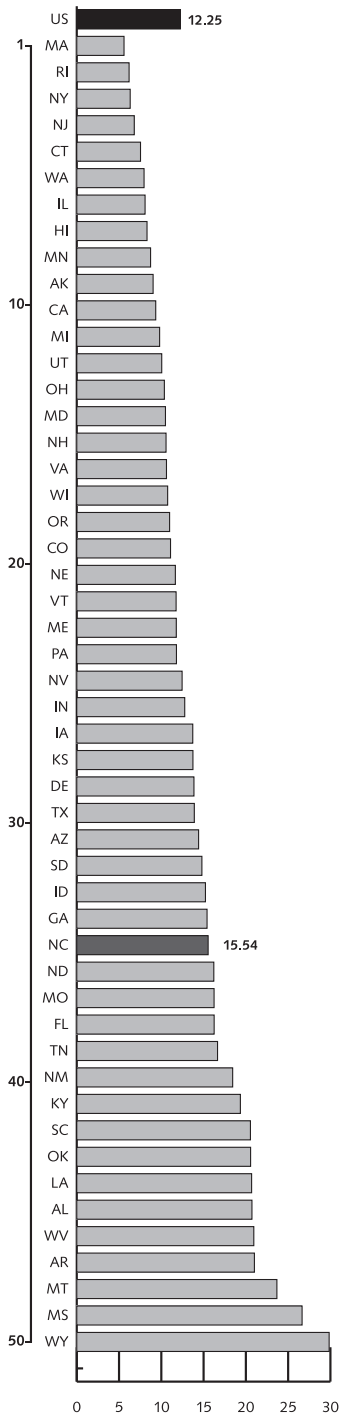
Injury and violence are significant problems in North Carolina, leading to death and disability for thousands each year. Unintentional injuries, which account for more than two-thirds of all injury deaths nationwide, are defined as injuries in which a harmful outcome was not sought.[1] These include injuries from motor vehicle collisions, falls, and unintentional poisonings. Violence, on the other hand, is defined as intentional injury resulting from the active, deliberate use of force against another person or oneself. This includes family violence, homicide, suicide, partner violence, and child maltreatment. Many injuries are preventable; they have known risk factors and should not be considered random, accidental, or unavoidable.[1]

Injury is a serious cause of disability, resulting in more than 148,000 hospitalizations, 819,000 emergency department (ED) visits, and an unknown number of outpatient visits and medically unattended injuries in North Carolina each year.[2] For every injury resulting in death, there are 24 hospitalizations and 131 ED visits in North Carolina.[1] The effects of these injuries are very costly. It is estimated that injury and violence cost $80 billion in medical costs and $326 billion in lost productivity throughout the United States each year.[3] One study put the medical cost of North Carolina fatal injuries at $57 million (2004 dollars), but this figure omits all nonfatal injuries as well as nonmedical costs.[4]

Motor vehicle-related crashes and other unintentional injuries are the fourth leading cause of death in North Carolina, resulting in more than 4,300 fatalities in 2007. Because such injuries tend to occur among younger populations, they result in more years of life lost than any other leading cause of death. Among unintentional deaths in North Carolina, those from motor vehicle-related injuries result in an average of 35.6 years of life lost, whereas other unintentional injuries result in an average of 22.5 years of life lost. Overall, in 2007 in North Carolina, there were more than 121,300 total years of life lost as a result of unintentional injury, surpassing years of life lost due to all other diseases except cancer.[5] To focus the scope of its work, the Task Force decided to concentrate on the three leading causes of unintentional injury due to their high prevalence and economic impact in North Carolina. These include motor vehicle collisions, unintentional poisonings, and falls. (See Figure 8.1.) The Task Force also decided to focus on family violence, such as domestic violence and child maltreatment. While medical errors, homicide, suicide,[a] and other forms of injury are very important public health and social problems, these issues were not specifically addressed by the Task Force.

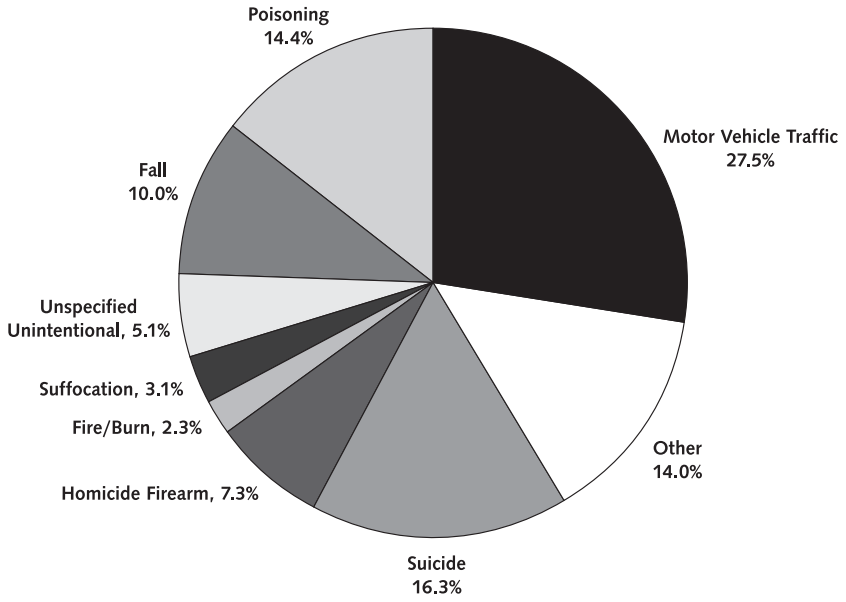
Motor Vehicle Fatality Rate Per 100,000 Population, 2008



Source: National Highway Traffic Safety Administration. State Traffic Safety Information for Year 2008 website. http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM. Accessed July 16, 2009.

a While the Task Force did not focus specifically on suicides, it did discuss strategies to prevent depression. Depression is one of the underlying causes of suicide. See Chapter 6.

Figure 8.1
Leading Causes of Injury Deaths in North Carolina, All Ages, 2006



Note: Except for homicide, suicide, and other, all categories are unintentional injuries.
Source: North Carolina State Center for Health Statistics, Injury, Epidemiology, and Surveillance Unit. Death file 2006.

Motor vehicle injuries were the leading cause of death for all age groups between 5-34 years of age and the fourth leading cause of death for adults ages 35-54 in 2007.

Motor Vehicle Collisions

Motor vehicle injuries are the leading cause of unintentional injury death in North Carolina and the eighth leading cause of death overall, resulting in 1,787 fatalities in 2007.[6] This represents more than a quarter of all injury-related deaths. Motor vehicle injuries were the leading cause of death for all age groups between 5-34 years of age and the fourth leading cause of death for adults ages 35-54 in 2007.[1]

Motor vehicle injuries are the third leading cause of injury-related hospitalizations and the second leading cause of ED visits in North Carolina. In particular, motor vehicle injuries resulted in nearly 8,000 hospitalizations in 2006 and more than 92,000 ED visits in 2007 in North Carolina. The problem is particularly acute for younger populations. Motor vehicle injuries were one of the top three causes of injury-related hospitalizations in North Carolina in 2006, for individuals ages 5-44." It was the leading cause of hospitalization for individuals ages 15-24.[1] Motor vehicle injuries were also the leading cause of injury-related ED visits for people ages 15-34 and the third leading cause for people ages 35-64.[1]

Unintentional Poisonings

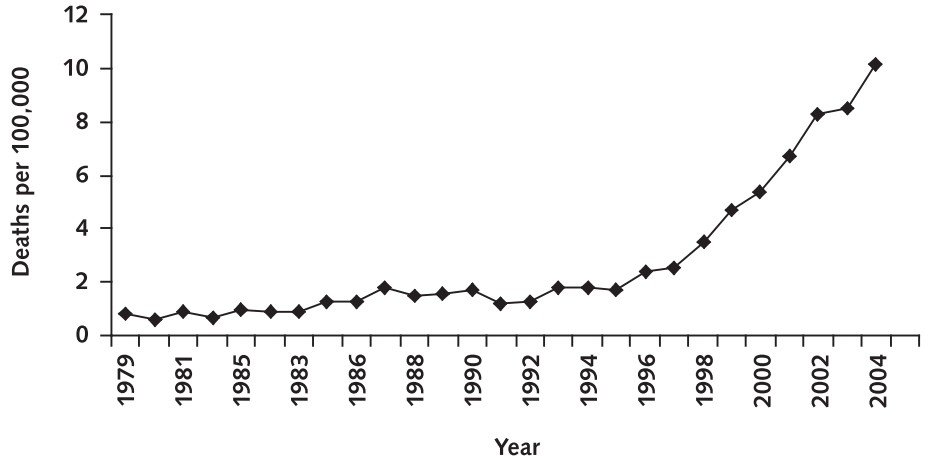
Unintentional poisonings are the second leading cause of injury-related death, accounting for 22.2% of injury fatalities in North Carolina in 2006.[7-9] (See Figure 8.1.) When causes of death are aggregated into the World Health Organization's 113 mortality groups, the age-adjusted death rate for accidental poisoning and exposure to noxious substances for North Carolinians ages 15-44 in 2003-2005 was 13.4 per 100,000, a little more than half the death rate of motor vehicle

crashes (26.0 per 100,000). This was the second most common cause of death for this age group, roughly four times the rate of breast cancer (2.9 per 100,000) and the rate of heart attack (2.7 per 100,000).[10] The bulk of fatalities in this age group for accidental poisonings—roughly 80%—are due to exposure to narcotics and psychodysleptics—substances like cocaine, heroin, and methadone. North Carolina experienced a five-fold increase in deaths due to methadone from 1997 to 2001.[11] This pattern echoes the national trend; the rate of fatal medication errors in the United States increased 360% from 1983 to 2004, an increase that one researcher called "astonishing."[12,13] North Carolina's fatality rate for accidental poisonings increased from 3.5 per 100,000 in 1999 to 10.1 per 100,000 in 2005—a nearly three-fold increase in six years.[10]

Unintentional poisonings include overdoses from the use or misuse of drugs or chemicals for recreational or nonrecreational purposes and from adverse drug events. According to the United States Health Resources and Services Administration, poisoning is defined as the use of a substance "that can harm someone if it is used in the wrong way, by the wrong person, or in the wrong amount."[14] North Carolina has experienced dramatic increases in the percentage of unintentional deaths due to poisoning in the last three decades, including a 103.7% increase between 2000 and 2006 (from 10.9% to 22.2%). Unintentional deaths due to poisoning are more prevalent in western North Carolina.[8] (See Figure 8.2 and Figure 8.3.) Unintentional poisonings are also the third leading cause of injury-related hospitalizations in the state, with more than 3,300 occurring in 2006.[1] It is estimated that the national medical costs associated with unintentional poisonings is $2 billion, while the costs associated with lost productivity totals $25 billion.[3]

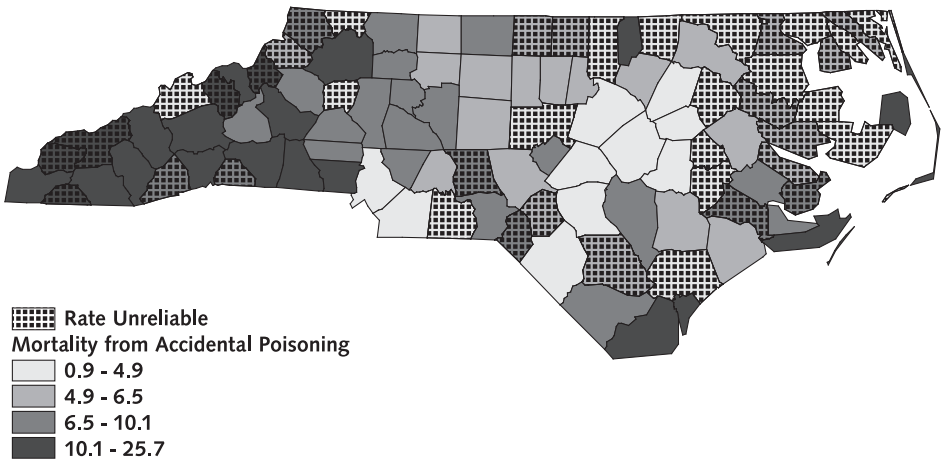
North Carolina has experienced dramatic increases in the percentage of unintentional deaths due to poisoning in the last three decades.

Figure 8.2
Age-adjusted Mortality from Accidental Poisonings and Exposures to Noxious Substances, North Carolina (per 100,000 population)



Source: CDC Wonder (1979-2005) data. Mortality for 1979-1998 based on ICD-9, while 1999-2005 rates are based on ICD-10 mortality codes. Rate age-adjusted to US 2000 population.

Figure 8.3
Mortality Rates from Accidental Poisoning are Higher in Western North Carolina



Source: CDC Wonder (1999-2005). Mortality due to "Accidental Poisoning and Exposure to Noxious Substances." Rates age-adjusted to US 2000 Standard Population.

Falls are a particularly acute problem for adults over 65 years of age. The death rate from falls for older adults is 23 times greater than the rate for those younger than 65 and 16 times greater than the death rate from motor vehicle injuries.

Falls

Unintentional falls are the third leading cause of injury-related deaths in North Carolina, accounting for nearly 10% of injury fatalities in 2007.[15] Unintentional falls are the second leading cause of injury hospitalizations in North Carolina, with almost 25,000 such cases in 2006.[1] Unintentional falls are also the leading cause of injury-related ED visits, with more than 168,000 visits in 2006. In fact, unintentional falls account for more than 20% of all injury related ED visits in the state.[1] The national costs associated with unintentional falls are $26 billion in medical costs and $54 billion in lost productivity. Taken together, the costs associated with unintentional falls are second only to the costs associated with motor vehicle injuries.[3]

Falls are a particularly acute problem for adults over 65 years of age. The death rate from falls for older adults is 23 times greater than the rate for those younger than 65 and 16 times greater than the death rate from motor vehicle injuries. This problem is magnified in North Carolina, as the percentage of the population over 65 years of age is increasing and is expected to increase further over the next decades. By 2030, the average county in North Carolina will have almost one-fifth of its population over the age of 65.[16]

Family Violence[b]

Family violence includes both child maltreatment and domestic violence. Child maltreatment can take a number of forms, including neglect, physical violence, psychological violence, sexual assault, and witnessing partner violence, and typically occurs with other forms of family violence like domestic violence.[17] Similarly, domestic violence includes physical violence, psychological violence, sexual violence, and stalking.[18]

Unfortunately, the evidence for the prevalence and incidence of family violence is incomplete. Accurate and complete data on the extent of family violence, including child maltreatment, are difficult to obtain due to under-reporting, reliance on retrospective surveys, and a lack of well-established definitions and measures. The majority of perpetrators are parents (68%). The child maltreatment rate in North Carolina is slightly higher than the nation; in North Carolina in 2007, 11.7 children per 1,000 (25,976) were abused or neglected. Of these, 78.5% were neglected, 9.8% were physically abused, 7.5% were sexually abused, and 4.2% suffered other forms of abuse.[19] National and state level data on abuse and neglect are helpful but do not provide a complete picture of the prevalence of child maltreatment. Studies show that official statistics of child maltreatment underestimate its prevalence.[20] For example, in self-reported, retrospective surveys, between 20%-28% of respondents report having been physically abused by a parent or caregiver, and approximately 20% report having been sexually abused by anyone.[21-23] It is important to note that estimates of sexual abuse by a parent or caregiver are much lower, ranging from less than one percent to five percent.[19-21]

Partner violence is also associated with long-term health problems.

Children who are abused experience long-term physical and psychological effects beyond the immediate harm done to them as a result of maltreatment. Child physical abuse has been associated with suicidal behavior, risk-taking, psychiatric disorders, altered brain development, hormonal changes, and impaired sleep.[24] Child sexual abuse has been associated with major depression, dysthymia, and sexualized behaviors, which can lead to an increased risk of sexually transmitted diseases.[25]

Children who are abused experience long-term physical and psychological effects beyond the immediate harm done to them as a result of maltreatment.

As with data on the prevalence and incidence of child maltreatment, evidence on the extent of domestic violence is also incomplete due to underreporting and gender bias. In a 2000 nationwide survey, 21.7% of females and 7.3% of males reported being the victim of partner violence in their lifetime, and 1.4% of women and 0.8% of men reported being the victim of partner violence in the previous 12 months.[26] Some estimates suggest that one-quarter of women in North Carolina have reported experiencing physical or sexual violence since turning 18 years of age. Of those who had been victims of physical violence, 82% reported victimization by their current or former partner. Of those who had been victims of sexual violence, 69% reported victimization by their current or former partner.[27]

b There are many types of violence including family violence, dating violence, gang violence, and violent crime. Due to time constraints, the Task Force had to limit the scope of its work. In doing so, it chose to focus on family violence. Dating violence and gang violence will be discussed in the North Carolina Institute of Medicine's Task Force on Adolescent Health report, which will be published in December 2009.

Partner violence is also associated with long-term health problems. Physical health problems, such as chronic pain, sexually transmitted infections, gastrointestinal illness, heart disease, and hearing loss, as well as mental health problems including depression, anxiety, post-traumatic stress disorder, suicidal thoughts and behaviors, and substance abuse, play a role in long-term health, particularly when violence is chronic and when revictimization occurs at different points in life. Studies have estimated that child maltreatment and adult domestic violence are co-occurring in 30%-60% of families where at least one of these forms of family violence is occurring.[28-33]

Enforcement and Review of All Traffic Safety Laws and Enhanced Surveillance

A number of strategies can be used to prevent motor vehicle-related injuries such as those related to increasing seat belt use, reducing speeding, reducing driving while impaired (DWI), and encouraging motorcycle safety.

A number of strategies can be used to prevent motor vehicle-related injuries such as those related to increasing seat belt use, reducing speeding, reducing driving while impaired (DWI), and encouraging motorcycle safety.[c] It is estimated that in North Carolina in 2007, 37% of traffic fatalities involved someone who was speeding, 32% involved someone who was not wearing a seatbelt, 29% involved a driver with a blood alcohol level of at least 0.08, and 12% involved motorcyclists.[34]

Increasing seat belt use: Increased seat belt use has been shown to be an effective method for reducing traffic fatalities. For example, seat belt use has been shown to reduce fatality risk by 45% in cars and 60% in light trucks, and to reduce the risk of serious injury by 50% in cars and 65% in light trucks.[34,35] It is estimated that 177 lives would have been saved in 2007 with 100% seat belt use in North Carolina. Observational studies indicate that 88% of drivers in North Carolina wear a seat belt while driving. Although this is an increase of eight percentage points from 1996, North Carolina went from having the third highest percentage of seat belt use in the country to the 15th highest percentage during that period.[34]

One strategy that has been shown to increase seat belt use is to strengthen enforcement of seat belt laws. Under current law, all drivers and passengers must wear seat belts; however, law enforcement personnel cannot stop vehicles solely in order to enforce the seat belt laws for passengers in the rear seat (called a "primary" enforcement law).[d] Instead, drivers can only be ticketed for failure of rear seat passengers to wear their seat belt if they are being stopped for another purpose (called a "secondary" law). According to the Centers for Disease Control and Prevention (CDC), "secondary laws are less effective at increasing safety belt use and decreasing fatalities than primary laws."[35] Primary seat belt laws, in which police officers can pull drivers over for not wearing seat belts, have led to 12-18 percentage point increases in usage where implemented. High visibility enforcement, including the state's "Click It or Ticket" campaign, is associated with another six to eight percentage point increase in usage.[34] In addition to its primary

c North Carolina recently enacted legislation (SL 2009-135) banning texting and emailing while driving, effective December 1, 2009.

d NCGS § 20-135.2A

belt law for drivers and passengers in the front seat, North Carolina would benefit from a primary belt law for all occupants.

North Carolina would also benefit from increasing the fine for belt use noncompliance.[34] Under current law, drivers and front seat occupants ages 16 years and older face a penalty of $25, in addition to $75 in court costs, for failure to wear a seat belt. Rear seat occupants face a penalty of $10 for failure to wear a seat belt.[e] In comparison, 13 states have fines over $25 for the first seat belt use offense in either the front or the back seat.[36] Because North Carolina set penalties for failure to wear a seat belt in the front seat nearly two decades ago, the state should reexamine fines associated with its primary belt law to determine what appropriate increases should be made.[f]

Reducing DWIs: The number of fatalities resulting from alcohol-impaired driving in North Carolina increased 33.8% between 2001 and 2007, from 334 to 447.[37] Fines associated with the revocation and consequent reinstatement of a driver's license due to DWI need review. Under current law, restoration of a revoked license costs $50-$75, in addition to the $100 processing fee associated with obtaining limited driving privileges (i.e. driving for specific purposes and at certain times of the day).

The number of fatalities resulting from alcohol-impaired driving in North Carolina increased 33.8% between 2001 and 2007.

A number of strategies have been shown to reduce alcohol-impaired driving. For example, regular, well-publicized, and highly-visible sobriety checking stations, also known as sobriety checkpoints, serve as the primary deterrent for people driving while drunk. According to the National Cooperative Highway Research Program of the National Academies, DWI checking stations "may be the single most beneficial drinking-driving countermeasure currently known," but "it is critical that the checkpoint be widely publicized" to be most effective.[38] Despite the relatively small number of arrests made at DWI checking stations, their very existence "discourages impaired driving by increasing the perceived risk of arrest" for the entire driving population. Checking stations not only result in the apprehension of drunk drivers but also significantly deter individuals from driving after drinking if they know a check point is underway.[38]

Several states have shown effective DWI enforcement through the use of community-based, high visibility enforcement programs. In 1993, the National Highway Traffic Safety Administration (NHTSA) partnered with the state of Tennessee on Checkpoint Tennessee, a statewide, highly-publicized impaired driving checkpoint program. Over the course of 12 months, 882 sobriety checkpoints were conducted, versus the 10-15 typically conducted in a year, resulting in 773 DWI arrests.[39] This translated to a 20.4% reduction over the projected number of impaired-driving fatal crashes that would have happened without the program in place. In addition, this well-publicized program continued

e NCGS § 20-135.2A

f Avery IT. Traffic Safety Resource Prosecutor, North Carolina Conference of District Attorneys. Written (email) communication. June 17, 2009.

to have a significant effect on reducing alcohol-related traffic fatalities for nearly two years after the end of the program's initial 12 months.[39]

The role of the media in publicizing the Tennessee program involved extensive television, radio, and print coverage, a statewide billboard campaign, and regular press releases and follow-up reports regarding individual checkpoints. Furthermore, *Checkpoint Tennessee*, funded in part by federal and state matching dollars, was implemented at a relatively low-cost. According to the NHTSA, "the routine use of high-visibility checkpoints would reduce alcohol-related fatalities by 15%, at a cost savings of nearly $62,000 per checkpoint."[38]

Ignition interlocks have been shown to decrease the number of DWIs by at least 50% when installed.

One of the North Carolina Governor's Highway Safety Program initiatives, the "Booze It & Lose It" anti-drunk driving campaign, uses innovative and extensive DWI enforcement and education to focus attention on drunk drivers. The campaign has resulted in nearly 102,000 DWI arrests since 2001. Most recently, the Booze It & Lose It St. Patrick's Day 2009 campaign conducted 370 checking stations, which resulted in 836 DWI charges, 2,026 seat belt charges, and 6,224 speeding violations.[g] In North Carolina, checking stations, whose placement under current state law should be random or statistically indicated, could reduce alcohol-related crashes, injuries, and fatalities by 20%.[h,34]

In addition, current law requires a functioning ignition interlock (i.e. a device similar to a breathalyzer that must be passed before a car's motor will start) for certain individuals who have a DWI offense. Specifically, people who have lost their license as a result of a DWI conviction with blood alcohol concentration of 0.15 or more, and those who have been convicted of another offense involving DWI within the previous seven years, must have a functioning ignition interlock before they can regain their drivers license.[i] These ignition interlocks have been shown to decrease the number of DWIs by at least 50% when installed. Therefore, making ignition interlocks mandatory for anyone convicted of a DWI would potentially further reduce DWI rates.[34]

Reducing the number of people who speed: In 2007 speeding was involved in 37% of all North Carolina motor vehicle fatalities resulting in 620 deaths.[34] In 2004 the North Carolina General Assembly strengthened state law regarding reckless driving. Specifically, the legislature approved legislation that prohibits speeding and driving carelessly and heedlessly in willful or wanton disregard of the rights or safety of others while committing at least two of the following violations: running a red light or stop sign, illegal passing, failing to yield right of way, or following too closely.[j] Effective speed limit enforcement strategies include the use of speed and red light cameras, high visibility enforcement of speed limits, and meaningful penalties. Speed and red-light cameras have been shown to be effective

g Horner B. Public Information Officer, North Carolina Governor's Highway Safety Program. Written (email) communication. June 16, 2009.
h NCGS § 20-16.3A
i NCGS § 20-17.8
j NCGS § 20-141.6

in some locations. In Arizona, the use of speed and red-light cameras on multi-lane 65mph highways reduced speeding over 75mph from 50% to 0.5% and crashes with injuries by 40%.[34] Another key to reducing speeding-related injury is effective speed limit enforcement, especially at dangerous intersections and on dangerous roads. Currently, North Carolina laws limit the use of automated enforcement mechanisms such as speed and red-light cameras.[k] To mount a high-visibility speed limit enforcement campaign, state and local law enforcement would need additional funding.[34]

Enhancing training and skills of motorcycle users: The fatality rate among motorcyclists in North Carolina per 100,000 registered motorcyclists increased 53.1% (from 113 to 173) between 2003 and 2007.[34] An important strategy to reduce motorcyclist fatalities is to enhance the training and licensure requirements for motorcycle users. Currently, motorcyclists can obtain a learners' permit and then renew it indefinitely.[34] In order to obtain a motorcycle learner's permit, an individual must pass vision, road sign, and written tests. However, current law does not require a demonstration of road or riding skills.[l] The laws should be changed to require that motorcyclists obtain their licenses and to encourage all motorcyclists—both beginners and returning riders—to be properly trained. Motorcycle riding courses that emphasize skills are available in North Carolina but are not required. For example, the North Carolina Motorcycle Safety Education Program, which provides courses in basic and experienced riding, is currently offered at 37 of the 58 colleges in the North Carolina Community College System's.[40]

The fatality rate among motorcyclists in North Carolina per 100,000 registered motorcyclists increased 53.1% (from 113 to 173) between 2003 and 2007. An important strategy to reduce motorcyclist fatalities is to enhance the training and licensure requirements for motorcycle users.

Improving traffic injury data: Access to relevant and accurate traffic injury data will also be important for policymakers in the development and implementation of effective prevention strategies. Accurate data make it possible to identify problem traffic locations and areas within the state, as well as track progress relating to implementation of prevention strategies. North Carolina should implement the Crash Outcome Data Evaluation System (CODES), a tool being used in 29 states, to link crash and medical data such as costs, outcomes, and diagnoses.[34] Specifically, CODES can be used to obtain inpatient charges and estimates of other costs of care related to motor vehicle and motorcycle crashes. These data are critical in informing highway safety and injury control decision making.

In order to reduce the number of traffic-related fatalities and injuries in North Carolina, the Task Force recommends:

k Some municipalities tried to use speed and red light cameras, using the fines paid from increased tickets to pay for the installation and monitoring costs. However, Article IX, Section 7 of the North Carolina Constitution requires that all fines be used to support local school districts. As a result, many of the municipalities have shut down their speeding and red light camera programs. "Raleigh North Carolina Prepares to Dump Red Light Cameras." TheNewspaper.com. July 25, 2007. Available at: http://www.thenewspaper.com/news/18/1879.asp (accessed June 25, 2009).

l NCGS § 20-7

Recommendation 8.1: Review and Enforce All Traffic Safety Laws and Enhance Surveillance

a) North Carolina law enforcement agencies should actively enforce traffic safety laws, especially those pertaining to seat belt usage, driving while impaired (DWI), speeding, and motorcycles. All North Carolina state and local law enforcement agencies with traffic responsibilities should actively enforce DWI laws throughout the year and should conduct regular checking stations. State and local law enforcement agencies should report to the North Carolina General Assembly at the beginning of each biennium their efforts to increase enforcement of DWI.

b) The North Carolina General Assembly should change existing state laws or appropriate new funds to strengthen traffic safety laws and enforcement efforts. The North Carolina General Assembly should:

    1) Enact a primary belt use law for rear seat occupants.

    2) Require alcohol interlocks for all DWI offenders.

    3) Appropriate $750,000 in recurring funds beginning in SFY 2011 to the North Carolina Division of Public Health to work with the Governor's Highway Safety Program, the University of North Carolina (UNC) Highway Safety Research Center, and other appropriate groups to expand checking stations and to develop and implement highly-publicized, ongoing strategic communication plans to broadly disseminate the existing Booze It and Lose It campaign.

    4) Appropriate $1 million in recurring funds beginning in SFY 2011 to the Governor's Highway Safety Program to provide support to state and local law enforcement agencies with traffic responsibilities to enhance their enforcement of speeding and aggressive driving laws, with special emphasis on dangerous roads and intersections.

    5) Institute graduated licensure and training requirements for all people who operate motorcycles and amend the existing motorcycle permit provision so that permits cannot be renewed indefinitely.

    6) Create a legislative study commission to examine all motor vehicle fees and fines in NCGS §20 and recommend changes to strengthen motor vehicle safety laws. Priority should be given to an examination of the adequacy of the fines for violations of the seat belt laws and to examine reinstatement fees for DWI offenders. Funds from the increased DWI fees should be used to support DWI programs including training, maintenance of checking station vehicles and equipment, and expanding the operation of DWI checking stations to additional locations and times.

c) The North Carolina Division of Motor Vehicles should ensure that all motorcyclists are properly licensed and trained.

    1) The North Carolina Division of Motor Vehicles should work with the North Carolina Community College System to develop a system of training for new motorcyclists.

2) **The North Carolina Division of Motor Vehicles should match motorcycle operator licenses and vehicle registration files.**

d) **The Governor's Highway Safety Program, in conjunction with the National Highway Traffic Safety Administration, should work to ensure implementation of the Crash Outcome Data Evaluation System (CODES) in North Carolina. Access to CODES data should be provided to all participants on the North Carolina Traffic Records Coordinating Committee, including, at a minimum, the North Carolina Division of Public Health, UNC Highway Safety Research Center, UNC Injury Prevention Research Center, North Carolina Department of Justice Administrative Office of the Courts, North Carolina Department of Transportation, North Carolina Division of Motor Vehicles, North Carolina Office of Emergency Medical Services, and North Carolina State Highway Patrol.**

Injury Surveillance, Intervention, and Evaluation

Historically, the North Carolina General Assembly has not given the same priority to injury prevention as it has to other public health activities. The North Carolina General Assembly has not specifically identified injury and violence prevention as one of the essential public health services. Currently, the statutes enumerate the essential public health services that are needed to contribute to the highest level of health possible for all North Carolinians. Specifically, these public health responsibilities include assessment of health status, health needs, and environmental health risks; water and food safety and sanitation; personal health services including chronic and communicable disease control, child and maternal health, family planning, health promotion and risk reduction; and dental public health.[m] Prevention of injury and violence is not listed as an essential public health service, although injury and violence are both major causes of death and disability in the state. North Carolina should make injury and violence prevention explicit in the list of essential public health services at the state-level.

Historically, the North Carolina General Assembly has not given the same priority to injury prevention as it has to other public health activities…North Carolina should make injury and violence prevention explicit in the list of essential public health services at the state-level.

There are several different evidence-based programs that have been shown to be effective in reducing falls, child maltreatment, and family violence. These programs should be supported and disseminated in communities across the state. For example, research conducted by the CDC on the benefits of Tai Chi exercise has demonstrated improved balance and a reduction in the number of falls among older people. The Matter of Balance program, which is designed to reduce fear of falling and promote physical and social activity, has proven to be an effective intervention in addressing fall risk among older people.[41] In addition, the North Carolina Institute of Medicine, in a prior Task Force on child abuse prevention, identified several evidence-based programs that have demonstrated reductions in child maltreatment. The Nurse Family Partnership program is a prenatal and early childhood home visitation program that helps improve the parental caregiver skills of first time, low-income mothers. Strengthening Families is a skills building initiative designed to improve family relationships and parenting skills for parents

m NCGS § 130A-1.1

of children ages 6-12 years. Both programs have been shown in numerous studies to reduce child maltreatment as well as other positive outcomes for both the parents and children.[17] The Domestic Violence Prevention Enhancement & Leadership Through Alliances (DELTA) program is an innovative intervention funded through the CDC. The goal of DELTA is to reduce the incidence of domestic violence in funded communities through the involvement of multiple sectors such as law enforcement, the faith community, and public health.[42] The recognition of poisonings as a significant cause of injury-related deaths and hospitalizations is a relatively recent development. Evidence-based public health programs to reduce poisonings have not been identified. As prevention strategies are developed and substantiated, they should also be supported and disseminated.

There are different evidence-based programs that have been shown to be effective in reducing falls, child maltreatment, and family violence.

Good data also are important to establish targeted and effective injury prevention initiatives. Currently, the state has different systems to monitor unintentional and intentional injuries, including deaths, nonfatal injuries, and trauma care outcomes. Health care providers need to report E codes (cause of injury codes), in order to capture meaningful injury data in health records. North Carolina, along with 26 other states, mandate that hospitals report E codes in their emergency department surveillance system but not as part of the hospital discharge records.[43] The state could improve injury surveillance by requiring hospitals to report the underlying cause of a particular injury case as patients are discharged from the hospital setting. Capturing better injury data will help the state design appropriate injury prevention strategies.[44]

In order to enhance the role of injury and violence prevention services in North Carolina, the Task Force recommends:

Recommendation 8.2: Enhance Injury Surveillance, Intervention, and Evaluation

a) The North Carolina General Assembly should amend the Public Health Act § 130A-1.1 to include injury and violence prevention as an essential public health service.

b) The North Carolina General Assembly should appropriate $3.9 million in recurring funds beginning in SFY 2011 to the North Carolina Division of Public Health (DPH) to identify and implement pilot programs and other community-based activities to prevent unintentional injury and violence. Priority should be given to evidence-based programs or best and promising practices that prevent motor vehicle crashes, falls, unintentional poisonings, and family violence. Funds should be allocated as follows:

1) **$168,000 to DPH, to work in collaboration with North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services; Carolinas Poison Center; and other appropriate groups, to prevent unintentional poisonings.**
2) **$363,000 to DPH for falls prevention.**
3) **$163,000 to DPH for family violence prevention. Priority should be given to research and program implementation that integrates multiple types of family violence such as domestic violence and child maltreatment.**

4) **$2.5 million to DPH for other injury prevention activities.**

5) **$668,000 to DPH to support nine full-time employees (eight of whom would be regional staff) to support state and local capacity for the dissemination of evidence-based injury and violence prevention programs and policies in North Carolina communities.**

c) **The North Carolina General Assembly should appropriate $175,000 in recurring funds beginning in SFY 2011 to DPH to develop an enhanced intentional and unintentional injury surveillance system with linkages. This work should be led by the State Center for Health Statistics and done in collaboration with the North Carolina Medical Society; North Carolina Hospital Association; North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services; Governor's Highway Safety Program within the North Carolina Department of Transportation; UNC Injury Prevention Research Center; Carolinas Poison Center (state poison control center) at Carolinas Medical Center; and North Carolina Office of the Chief Medical Examiner. The collaborative should examine the need and feasibility for linkages to electronic health records and enhanced training in medical record coding using E codes (injury) and ICD-9/10 codes (disease).**

Training of State and Local Public Health Professionals in Injury Control

A 1999 report published by the Institute of Medicine of the National Academies indicated a significant gap between what is already known about injury and violence prevention and translating that knowledge into practice.[44] A primary reason for this challenge is due to limited training in injury control by the existing public health workforce and insufficient academic preparation provided to students by schools of public health and medicine.

Having a public health workforce trained and competent in injury control is critical in addressing injury and violence issues statewide.

According to a 2002 survey conducted by the Association of Schools of Public Health and the CDC, none of the 33 accredited schools of public health nationwide required an injury course for master's degree students. In addition, fewer than 15% of graduates—both master's and doctoral—will have taken an injury-specific course during their academic careers.[45] A 2005 report issued by the Association of American Medical Colleges also noted that less than a quarter of accredited allopathic medical schools require any coursework or significant training in injury.[46]

Roughly 40% of employees in public health departments throughout the United States are not trained in public health. Other health professionals, including nurses, social workers, first responders, and law enforcement, are even less likely to receive any training in injury or violence prevention.[43] Consequently, the pool of qualified individuals in public health is severely limited in its capability to address injury and violence prevention effectively. Having a public health workforce trained and competent in injury control is critical in addressing injury and violence issues statewide.

The University of North Carolina Injury Prevention Research Center (UNC IPRC) can play an important role in developing a curriculum and leading injury and violence prevention trainings. UNC IPRC is funded by the CDC's National Center for Injury Prevention and Control. It is one of 11 such centers in the nation. Its mission is to support the field of injury prevention and control through research, intervention, evaluation, and training.[n] Because part of its mission is to provide training to the next generation of researchers, practitioners, and other health professionals, UNC IPRC is well-positioned to enhance its current operation to include a curriculum in injury and violence prevention. Trainings would take place through the North Carolina Area Health Education Centers (AHEC) program, as discussed in the Task Force Recommendation 12.5 "Provider Training Through AHEC." (See Chapter 12, Recommendation 12.5.)

In an effort to strengthen the public health workforce and maximize the number of health care providers trained in injury and violence prevention, the Task Force recommends:

Recommendation 8.3: Enhance Training of State and Local Public Health Professionals, Social Workers, and Others

The University of North Carolina (UNC) Injury Prevention Research Center should develop curricula and train state and local public health professionals, physicians, nurses, allied care workers, social workers, and others responsible for injury and violence prevention so they can achieve or exceed competency in injury control consistent with national guidelines developed by the National Training Initiative for Injury and Violence Prevention. The North Carolina General Assembly should appropriate $200,000 in recurring funds beginning in SFY 2011 to the UNC Injury Prevention Research Center to support this effort.

Statewide Task Force or Committee on Injury and Violence

Multiple agencies and organizations address injury and violence issues in the state, including the Department of Transportation, Department of Labor, Department of Agriculture and Consumer Services, Department of Public Instruction, Department of Health and Human Services, and business and health care providers. Yet, support for injury and violence prevention is grossly inadequate when compared to other public health issues and their impact.

Stakeholders from these sectors can play an important role in developing consensus solutions to the broad array of injury issues facing the state. Convening a statewide task force on injury and violence prevention, comprised of experts from across North Carolina, would be an ideal mechanism for reviewing and strengthening the state's current capacity for addressing injury and violence issues.

n More information can be found at http://www.iprc.unc.edu

Specifically, the task force could examine North Carolina's workforce trained in injury and violence prevention; evidence-based injury and violence prevention programs; and capability for measuring, monitoring, and evaluating injury and violence prevention efforts to reduce the incidence and prevalence of injury and violence among North Carolinians. Such collaboration would provide renewed focus on an issue that is currently receiving inadequate attention given its significant impact on the state's population.

A statewide task force on injury and violence prevention would be an ideal mechanism to review and strengthen the state's capacity to address injury and violence.

Recently, the North Carolina 2009-2014 State Strategic Plan for Injury and Violence Prevention was developed with input from 25 key stakeholders. The development process, led by the Injury Violence and Prevention Branch, North Carolina Division of Public Health, resulted in a plan that has goals, objectives, and action steps. The plan is intended to be useful to any group in the state working on injury and violence prevention and control.[47]

Given the range of injury problems facing North Carolinians, the Task Force recommends:

PRIORITY RECOMMENDATION 8.4: Create a Statewide Task Force or Committee on Injury and Violence

a) The North Carolina General Assembly should create an Injury and Violence Prevention Task Force to examine data, make evidence-based policy and program recommendations, monitor implementation, and examine outcomes to prevent and reduce injury and violence. The work of the Task Force should build on the work of the North Carolina 2009-2014 State Strategic Plan for Injury and Violence Prevention and should examine data around motor vehicle crashes, falls, unintentional poisonings, occupational injuries, family violence including child maltreatment and domestic violence, other forms of unintentional injuries such as fires and drowning, and intentional injuries such as homicide and suicide. The Task Force should be charged with identifying strategies to enhance the statewide injury and violence prevention infrastructure, including expanding the numbers of trained personnel at the state and local levels, implementing evidence-based programs and policies, and improving the existing injury surveillance system. The Task Force should provide an annual report back to the North Carolina General Assembly.

b) The Task Force should include legislators and representatives from the North Carolina Division of Public Health; North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services; North Carolina Division of Aging and Adult Services; North Carolina Department of Juvenile Justice and Delinquency Prevention; Governor's Highway Safety Program within the North Carolina Department of Transportation; North Carolina Department of Insurance; North Carolina Department of Labor; North Carolina Trauma System; North Carolina Office of Emergency Medical Services; North Carolina Department of Agriculture and Consumer Services; North Carolina Department of Public Instruction; North Carolina Cooperative Extension within North Carolina State University; North Carolina Department of Environment and Natural Resources; UNC Injury Prevention Research Center; Carolinas Poison Center; North Carolina Medical Society; North Carolina Hospital Association; and local and state law enforcement.

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