aging, the Falls Free initiative is a national effort that is largely focused on connecting coalition members with other state and regional chapters and helping states promote effective strategies to address falls, including regulatory and policy changes. The Falls Free State Coalition Workgroup includes members from 42 states. This group created the State Policy Toolkit for Advancing Falls Prevention, which includes a dashboard of selected indicators.⁷³

Included in the toolkit are recommendations for building relationships with policymakers to ensure that state health departments are seen as “go to” authorities on pending policy and regulatory changes to prevent falls and avoid potentially negative or unanticipated outcomes of policy decisions. Bringing greater awareness about the impact of older adult falls to the legislature is an important step in planning for legislative policy initiatives, as is data that reflects trends over time to inform policy decisions. Accurate and consistent data collection is essential to making the case for falls prevention and planning efforts to address areas of high injury rates and gaps in service.

State Examples:

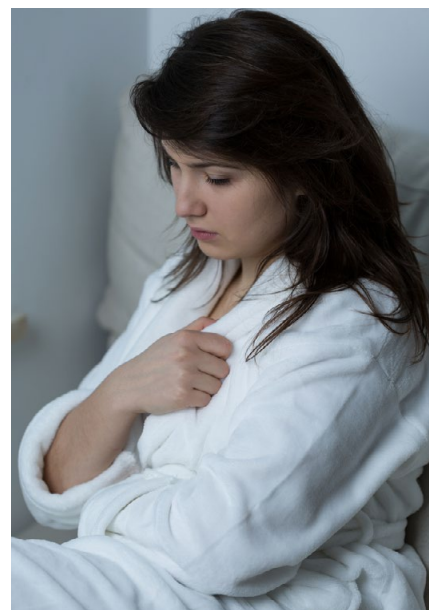
- Arizona launched the Arizona State Healthy Aging Strategic Plan, which includes strategies for falls prevention.
- The Georgia Falls Prevention Coalition worked with the Physical Therapy Association of Georgia and Mercer University to bring together physical therapist volunteers to conduct STEADI assessments.
- In Hawaii, Tai Chi for Health became a permanent part of Kaiser Permanente, Kauai Parks and Recreation, and Catholic Charities.
- The Southern Nevada Health District health educator gave a separate presentation in Spanish about senior falls prevention and the STEADI assessment for fall risk at a meeting of the Latin Chamber of Commerce.
- Ohio partnered with the Ohio Pharmacy Association to conduct fall risk screenings and collaborated with a large grocery store chain to conduct medication reviews for adults 65 years and older.
- Vermont worked with the Governor’s Commission on Successful Aging Health Care Reform subcommittee to submit key findings and make recommendations for the creation of a State Plan on Falls Prevention.


SECTION V. Preventing Sexual Violence

BACKGROUND

Sexual violence refers to any sexual activity where consent is not obtained or freely given. There are many types of sexual violence, including forced intercourse, sexual contact, and touching, as well as harassment, exploitation, and threats. Sexual violence perpetration is a product of multiple, interrelated factors that affect the individual, that person’s relationships, the community, and the broader cultural and social environment.⁷⁴

Efforts to prevent sexual violence on college campuses have intensified in recent years. One in five women has been a victim of completed or attempted sexual assault while in college. Although it happens less often, men can also be victims of sexual violence. Sexual assaults on





college campuses are widely under-reported. Despite the prevalence of campus sexual assaults, approximately 40 percent of colleges and universities reported not investigating a single sexual assault in the previous five years.⁷⁵

Campus sexual violence remains a legislative priority at the state and federal level. Over the last several decades, policymakers have put in place legislation that increases campus accountability for addressing sexual violence. The Campus Sexual Violence Elimination (SaVE) Act was enacted in March 2013 when the Violence Against Women Act was reauthorized, and included in the bill were amendments to the Clery Act. The SaVE Act expands the scope of the Clery Act, and as a result, most higher education institutions, including community colleges and vocational schools, are now held to more reporting, response, and prevention education requirements around rape, domestic violence, dating violence, sexual assault, and stalking.

The SaVE Act also establishes collaboration between HHS and the U.S. Departments of Justice and Education to collect and disseminate best practices for preventing and responding to domestic violence, dating violence, sexual assault, and stalking. Health departments can help inform prevention programs and policies in university systems as they work to address the issue and their new prevention and response efforts now mandated through the Campus SaVE Act.

Comprehensive approaches to violence need to address risk and protection at all levels, not just at the individual level. Individuals who experience one form of violence are more likely to experience other forms of violence, be at higher risk for behaving violently, and commit other forms of violence. Understanding how different forms of violence are linked to one another is paramount to developing effective policies, programs, and tools.

The work that health departments do to prevent sexual violence overlaps with the efforts of many other agencies and partners working to reduce other kinds of violence and improve community health. Protective factors, such as economic stability, healthy families, and access to education all help prevent child maltreatment, suicide, sexual violence, and community violence by providing an environment where violence is less likely to occur.

Minnesota's Sexual Violence Prevention Plan

In 2013, the Minnesota Legislature directed the Minnesota Department of Health to prepare a report on its activities to prevent sexual violence, including coordination of existing state programs and services that address the root causes of sexual violence.⁷⁶ The Minnesota Department of Health Sexual Violence Prevention Program and members of the Sexual Violence Prevention Advisory team surveyed community partners and interviewed 26 state agency representatives from 11 different departments to gather information about current prevention activities, gaps in activities, and opportunities for improvement at the legislative and agency level. They found that opportunities to strengthen sexual violence prevention efforts exist at multiple levels, including:

Legislative:

- Appoint representatives from the house, senate, and the judicial branches to serve on a sexual violence prevention advisory board.
- Support comprehensive health education programs and policies because they increase protective factors for sexual violence.
- Authorize agencies to conduct statewide crime victim surveys to collect accurate and timely data on victimization.
- Authorize agencies to conduct statewide student surveys to collect data on sexual violence and dating violence in youth.

State Agency:

- Appoint agency staff to serve on sexual violence prevention advisory board.
- Implement and evaluate data and best practices for preventing sexual violence.
- Ensure that proposed policy and practice changes include the voices, opinions, and needs of populations who are disproportionately affected by sexual violence.
- Work with the state's education, child welfare, mental health, public health, healthcare, substance abuse, juvenile justice, corrections, and public safety systems to increase awareness of the impact of trauma, ACEs, and sexual violence.

Community Organizations:

- Provide culturally responsive training on sexual violence prevention for all staff who serve children and youth, including school personnel, law enforcement, and other professionals.
- Increase prevention programming targeted at preschool aged children and other populations who are at higher risk of being victimized.
- Offer community programs on parenting, responsible fatherhood, conflict resolution, and home visiting.
- Increase collaboration between community organizations and effective sex offender treatment programs.

KEY STRATEGIES

Safe Dates and Shifting Boundaries: Primary Prevention Programs

In 2012, CDC conducted a systematic review of 140 studies examining the effectiveness of primary prevention strategies for sexual violence perpetration in order to summarize the best available research evidence for public health practitioners. Currently, there are only two primary prevention strategies that have demonstrated significant reductions in sexual violence behaviors in a rigorous outcome evaluation design: *Safe Dates* and *Shifting Boundaries*.



Intended for male and female eighth and ninth grade students, [Safe Dates](#) is a universal prevention program to prevent emotional, physical, and sexual abuse in adolescent dating relationships. According to one study, four years after receiving the program, students in the intervention group were significantly less likely to be victims or perpetrators of sexual violence involving a dating partner.

[Shifting Boundaries](#) is a 6-10 week school-based dating violence prevention strategy for middle school students that includes six classroom sessions and addresses policy and safety concerns in schools through the use of temporary restraining orders, a poster campaign to increase awareness of dating violence, and “hotspot” mapping to identify unsafe areas of the school for increased monitoring by faculty or school security personnel.

While the classroom curriculum alone was not effective in reducing rates of sexual violence, the school-wide intervention was effective alone or in combination with the classroom instruction. At a six-month follow-up, the school-wide intervention showed reductions in sexual harassment, peer sexual violence and victimization, and dating violence.

Despite significant knowledge gaps, research shows that comprehensive, evidence-based sexual violence prevention plans that address risk and protective factors at the community or organization level have the greatest potential for population-level impact. The research is not definitive, but lessons learned from other prevention efforts, such as alcohol regulation and policy, may impart some potential opportunities for looking at community-level factors as they may contribute to sexual violence. Although alcohol-related policies do not address the root causes of sexual violence perpetration, research has shown that there is a strong relationship between excessive alcohol consumption and sexual violence.^{77,78,79} As part of a more comprehensive strategy, policies affecting the cost (e.g., pricing strategies or increased taxes) and availability of alcohol (e.g., campus alcohol bans or outlet density) may represent way of modifying risk factors at the community-level to prevent sexual assault.

Rape Prevention and Education Program

CDC currently provides funding to all 50 states, Washington, D.C., Puerto Rico, and four U.S. territories through the Rape Prevention and Education Program (RPE), which was established through passage of the Violence Against Women Act in 1994. States are permitted to use their RPE grant funds in a variety of ways to help prevent sexual violence, and program activities are guided by a set of prevention principles that include:⁸⁰

- Preventing first-time perpetration and victimization.
- Reducing modifiable risk factors while enhancing protective factors associated with sexual violence perpetration and victimization.
- Using the best available evidence when planning, implementing, and evaluating prevention programs.
- Incorporating behavior and social change theories into prevention programs.
- Using population-based surveillance to inform program decisions and monitor trends.
- Evaluating prevention efforts and using the results to improve future program plans.

RPE's focus on primary prevention has enabled a focus on "upstream" thinking and stronger partnerships. The funds have bridged connections, for example, between rape crisis centers—which have a long history of advocacy and experience providing critical services to victims of sexual violence—and public health, which has advanced the science-based conceptual models essential to our understanding of how such violence can be prevented in the first place.

Additional research is needed to understand the impacts of prevention strategies on sexual violence behaviors. However, states can make progress by incorporating the following key concepts into the cycle of program planning and evaluation:

- Using data to better understand sexual violence.
- Developing comprehensive prevention plans that include policy, structural, and social norm components.
- Selecting prevention strategies based on best practices and available evidence.
- Evaluating strategies that are implemented.
- Sharing lessons learned.

State health agencies also have a responsibility to assess their state investments in violence prevention and convene partners for strategic planning. To support sexual violence prevention efforts more broadly, state health departments may also:

- Review and recommend health department positions on proposed legislation.
- Develop health department testimony on proposed legislation.
- Provide information on the effectiveness of existing state or local policies.
- Use surveillance data to inform policymakers.
- Identify model legislation, policies, or ordinances.

Kentucky's RPE State Initiatives—From EMPOWER to Green Dot⁸¹

CDC launched the EMPOWER Program in 2005 as a capacity building demonstration project. The EMPOWER Program provided additional funding, technical assistance, and training to a subset of states receiving RPE funding. As part of the project, Kentucky organized the State Capacity Building Team (SCBT) steering committee, including members from the state sexual violence coalition and the Kentucky Cabinet for Health and Family Services. SCBT was responsible for assembling the state prevention team, whose task was to create a statewide sexual violence prevention plan.

Recognizing the importance of having local communities involved in the planning process, a committee of representatives from each of Kentucky's 13 regional rape crisis centers came together to work with the state prevention team. This partnership ultimately led to the decision to select one pilot program to implement in all of Kentucky's rape crisis centers in order to evaluate its effectiveness in preventing sexual violence.

In preparing to take on the project, a significant amount of time was spent developing a shared definition and understanding of primary prevention. Working with CDC and the other five states in the EMPOWER collaborative, Kentucky found that the best way to help people understand what primary prevention means was to think about it in terms of goals, activities, and strategies that aim to stop violence *before* it occurs. SCBT used a public health approach and the socioecological model as a way of ensuring community, regional, and state participation in the prevention planning and implementation process.

The program selected was called "Green Dot," a bystander primary prevention program first developed in 2006 and designed to reduce the risk of perpetration of all types of sexual and dating violence in high schools and colleges. It teaches students how to identify situations that could lead to an act of violence and shows them how to intervene safely and effectively. In the [Green Dot](#) approach, by promoting social norms that are not accepting of violence, students are shown how to intervene when faced with a situation that may result in an assault, particularly when alcohol or drugs are involved. Early success of Green Dot on the University of Kentucky college campus was a strong determinant in the state deciding to adapt and evaluate Green Dot in the high school setting.

In 2009, CDC awarded a five-year, \$2 million cooperative research agreement to the University of Kentucky and its partners, the Kentucky Association of Sexual Assault Programs, Inc. and the rape crisis centers that provide services across the state, to conduct a randomized control trial in 26 Kentucky high schools. Half of the schools were assigned to receive the Green Dot intervention to test how effectively the program increased active bystanding behaviors and decreased rates of violence victimization and perpetration over time.

In September 2014, preliminary findings found a greater than 50 percent reduction in the self-reported frequency of sexual violence perpetration by students at schools that received the Green Dot training. In schools that did not receive the training, there was a slight increase in self-reports.

While more rigorous evaluation on various prevention approaches is needed to determine what works to reduce sexual violence at the population level, Kentucky's approach offers the field valuable insight for building a program that addresses a broad range of risk and protective factors for sexual violence.

SECTION VI. Youth Sports Concussions and Traumatic Brain Injury

BACKGROUND

Traumatic brain injuries are sometimes described as a “silent epidemic.” In recent years, sports- and recreation-related traumatic brain injury (TBI) has been increasingly recognized as a significant collective public health concern affecting people of all ages in the United States. Based on data from the National Electronic Injury Surveillance System-All Injury Program, sports- and recreation-related traumatic brain injuries alone caused more than 3 million emergency department visits between 2001 and 2012, and approximately 70 percent of those were reported among persons ages 0 to 19 years. However, there are many more sports and recreation-related TBIs that are not treated in a hospital or emergency department.⁸² While most people recover from TBI, others can experience lifelong disability or death.

Repeated TBIs can have prolonged and long-term effects. Children and adolescents who sustain a TBI can experience lasting physical impairments, lowered cognitive and academic skills, and changes in behavior, socialization, and adaptive functioning. Because of the considerable increase in the number of TBI-related emergency department visits over recent years, it is important to monitor these yearly trends to identify the groups at highest risk as well as describe the most common causes of TBI. States are identifying policy approaches that protect young athletes in an effort to make sports safer while making sure that everyone has an opportunity to benefit from sports and physical activity.

As part of the Injury Center’s Core Violence and Injury Prevention Program, several states are focusing on TBI prevention:

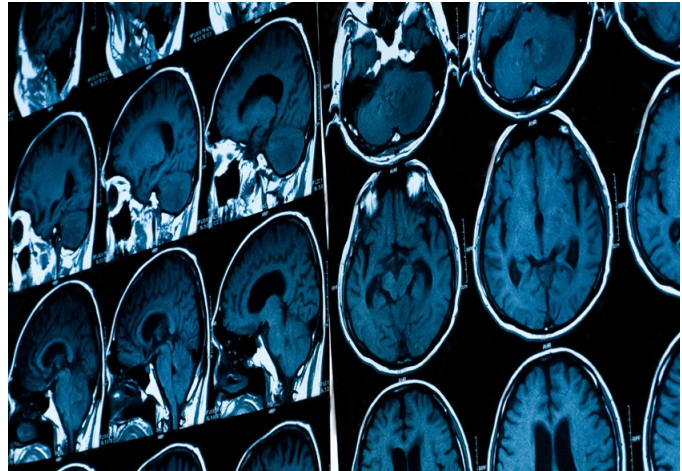
- **Massachusetts and Nebraska** are monitoring and supporting implementation of recently-passed sports concussion laws.
- **Oklahoma** is educating residents about sports-related TBI among individuals under 25.
- **Minnesota** is establishing a statewide surveillance system for tracking high school student-athletes who sustain concussions.
- **Ohio** is focusing on bicycle helmet use and sports related concussions in middle and high schools and recreational leagues.
- **Hawaii** is focused on improving helmet use when riding a motorcycle or motorized scooter.



TBI Surveillance and Data Needs

In November 2014, President Obama signed the Traumatic Brain Injury Reauthorization Act of 2014, which allowed for continued appropriations to HHS through fiscal year 2019 for TBI programs carried out by federal agencies. First enacted in 1996, this is the third reauthorization of the bill, which strengthens CDC’s ability to conduct TBI surveillance, prevention, and education. The law also supports NIH research activities and state grant programs and directs the HHS secretary to develop a plan to improve the coordination of federal activities, including a review of current interagency efforts.

At the federal level, a significant area of focus moving forward will be related to opportunities to build a national TBI surveillance system to better determine the incidence of sports- and recreation-related concussions, as recommended by the National Academy of Medicine (Institute of Medicine). Current data sources are insufficient and could be improved to inform decisionmaking on prevention initiatives, research needs, and education priorities. A more comprehensive national surveillance system that allows for an examination of trends would help guide states' prevention programs.



KEY STRATEGIES

Return to Play

Since 2009, there have been several federal legislative efforts related to youth sports concussions, including bills that support funding for states to collect data on the incidence and prevalence of youth sports concussions, adopt and implement return to play guidelines, and implement pre-season baseline and post-injury testing youth athletes.

Being cleared to participate in competitive or recreational activities by a qualified medical professional, especially for youth athletes, is important to avoid re-injury, prolonged recovery, or permanent neurological and psychological deficits. States can implement strategies to help improve early TBI detection, prevention, and treatment, and to help increase the adoption of “return to play” protocols. Policy approaches may be appropriate to ensure that people who have sustained concussions have recovered thoroughly before fully participating in sports or other activities.

Washington was the first state to pass a “modern day” youth sports TBI law in 2009, which focused on improving the recognition and understanding of concussion in sports, removing athletes suspected of sustaining a concussion, and requiring those athletes to receive clearance before returning to play. Texas had similar legislation in place in 2007, but it only applied if the athlete lost consciousness. In 2015, all 50 states and Washington D.C. had some form of youth sports-related TBI law that contained provisions about when an athlete may return to a sport or activity.⁸³ Fewer than 10 states, the [Network for Public Health Law](#) reports, have laws that address “return to learn,” or the concept of returning to the classroom or school environment following a concussion.

State laws should identify a specific entity, such as the board of education, that is responsible for implementing training and education provisions regarding TBI. In Massachusetts, Missouri, New York, and Pennsylvania, the legislative language directs health departments to develop concussion training programs. Be sure to verify with your state laws to determine who is responsible for developing and implementing these programs in your state.

In 2015, the Oregon School Activities Association became the first state high school activities association in the United States to require coaches to enroll in USA Football’s Heads Up Football program, and in 2008, it became the first state high school activities association to prohibit same day return to play for athletes with

a suspected concussion.^{84,85} USA Football's Heads Up Football program includes training on concussion diagnosis and management, based on CDC's HEADS UP initiative.

CDC HEADS UP Concussion Training

CDC's HEADS UP training offers information about concussion and other serious brain injury to coaches, parents, school and health professionals, and athletes. The HEADS UP campaign provides important information on preventing, recognizing, and responding to a concussion, and celebrated its 10th anniversary in 2013.

HEADS UP's accomplishments include:

- More than 215 million media impressions through print media and TV public service announcements.
- Close to 40 million social media impressions.
- More than 22,000 Facebook fans, and growing.
- More than 6 million distributed print materials.
- Completed online trainings for more than 3 million coaches.
- More than 50 HEADS UP products developed.
- More than 85 organizations signed on as participating organizations.

In fiscal year 2015, the HEADS UP campaign aimed to expand efforts to evaluate the public health impact of the campaign and build momentum for research and efforts focused on changing social norms around concussion.


Many laws that address youth sports concussions have similar provisions. States can consider this set of questions from the [Robert Wood Johnson Foundation Public Health Law Research](#) program to think about where some of these variations might exist in state laws:⁸⁶

Does your state's law...

- Specifically address youth sports TBIs?
- Require a student athlete with a suspected TBI to be removed from play?
- Require parents to be notified of their child's suspected or diagnosed TBI?
- Specify requirements for when an athlete may return to play?
- Require additional mandatory TBI-specific training for coaches?
- Explicitly require distribution of some form of TBI or concussion information sheet?
- Require that a TBI information sheet be distributed at least annually to parents of athletes or student athletes?
- Explicitly address liability and, if so, does it identify who may or may not be liable for failure to comply with the law?



Additional research is emerging related to how youth sports concussion laws are being implemented, as well as factors that promote or impede implementation and ways to determine the level of compliance in each community or school district.



CDC evaluated the implementation of concussion legislation in Washington state and Massachusetts by interviewing stakeholders at both the state level (health departments and statewide interscholastic athletic associations) and at the school level (athletic directors and coaches). The case study identified challenges and successes that would help inform implementation in other states, including the following factors:⁸⁷

- A need for involvement of a range of stakeholders in the planning process in order to identify barriers and improve outreach and education.
- The importance of developing a comprehensive and specific implementation plan to ensure that the original intent of the law is executed.
- Consideration of a broad approach to injury prevention, such as combining the return to play protocols for concussion with those for other sports-related injuries.
- A need to work with recreational leagues to whom the state law does not apply by sharing access to educational materials and resources.
- The importance of identifying requirements for continuing education on youth sports concussions.
- The value of educating teachers about concussion symptoms and emphasizing “return to learn” principles.

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