



NORTH DAKOTA UNINTENTIONAL INJURY PREVENTION PLAN

2017 - 2021



North Dakota Injury Prevention Coalition



July 2017

To Our Partners in Injury Prevention and Control:

Injuries are a major public health concern in both North Dakota and the United States. In fact, unintentional injury is the leading cause of death for people ages 1 through 44, and the third-leading cause of death for people ages 45 through 54 in North Dakota. Our goal is to immediately reduce and eventually eliminate needless death, disability, pain and suffering resulting from preventable injuries. In order to do this, we reached out to the experts in our state to develop a plan on ways to prevent the severe burden of unintentional injury on individuals and our society.

Working together, we can prevent unintentional injury and there is a role for everyone in this plan. This document reports the leading causes of injuries and deaths from injuries in North Dakota and is designed to help health professionals and injury prevention specialists develop initiatives to reduce and prevent them. It also offers specific prevention strategies for targeting affected populations who are at the greatest risk.

I've asked the North Dakota Department of Health, Division of Injury Prevention and Control and the North Dakota Injury Prevention Coalition to continue to identify and implement prevention strategies with its many partners across the state. Please join us in this mission as we seek to protect and enhance the health and safety of all North Dakotans.

Sincerely,



Mylynn Tufte, MBA, MSIM, BSN
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North Dakota Unintentional Injury State Plan

Introduction

The purpose of this plan is to provide an overview of unintentional injury in North Dakota (N.D.). The problem areas were selected based on data from the N.D. Department of Health (NDDoH), Division of Vital Record's leading cause of unintentional injury deaths from the years 2009 through 2014. The information is intended to help programs that guide prevention efforts across the state to approach the problem with a unified message and similar strategies.

The World Health Organization states: "Injuries are caused by acute exposure to physical agents such as mechanical energy, heat, electricity, chemicals and ionizing radiation interacting with the body in amounts or at rates that exceed the threshold of human tolerance. In some cases (such as drowning and frostbite), injuries result from the sudden lack of essential agents such as oxygen or heat."

The consequences of injuries can be extensive and wide ranging. Injuries have physical, emotional and financial consequences that can impact the lives of individuals, their families and society. Some injuries can result in temporary or long-term disability. During the time 2009 through 2014, motor vehicle crashes were the leading cause of unintentional injury death while falls and unintentional poisoning were second and third respectively.

Deaths are the only way of measuring the actual problem statewide in N.D. without a Hospital/Emergency Department Discharge Data System, which is available in many other states across the United States. According to the World Health Organization, for every death, it's estimated there are dozens of hospitalizations, hundreds of emergency department visits and thousands of doctors' appointments. A large proportion of people surviving their injuries incurs temporary or permanent disabilities. Unintentional injuries affect us all, regardless of sex, race or economic status. The cost of unintentional injury can be measured on both personal and societal levels.

The partners and collaborators mentioned in the plan are groups of people from a variety of prevention programs that are all working towards the same goal. Many of the partners are members of the N.D. Injury Prevention Coalition whose mission statement is "The N.D. Injury Prevention Coalition is a multidisciplinary partnership to reduce unintentional injuries and deaths." With this plan implemented across the state and with the partners and the citizens of N.D., we can move closer to fewer deaths and injuries.

Falls

Goal Statement:

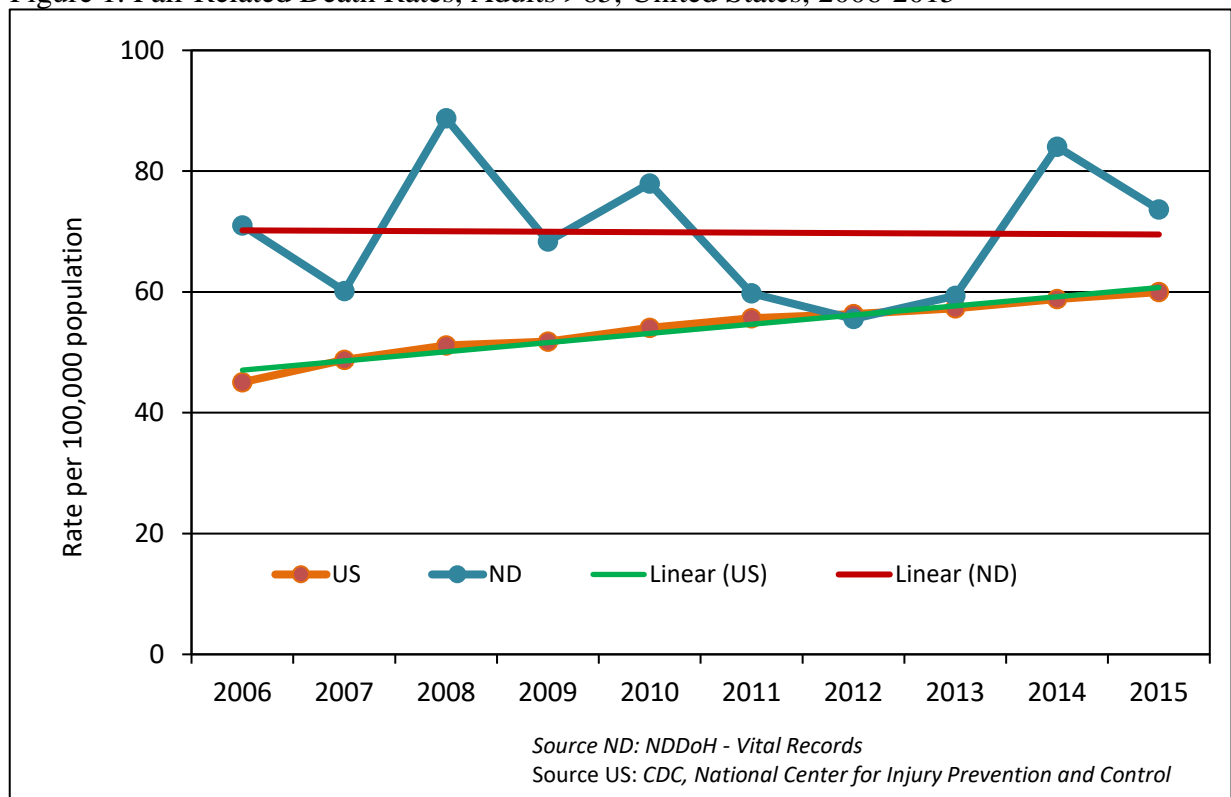
Reduce the number of fatalities caused by falls by five percent by 2021. The baseline rate for falls was in 2015 was 73.64 per 100,000.

Statement of Problem:

Falls are the leading cause of both fatal and nonfatal injuries among older adults. Twenty to thirty percent of people who fall suffer moderate to severe injuries that may make it difficult to get around or live independently, increasing the risk of early death. Falls are the most common cause of traumatic brain injuries.¹

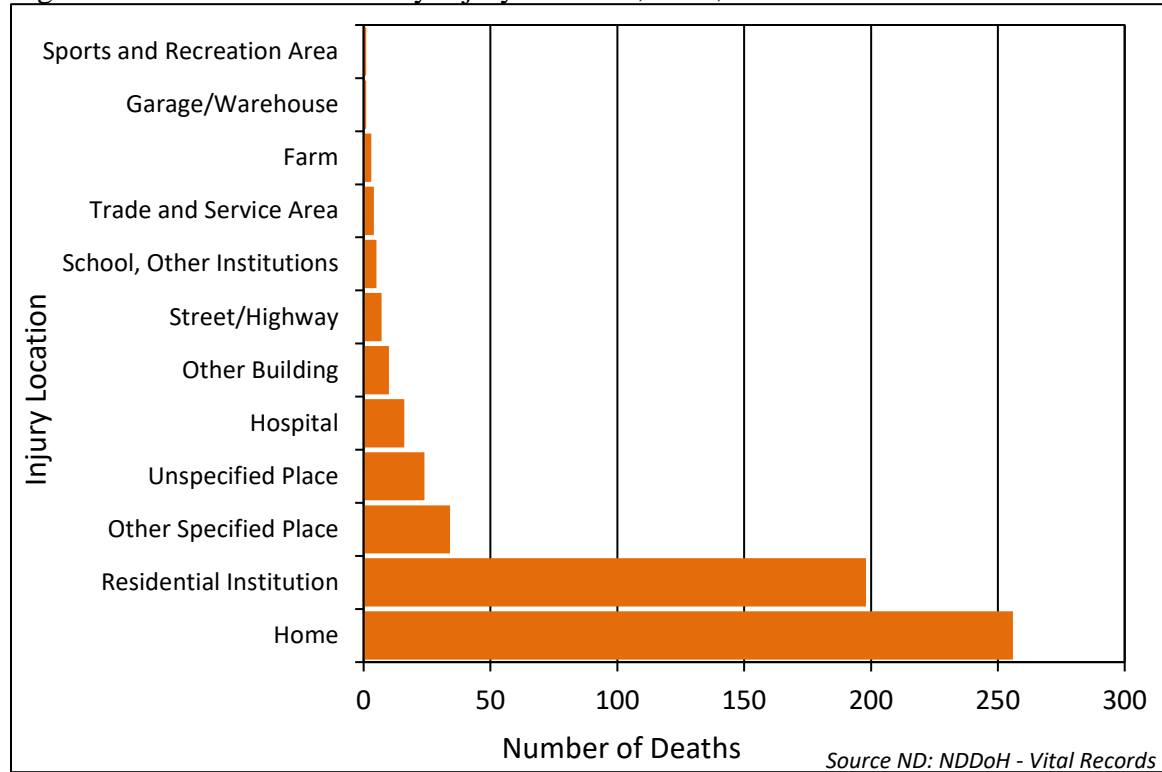
The death rate from falls in the United States has increased significantly over the past decade (Figure 1). In the United States in 2013, about 25,500 older adults died from fall injuries.¹ Falls were the third leading cause of injury-related deaths in N.D. in 2013, and the first leading cause of injury-related deaths in individuals over the age of 65.² A total of 559 N.D. residents died due to falls from 2009 through 2014, an average of 93 deaths per year.

Figure 1. Fall-Related Death Rates, Adults >65, United States, 2006-2015



Fall-related deaths occur primarily at home. Among fall-related deaths in N.D. from 2009 through 2014, 46 percent took place at home and 35 percent occurred at a residential institution (Figure 2).

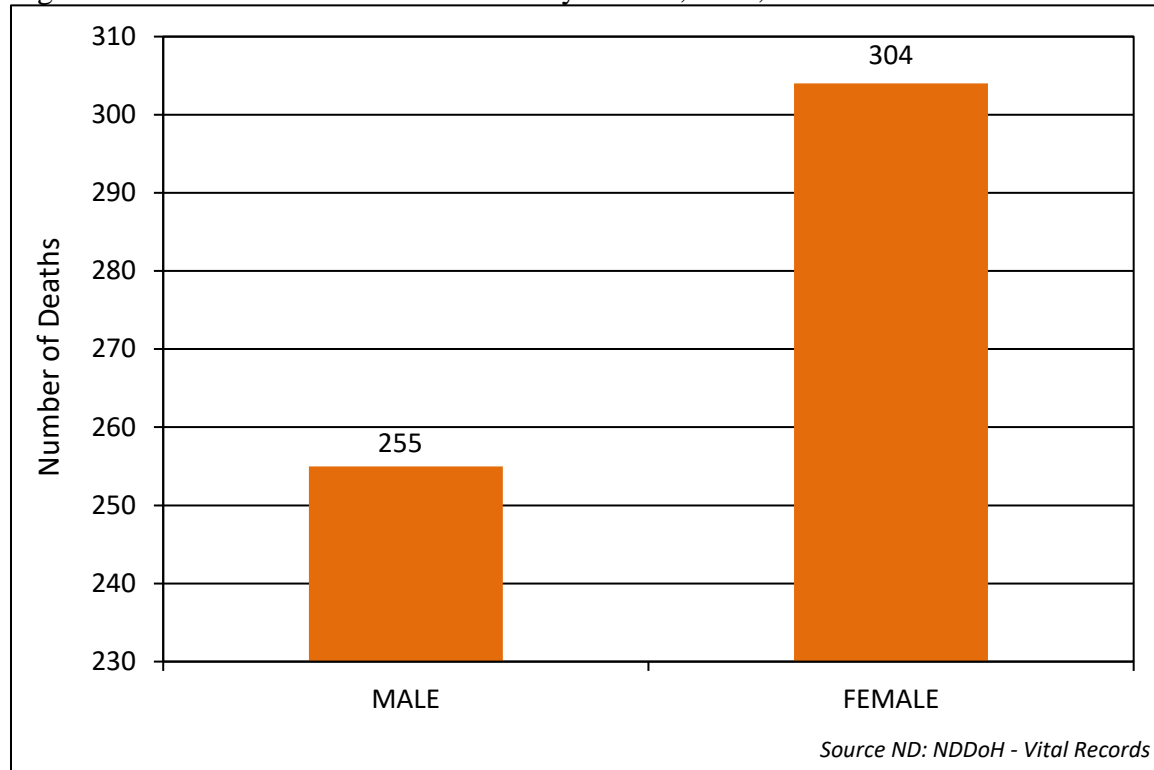
Figure 2. Fall-Related Deaths by Injury Location, N.D., 2009-2014



Age and Gender

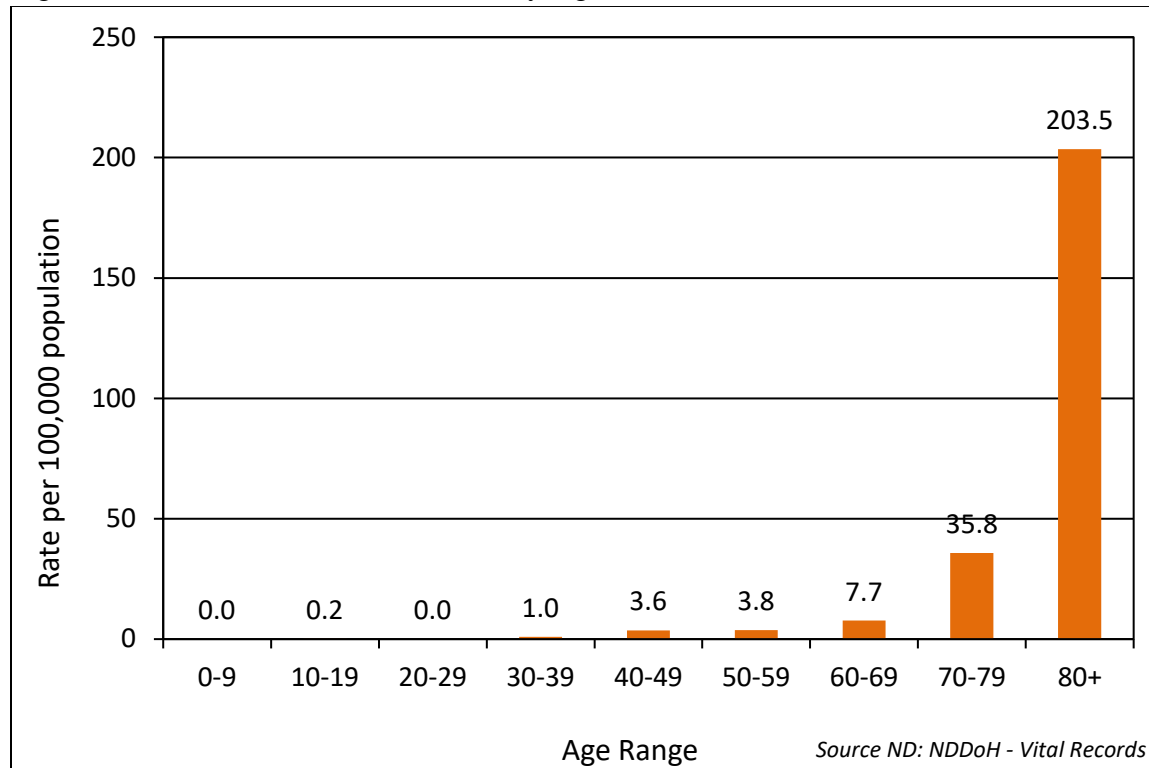
Nationwide, men are more likely to die from a fall than women, with a fall death rate about 40 percent higher than women.¹ However, in N.D. from 2009 to 2014, fall-related deaths occurred more among women with 304 deaths, than among men with 255 deaths (Figure 3).

Figure 3. Number of Fall-Related Deaths by Gender, N.D., 2009-2014



The fall-related death rate in N.D. increases significantly as people age. From 2009 through 2014, N.D.'s fall-related death rate among those ages 80 and older was nearly four times as high as all other ages combined (Figure 4).

Figure 4. Rates of Fall-Related Deaths by Age, N.D., 2009-2014



Falls Among Children

Unintentional falls are the leading cause of non-fatal injuries for children in the United States. In 2013, unintentional falls resulted in nearly 2,578,235 injuries that required treatment in an emergency room. Injuries result from activities such as climbing on furniture, playing near unsecured windows, falling down stairs and playing on playgrounds. Most serious falls occur in the home and in children under the age of three. Each year in the United States, more than 2,200 children, or six children a day, die from an injury that occurred in the home.³ Each year, over 275,000 children suffer from traumatic brain injuries from falls.⁴

Risk Factors

Adults

Fall risk factors increase with age. A fall risk factor may be a biological characteristic, a behavior or an environmental factor. A person has a greater chance of falling with more risk factors present.

- Biological risk factors
 - Muscle weakness or balance problems
 - Medication side effects and/or interactions
 - Chronic health conditions such as arthritis or stroke

- Vision changes or vision loss
- Loss of sensation in feet
- Behavioral risk factors
 - Inactivity
 - Risky behaviors such as standing on a chair in place of a step stool
 - Alcohol use
- Environmental risk factors
 - Clutter and tripping hazards
 - Poor lighting
 - Lack of stair railings
 - Lack of grab bars inside and outside the tub or shower
 - Poorly designed public spaces⁵

Children

Statistics indicate that nearly 70 percent of all playground injuries are related to falls to the surface. It is important that playground surfaces are certified to meet all applicable American Society for Testing and Materials (ASTM) standards, including F1292 for impact attenuation, to ensure the safety and protection of children. Playgrounds are designed and constructed based on the physical characteristics of children. Currently, playgrounds/equipment are designated for the following age groups – toddler (6 months through 23 months), preschool (ages 2 to 5), and school-age (ages 5 to 12).

- Children playing on playground equipment not designated for their age level
- Children using playground equipment in ways other than how it was intended
- Lack of proper adult supervision
- Furniture being placed too close to windows and balconies
- Children’s natural curiosity and desire to explore⁴

Recommended Strategies

Adults

- Continue to expand the number of *Stepping On* trained leaders and workshops facilitated in N.D. (*Stepping On* is designed specifically for people who are at risk of falling, have a fear of falling, or who have fallen one or more times. Participants meet for two hours a week for seven weeks. Trained leaders facilitate workshops and provide a safe and positive learning experience.)⁶
- Increase the availability and accessibility of fall prevention programs, such as *Stepping On*, which can help older adults assess balance and strength, exercise to improve strength and balance, get their medications reviewed and adjusted annually, evaluate and modify their homes to reduce fall hazards, and check for and correct vision impairments.
- Engage health professionals and community members in fall prevention activities by promoting N.D.’s *Stepping On* program and holding training annually for new leaders.
- Enhance awareness among the public, older adults, caregivers and providers that falls can be prevented and promote adoption of four key prevention behaviors: begin a regular exercise program; have a health care provider review medicines; have vision checked; and make one’s home safer.
 - Disseminate messages for older adults
 - Disseminate messages for care givers, pharmacists and physicians

- Develop a packet of fall prevention educational materials to be distributed through partners

Children

- Communicate effective strategies to promote injury prevention to target audiences through designing messages and information.
 - Campaign to raise parents' awareness about the leading causes of child injury and how they can be prevented.
- Provide education and training to increase knowledge, attitudes and behavior change conducive to preventing injuries.
 - Develop child care based curriculum to reduce falls among children in those settings; especially falls from heights such as cribs and playground equipment.
- Utilize health systems and health care to deliver quality care and clinical and community preventive services.
 - Work with health care providers to find efficient and effective means of routinely incorporating age-appropriate fall prevention recommendations into well child visits.
- Educate the public to:
 - Install safety gates on stairs and guards on windows to prevent falls by young children.⁷
 - Provide a soft-landing surface below playground equipment.⁷
 - Use the proper safety equipment, such as knee pads, elbow pads, wrist guards and helmets while playing sports.⁷
 - Supervise children near fall hazards.⁷
 - Remove fall hazards whenever possible.⁷

For More Information

N.D. Department of Health, Division of Injury Prevention and Control

<http://www.ndhealth.gov/injury/>

CDC Falls Prevention page

<http://www.cdc.gov/HomeandRecreationalSafety/Falls/index.html>

CDC's Preventing Falls: What Works A CDC Compendium of Effective Community-based Interventions from Around the World

www.cdc.gov/HomeandRecreationalSafety/Falls/compendium.html

CDC's Preventing Falls: A Guide to Implementing Effective Community-based Fall Prevention Programs

<http://www.cdc.gov/homeandrecreationalafety/pdf/falls/fallpreventionguide-2015-a.pdf>

Safe Kids Worldwide <http://www.safekids.org/>

References

¹Older Adult Falls: Get the Facts.

<http://www.cdc.gov/HomeandRecreationalSafety/Falls/adultfalls.html>. Centers of Disease Control and Prevention. 2015

²National Center for Injury Prevention and Control. Web-Based Injury Statistics Query & Reporting System. www.cdc.gov/ncipc/wisqars. Centers for Disease Control and Prevention. 2013

³Falls. http://www.safekids.org/safetytips/field_type/tip/field_risks/falls. Safe Kids Worldwide. 2015

⁴A National Action Plan for Child Injury Prevention: Reducing Fall-Related Injuries in Children. <http://www.cdc.gov/safechild/NAP/overviews/falls.html>. Centers for Disease Control and Prevention. 2013

⁵Preventing Falls: A guide to implementing effective community-based fall prevention programs. <http://www.cdc.gov/homeandrecreationalafety/pdf/falls/fallpreventionguide-2015-a.pdf>. Centers for Disease Control and Prevention. 2015

⁶Falls Prevention with *Stepping On*. <https://wihealthyaging.org/stepping-on>. Wisconsin Institute for Healthy Aging. 2016

⁷Falls. <https://www.childreussafetynetwork.org/injury-topics/falls>. Children's Safety Network. 2016

Motor Vehicle Crashes

Goal Statement:

Reduce the number of fatalities by motor vehicle crashes (MVC) by five percent by 2021.
Reduce the number of injuries caused by MVC by five percent by 2021.

Statement of Problem:

Motor vehicle crashes are the leading cause of injury death in N.D.

N.D. has consistently been ranked as one of the safest states in the nation and strives to maintain this distinction through effective traffic safety programs. The number of motor vehicle fatalities in N.D. fluctuates from year to year. The fatality rate has decreased from 1.76 deaths per 100 million vehicle miles of travel (VMT) in 2009 to 1.29 deaths per 100 million VMT in 2014. In comparison, the national MVC death rate dropped from 1.15 per 100 million VMT in 2009 to 1.07 in 2014. N.D.'s motor vehicle fatality rate is consistently higher than the national fatality rate.

Impaired driving and lack of seat belt use continue to be a problem in the state. In 2014:

- 46.7 percent of motor vehicle fatalities involved alcohol.
- 67.8 percent of individuals killed in motor vehicle crashes (autos and sport utility vehicles [SUVs]) were not wearing seat belts.

While seat belt use in N.D. was 81.5 percent in 2009, it declined to a low of 74.8 percent in 2010 and slowly increased to 81.0 percent in 2014. Subsequent annual seat belt use rates indicate the state has reached a plateau in seat belt use. In addition, alcohol continues to be a factor in about half of all motor vehicle fatalities each year.

These statistics necessitate an increase in the level of seat belt and impaired driving programming to further advance the public's awareness and level of education related to these issues.

N.D. also has experienced a rapid increase in population and traffic in the western portion of the state due to energy development. According to the North Dakota Department of Transportation (NDDOT) some N.D. roads have seen an increase in traffic of up to 300 percent. Law enforcement officers, western N.D. companies and travelers have voiced their concerns related to the increasing traffic safety issue and the need for programming and enforcement to address it.

Crash Definitions:

Crash – sudden damage or destruction on impact to a motor vehicle on public roadways

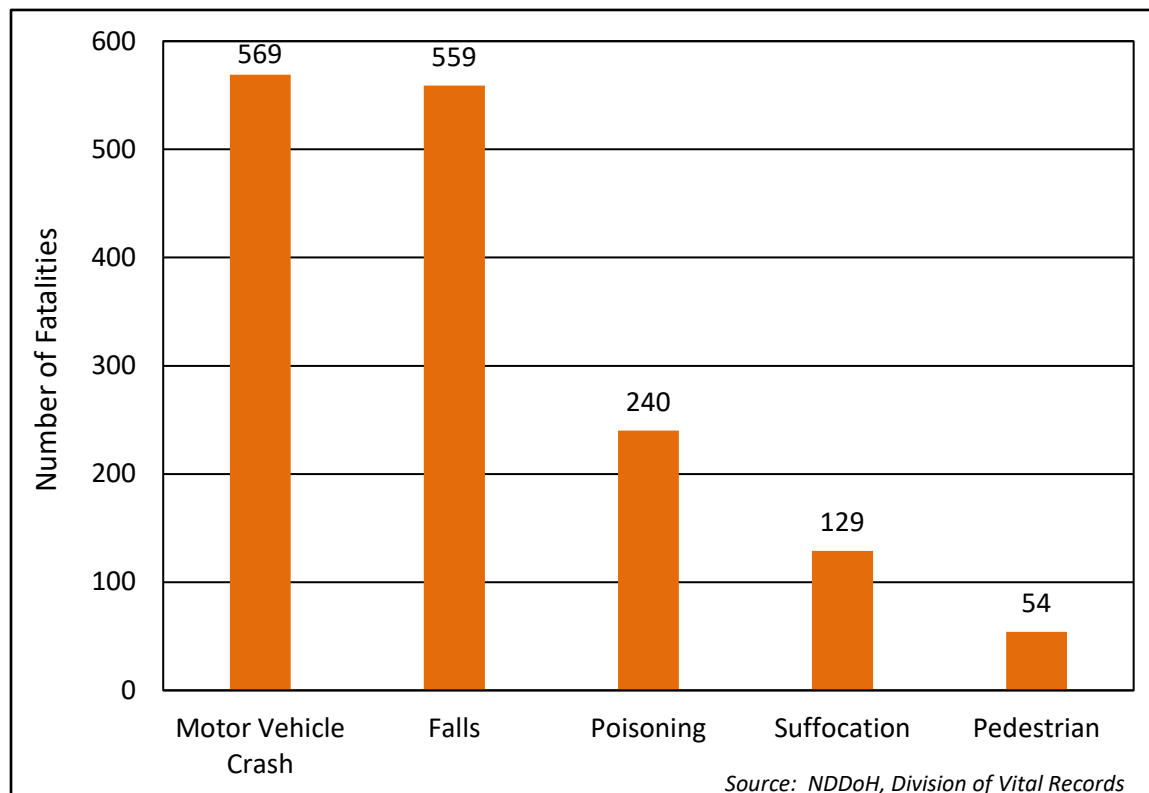
Fatal Crash – a motor vehicle crash on public roadways that results in the death of one or more persons; the death must occur within 30 days of the crash

Fatality – a person who died as a result of injuries received in a motor vehicle crash on public roadways; the death must occur within 30 days of the crash

Supporting Evidence:

Motor vehicle crashes are the leading cause of injury death in N.D. MVCs accounted for one-quarter of all injury-related fatalities in N.D. from 2009 to 2014. It should be noted that the NDDoH, Division of Vital Records, only registers fatalities of N.D. residents, and therefore lists a total of 569 motor vehicle fatalities for that population. The N.D. Department of Transportation (NDDOT) records motor vehicle fatalities for all persons fatally injured in motor vehicle crashes within the state of N.D. The NDDOT (2014) recorded a total of 846 fatalities from 2009 to 2014, an average of 141 people per year. In 2014 alone, there were 135 fatalities and 5,289 injuries resulting from 16,134 reported crashes in N.D.

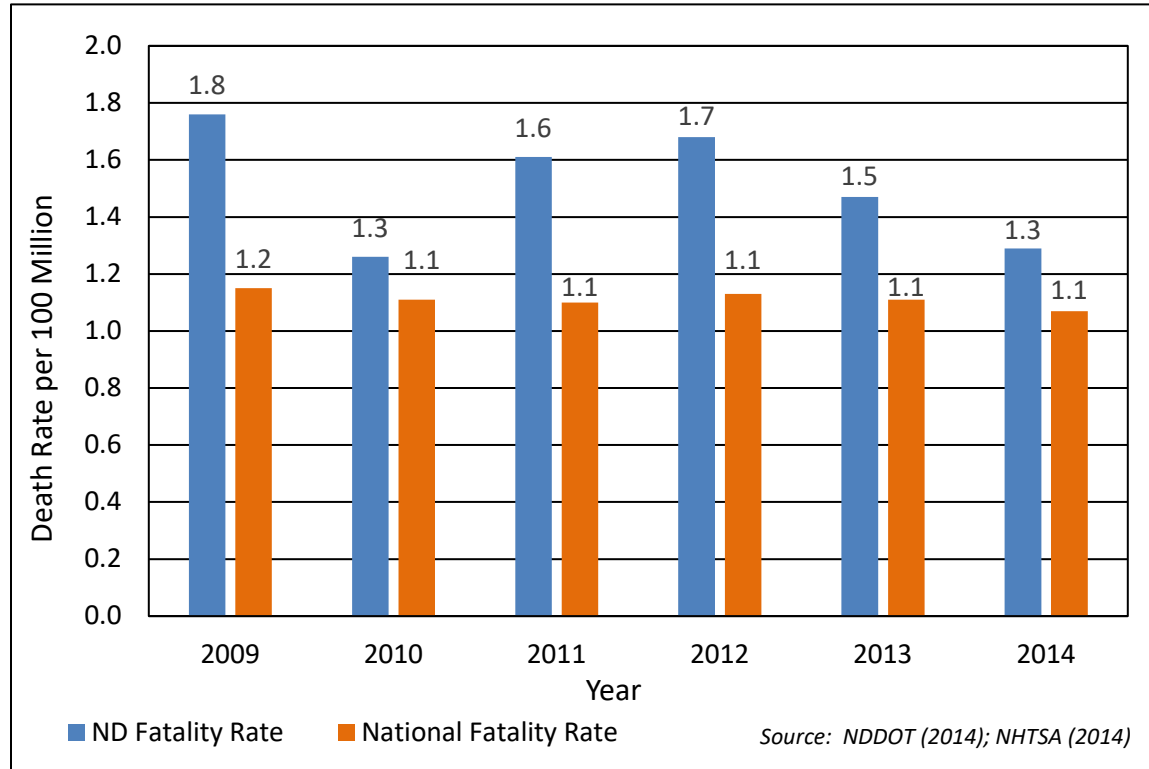
Figure 5. Injury Fatalities by Cause, N.D., 2009-2014



Based on the 2014 numbers (NDDOT 2014), this equates to:

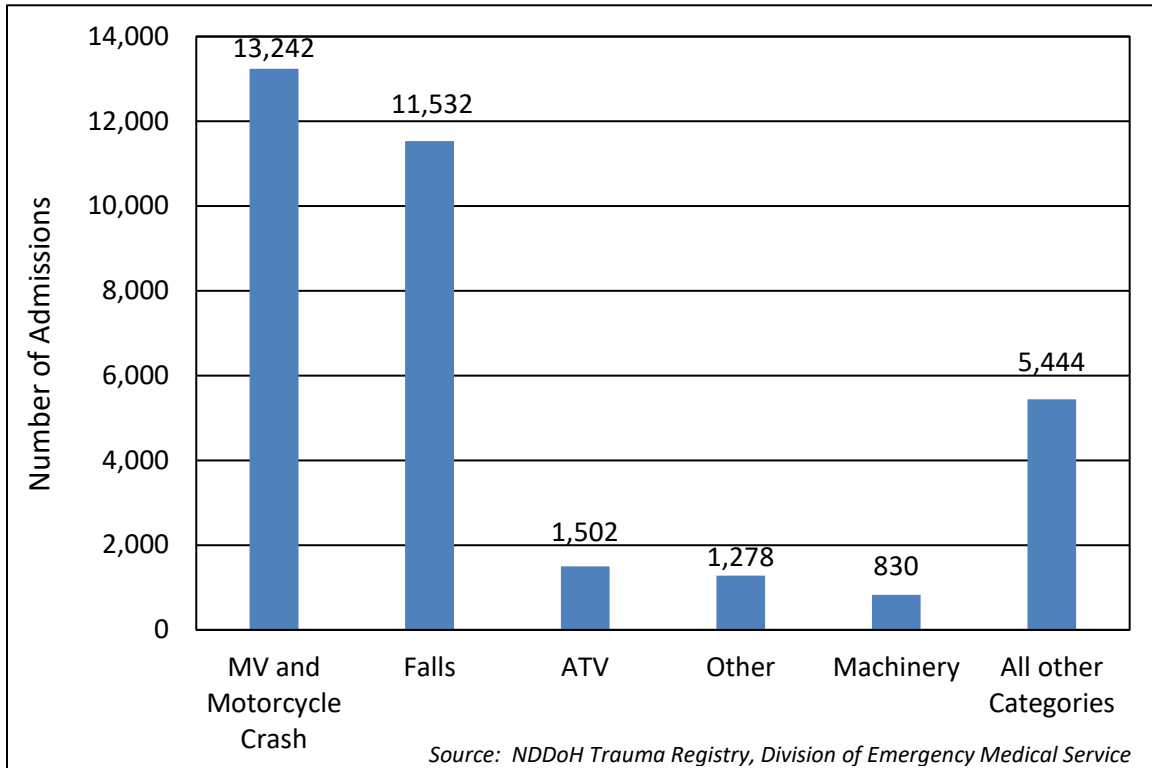
- One reportable traffic crash every 33 minutes
- One person injured in a motor vehicle crash every 1.7 hours
- One person killed in a motor vehicle crash every 2.7 days

Figure 6. Motor Vehicle Crash Death Rate per 100 Million VMT, 2009-2014



Of the 33,828 cases collected through the State Trauma Registry from January 2009 through December 2014, motor vehicle (mv) and motorcycle crashes were the leading cause of all trauma cases reported, with more than 39 percent of the trauma cases being attributed to motor vehicle and motorcycle crashes. Motor vehicle and motorcycle crashes also accounted for 38 percent of the 903 deaths recorded.

Figure 7. N.D. Trauma Registry Admissions, 2009-2014

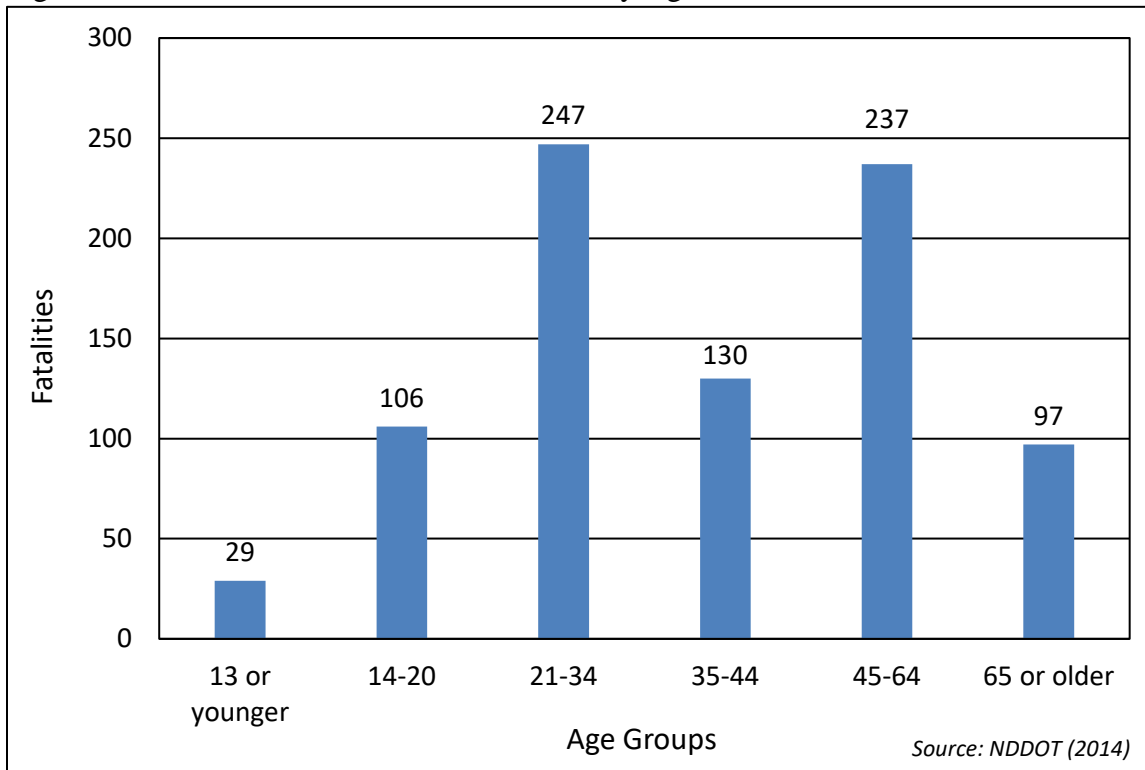


Risk Factors:

Age and Gender

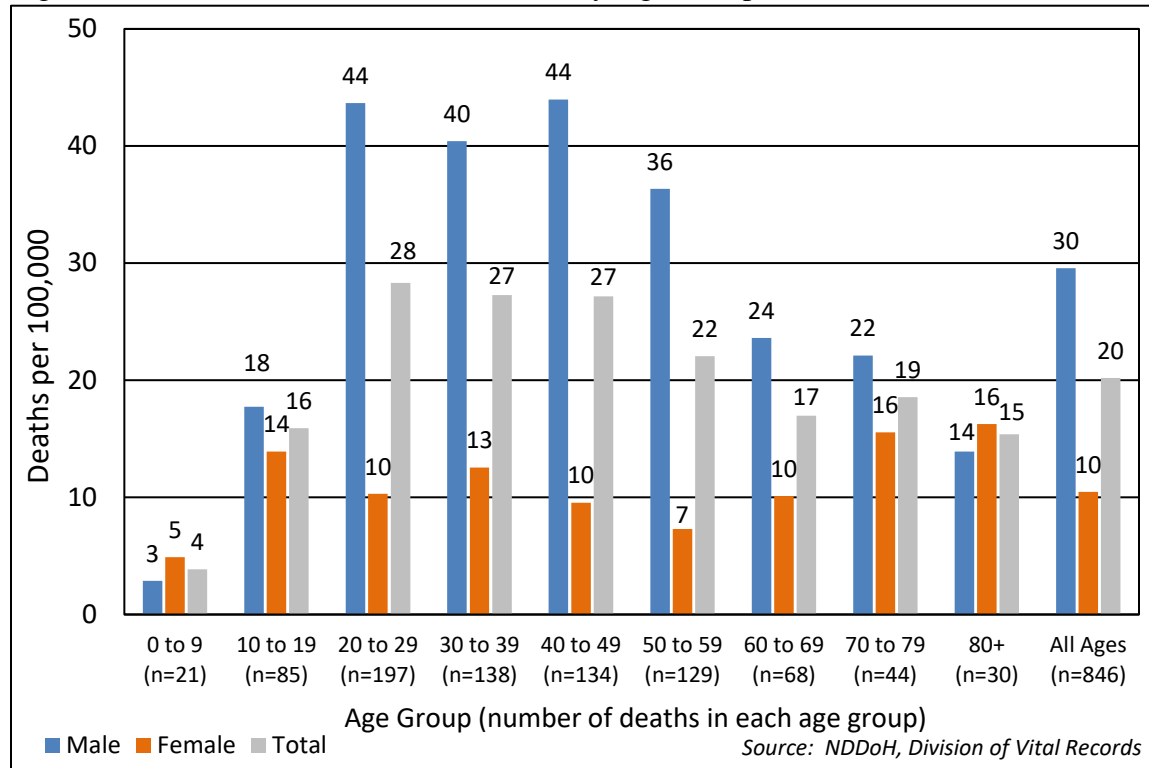
Of the 846 fatalities resulting from motor vehicle crashes during 2009 through 2014, the majority of fatalities were people ages 21 through 64, with over 73 percent of the victims being in this age group (NDDOT 2009-2014).

Figure 8. N.D. Motor Vehicle Crash Fatalities by Age, 2009-2014



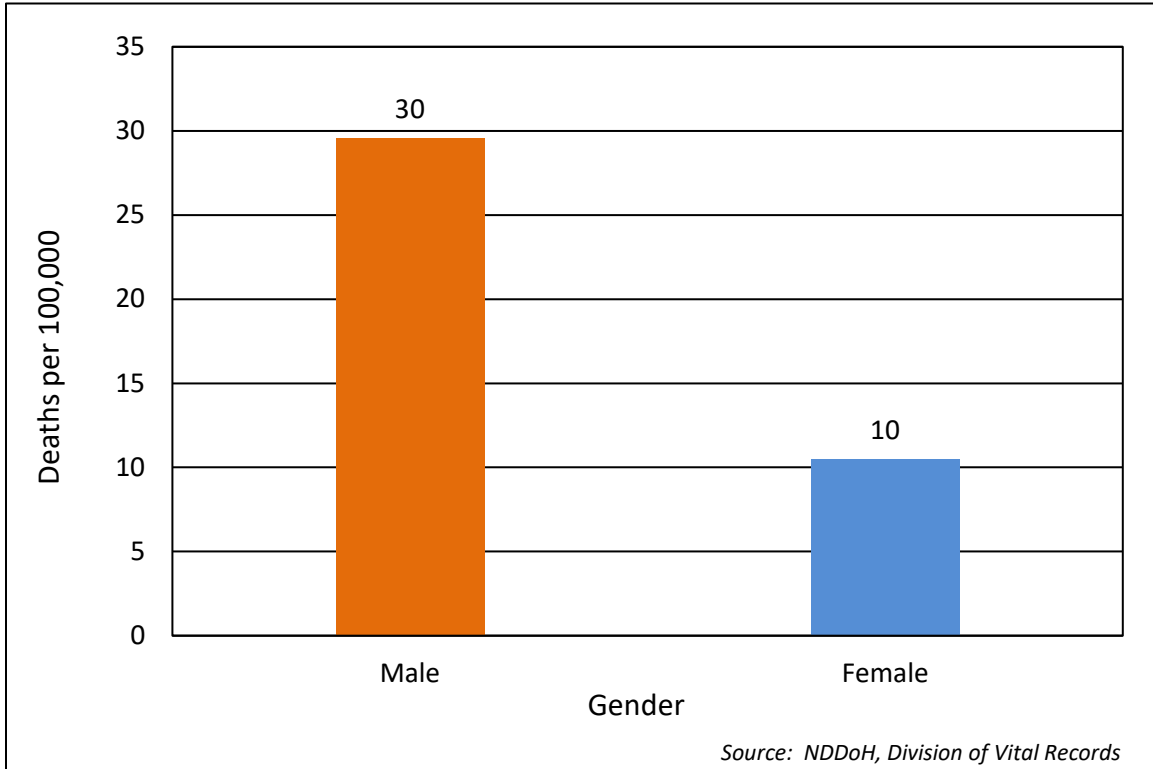
Overall, N.D.'s MVC death rate is 20.2 per 100,000 population. The highest MVC death rate was for the 20 to 29 age group with a rate of 28.3 per 100,000 population, followed by the 40-49 age group at 27.2.

Figure 9. Motor Vehicle Crash Death Rates by Age Group, 2009-2014



Of the motor vehicle crash related fatalities during 2009 through 2014, males accounted for 74 percent (630) of those fatalities while females accounted for 26 percent (216). Males had higher death rates in all but one of the different age groups. Overall, males also had a significantly higher MVC death rate per 100,000 population than females, 29.6 versus 10.5.

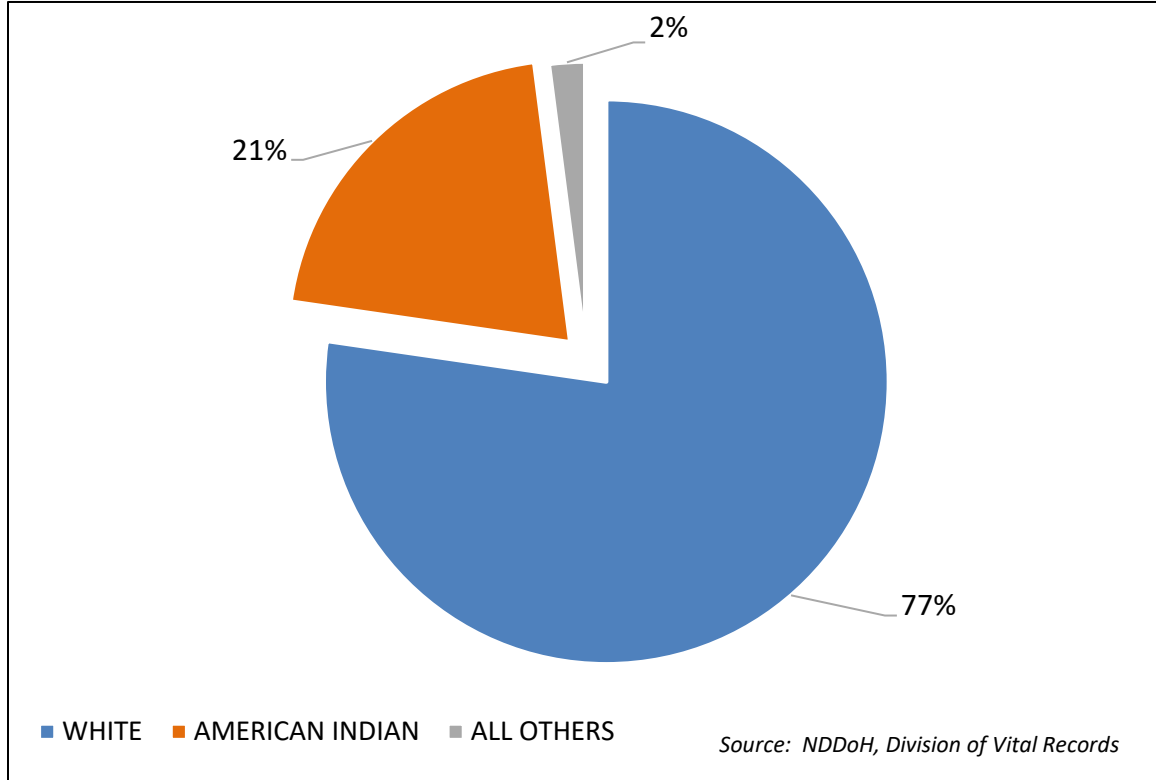
Figure 10. Motor Vehicle Crash Death Rates by Gender, 2009-2014



Race

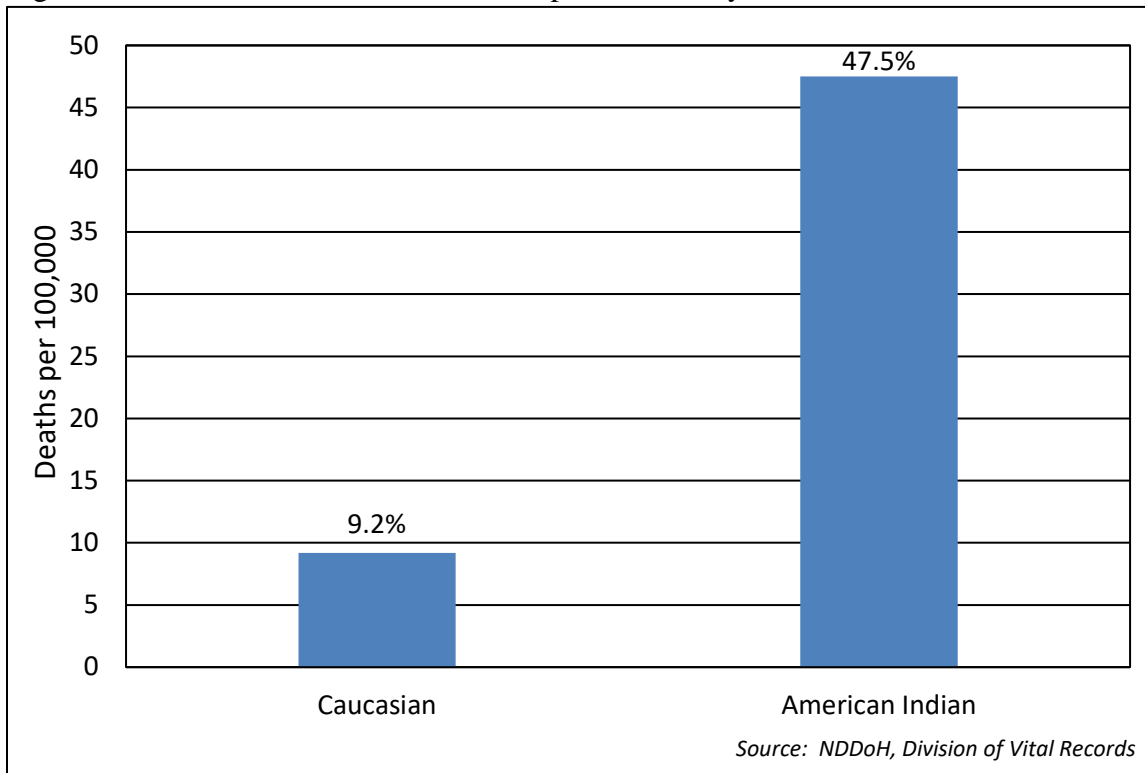
MVC fatalities disproportionately affect American Indians in N.D. Despite accounting for only 4.9 percent of the population, American Indians accounted for 21 percent of the MVC fatalities from 2009 to 2014.

Figure 11. Motor Vehicle Crash Fatalities by Race, 2009-2014



The MVC crash death rate per 100,000 population for Americans Indians in N.D. is five times the rate for Caucasians, 47.5 for American Indians versus 9.2 for Caucasians.

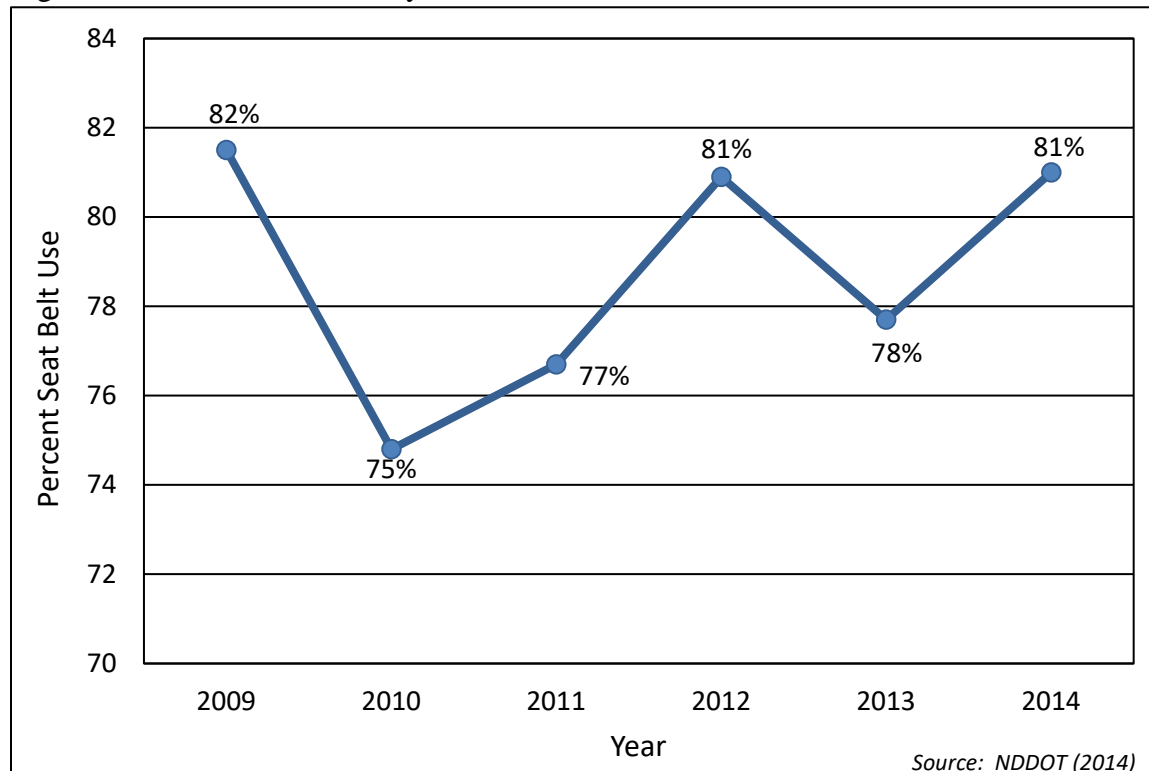
Figure 12: Motor Vehicle Crash Fatalities per 100,000 by Race, 2009-2014



Low Restraint Use

N.D. saw a decrease in restraint use from 2009 to 2010, which may be due to changes that were made in the reporting process in 2010. There was an increase in restraint use annually from 2010 to 2012, increasing from 74.8 percent in 2010 to 80.9 percent in 2012. In 2013, restraint use decreased slightly to 77.7 percent and increased in 2014 to 81.0 percent. N.D.'s seat belt use remains lower than other states in the U.S. Of the MVC fatalities in 2014 in N.D., restraints were used by only 27.1 percent of the people. An estimated 42 lives were saved by seat belts in N.D. in 2013; by increasing the usage to 100 percent, this could potentially save an additional 25 lives per year (NDDOT 2014).

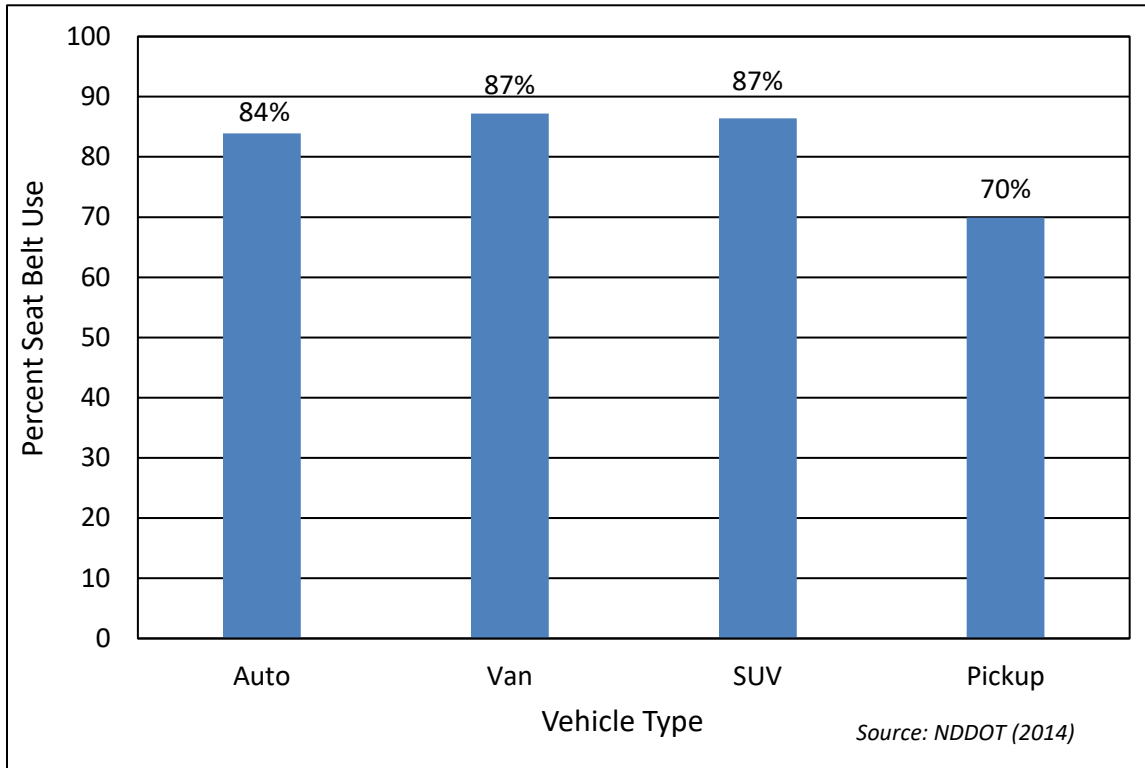
Figure 13. N.D. Seatbelt Use by Year, 2009-2014



A step toward the goal of 100 percent usage would be to change N.D.'s seat belt law from secondary to standard/primary enforcement. Under the current secondary enforcement law, motorists may be cited for non-seat belt use only if they are stopped for another motor vehicle violation. Studies have shown that states changing from a secondary to a primary seat belt law saw a median increase in seat belt use of 16 percentage points (NCHRP 2007; Solomon 2001; Eby 2001; Salzberg 2004; Illinois DOT 2004, Ulmer 1997; Preusser 1997). It is likely that if N.D. were to pass a standard/primary seat belt law, the state could see a large increase in seat belt use, which would have positive consequences. By enacting a standard/primary enforcement law, N.D. could potentially save eight lives, prevent 66 people from receiving serious injuries, and receive a total cost savings of approximately \$21 million each year (NHTSA 2009).

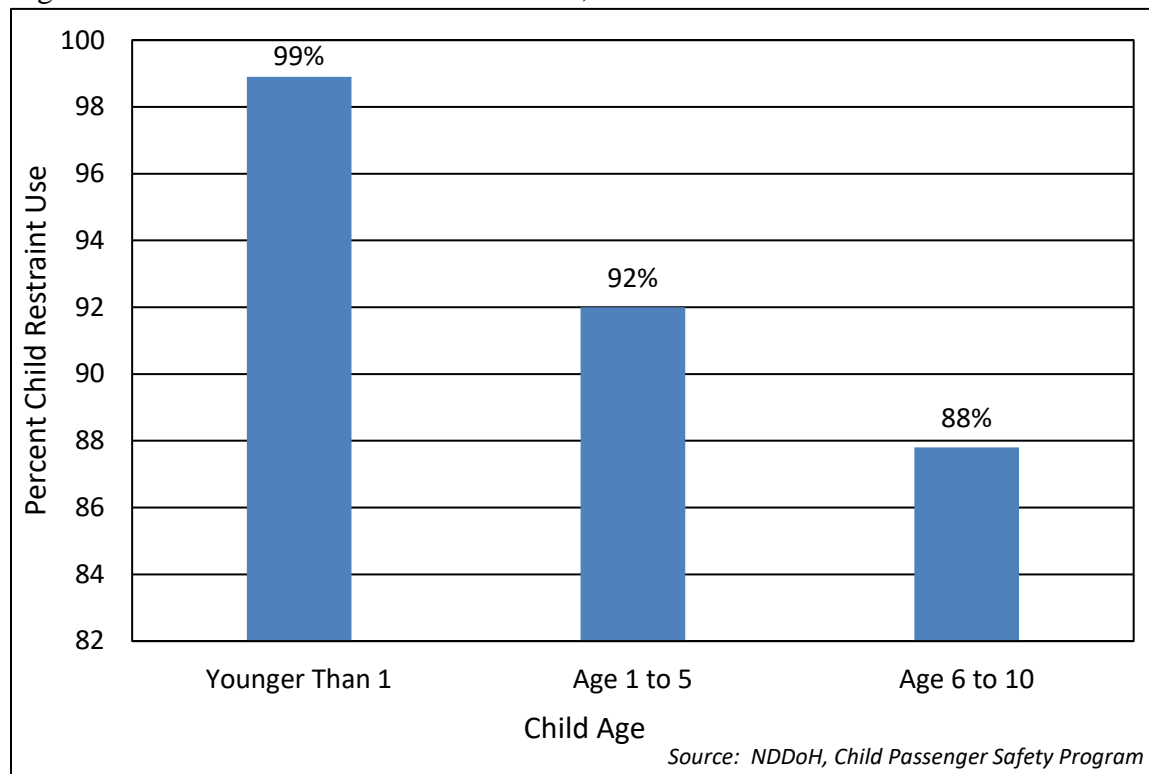
One factor that may contribute to the use/non-use of restraints is the type of vehicle. Surveys conducted by the NDDOT indicate that pickup drivers are less likely to use restraints (NDDOT 2014). Data reflects that pickups/vans/SUVs are involved in a significant proportion of MVCs (NDDOT 2014). Other factors related to seat belt use include age, gender and geographic density, as well as speed, which is most likely correlated to the previous factors mentioned.

Figure 14. N.D. Seat Belt Use by Vehicle Type, 2014



The state's primary enforcement child passenger safety law requires children younger than 7 to ride in a child restraint, and children ages 7 through 17 to be secured in a seat belt or child restraint. Observation surveys conducted by the NDDoH Child Passenger Safety Program in 2012 showed that 98.9 percent of infants were riding in a car seat, 92 percent of toddlers ages 1 through 5 were buckled in a car seat or seat belt, and 87.8 percent of children ages 6 to 10 were in a seat belt or child restraint. Overall restraint use for children younger than 11 years was 90.7 percent.

Figure 15. N.D. Vehicle Child Restraint Use, 2012



According to the National Highway Traffic Safety Administration (2011), national studies reflect a 59 percent misuse rate of child safety seats. The N.D. child safety seat misuse rate is higher than the national rate at approximately 78 percent (NDDoH 2014).

Alcohol Use

In recent years, the percentage of alcohol-related fatal crashes in N.D. fluctuated from a high of 52.4 percent in 2012 to a low of 43.8 percent in 2014.

Figure 16. N.D. Alcohol Related Fatal Crashes, 2009-2014

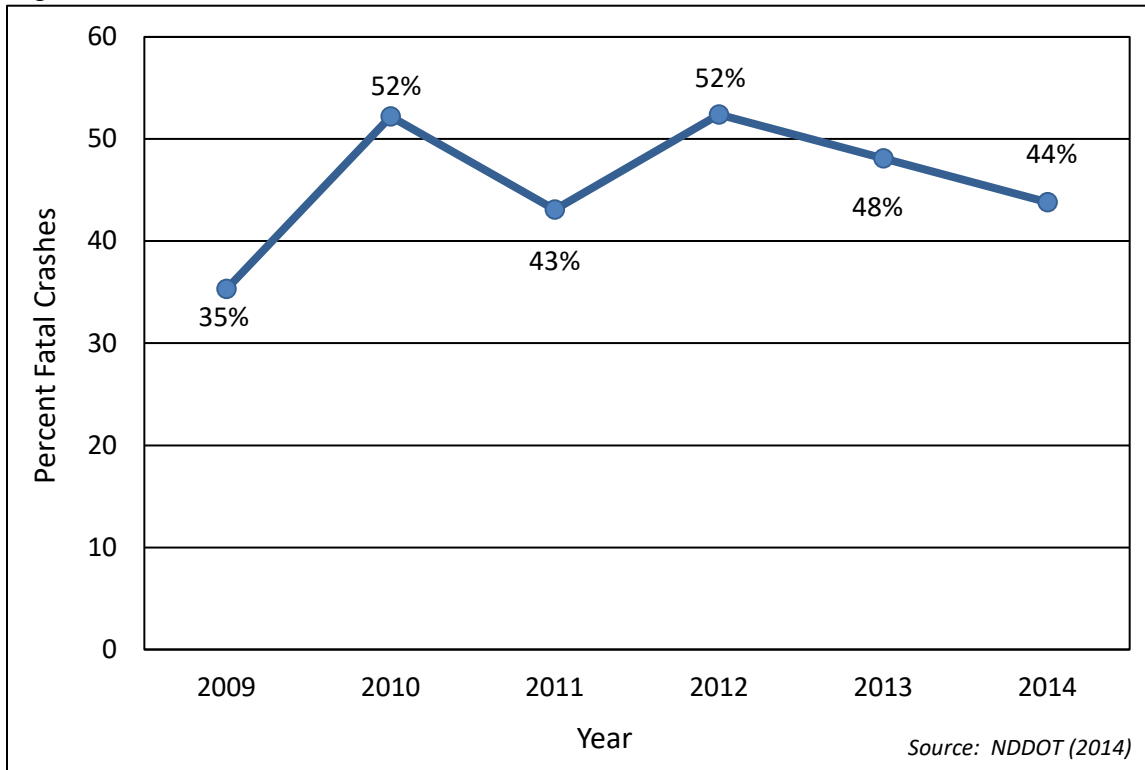
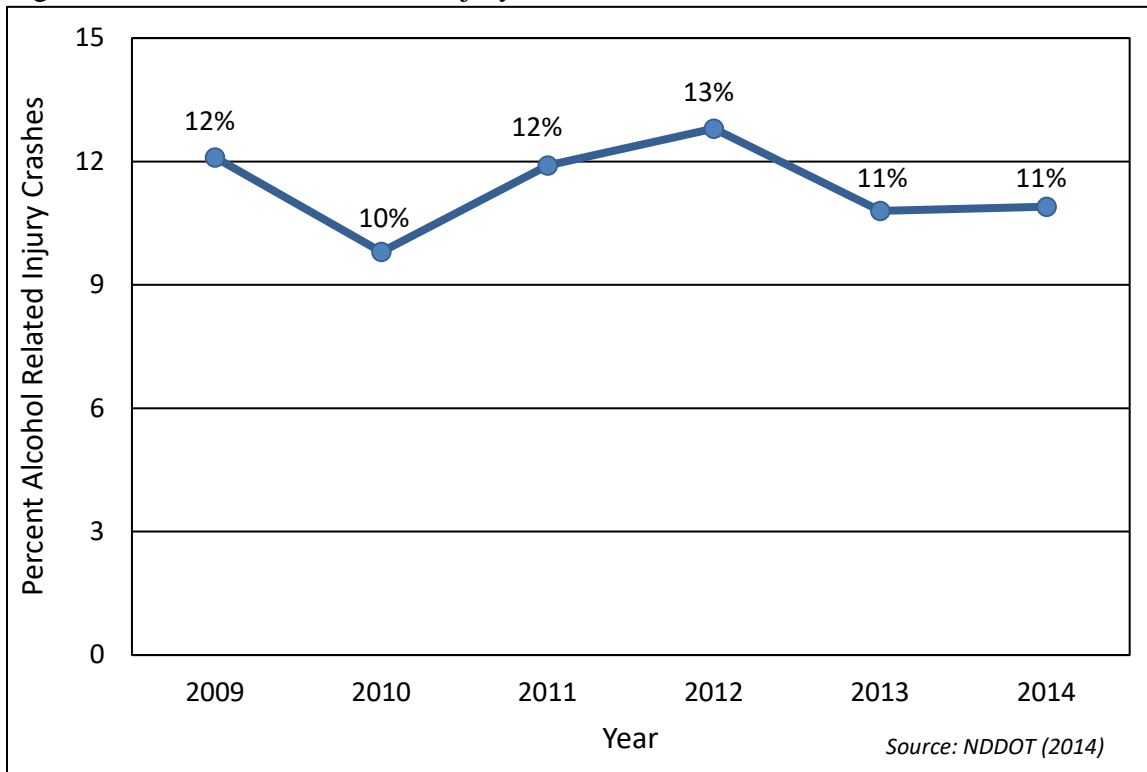
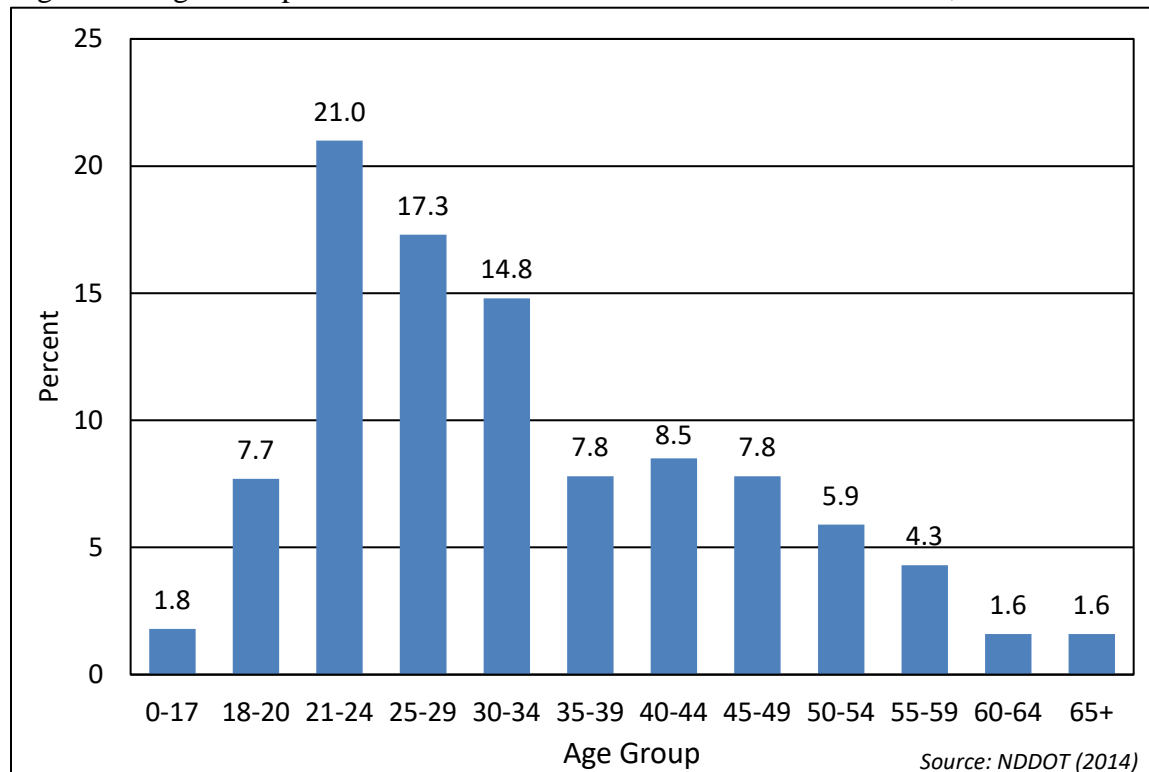


Figure 17. N.D. Alcohol-Related Injury Crashes, 2009-2014



In 2014, N.D. drivers between the ages of 21 and 34 contributed to 53.1 percent of crashes involving alcohol, with drivers between the ages of 21 and 24 accounting for a higher percentage of drivers involved in fatal alcohol-related crashes than other age groups.

Figure 18. Age of Impaired Drivers Involved in Alcohol-Related Crashes, 2014

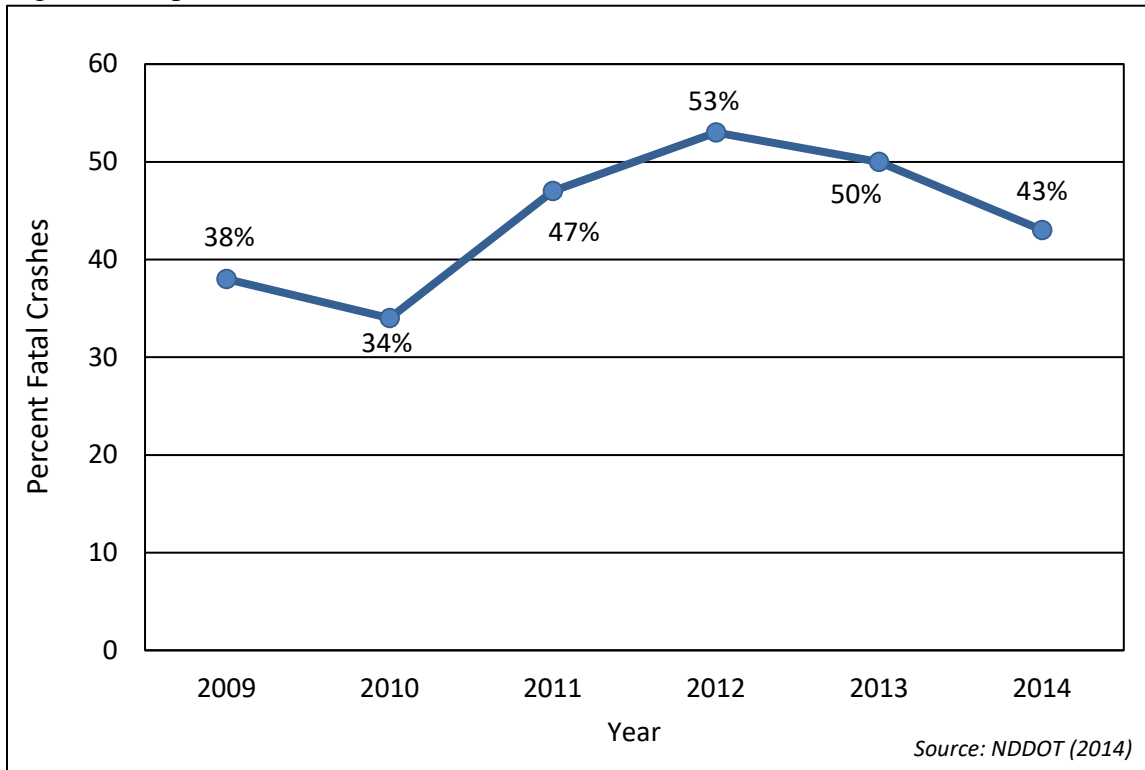


The Youth Risk Behavior Survey (YRBS) results indicate that alcohol use by the state’s youth continues to be a problem. In 2013, 22 percent of N.D. ninth through twelfth graders stated in the past 30 days they had ridden in a vehicle with someone who had been drinking (N.D. Department of Public Instruction 2013). This is similar to students nationwide, who report 21.9 percent for the same measure (U.S. Department of Health and Human Services 2013).

Speed

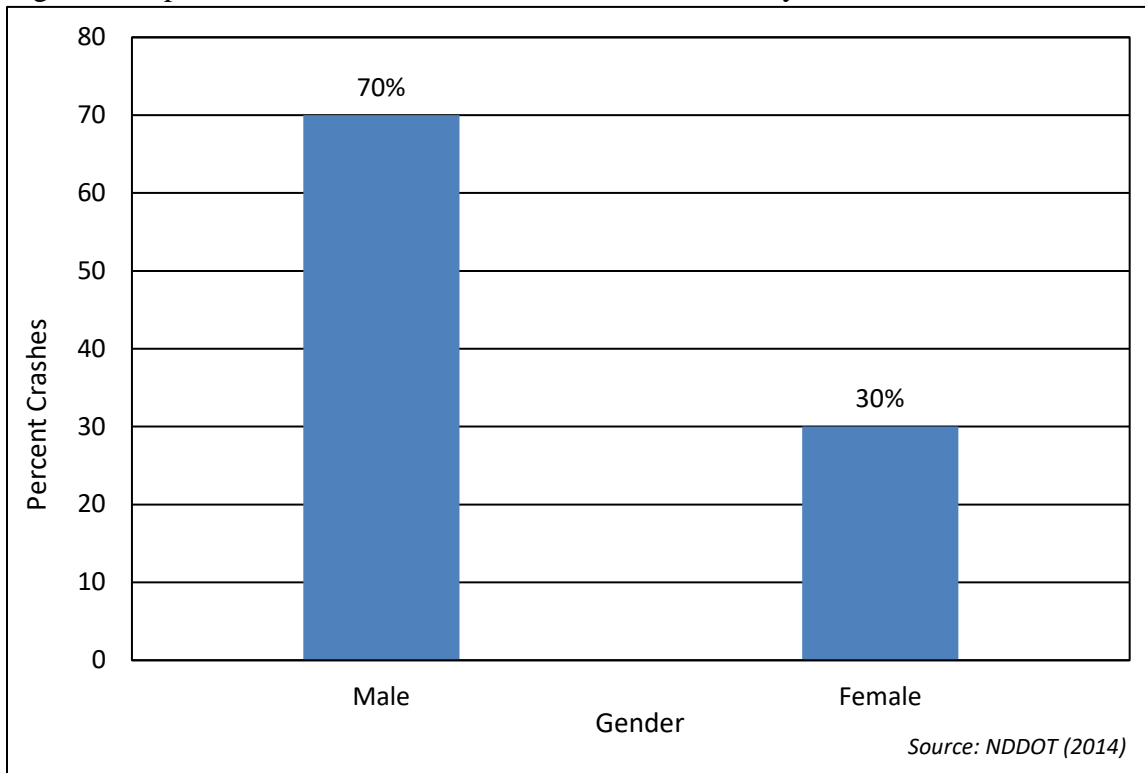
Fatal speed-related and too fast for conditions crashes increased from 34 percent in 2010 to 53 percent in 2012. The percentage decreased to 43 in 2014.

Figure 19. Speed-Related/Too Fast For Conditions Fatal Crashes, 2009-2014



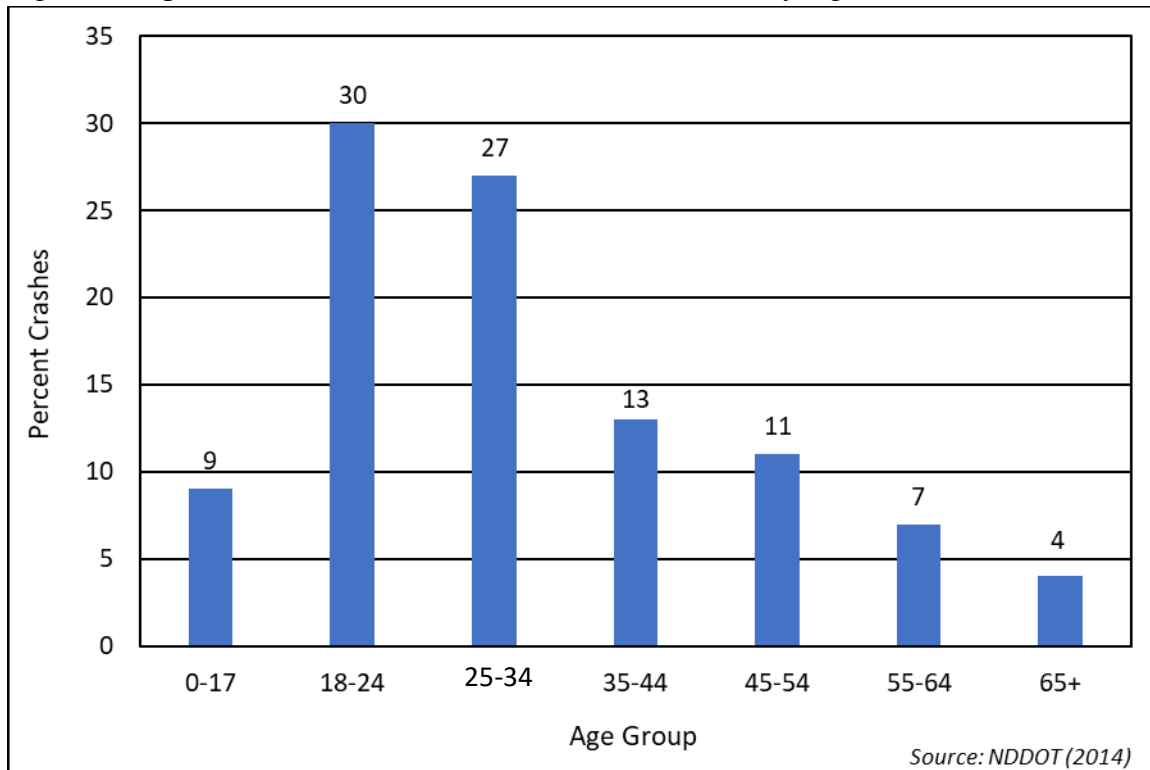
Male drivers overwhelmingly are involved in speed-related crashes more often than female drivers, with 70 percent of male drivers involved in speed-related crashes in N.D. in 2014.

Figure 20. Speed-Related/Too Fast for Conditions Crashes by Gender, 2014



Age also is very strongly correlated with speed-related crashes. Approximately two-thirds of drivers involved in speed-related and too fast for conditions crashes in N.D. in 2014 were 18-34 years of age.

Figure 21. Speed-Related/Too Fast for Conditions Crashes by Age, 2014



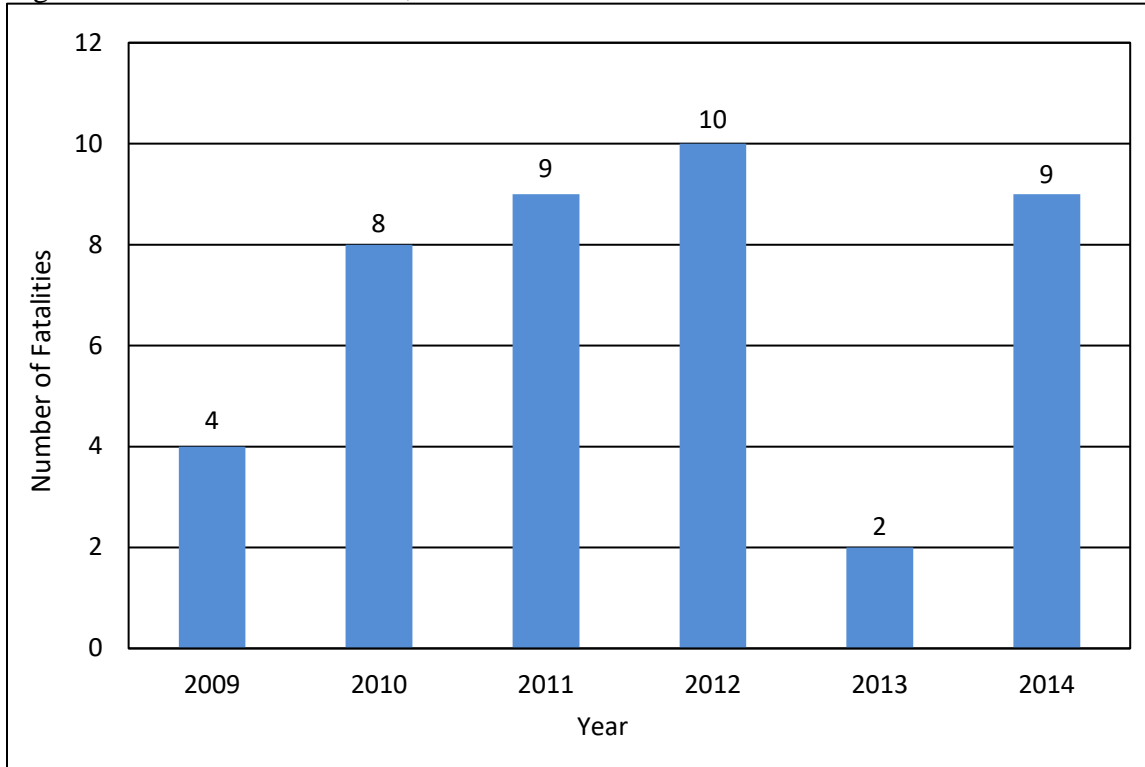
Attention Distracted

Driver inattention appears to be an increasing factor in motor vehicle crashes and near crashes (NHTSA 2010a) and has become a topic of great interest in recent years (Klauer et al. 2006; NHTSA 2010b). Nationally in 2014, a total of 29,989 fatal crashes resulting in 32,675 fatalities involved some form of driver inattention (NHTSA 2014). In N.D., 10 of the 135 fatal crashes in 2014 involved attention distraction (NDDOT 2014).

Pedestrian

At some point, everyone is a pedestrian. Nationally, there was a total of 4,884 pedestrian fatalities on public roadways involving a motor vehicle in 2014. In N.D., 9 of the 125 fatalities in 2014 were pedestrians.

Figure 22. Pedestrian Fatalities, 2009-2014



Recommended Strategies

- Support public information and education campaigns such as seat belt mobilization campaigns, social marketing, defensive driving and other efforts to increase the use of seat belts by N.D. residents.
- Support special efforts to decrease motor vehicle fatality and injury rates in high-risk populations, including American Indians and young drivers, both of which are over-represented in motor vehicle fatality rates.
- Promote educational programs across N.D. specific to traffic safety problems, such as commercial truck driver and railroad safety training.
- Support efforts to reduce the rate of alcohol-related fatalities through enactment and enforcement of laws and administrative rules to reduce impaired driving.

- Support public education and awareness programs to reduce impaired driving; including teen court, alcohol beverage server training, saturation patrols, sobriety checkpoints and education campaigns that address drinking and driving.
- Support efforts to change social norms about underage drinking and general alcohol consumption by N.D. residents.
- Encourage employers to implement and enforce seat belt policies, non-alcohol use policies, distracted driving policies, and include motor vehicle safety as part of worksite wellness initiatives.
- Support enactment of a primary/standard enforcement seat belt law in N.D.
- Enhance the N.D. child passenger safety law by bringing it up to date with the current child passenger safety best practice recommendations for transporting children.
- Promote public awareness of N.D.'s child passenger safety and seat belt laws.
- Promote correct use of child restraints through car seat distribution programs, car safety seat checkups and public information campaigns.
- Conduct training to increase and maintain the network of trained advocates and certified child passenger safety technicians.
- Provide up to date statewide child passenger safety best practices to professionals so that they can be an active and accurate resource for the public.

For More Information

- N.D. Department of Transportation www.dot.nd.gov
- Data and prevention information www.dot.nd.gov/divisions/safety/trafficsafety.htm
- Crash Summary www.dot.nd.gov/divisions/safety/docs/crash-summary.pdf
- Seat Belt Observational Survey www.dot.nd.gov/divisions/safety/docs/seat-belt-use.pdf
- Code for the Road www.ndcodefortheroad.org/
- N.D. Department of Health - Child Passenger Safety www.ndhealth.gov/injuryprevention/childpassenger/
- N.D. Highway Patrol <http://www.nd.gov/ndhp/>
- AAA-The Auto Club Group www.AAA.com/safety
- National Highway Traffic Safety Administration www.nhtsa.dot.gov/
- Upper Great Plains Transportation Institute www.ugpti.org/
- Safe Kids USA - Countdown2:Drive program (pre-driver) www.safekids.org/
- N.D. Safety Council - Defensive Driving, Professional Truck Driver and Alive at 25 www.ndsc.org/
- Operation Lifesaver (Railroad Safety) www.ndsc.org/operationlifesaver or www.oli.org
- U.S. Centers for Disease Control and Prevention - Motor Vehicle Injury Prevention www.cdc.gov/motorvehiclesafety/

Unintentional Poisonings

Goal Statement:

Reduce fatal poisonings from 5.73 per 100,000 (age-adjusted rates) to 4.5 per 100,000 by 2021.

Statement of Problem

Unintentional poisonings are the leading cause of unintentional injuries in the United States.¹ Poisoning deaths surpass motor vehicle crash deaths in people of ages 25 to 64 years and are the leading cause of unintentional injury deaths in this age group. Poisonings increase the burden in emergency rooms and hospitals, as it is the tenth leading reason for nonfatal injuries seen in emergency rooms and the fourth leading reason for hospital admissions from emergency room visits in United States. It is estimated that the economic burden of poisonings in 2005 was 3.2 billion dollars in total lifetime medical costs.² There were 38,851 unintentional poisoning deaths in the United States in 2013. The rate of unintentional poisoning deaths was 12.3 per 100,000 population.³

There were 240 deaths due to poisoning in N.D. from 2009 to 2014. The rate of unintentional poisoning deaths among N.D. residents was 5.73 per 100,000 population. In 2013, unintentional poisoning ranked sixth among the leading causes of injury deaths in N.D. Narcotics and alcohol were the most common substance resulting in a poisoning death in N.D. from 2009 to 2014 among residents ages 30 to 50 (Figure 23). Among residents over the age of 65, carbon monoxide poisoning was the leading substance resulting in death in N.D. from 2009 to 2014 (Figure 24).

Figure 23. Poisoning Deaths by Substance for those Ages 30-50 Years, 2009-2014

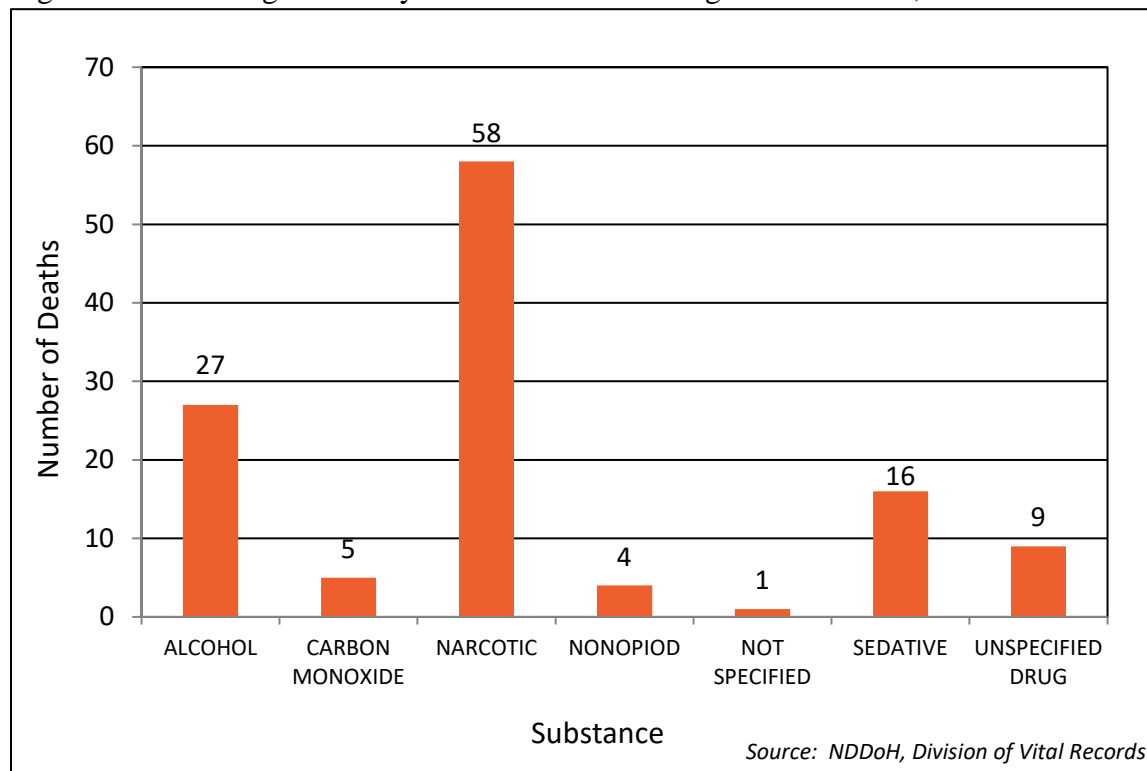
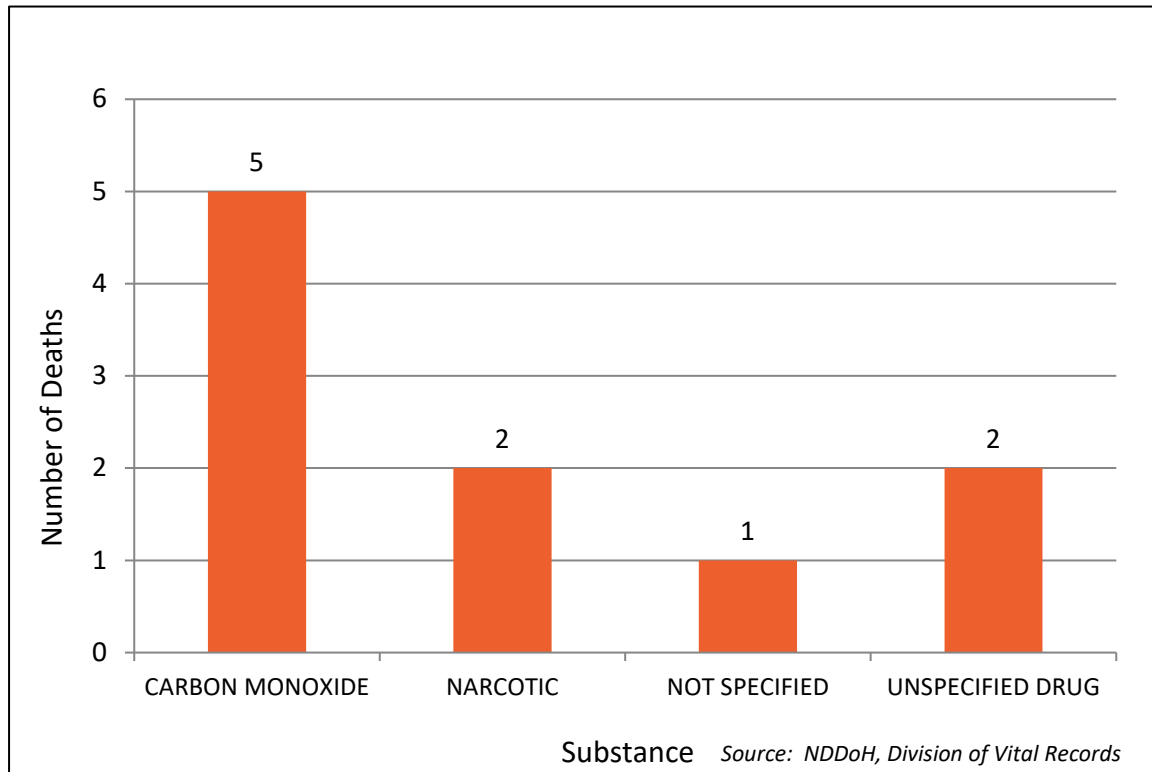


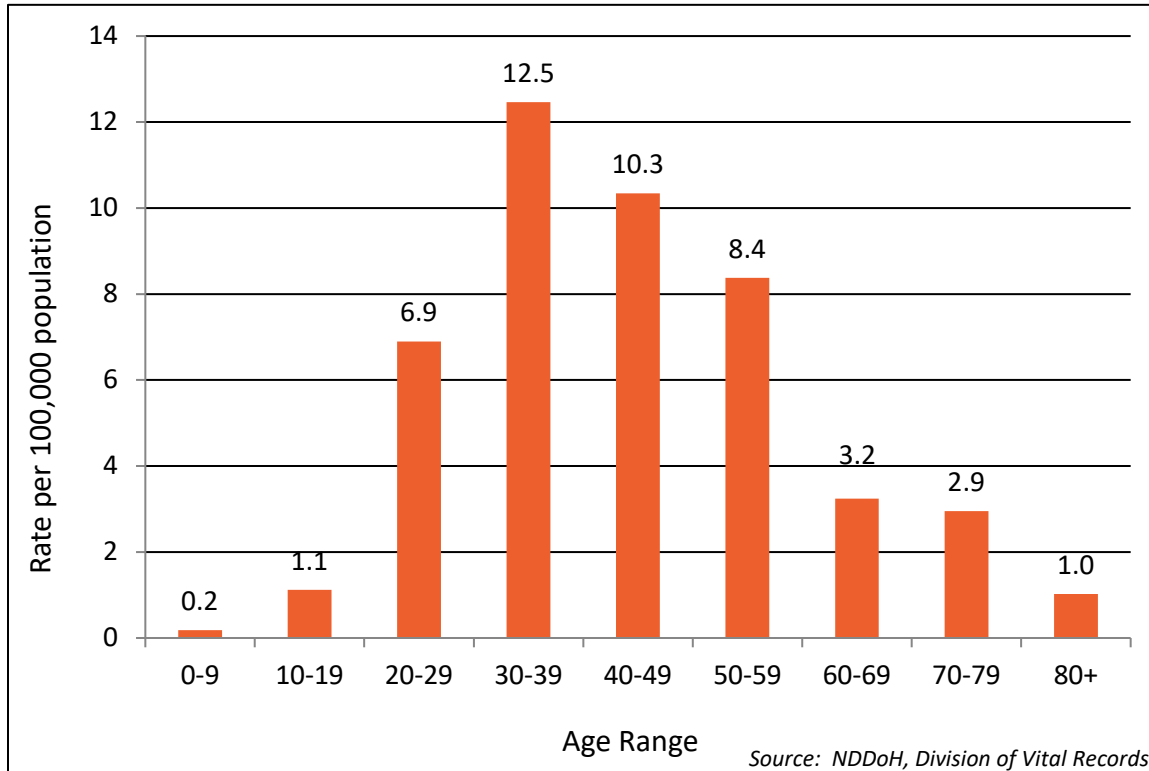
Figure 24. Poisoning Deaths by Substance for Those Age 65 and Older, 2009-2014



Age

Nationwide, the highest death rates for unintentional poisonings were among those 45-54 years with a rate of 23.2 deaths per 100,000 population from 2009 to 2014.⁴ In N.D., age groups 30 to 60 years of age have the highest rates of deaths due to poisonings from 2009 to 2014 (Figure 25).

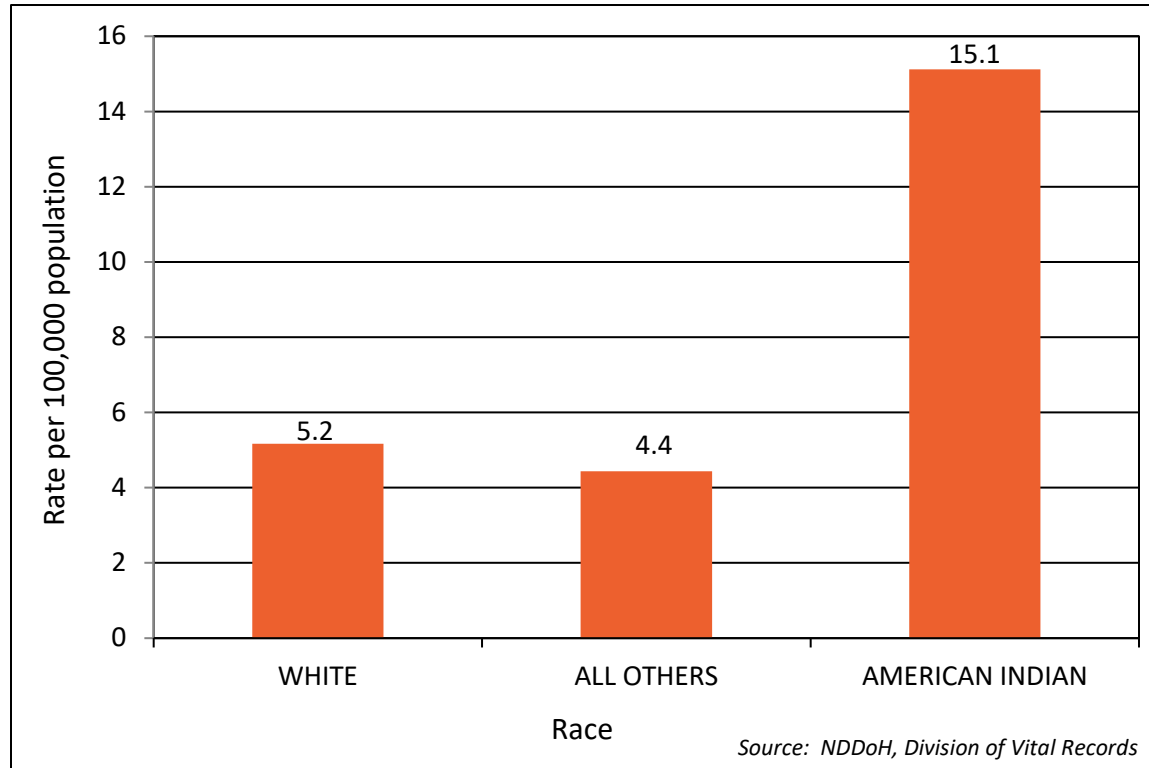
Figure 25. Rates of Poisoning Deaths by Age, N.D., 2009-2014



Race

Nationwide, the highest death rates for unintentional poisonings were among American Indian or Alaska Natives with 13.5 deaths per 100,000 population from 2009 to 2014, followed by Caucasian with 12.9 deaths per 100,000 population. In N.D., American Indians have the highest rate of deaths due to poisonings with 15.1 deaths per 100,000 from 2009 to 2014 (Figure 26).

Figure 26. Rates of Poisoning Deaths by Race, N.D., 2009-2014



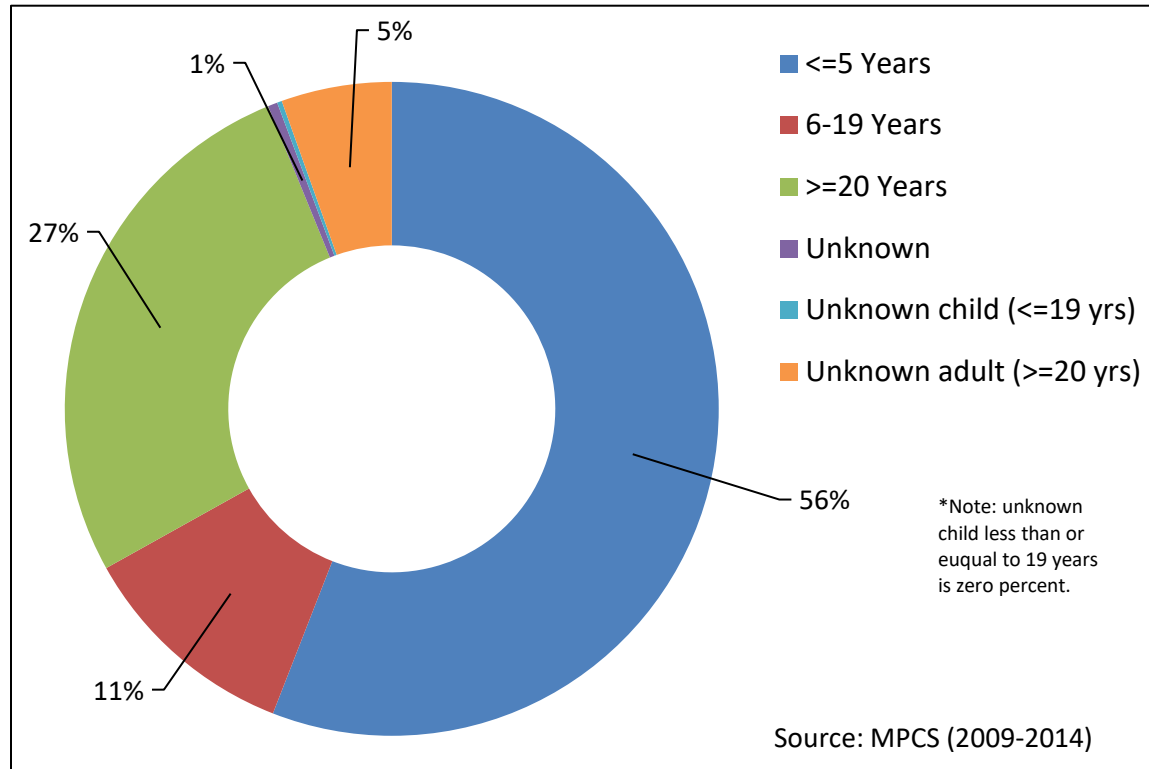
Poisoning Exposures

The United States has 55 poison centers that track poisonings and their sources. All poisoning exposure calls that are made to these centers are collected and stored in a database called the National Poison Data System.⁵ In 2014, these centers provided telephone guidance for nearly 2.2 million human poison exposures, which is about one poison exposure being reported to a poison control center every 15 seconds.⁶ The Minnesota Poison Control System (MPCS) in Minneapolis, Minnesota is the regional poison control center for N.D. residents. From 2009-2014, 31,517 calls from N.D. residents were made to the Hennepin Regional Poison Center, or about 5,253 calls a year.

Ages Affected

Young children comprise a disproportionate percentage of poisoning cases.⁶ From 2009 to 2014, 56 percent of calls to the poison control center among N.D. residents were among children five years of age and younger (Figure 27).

Figure 27. Age Distribution of Poison Exposures Reported to MPCS, 2009-2014



Most Common Substances Implicated in Poison Exposures

Nationwide, cosmetics and personal care products were the most common substance implicated in poisoning exposures in children five years of age and younger in 2014. Among those ages 20 years and older, the most common substance implicated in poison exposures were pain medications.⁶ In N.D., the most common substance implicated in poisoning exposures from 2009-2014 in children five years of age and younger (n=17,625) was ibuprofen, followed by diaper care/rash product (Table 1). The most common substance implicated in poisoning exposure in adults 20 years of age and older was benzodiazepines, followed by atypical antipsychotics (Table 2).

Table 1. Common Substances Implicated in Poison Exposures, Ages <=5, 2009-2014

Substance	Number of Calls	Percent of all calls to the MPCs from ND residents
Ibuprofen	851	4.82
Diaper Care/Rash Product	579	3.29
Acetaminophen Alone, Pediatric	578	3.29
Multiple Vitamin Tablets	382	2.17
Desiccants	325	1.84

Table 2. Common Substances Implicated in Poison Exposures, Ages >=20, 2009-2014

Substance	Number of Calls	Percent of all calls to the MPCs from ND residents
Benzodiazepines	317	3.74
Atypical Antipsychotics	207	2.44
Acetaminophen Alone, Adult	206	2.43
Sedative/Hypnotic/Anti-Anxiety or Anti-Psychotic Drug	167	2.43
Beta Blockers	151	1.97

Most Serious Poisonings

Nationwide in 2014, pain medications with the largest number of deaths across all ages included acetaminophen-containing medications; sedatives and sleeping medications; cardiovascular drugs; opioids; stimulants and street drugs; and alcohols.⁶ In N.D. from 2009-2014, acetaminophen had the largest number of deaths or major effects across all ages, followed by diphenhydramine and bupropion (Table 3).

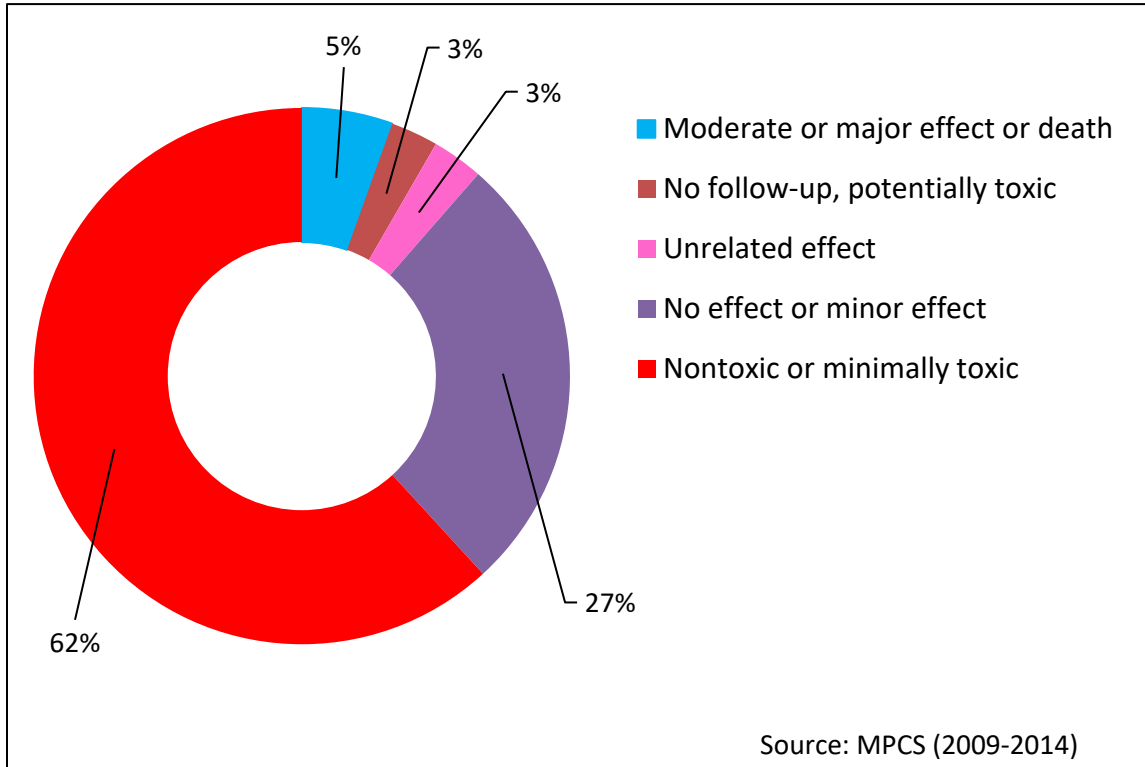
Table 3. Largest Number of Deaths/Major Effects by Substance, 2009-2014

Substance	Number of Calls	Percent of all calls to the MPCs from ND residents
Acetaminophen Alone, Adult	17	8.54
Diphenhydramine	11	5.53
Bupropion	10	5.03
Atypical Antipsychotics	10	5.03
Benzodiazepines	9	4.5

How Serious Are Poison Exposures?

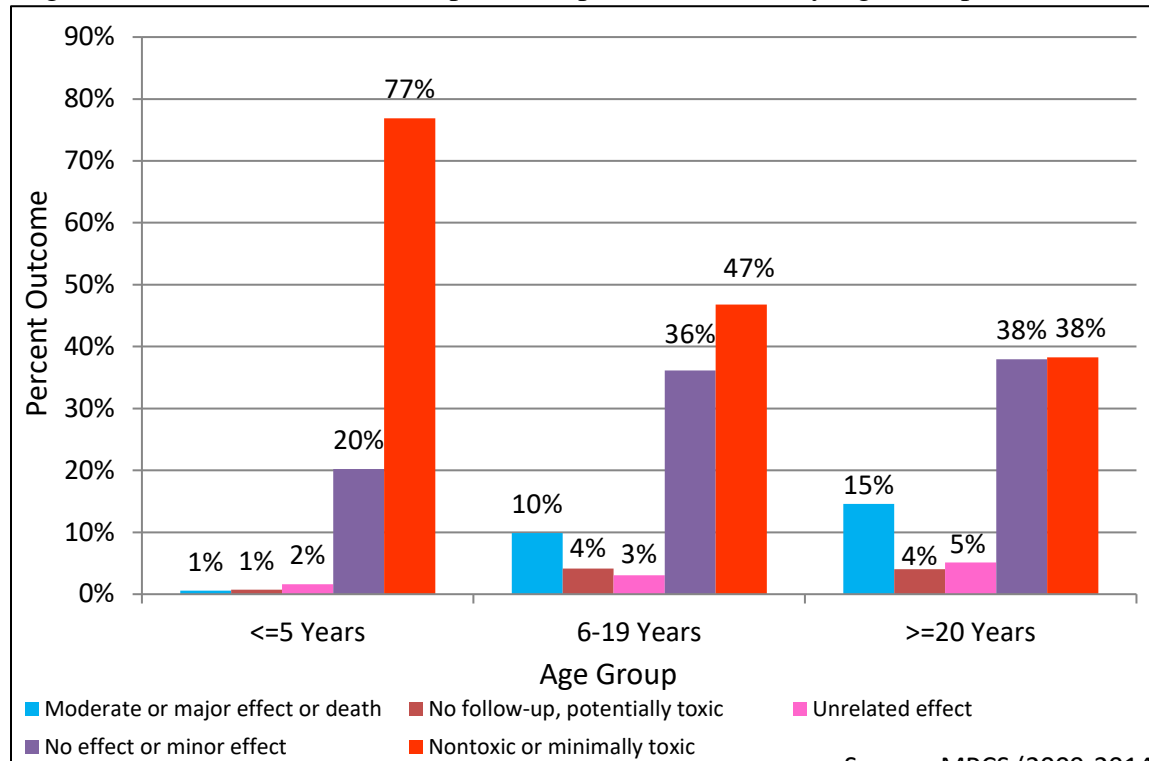
Nationwide in 2014, 85 percent of poison exposures reported to poison centers were non-toxic, minimally toxic, or had at most a minor effect. Moderate effect, major effect, or death occurred in eight percent of poison exposures reported to poison centers.⁶ In N.D. from 2009-2014, 89 percent of poison exposures reported to MPCS were non-toxic, minimally toxic or had a minor effect. Moderate effect, major effect, or death occurred in 5 percent of poison exposures reported to poison centers (Figure 28).

Figure 28. Outcome of Poison Exposure Reported to MPCS, 2009-2014



Nationwide in 2014, exposures in teens and adults were more serious, with 17.3 percent of teens and 15.8 percent of adults having a moderate, major or fatal effect compared to 1.1 percent of children five years of age and younger.⁶ In N.D. from 2009-2014, 10 percent of teens and 15 percent of adults had a moderate, major or fatal effect compared to less than 1 percent of children five years of age and younger (Figure 29).

Figure 29. Outcome of Poison Exposure Reported to MPCs by Age Group, 2009-2014



Source: MPCs (2009-2014)

Risk Factors

- Misusing or abusing prescription or over-the counter medications.
- Taking larger or more frequent doses of medications.
- Not following directions on the label when giving or taking medicines and not reading all warning labels.
- Using food containers such as cups, bottles, or jars to store chemical products such as cleaning solutions or beauty products
- Mixing household products together that can result in toxic gases.⁷

Recommended Strategies

- Distribute data to agencies and organizations involved in poison prevention strategies (i.e., childcare, hospitals, clinics, Safe Kids coalitions) to assist them in determining priorities.
- Develop a partnership with N.D. Workforce Safety & Insurance (WSI) and Occupational Safety and Health Administration (OSHA) to explore methods of gathering data relating to unintentional overdoses and poisoning exposures in the workplace.

- Support existing and new community prevention efforts that are based on local needs and utilize evidence-based strategies.
- Maintain a high-quality poison information center with round-the-clock free service for the public and health care professionals.
 - Document calls using an established database.
 - Analyze caller data to look for emerging trends, location, ages, symptoms and outcomes.
- Promote the National Poison Control Center logo and telephone number (1.800.222.1222), which connects callers with the nearest poison control center.
- Educate health care professionals and insurance providers about the need to screen at-risk children.
 - Suggest to providers a list of questions to assess children's/youth's access to potential poison exposures.
- Educate populations at risk for poisoning, including the following:

General Population

- Create and distribute various poison prevention flyers and tip sheets to public health, pharmacies, hospitals and clinics.
- Create and maintain online resources available to providers, pharmacists, public, (i.e. N.D. Safety Council, Safe Kids and NDDoH).
- Educate the public on proper disposal of drugs including the Attorney General's Drug Take Back Program at local law enforcement centers and local participating pharmacies through the use of handouts, television and radio PSA's and web sites.
- Assist with the process of conducting community-wide drug/medication take back events that are one-time (i.e. health fair, drive-up and drop-off).
- Support poison prevention education to address emerging poison dangers (i.e. N.D. Safety Council Annual Conference, N.D. Public Health Conference, N.D. Rural Health Conference).
- Promote the N.D. Safety Council Prescription Drug Employer toolkit.
- Explore the need to provide education on Naloxone (Naloxone is a medicine that reverses the effects of opioids, sometimes called narcotics) availability and use.
- Promote statewide campaigns seeking to raise awareness of unintentional poisonings.
- Disseminate information to pharmacies to encourage participation in the Medsafe program for pharmacy based medication take backs.
- Educate physicians and pharmacists regarding poison prevention strategies and resources.
- Provide educational outreach to prescribers on ways to minimize poison/medication exposures.
- Conduct "Reasonable Suspicion Training" for employers in N.D. to include information on how to create drug/alcohol policies that deter drug abuse/misuse in the workplace.
- Educate on the dangers of carbon monoxide (CO) poisoning, common sources of CO in homes and the use of CO detectors/alarms.
- Collect and analyze data on CO poisonings to create educational campaigns and strategies targeted at the specific cause/location/source of CO deaths.

Children

- Create and distribute presentations on prevention to parents and caregivers (i.e. Head Start, College of Nursing, Child Care Aware, Prevent Child Abuse N.D.)
- Promote Poison Prevention online training program.
- Promote the Scholastic Over the Counter (OTC) program for middle school students (recommended for 11 year and up).
- Promote the use of the NDDoH Home Safety Checklist (i.e. WIC, physician offices, Local Public Health, Head Start).
- Provide community education on the dangers of electronic cigarettes, including nicotine overdose/poisoning prevention.

Seniors

- Distribute information to senior groups on the adverse effects of medication and potential interactions.
- Partner with pharmacists' associations to educate seniors on safe use of medications.
- Distribute poison prevention brochure to public health, pharmacies, hospitals and clinics.
- Explore partnerships to promote poison prevention messaging to agencies such as: Department of Human Service (DHS) Aging Division, American Legion, AARP, N.D. Nursing Home Association, Senior Center Association.

Rural Communities

- Promote and encourage continuing education training through the online poison prevention training program for public health nurses, child-care providers, social workers, EMS personnel, rural hospital staff, Indian Health Services and tribal health services.
- Raise awareness about Naloxone availability, use and benefits with rural communities, including first responders.

Native American and New American population

- Promote the drug/medication take back program/sites via pharmacy cards to tribal pharmacies and with radio PSA's ad targeted toward tribal populations.
- Explore options to translate poison and medication take back resources into languages common to New American refugees.
- Provide education to New American refugees on the dangers of medication poisonings and safe storage of medication products.

For More Information

N.D. Department of Human Services, Behavioral Health Division

<https://prevention.nd.gov/>

N.D. Department of Health, Division of Injury Prevention and Control

<http://www.ndhealth.gov/injury/>

N.D. Office of Attorney General

<https://www.ag.nd.gov/BCI/PrescriptionDrugAbuse.htm>

N.D. Poison Center

<http://www.ndpoison.org/>

N.D. Safety Council

<http://www.ndsc.org/>

Safe Kids Fargo/Moorhead

<http://www.sanfordhealth.org/medical-services/safe-kids-fargo-moorhead>

Safe Kids Grand Forks

<http://www.safekidsgf.com/>

American Association of Poison Control Centers

<http://www.aapcc.org/>

National Safety Council

<http://www.nsc.org/>

Centers for Disease Control and Prevention, Home and Recreational Safety

<http://www.cdc.gov/homeandrecreationalafety/poisoning/index.html>

National Children's Center for Rural and Agricultural Health and Safety

<http://www3.marshfieldclinic.org/nccrahs/>

Safe Kids Worldwide

<https://www.safekids.org/>

References

¹ Centers for Disease Control and Prevention (2015). NCHS Fact Sheet: NCHS Data on Drug Poisoning Deaths. http://www.cdc.gov/nchs/data/factsheets/factsheet_drug_poisoning.htm

² Injury Surveillance Workgroup 7. (2012). Consensus recommendations for national and state poisoning surveillance. The Safe States Alliance. Atlanta, GA, April, 2012

³ Centers for Disease Control and Prevention (2014). Accidents or Unintentional Injuries. <http://www.cdc.gov/nchs/fastats/accidental-injury.htm>

⁴ Centers for Disease Control and Prevention (2015). CDC WONDER: Underlying Cause of Death, 1999-2014 Results. <http://wonder.cdc.gov/ucd-icd10.html>

⁵ American Association of Poison Control Centers (2015). National Poison Data System. <http://www.aapcc.org/>

⁶ National Capital Poison Center (2015). Poison Statistics: National Data 2014. <http://www.poison.org/poison-statistics-national>

⁷ Centers for Disease Control and Prevention (2015). Tips to Prevent Poisonings. <http://www.cdc.gov/homeandrecreationalafety/poisoning/preventiontips.htm>

Unintentional Suffocation

Goal Statement

Reduce the number of fatalities caused by suffocation by five percent by 2021.

Suffocation definition: inability to breathe by unintentional causes such as asphyxiation, aspiration and strangulation.

Statement of Problem

There were 136 N.D. resident deaths from unintentional suffocation from 2009-2014. While suffocation is listed as the primary cause of death in these cases, suffocation is often the result of chronic disease, choking, substance abuse and/or farming accidents.

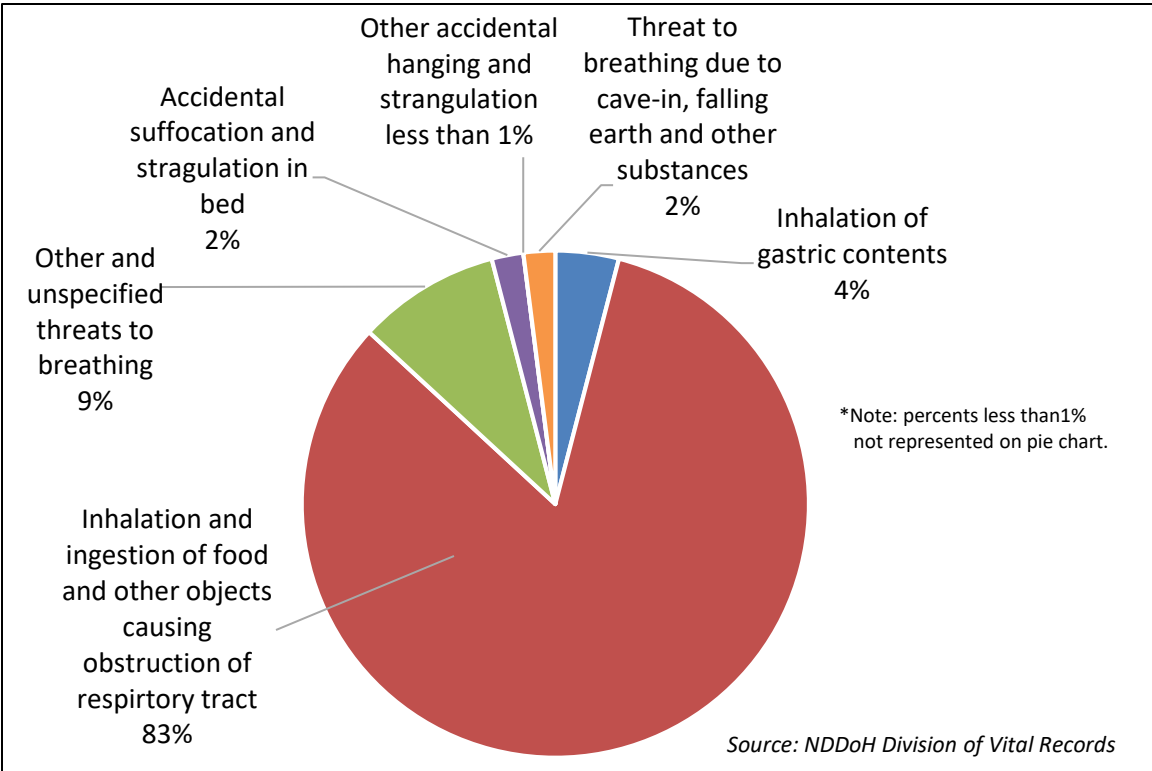
Other causes that may be related to suffocation are accidental suffocation and strangulation in bed.¹ The sudden death of an infant less than one year of age can happen because of suffocation by:

- Soft bedding such as when a pillow or blanket covers an infant's nose and mouth,
- Overlay is when another person rolls on top of or against the infant and impairs breathing,
- Wedging or entrapment is when an infant is wedged between two objects such as a mattress and wall, bed frame, or furniture, and
- Strangulation is when an object becomes wrapped around an infant's head and/or neck such as a tie from crib bumpers or a cord from window blinds.⁵

Risk Factors

- Age
- Substance abuse
- Co-sleeping
- Physical swallowing impairment
- Eating while running
- Talking or laughing while eating
- Easy access by infants and toddlers to small objects, balloons, plastic bags, and toys with small parts.²
- Food not properly cut into safely small pieces²
- Toy chests without safety latches¹
- Family's ability to provide safe sleep or play environment for child²
- Quality of supervision at time of death²
- Presence of unsafe window cords²
- Access by child to empty appliances²
- Unsafe working environment

Figure 30. Causes of Unintentional Suffocation, N.D., 2009-2014



Recommended Strategies

- Encourage the public to follow the American Academy of Pediatrics recommendations for safe sleep environments.
- Promote the Consumer Product Safety Commission (CPSC) awareness about safe window coverings.
- Promote First Aid/AED/CPR classes offered by N.D. Safety Council.³
- Promote CPR and First Aid classes offered by the American Heart Association.⁴
- Encourage a swallowing study if physical impairments exist.
- Encourage the public to focus on the task at hand while eating or drinking, avoid distractions or multitasking.
- Encourage the public to use safe work practices per OSHA guidelines.
- Promote the ND Department of Human Services educational materials related to consumption of respiratory depressants such as Parents Lead.
- Promote naloxone training and distribution for opioid overdose.
- Promote the evidence-based primary prevention program for substance use disorder called Sources of Strength

For More Information

N.D. Department of Health, Division of Injury Prevention and Control Home Safety Checklist www.ndhealth.gov/injury/publications/home_safety.pdf

American Academy of Pediatrics (AAP) Safe Sleep Recommendations www.aap.org/en-us/about-the-aap/aap-press-room/Pages/American-Academy-of-Pediatrics-Announces-New-Safe-Sleep-Recommendations-to-Protect-Against-SIDS.aspx

Consumer Product Safety Commission (CPSC)

www.cpsc.gov/Safety-Education/Safety-Education-Centers/cribs

www.cpsc.gov/s3fs-public/5009aWindowCoveringsSafetyAlert6_0.pdf

Centers for Disease Control and Prevention (CDC) www.cdc.gov/sids/aboutsuidandsids.htm

Safe to Sleep (NIH) www.nichd.nih.gov/sts/Pages/default.aspx

Safe Kids Worldwide www.safekids.org/search?search_api_views_fulltext=suffocation

References

¹ Centers for Disease Control and Prevention (2017). About Sudden Unexpected Infant Death and Sudden Infant Death Syndrome. <http://www.cdc.gov/sids/aboutsuidandsids.htm>

²The National Center for Fatality Review and Prevention (2017). Suffocation, Choking and Strangulation. <https://www.childdeathreview.org/reporting/suffocation-choking-and-strangulation/>

³North Dakota Safety Council (2016). <http://www.ndsc.org/firstaid/courses/default.aspx>

⁴American Heart Association (2017). CPR and First Aid Emergency Cardiovascular Care. http://cpr.heart.org/AHA/ECC/CPRAndECC/FindACourse/CourseFormats/UCM_473163_Course-Formats.jsp

⁵U.S. Department of Health and Human Service National Institutes for Health (2016). Safe to Sleep. https://www.nichd.nih.gov/sts/news/downloadable/Pages/ASSB_SafeSleep.aspx