

Injury and Violence in Vermont

July 2018

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Executive Summary

Injury and violence is a preventable public health threat. Whether injuries are classified as intentional or accidental, most can be prevented by identifying their causes and working to reduce an individual's exposure to the risk of the injury. Research and experience shows that many injuries are not random incidents, but are predictable and preventable events.

More than 400 Vermonters lose their lives to injuries each year. Thousands more seek care for minor to severe temporary and chronic consequences of experiencing an injury. Using 2014 data as a reference, an average of nine people per week die, and more than 1,200 people per week visit the emergency department or are hospitalized due to an injury in Vermont. Injuries are commonly divided into unintentional (accidental) and intentional (homicide, assaults, self-harm, and suicide). In each of these groups, specific causes are used to describe each injury, e.g.: cut/pierce, fall, firearm, etc.

Injury Deaths

Falls, motor vehicle traffic crashes, suicide by firearms, unintentional poisoning, and suicide by suffocation are the leading causes of injury-related death in Vermont. On average, twice as many males die from injury-related causes as females. Vermonters age 65 and older have the largest number of injury deaths, and falls are the leading cause of those deaths. Nearly one-quarter of all injury deaths in the state are due to suicide.

Injury Hospitalizations

Falls are by far the leading cause of injury-related hospitalizations in Vermont. They are nearly seven times more common than the next leading cause of injury-related hospitalization (intentional poisoning). Females are hospitalized at a higher rate than males for injury. Injury-related hospitalizations increase with age – they are highest among Vermonters age 65 and older, and lowest among Vermonters younger than 15. One in 10 injury-related hospitalizations are due to self-inflicted injury.

Injury Emergency Department (ED) Visits

Falls are the leading cause of injury-related emergency department visits in Vermont. More than twice as many emergency department visits are due to falls than for the next leading cause (struck by/against). Other leading injury-related causes for emergency department visits are over-exertion, cut/pierce and motor vehicle traffic crashes. Males make more emergency department visits due to injury-related incidents than do females. Vermonters between 25 and 44 years old have the most injury-related emergency department visits. Most emergency department visits are due to unintentional injury (95%) and 2 percent are due to self-inflicted injury.

Organizational Overview of the Health Department's Injury and Violence Prevention Programming

This report is the result of a year-long effort to gather, review, and assess injury-related data from a variety of sources to fully describe the burden of injury for Vermonters. The data is used to inform a public health injury prevention needs assessment, the *State Health Assessment 2018*, and strategic planning process within the Vermont Department of Health.

The Health Department's programmatic efforts at injury prevention are shared across three divisions: Emergency Preparedness, Response and Injury Prevention; Maternal and Child Health; and Health Surveillance. This enables the department to focus on injury prevention broadly, with greater capacity to attend to the specific populations with the highest risks for those injuries that take the highest toll.

Division of Emergency Preparedness, Response and Injury Prevention

The state's Injury and Violence Prevention Chief provides leadership for the Health Department, and is currently focused on child passenger safety, pedestrian safety, elderly falls prevention, and traumatic brain injury. The Injury Prevention Program in this division also facilitates the statewide injury prevention advisory group, which is a coalition of partners representing a broad approach to injury prevention.

Division of Maternal and Child Health

The Injury Prevention Coordinator develops prevention programming related to infant safe sleep, maternal and child farm safety, youth suicide prevention, and works with partners on child abuse and neglect prevention strategies. The Director of Preventive Reproductive Health oversees programming to prevent intimate partner violence and domestic violence.

Division of Health Surveillance

Public Health Analysts perform analyses of data sets that form the basis for this report, and the *State Health Assessment 2018*. Data presented here can also be used by partner agencies to inform their own assessment and planning efforts. Taken together, these data will drive strategies to reduce injury-related morbidity and mortality, and increase the quality of life for all Vermonters.

Inventory of Current Injury Programs and Partners

The Health Department is focused on a range of topics across the department that are related to injury and violence prevention. Several programs and partners are involved in this effort.

Injury Prevention Activities:

- Data collection and analysis
- Needs assessment
- Partner engagement and coordination
- Technical assistance
- Strategic planning
- Promotion of evidence based programming
- Education and awareness-building
- Standardized screening and referral processes
- Program evaluation

Partners who work across multiple injury and violence prevention topic areas:

- **Injury and Violence Prevention Advisory Group**
This group is convened twice a year by the Health Department's Injury Prevention Chief to enable networking, cross-sharing of work, and to inform the strategic direction of the state injury and violence prevention program. This coalition intentionally includes a broad membership of state and community organizations representing all categories of injury risk – e.g. motor vehicle, dangers in the home, farm-related, fire, occupational, and those risks specific to certain age groups (children, youth, and older adults).
- **Northeast and Caribbean Injury Prevention Network (NCIPN)**
NCIPN is made up of the state injury and violence prevention programs in the Northeast region of the United States and the Caribbean, and is based at the Educational Development Center in Massachusetts. NCIPN promotes collaboration of states' injury prevention activities by organizations such as health departments, hospital-based programs and universities. NCIPN provides an opportunity for injury prevention practitioners to network, collaborate and share injury prevention work.
<https://cdn1.sph.harvard.edu/wp-content/uploads/sites/1264/2013/01/NEIPN.pdf>
- **The Safe States Alliance**
The Safe States Alliance is a national non-profit organization and professional association with the mission to strengthen the practice of injury and violence prevention by working with state and national partners on surveillance, research and policy. Safe States provided the Vermont Injury and Violence Prevention program with a technical assessment and recommendations in 2012. <http://www.safestates.org/>

- Child Fatality Review Team**

The Child Fatality Review Team reviews and assesses the circumstances related to unexpected or unintentional deaths of Vermont children. Its purpose is to provide information that will help state and community systems such as health, public health, mental health, education, and social services improve policies, procedures and services to prevent future deaths. Representatives of these key state systems are members of the team. <https://www.ncfrp.org/>
- Domestic Violence Fatality Review Commission**

The purpose of this commission is to collect data and conduct in-depth reviews of domestic violence-related fatalities in Vermont, with the goal of making policy recommendations to prevent future injury and deaths related to domestic and family violence. The commission is made up of members of key statewide organizations involved in addressing domestic violence. The commission produces an annual report of findings for the Vermont State Legislature. <http://legislature.vermont.gov/assets/Docummalests/2018/WorkGroups/House%20Judiciary/Bills/H.422/W~Heather%20Holter~2016%20DV%20Fatality%20Report~3-14-2017.pdf>
- Vermont Child Health Improvement Program (VCHIP)**

This organization is a population-based maternal and child health services research and quality improvement program of the University of Vermont. VCHIP collaborates on projects to advance infant safe sleep, suicide prevention, and emergency medical services for children. <http://www.med.uvm.edu/vchip/home>
- Vermont Emergency Medical Services (EMS)**

EMS is an integrated system for providing emergency medical treatment and transportation of sick and injured patients. EMS providers respond to medical emergencies every day. EMS in Vermont is increasingly providing injury prevention services, including falls prevention, within communities. The Vermont EMS system responds to over 86,000 calls annually. <http://www.healthvermont.gov/emergmalescy/ems>

Partners involved with injury and violence prevention, by focus area:

Older Adult Falls

There are currently no dedicated funds for older adult falls prevention at the Health Department.

- Falls Free Vermont**

This is a coalition of organizations and individuals with a mission to reduce preventable falls and fall-related injuries and deaths in older adults. <https://fallsfreevermont.org/>
- Vermont Area Agencies on Aging**

These five agencies coordinate and support a wide range of home and community-based services, including information and referral, home-delivered and group meals, transportation, employment services, senior centers, adult day care and a long-term care ombudsman program. The agencies serve more than 60,000 Vermonters a year. <http://www.vermont4a.org/>

- **Support and Services at Home (SASH)**
SASH coordinates the resources of social service agencies, community health providers and non-profit housing organizations to support Vermonters who choose to live independently at home. SASH touches the lives of approximately 5,000 people across the state.
<http://sashvt.org/>
- **Visiting Nurse Associations (VNAs) of Vermont**
The member agencies of the VNAs of Vermont provide a full range of high quality, low cost home health and hospice services to the people of Vermont. VNAs of Vermont make more than 80,000 home visits annually. <https://www.vnacares.org/>

Infant Safe Sleep

- **Vermont Birth Hospitals**
<http://vahhs.org/>
- **University of Vermont Children's Hospital**
<https://www.uvmhealth.org/medcmalester/pages/departmmalests-and-programs/childrmaless-hospital.aspx>
- **Office of the Chief Medical Examiner/Vermont Department of Health**
<http://www.healthvermont.gov/systems/medical-examiner>
- **American Academy of Pediatrics, Vermont Affiliate**
<http://www.aapvt.org/>
- **Office of Local Health/Vermont Department of Health** <http://www.healthvermont.gov/local>

Occupational Injury Prevention

- **Vermont's Occupational Safety and Health Administration (VOSHA)**
VOSHA has labored diligently to protect the health and safety of working Vermonters for over 35 years. <http://labor.vermont.gov/vosha/>
- **Vermont Farm Health and Safety Coalition**
The coalition is a membership organization of farmers, health care practices and practitioners, agricultural professionals and key representatives from state and community agencies that work to support farmers and those who live or work on a farm, by increasing health and wellness opportunities and reducing injury risk.
- **The Northeast Center for Agriculture, Forestry and Fishing Health and Safety (NEC)**
Serving a 12-state region from Maine through West Virginia, NEC promotes health and safety research, education and prevention activities in the high-risk areas of farming, commercial fishing and logging. <http://www.necmalester.org/>

Traumatic Brain Injury

- **Brain Injury Association of Vermont**
The mission of the Brain Injury Association of Vermont is to advance awareness, research, treatment and education and to improve the quality of life for all people affected by brain injury. <http://www.biavt.org/>
- **Vermont School Concussion Task Force**
This is a multi-disciplinary group of health care professionals developing and maintaining information and toolkit materials for schools to use to create a comprehensive concussion management plan. This work is performed to help schools meet the requirements of Vermont State Law V.S.A. § 1431

Poisoning & Opioid Overdose

- **Northern New England Poison Center**
The Northern New England Poison Center is an accredited regional poison control center serving Maine, New Hampshire and Vermont. The center serves individuals and professionals with seven day/24 hour services of poison emergency information and overall educational services. The center is staffed with trained health care professionals and toxicologists. <https://www.nnepc.org/>
- **Vermont Department of Health/Alcohol & Drug Abuse Programs** and community coalitions: <http://www.healthvermont.gov/alcohol-drug-abuse/programs-services/prevmalestion-programs>

Suicide

- **The Vermont Suicide Prevention Center**
This is a statewide resource to support suicide prevention efforts and help local communities implement the recommendations of the Vermont Suicide Prevention Platform using data-driven evidence-based practices. <http://vtspc.org/>
- **Center for Health and Learning**
Center for Health and Learning staff and consultants apply expertise in health and education to design training, develop resources, and carry out research and evaluation for programs designed to improve school and community health. <http://healthandlearning.org/>

Intimate Partner and Domestic Violence Prevention

- **Vermont Network Against Domestic and Sexual Violence**
The Vermont Network is the federally recognized domestic and sexual violence coalition. The network unites 15 member organizations and statewide partners to uproot the causes of violence in Vermont. The network engages in public policy advocacy, training, technical assistance and social change to advance their mission. <https://vtnetwork.org/>

Child Safety

- **Prevent Child Abuse Vermont**
Prevent Child Abuse Vermont offers community and statewide programming to promote and support healthy relationships between children and the people who care for them to eliminate child abuse and neglect. <https://pcavt.org/>
- **Safe Kids Vermont**
Safe Kids provides community programming to prevent child injuries. The coalition implements evidence-based programs, such as safety workshops and sports clinics, that help parents and caregivers take actions to keep their children safe. <https://www.safekids.org/coalition/safe-kids-vermont>

Traffic Safety

- **The Governor's Highway Safety Program**
The Governor's Highway Safety Program awards federal highway safety grant funds to local, state and non-profit agencies for projects to improve highway safety and reduce deaths and serious injuries due to crashes. <http://ghsp.vermont.gov/>
- **Vermont Highway Safety Alliance**
The Vermont Highway Safety Alliance is a network of private and public organizations working together to collect, share and use data to develop highway safety strategies integrating: road engineering and infrastructure; law enforcement and emergency services; and education and outreach. <https://vermonthighwaysafety.org>.
- **Local Motion**
Local Motion is Vermont's only statewide non-profit advocate for walk-able and bike-able communities. <http://www.localmotion.org/>
- **Youth Safety Council of Vermont**
The Youth Safety Council is committed to reducing teen car crashes. We believe that all teens need to fully understand their responsibilities while operating a motor vehicle on our highways and to understand the consequences of poor choices and irresponsible actions. <https://www.yscvt.org/>

Healthy Vermonters 2020 Injury-related Goals

The purpose of *Healthy Vermonters 2020* is to prioritize goals and objectives for the decade, and provide the baseline data so we can track our progress into 2020.

The injury related priorities for 2010-2020 were identified as:

- *Reduce sudden, unexpected infant deaths*
from 0.75 from 2008-2010 to .57 per 1,000 live births in 2020.
- *Reduce suicide deaths*
from 13.0 in 2009 to 11.7 per 100,000 Vermonters in 2020.
- *Decrease percentage of suicide attempts that require medical attention in youth grades 9-12*
from 9% in 2011 to 8% in 2020.
- *Maintain the percentage of Vermonters who use car restraints*
at 85%.
- *Reduce non-fatal motor vehicle crash-related injuries*
from 952.8 in 2008 to 785.8 hospital/emergency department visits per 10,000 Vermonters in 2020.
- *Reduce fall-related deaths among people age 65+*
from 120.3 to 116.9 in 2009 per 100,000 Vermonters in 2020.
- *Reduce emergency department visits for self-harm injuries*
from 155.5 in 2009 to 139.1 visits per 10,000 Vermonters in 2020.
- *Reduce the number of firearm-related deaths*
from 10.3 in 2010 to 8.0 per 10,000 Vermonters in 2020.

For more information about Healthy Vermonters 2020 and progress toward goals visit the Health Department's Data Explorer <http://www.healthvermont.gov/stats/hv2020> or Performance Scorecards <http://www.healthvermont.gov/about/performance>

Methods and Discussion of Potential Missing Data

Data Analysis Methods

The burden of injury in Vermont was assessed using Vermont Vital Statistics data, the Vermont Uniform Hospital Discharge Data Set, and the Statewide Incident Reporting Network (SIREN).

The Centers for Disease Control and Prevention (CDC) has developed International Classification of Diseases (ICD) injury matrices for organizing ICD coded injury data into meaningful groupings. Vermont Vital Statistics data is analyzed using injury mortality matrix developed by CDC using ICD-10 codes. For analysis included in this document, the primary listed cause of death was examined for injury cases.

Data from the Vermont Uniform Hospital Discharge Data Set is analyzed using the injury morbidity matrix developed by CDC using ICD-9 codes. For analysis included in this report, the primary diagnosis code listed as well as any E-code were examined for injury cases. See technical notes for matrices and definitions for all intents and causes, or visit CDC's ICD Injury Matrices page:

https://www.cdc.gov/nchs/injury/injury_matrices.htm

SIREN is Vermont's pre-hospital electronic reporting system, which captures electronic patient care report data from incidents in which Emergency Medical Services (EMS) were activated.

Vermont Vital Statistics data were used to assess injury mortality. Data from the Vermont Uniform Hospital Discharge Data Set and SIREN were used to assess injury morbidity.

One injury is counted per record, meaning for each injury-related death, hospitalization or emergency department visit, the first listed injury is counted while others that may be listed after are not.

Hospitalization and emergency department data do not include unique identifiers for each person. Therefore, only visits can be counted, not people seen. This means if someone is treated at the hospital or emergency department multiple times for multiple injuries, we are not able to tell if they are a repeat visitor to the emergency department, or if the visits were related to the same injury. However, if a person is admitted to the emergency department and then transferred, only the hospital record would be shown.

Potential Missing Data

Hospitalizations & Emergency Department Visits – Vermont Uniform Hospital Discharge Data

Due to the geography and rural nature of Vermont, many residents who live along its borders seek medical care out of state. Health Department analysts were interested in examining the number of Vermont residents who visit hospitals out of state that may not be fully captured in the Vermont Uniform Hospital Discharge Data Set. If this group made up a large percentage of all hospitalizations or emergency department visits for Vermont residents, our ability to assess the burden of injury among Vermont residents may be limited.

Prior to beginning the analysis for this document, we reviewed data from bordering states (New Hampshire, Massachusetts, and New York), to determine the percentage of injury hospitalizations and emergency department visits among Vermont residents in each of these border states, as well as the percentage of EMS calls in Vermont that resulted in a Vermont resident being transported out of state. This analysis was done to examine and understand what data may be missing from the analysis in this report.

In 2011, roughly 9% of injury hospitalizations and emergency department visits among Vermont residents were out of state. There were few differences when stratified by cause of injury. In general, most Vermont residents who did not get care at a Vermont hospital were seen in New Hampshire (7.2%), followed by Massachusetts (1.0%), and New York (0.8%).

However, a greater percentage (18%) of Vermont residents were seen out of state for injury hospitalizations compared to emergency department visits (8%). This could be because as the injury is more severe, care is likely sought at the closest hospital, which may be out of state.

Emergency Medical Services Incidents – SIREN Data

From 2014 to 2016, about 6.5% of injury-related EMS calls for Vermont residents were transported out of state. In general, most out-of-state transports were to New Hampshire (5.7%), followed by New York (0.1%), and Massachusetts (0.1%). About 0.5% of these injury-related calls were missing destination state information in SIREN.

Urgent Care Facilities

There are currently 17 urgent care facilities in Vermont and several “minute clinics”. Two of these clinics opened before 2014, and therefore may contribute to the amount of injury-related data that is missing from this analysis. At present, there is no way to assess the impact of either of these types of facilities as they do not contribute data to the Vermont Uniform Hospital Discharge Data Set.

The Scope of Injury in Vermont – 2005-2014

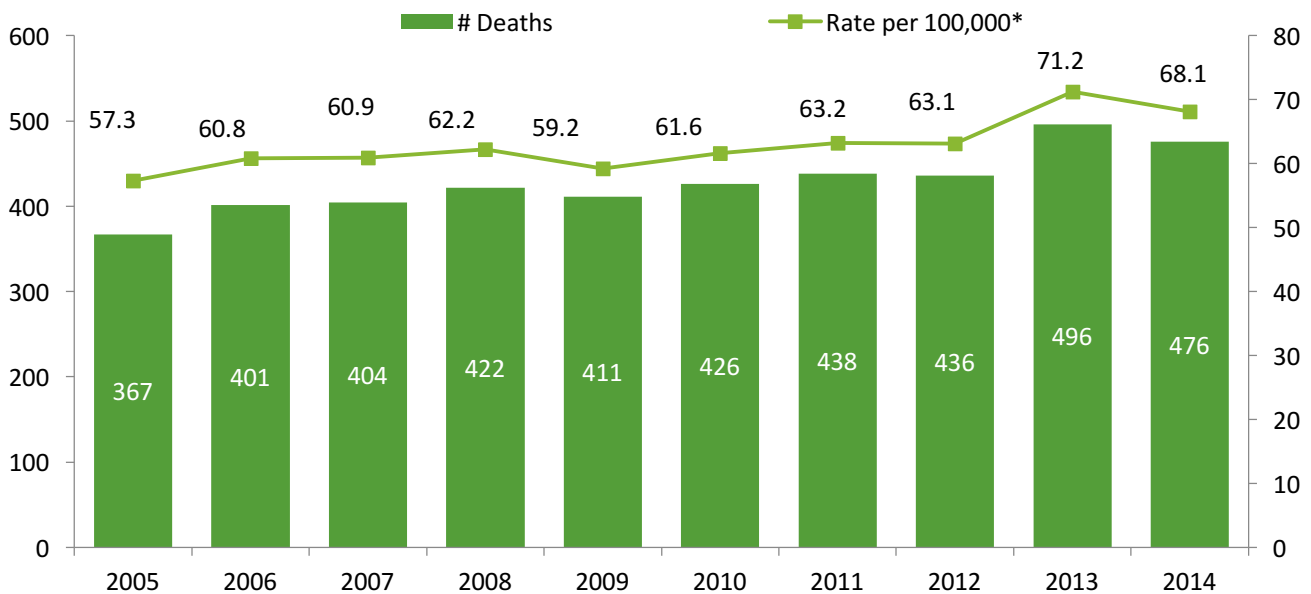
Deaths

From 2005 to 2014, an average of 428 Vermonters died from injury-related causes each year. Unintentional injuries (excluding all other intents) were the fourth leading cause of death over these 10 years.

In 2013 and 2014, Vermont had a statistically significantly higher rate of injury-related death than the U.S. In 2013, the Vermont rate was 71.2 injury-related deaths per 100,000 residents, compared to the U.S. rate of 58.8 per 100,000 residents. In 2014, the Vermont rate was 68.1 per 100,000 while the U.S. rate was 60.1 per 100,000.

Both the number and rate of injury-related deaths among Vermont residents have been trending upward over the past 10 years.

**Number of Injury-Related Deaths and Rate Per 100,000
Vermont Residents, 2005-2014**



Data Source: Vermont Vital Statistics

*The rates presented here are age-adjusted to make a comparison to U.S. rates. All other rates in the document are not age-adjusted.

Years of Potential Life Lost

Years of potential life lost is a standard measure of the extent of premature mortality in a population, and is based on life expectancy. It estimates the average time a person would have lived had they not died prematurely. This measure is used to help quantify social and economic loss owing to premature death. Years of Potential Life Lost is defined as the sum of the years of life lost by people who had early deaths, for those whose death occurred before age 74.

In 2014, the age-adjusted injury-related Years of Potential Life Lost in Vermont in 2014 was 1625.9 years per 100,000. This is statistically lower than the U.S. age-adjusted Years of Potential Life Lost of 1759.8 per 100,000 people).

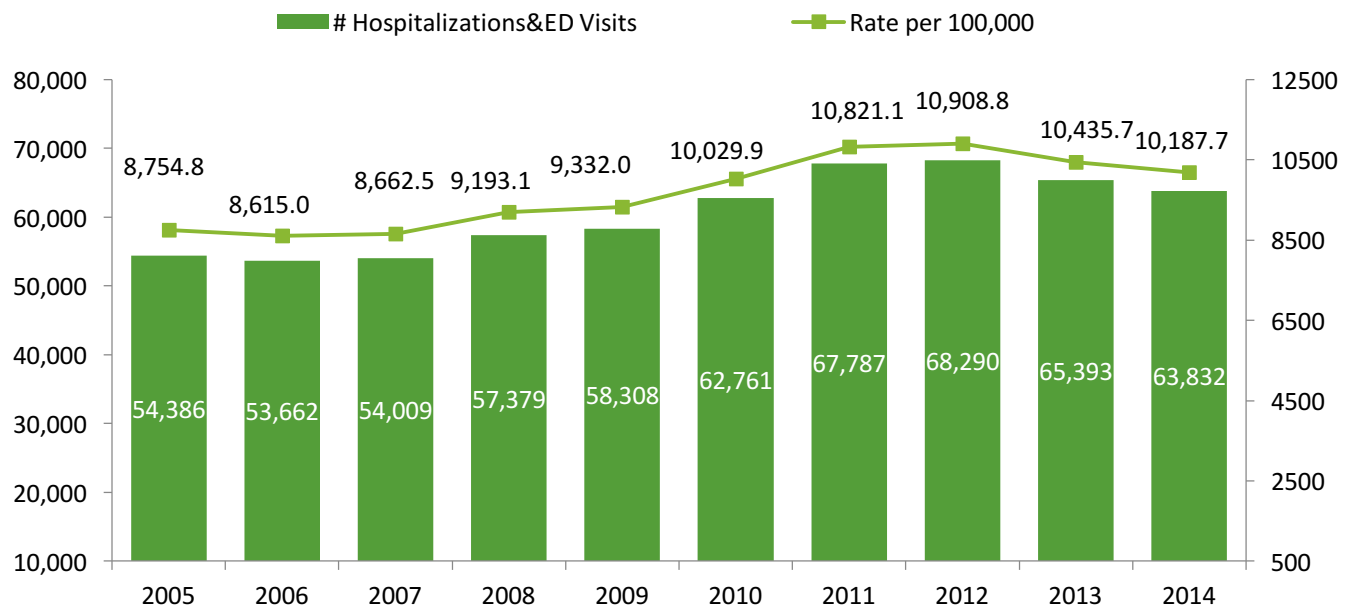
In addition, the age-adjusted overall (all causes of mortality) Years of Potential Life Lost in Vermont was 5079.8 per 100,000. This is statistically lower than the U.S. age-adjusted Years of Potential Life Lost of 6446.1 per 100,000 people.

Hospitalizations and Emergency Department Visits

From 2005 to 2014, there were an average of 60,581 visits to the emergency department or admission to the hospital for an injury in Vermont each year. This represents an average rate of 6,969.2 injury-related hospitalizations/emergency department visits per 100,000 Vermonters during these 10 years. Both the number and rate of injury-related emergency department visits/hospitalizations in Vermont have been trending upward over the past 10 years.

In 2017, the Health Department changed the protocol for capturing injury-related hospitalizations and emergency department visits from hospital discharge data. This new approach is used in this analysis because it allows for a more accurate assessment of the number of these types of hospitalizations and emergency department visits, but prevents making a national comparison as Vermont’s protocol differs from that of the Centers for Disease Control and Prevention. Therefore, a national comparison is not possible.

Number of Hospitalizations and ED Visits among Vermont Residents at Vermont Hospitals and Rate Per 100,000, 2005-2014



Data Source: Vermont Uniform Hospital Discharge Data Set

Injury Deaths by Intent and Cause, 2010-2014

From 2010-2014, 2,272 Vermonters died from injury-related causes. This represents a rate of 72.6 injury-related deaths per 100,000 Vermonters.

Of these deaths, 70% were of unintentional intent, while one-quarter (24%) were of suicidal intent. Few deaths were of undetermined intent (3%), homicides (2%), or the result of legal intervention (1%).

Five leading causes of injury-related death:

Unintentional falls, responsible for:

- An average of 137 deaths each year.
- An average of 21.9 deaths per 100,000 Vermonters from 2010-2014.

Unintentional motor vehicle traffic crashes, responsible for:

- An average of 63 deaths each year.
- An average of 10.1 deaths per 100,000 Vermonters from 2010-2014.

Suicide by firearm, responsible for:

- An average of 61 deaths each year.
- An average of 9.7 deaths per 100,000 Vermonters from 2010-2014.

Unintentional poisoning, responsible for:

- An average of 57 deaths each year.
- An average of 9.1 deaths per 100,000 Vermonters from 2010-2014.

Suicide by suffocation, responsible for:

- An average of 20 deaths each year.
- An average of 3.2 deaths per 100,000 Vermonters from 2010-2014.

The following matrix illustrates the five leading causes of injury-related death by age category.

Falls are the leading cause of injury-related death among Vermonters age 65 and older.

Suicide by firearm is the leading, or second leading, cause of injury-related death among Vermonters age 15 to 24, 45 to 64, and 65 and older.

Unintentional poisoning is the leading cause of injury-related death among Vermonters age 25 to 44.

Five Leading Causes of Injury-Related Death by Age Group, Overall

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Suffocation 15	Motor Vehicle Traffic 73	Poisoning 134	Firearms 115	Falls 615	Falls 687
2	Motor Vehicle Traffic 8	Firearms 34	Motor Vehicle Traffic 76	Poisoning 111	Firearms 77	Motor Vehicle Traffic 317
3	Drowning 6	Suffocation 24	Firearms 72	Motor Vehicle Traffic 86	Motor Vehicle Traffic 74	Firearms 303
4	Six Tied -	Poisoning 23	Suffocation 35	Falls 63	Suffocation 39	Poisoning 285
5	Five Tied -	Drowning 7	Poisoning 29	Poisoning 57	Poisoning 17	Suffocation 102

Data source: Vermont Vital Statistics

White cells indicate deaths due to unintentional injuries. Green indicates deaths by suicide.

Additional data, showing the distribution of injury-related deaths in Vermont by sex, and both age group and sex can be found in Appendix A.

Key points:

- 90% of all fall-related deaths occur among Vermonters age 65 and older. The rate of fall-related deaths among this age group was 125.0 per 100,000 from 2010-2014.
- Among Vermonters age 65 and older, females (140.0 per 100,000 from 2010-2014) have a higher rate of fall-related deaths compared to males (106.7 per 100,000 from 2010-2014). This difference is statistically significant.
- The rate of suicide among male Vermonters (28.8 per 100,000 from 2010-2014) is almost five times as high as the rate among female Vermonters (6.7 per 100,000 from 2010-2014). This difference is statistically significant.
- In 60% of male suicides, the cause of death is due to firearms.

Injury Hospitalizations/Emergency Department Visits by Intent and Cause, 2010-2014

From 2010-2014, there were 18,600 hospitalizations among Vermont residents as the result of an injury. This represents a rate of 594.0 injury-related hospitalizations per 100,000 Vermonters. Of these hospitalizations, 87% were due to unintentional injuries, 10% were due to intentional injuries (including those that were self-inflicted), while 1% were due to assault. Few injury-related hospitalizations were of undetermined intent (2%) and some “other” reason (1%).

Five leading causes of injury-related hospitalization:

Unintentional falls, responsible for:

- An average of 1,934 hospitalizations each year.
- An average of 308.8 hospitalizations per 100,000 Vermonters from 2010-2014.

Intentional poisonings, responsible for:

- An average of 297 hospitalizations each year.
- An average of 47.5 hospitalizations per 100,000 Vermonters from 2010-2014.

Motor vehicle crashes, responsible for:

- An average of 205 hospitalizations each year.
- An average of 32.7 hospitalizations per 100,000 Vermonters from 2010-2014.

Unintentional poisoning, responsible for:

- An average of 185 hospitalizations each year.
- An average of 29.5 hospitalizations per 100,000 Vermonters from 2010-2014.

Motor vehicle, other, (capturing cases involving snow or off-road vehicles, railways, etc.) responsible for:

- An average of 106 hospitalizations each year.
- An average of 16.9 hospitalizations per 100,000 Vermonters from 2010-2014.

The matrix on the following page illustrates the five leading causes of injury-related hospitalizations by age category.

- Unintentional falls were the leading cause of injury-related hospitalization among those age 0 to 14, 45 to 64, and 65 and older.
- Intentional poisoning was the leading cause of injury-related hospitalization among those ages 15 to 24 and 25 to 44, and the second leading cause of injury-related hospitalization among those ages 45 to 64.

Five Leading Causes of Injury-Related Hospitalization, by Age Group

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Falls 159	Poisoning 284	Poisoning 623	Falls 1,719	Falls 7,229	Falls 9,669
2	Poisoning 63	Motor Vehicle Traffic 224	Falls 399*	Poisoning 478*	Poisoning 284*	Poisoning 1,486*
3	Motor Vehicle, Other 44*	Falls 163	Motor Vehicle Traffic 262	Poisoning 306	Motor Vehicle Traffic 217	Motor Vehicle Traffic 1,024
4	Struck by/against 33	Motor Vehicle, Other 82*	Poisoning 194	Motor Vehicle Traffic 299	Struck by/against 129	Poisoning 923
5	2 Tied** 22	Poisoning 76	Motor Vehicle, Other 123	Motor Vehicle, Other 182	Overexertion 116	Motor Vehicle, Other 528
* where "other" would have replaced this cause	Other 54	Other 128	Other 404	Other 780	Other 922	Other 2,288

Data source: Vermont Uniform Hospital Discharge Data Set

**Motor Vehicle Traffic, Intentional Poisoning

White cells indicate unintentional injuries. Green indicates self-inflicted injuries. Additional matrices, showing the distribution of injury-related hospitalizations in Vermont by gender, and both age group and gender can be found in Appendix B.

Key points:

- Unintentional falls are the leading cause of injury-related hospitalization for both males and females. For males, falls are the leading cause of injury-related hospitalization for all age categories, except 15-24 (where the leading cause was motor vehicle crashes). For females, falls are the leading cause of injury-related hospitalizations for all age categories, except 15-24 and 25-44 (where the leading cause was intentional poisonings).
- The rate of fall-related hospitalizations is higher among females (139.8 per 100,000 from 2010-2014) than males (106.7 per 100,000). This difference is statistically significant.
- The rate of intentional poisoning-related hospitalizations is higher among females (62.7 per 100,000) than males (31.8 per 100,000 from 2010-2014). This difference is statistically significant.
- The rate of unintentional motor vehicle crash-related hospitalizations is higher among males (40.7 per 100,000) than females (24.9 per 100,000 from 2010-2014). This difference is statistically significant.
- Rates of unintentional poisoning-related hospitalizations are similar between males (29.3 per 100,000) and females (29.7 per 100,000 from 2010-2014).

Leading Causes of Injury-Related Emergency Department Visits Combined, 2010-2014

From 2010-2014, there were 309,463 emergency department visits among Vermont residents as the result of an injury. This represents a rate of 9,882.7 injury-related ED visits per 100,000 Vermonters. Nearly all (95%) of these visits were due to unintentional injuries, 2% were due to intentional injuries (including those that were self-inflicted), while 3% were due to assault. Less than 1% of injury-related emergency department visits were of undetermined or “other” intent.

Five leading causes of injury-related emergency department visits:

Unintentional falls, responsible for:

- An average of 20,060 ED visits each year.
- An average of 3,203.0 ED visits per 100,000 Vermonters from 2010-2014.

Unintentional struck by/against, responsible for:

- An average of 7,870 ED visits each year.
- An average of 1,256.6 ED visits per 100,000 Vermonters from 2010-2014.

Unintentional overexertion, responsible for:

- An average of 7,211 ED visits each year.
- An average of 1,151.4 ED visits per 100,000 Vermonters from 2010-2014.

Unintentional cut/pierce, responsible for:

- An average of 6,011 ED visits each year.
- An average of 959.7 ED visits per 100,000 Vermonters from 2010-2014.

Unintentional motor vehicle crashes, responsible for:

- An average of 4,089 ED visits each year.
- An average of 652.8 ED visits per 100,000 Vermonters from 2010-2014.

The matrix on the following page illustrates the five leading causes of injury-related emergency department visits, by age category.

- Unintentional falls were the leading cause of injury-related emergency department visits across all age groups.

Five Leading Causes of Injury-Related Emergency Department Visits by Age Group

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Falls 20,783	Falls 13,560	Falls 19,547	Falls 21,474	Falls 24,925	Falls 100,299
2	Struck by/against 11,734	Struck by/against 11,144	Overexertion 13,366	Overexertion 7,896	Overexertion 2,525*	Struck by/against 39,348
3	Overexertion 4,303*	Overexertion 7,965	Cut/Pierce 9,918	Cut/Pierce 7,229	Cut/Pierce 2,259	Overexertion 36,056
4	Cut/Pierce 4,143	Cut/Pierce 6,507	Struck by/against 9,344	Struck by/against 5,080*	Bites/Stings 2,117	Cut/Pierce 30,053
5	Bites/Stings 3,657	Motor Vehicle Traffic 6,457	Motor Vehicle Traffic 6,863*	Bites/Stings 4,010	Struck by/against 2,046	Motor Vehicle Traffic 20,443*
* where "other" would have replaced this cause	Other 4,914	N/A	Other 8,679	Other 6,187	Other 3,696	Other 28,821

Data source: Vermont Uniform Hospital Discharge Data Set

All leading causes by age group are of unintentional intent. Additional matrices, showing the distribution of injury-related emergency department visits in Vermont by gender, and both age group and gender can be found in Appendix C.

Key points:

- Unintentional falls are the leading cause of injury-related emergency department visits for both males and females, across all age categories.
- The rate of fall-related emergency department visits is higher among females (3,436.7 per 100,000) than males (2,962.7 per 100,000). This difference is statistically significant.
- The highest rate of fall-related emergency department visits is seen among females age 65 and older (6,074.1 per 100,000).
- Males (1,546.0 per 100,000) have a statistically higher rate of emergency department visits for unintentional struck by/against injuries compared to females (975.0 per 100,000).
- Males (1,277.8 per 100,000) have a higher rate of emergency department visits for unintentional cut/pierce injuries compared to females (650.5 per 100,000). This is also a statistically significant difference.

Special Topics in Injury

The following is a discussion of priority areas for injury prevention and control in Vermont.

Each section presents an in-depth analysis and discussion of topic-specific injury-related data.

These topics were identified based on their contribution to the overall burden of injury in Vermont, as well as their impact on specific populations. They are arranged in alphabetical order. This does not reflect their importance in terms of impact or severity.

- Unintentional Falls
- Farming
- Unintentional Drowning
- Gun Violence
- Health Equity: Disparities in Injury Deaths
- Intimate Partner Violence
- Unintentional Opioid Overdose
- Recreational Vehicles
- Suicide
- Traffic Safety
- Traumatic Brain Injury
- Winter Sports
- Years of Potential Life Lost

For more information about injury data, visit the Health Department website:

Injury Surveillance in Vermont

<http://www.healthvermont.gov/health-statistics-vital-records/surveillance-reporting-topic/injuries>

SIREN – Statewide Incident Reporting System

<http://www.healthvermont.gov/emergmalescy/ems/SIREN-statewide-incidmalest-reporting-network>

Unintentional Falls

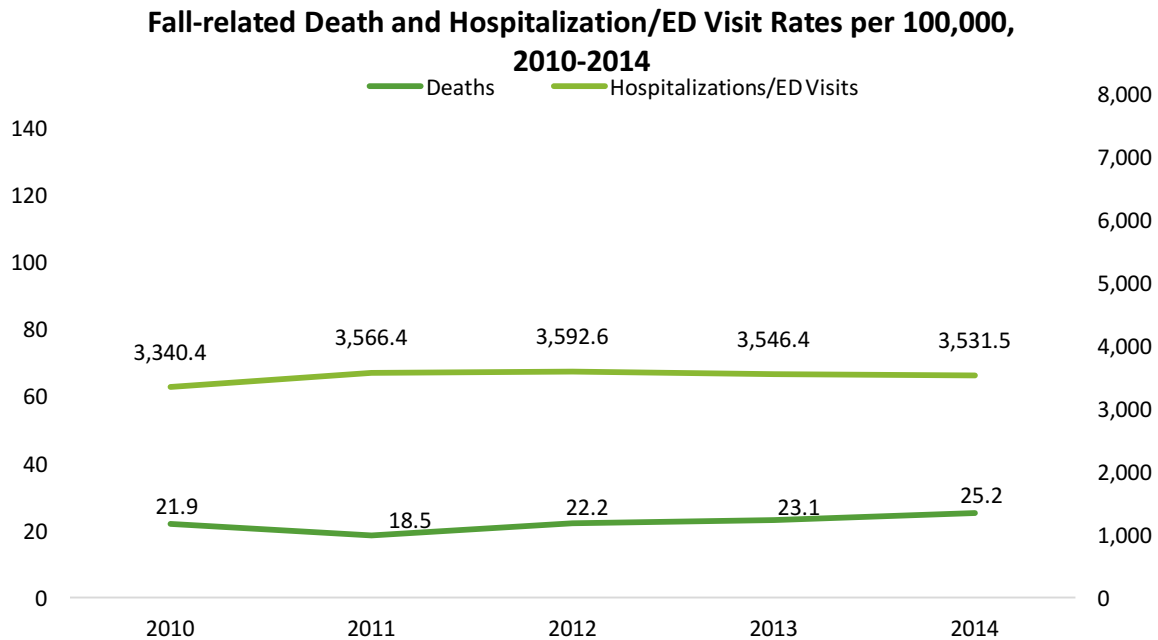
Unintentional falls comprise the largest portion of the burden of injury in Vermont. They are the leading cause of injury-related death overall, and are also responsible for the largest number of injury-related hospitalizations and emergency department visits. As Vermont's population continues to age, this already significant problem will continue to grow.

Trend

Rates of fall-related death have steadily increased in Vermont, from 18.5 per 100,000 in 2011 to 25.2 per 100,000 in 2014. This increase is statistically significant.

Rates of fall-related hospitalization/ emergency department visits increased from 3,340.4 per 100,000 Vermonters in 2010 to 3,566.4 per 100,000 Vermonters in 2011.

Although this increase is statistically significant, the rate of fall-related hospitalization/emergency department visits has been stable since 2011.

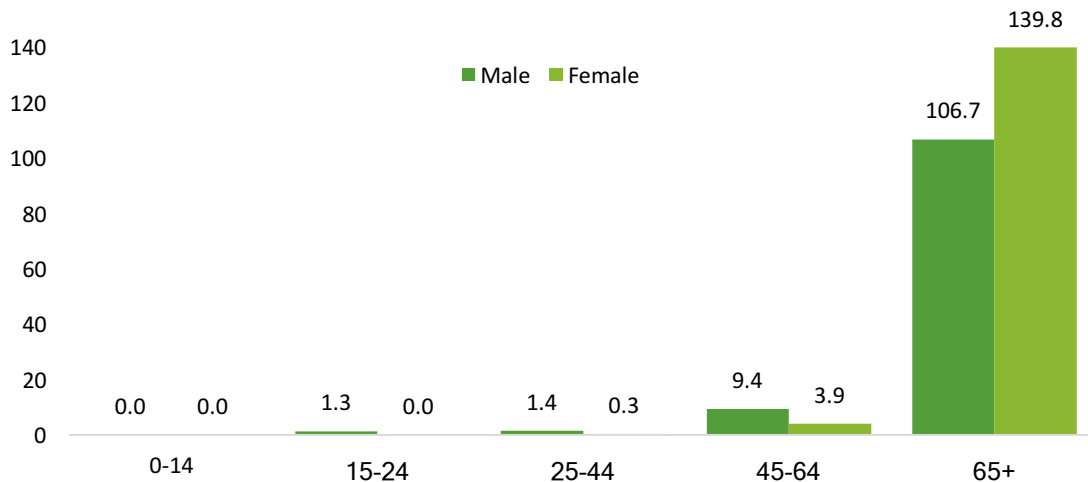


Rates by Age and Gender

Regardless of gender, the highest rates of fall-related death are among Vermonters age 65 and older. When compared with other age groups, the fall-related death rate is statistically higher among those 65 and older.

The fall-related death rates among both males and females age 65 and older were more than 10 times higher than those seen among males ages 45 to 64 (the age group with the next highest fall-related death rate). Among Vermonters age 65 and older, females have a significantly higher rate of fall-related death than males (139.8 per 100,000 for females and 106.7 per 100,000 for males).

Fall-Related Death Rate per 100,000 by Gender and Age, 2010-2014

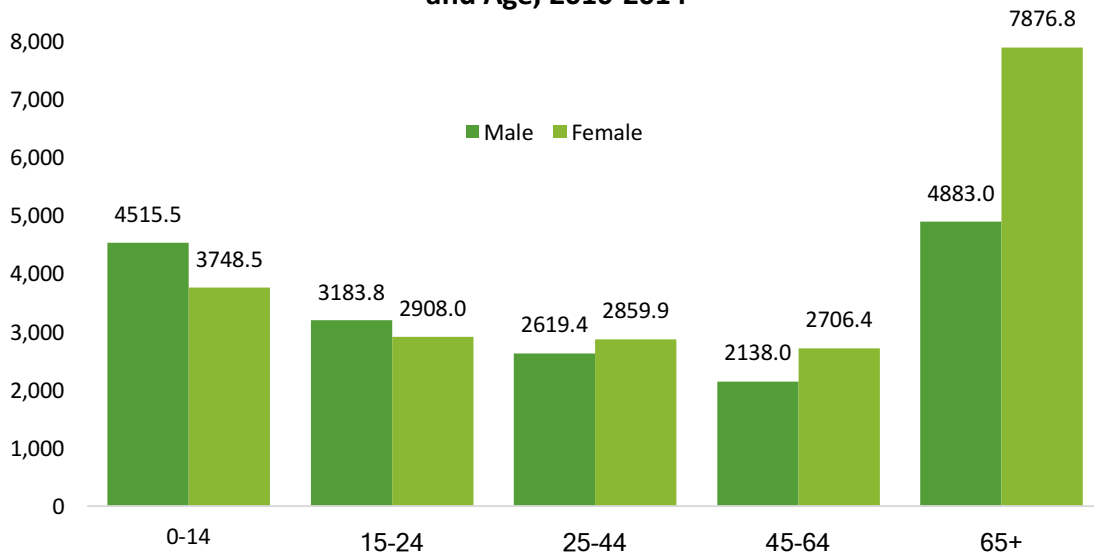


For both males and females, the highest rates of fall-related hospitalization/emergency department visits are among Vermonters age 65 and older. The difference, as compared with other age groups, is statistically significant. The second highest rates of fall-related hospitalization/emergency department visits are among those ages 0 to 14 for both males and females.

The fall-related hospitalization/emergency department visit rates among females ages 65 and older is more than twice the rate among females ages 0 to 14 (7,876.8 per 100,000) as compared to 3,748.5 per 100,000. The difference in fall-related hospitalization/emergency department visit rates between these two age groups among males is much smaller (4,515.5 per 100,000 males ages 0 to 14 as compared to 4,883.0 per 100,000 males ages 65 and older).

Gender differences in fall-related hospitalization/emergency department visit rates were statistically significant for all age groups. Among those under the age of 25, males had higher fall-related hospitalization/emergency department visits rates. Among those ages 25 and older, females had higher fall-related hospitalization/emergency department visit rates.

Fall-Related Hospitalization/ED Visit Rate per 100,000 by Gender and Age, 2010-2014



SIREN Data, 2015-2016

There were 1,497 EMS calls for lift assists in 2015-2016 in Vermont. These are incidents in which an individual has fallen and needs assistance getting back up. Eight in 10 (79%) of these calls involved people who were 65 years of age or older. The calls were split evenly between males (48%) and females (52%).

Behavioral Risk Factor Surveillance System Data, 2016

More than one-third (35%) of Vermont adults age 45 and older reported falling at least once in the last 12 months. The average number of falls in the past year among adults age 45 and older is 1.4 falls.

Males and females fall at similar rates (38% for males and 33% for females). More than one-third of adults age 45 and older who fell at least once in the last year were injured due to a fall. In this case, injury is defined as causing limitations in regular activities for at least a day, or a visit to a doctor.

Farming

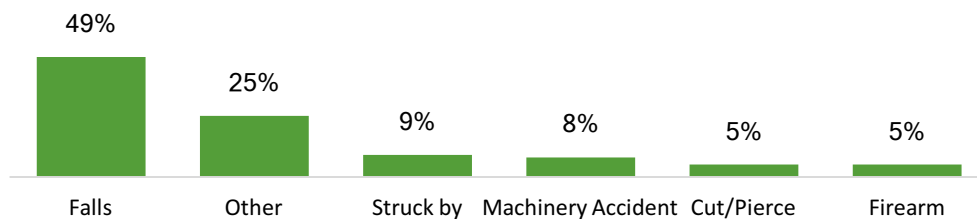
There is no clear way to assess farm-related injuries in Vermont using vital statistics or hospital/emergency department discharge data. Vermont Vital Statistics data includes place of injury and occupation fields, but not variables that determine whether the injury leading to death was the result of an occupation-related activity or the result of another activity taking place at a person's place of work (i.e. a farming-related activity or an injury occurring at a farm).

In the same way, it is not possible to determine whether someone whose occupation is agricultural-related was injured due to agricultural work. It is unclear what the scope of work that an agricultural occupation involves (e.g. farmer versus farm educator may have very different roles on a farm). The Vermont Uniform Hospital Discharge Dataset does not include any place of injury or occupation information. As a result, only data from SIREN is presented in this section.

From 2015 to 2016 there were 134 injuries in Vermont to Vermont residents that occurred on a farm and resulted in an EMS activation. This is a rate of 10.7 per 100,000 Vermonters. Nine in 10 (89%) of these injuries resulted in transport by EMS to the hospital.

Of farm-related injuries resulting in an EMS call in Vermont in 2015-2016, half (49%) were due to falls. One-quarter were due to "other" injuries, which encompasses a variety of causes of injury, including overexertion and burns.

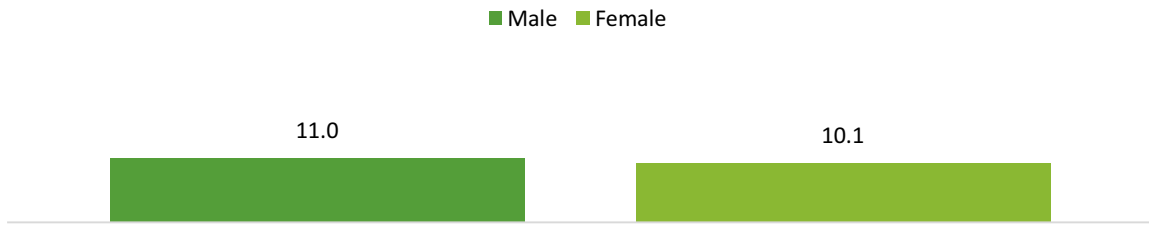
Cause of Farm-Related Injury (percent) in Vermont, 2015-2016



Of the injury-related EMS calls that originated from a farm, approximately 70% were due to farm work (tractor accidents, being kicked by an animal, falling in the barn, etc.). The remaining 30% resulted from regular activities of daily living (cooking accidents, falls in the home, etc.).

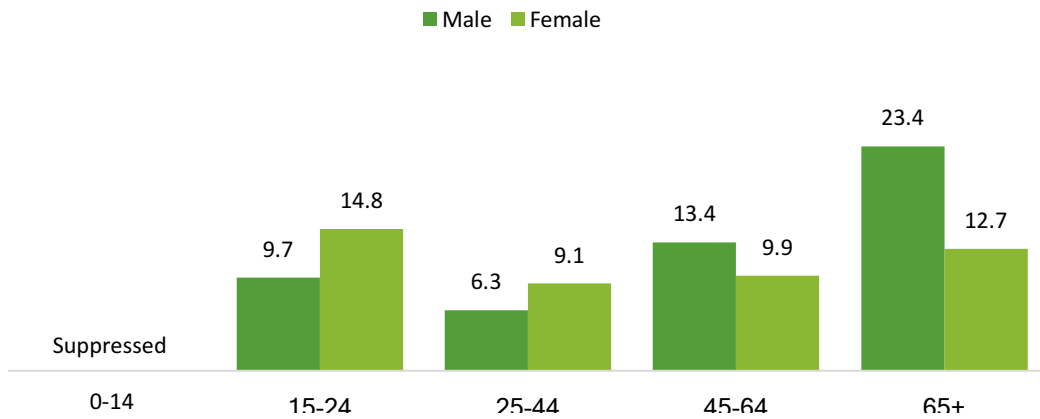
There was not a statistically significant difference in rate of farm-related injury between males and females overall.

Rate of Farm-Related Injury EMS Calls per 100,000 by Gender, 2015-2016



Among Vermonters under the age of 45, females have slightly higher rates of farm-related injury compared to males. This is reversed among those over the age of 45, where males have higher rates of farm-related injury. The highest rate of farm-related injuries was seen among males age 65 and older (23.4 per 100,000). None of these differences are statistically significant.

Rate of Farm-Related Injury EMS Calls per 100,000 by Gender and Age, 2015-2016



Unintentional Drowning

Trend

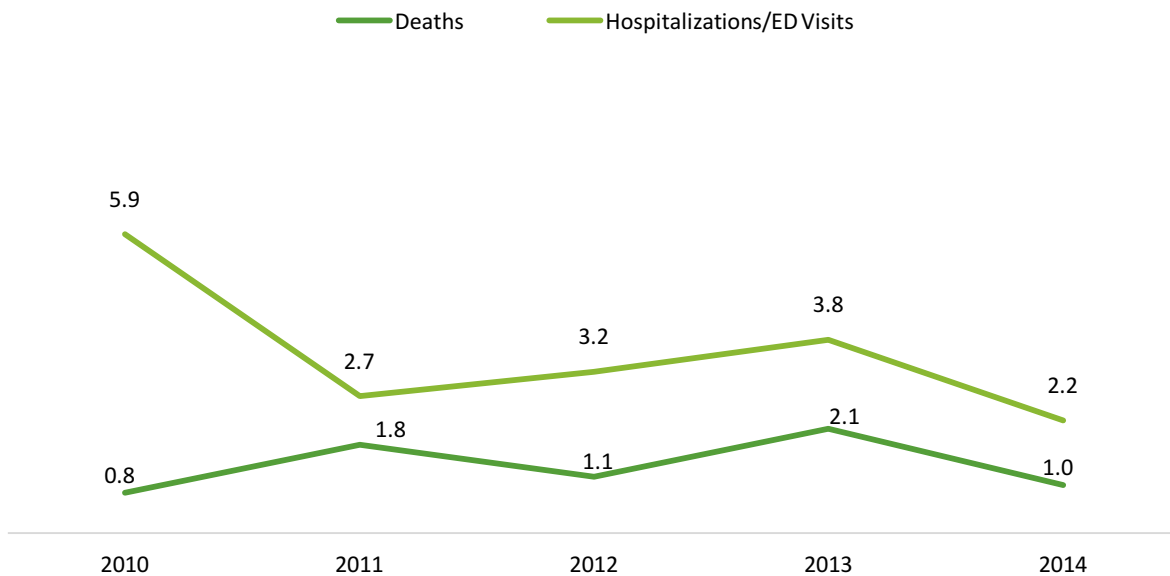
The rate of unintentional drowning per 100,00 Vermont residents has been statistically similar since 2010.

In 2010, there were 0.8 unintentional drowning deaths per 100,000. This increased slightly in 2011 through 2013, before decreasing to 1.0 deaths per 100,000 in 2014.

Rates of unintentional drowning-related hospitalizations/emergency department visits decreased consistently from 2010 to 2014, from a peak of 5.9 per 100,000 in 2010 to a low of 2.2 per 100,000 in 2014.

The difference between 2010 and 2014 is statistically significant.

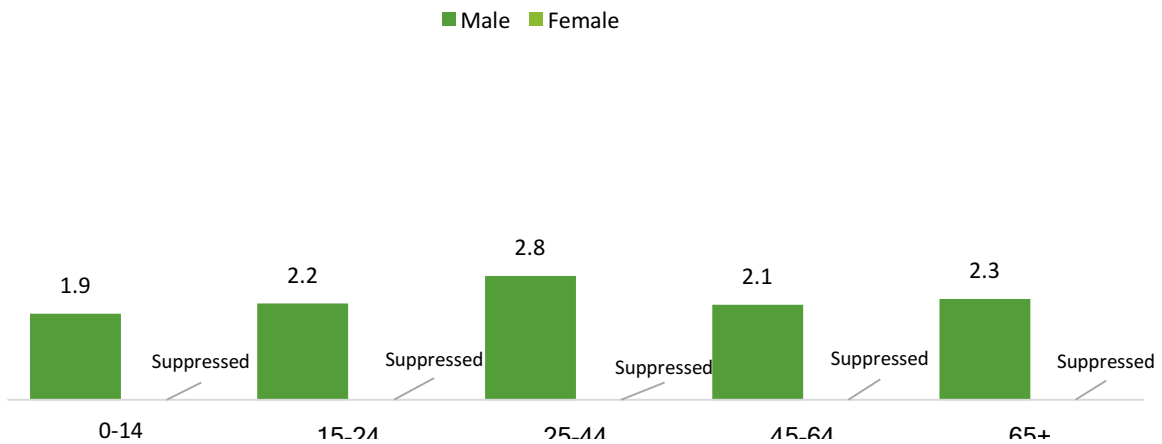
Drowning Death and Hospitalization/ED Visit Rates per 100,000, 2010-2014



Rates by Age and Gender

Although the difference was not statistically significant, males had higher rates of unintentional drowning deaths (2.3 deaths per 100,000 people 2010-2014) across all age groups compared to females (0.4 deaths per 100,000 people 2010-2014).

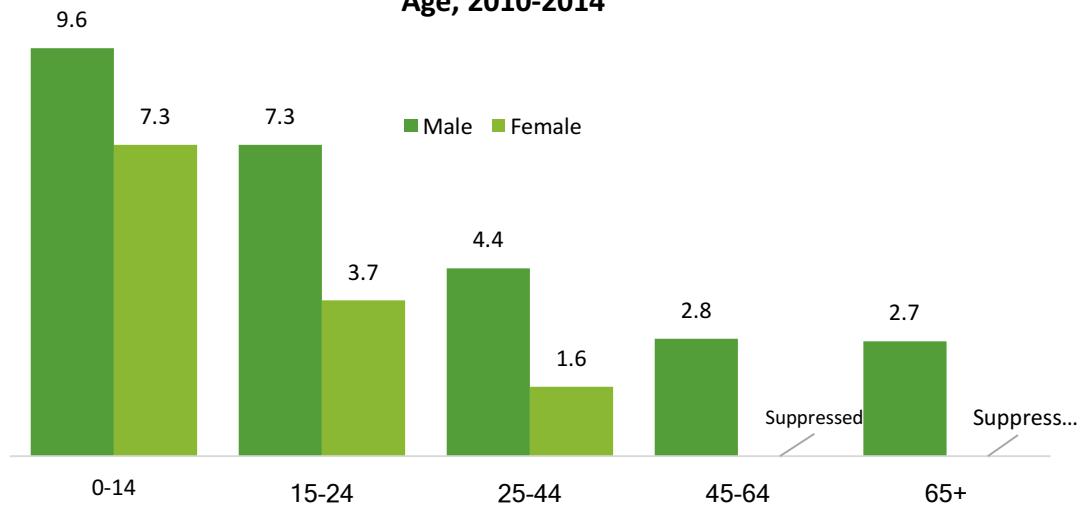
Drowning Death Rate per 100,000 by Gender and Age, 2010-2014



Like gender differences seen in rates of unintentional drowning deaths, males also have higher rates of unintentional drowning-related hospitalization/emergency department visits compared to females (5.0 vs 2.2 per 100,000 2010-2014), regardless of the age category. This difference is statistically significant.

Among males and females, the highest rate of unintentional drowning-related hospitalization/emergency department visits is among those 0-14. Within each gender, differences by age are not statistically significant.

Drowning Hospitalization/ED Visit Rate per 100,000 by Gender and Age, 2010-2014



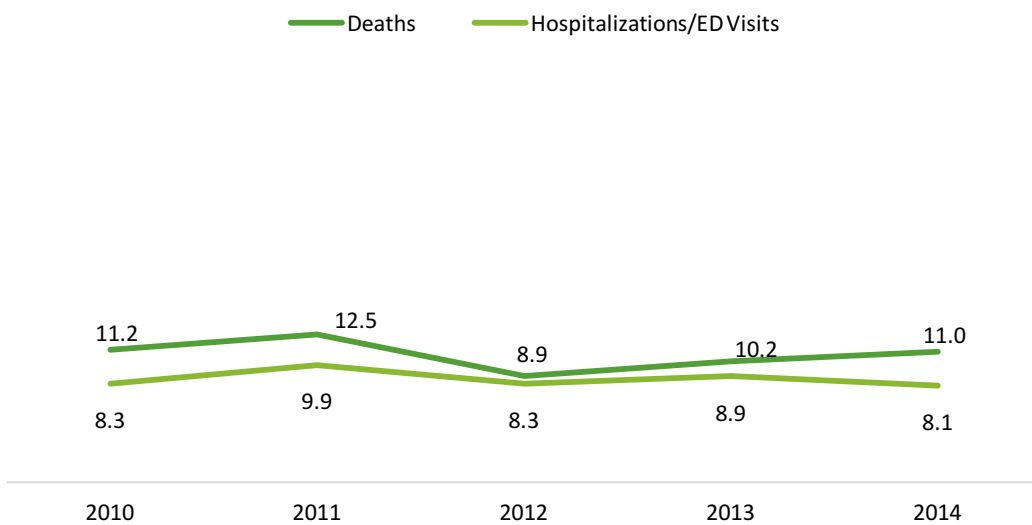
Gun Violence

Trend

Rates of firearm deaths and hospitalization/ emergency department visits were stable from 2010 to 2014. The rate of firearm deaths increased from 8.9 per 100,000 in 2012 to 11.0 per 100,000 in 2014. However, this increase is not statistically significant.

Between 2010 and 2014, nine in 10 gunshot wound deaths and hospitalizations/ emergency department visits among Vermont residents were a result of suicide or self-harm.

Firearm Death and Hospitalization/ED Visit Rates per 100,000, 2010-2014

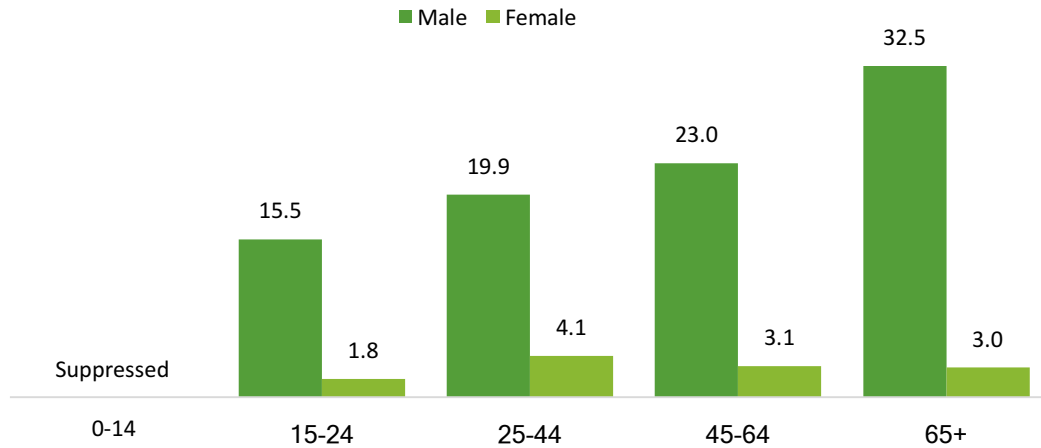


Rates by Age and Gender

Vermont males are statistically significantly more likely than females to die from a gunshot wound (18.8 vs 2.6 per 100,000 2010-2014). As age increases, so does the likelihood of males to suffer a gunshot wound death.

The rate among males age 65 and older is twice that of males age 15-24 (32.5 per 100,000 vs. 15.5 per 100,000). Females age 25-44 have the highest likelihood of dying from a firearm.

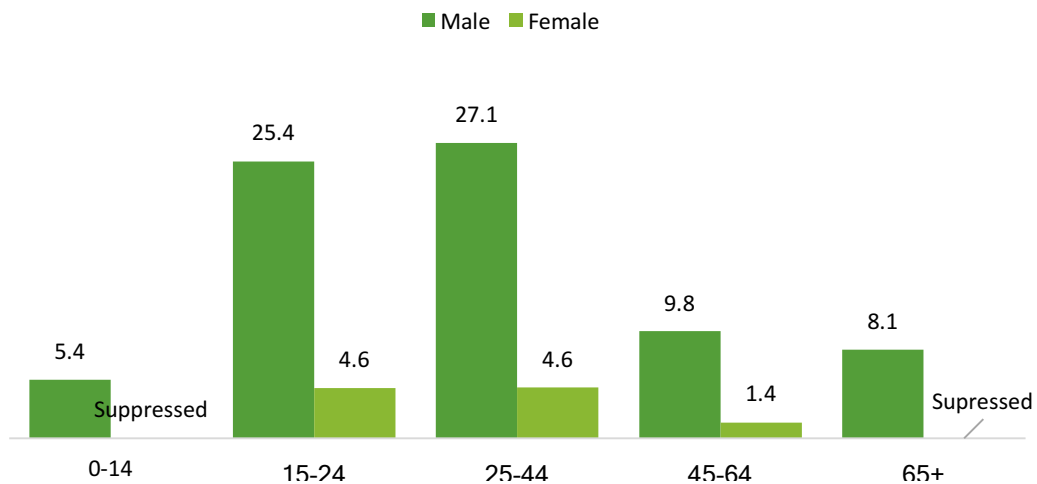
Firearm Death Rate per 100,000 by Gender and Age, 2010-2014



As with deaths, males are statistically significantly more likely than females to visit the emergency department or hospital for a firearm wound (15.2 vs 2.4 per 100,000 2010-2014).

In contrast to deaths, males age 15-24 and 25-44 are most likely to visit the emergency department/hospital with a gunshot wound. Rates among these age groups are about five times those of other age groups.

Firearm Hospitalization/ED Visit Rate per 100,000 by Gender and Age, 2010-2014



Health Equity: Disparities in Injury Deaths

Taking a Health Equity Approach to Injury Data

The Health Department is committed to creating health equity. Health equity means that all people have a fair and just opportunity to be healthy – especially those who have experienced socioeconomic disadvantage, historical injustice, and other avoidable systemic inequalities that are often associated with social categories of race, gender, ethnicity, social position, sexual orientation, and disability.

Health inequity exists when these avoidable inequalities lead to an uneven distribution of the resources and opportunities for health. One way the Health Department is working toward health equity is through monitoring health disparities, which are differences in health that occur between groups of people. Health disparities could be from any cause. Monitoring health disparities allows Health Department staff to identify where there is progress toward health equity, and where there is room for improvement.

In evaluating disparities in injury, we are limited to assessing differences in rates of injury death by racial and ethnic categories. Hospital discharge data does not provide any information on social or demographic variables, such as income or education. In vital records, racial and ethnic categories are the only social or demographic variables provided where we have enough information to calculate rates. Assessment of health disparities and movement toward health equity are priorities for the Health Department, and efforts are underway to improve data quality to more accurately assess disparities and equity.

For more information on the health equity approach taken by the Vermont Department of Health:

http://www.healthvermont.gov/sites/default/files/docummalests/pdf/ADM_SHASHIP_Health%20Equity%20Approach%20for%20SHA%20.pdf

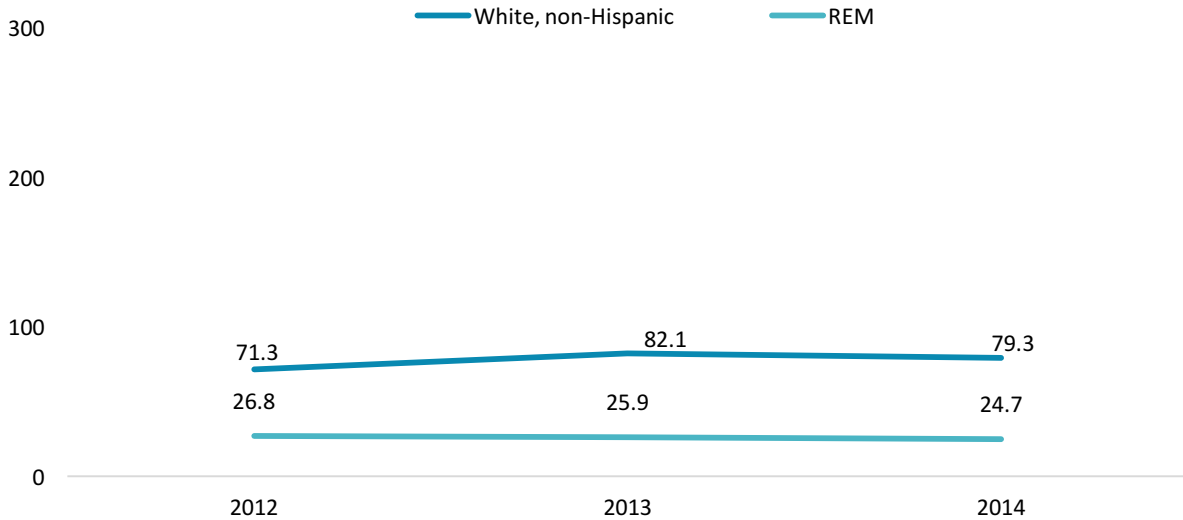
Injury Death Disparities

From 2012-2014, injury death rates are statistically significantly higher among white, non-Hispanic Vermonters than among Vermonters of color. This is a similar trend as seen in the U.S.

The difference in injury death rates by race and ethnicity has increased since 2012. However, changes in the rate within each race category (white, non-Hispanic and racial or ethnic minorities) are not statistically significant.

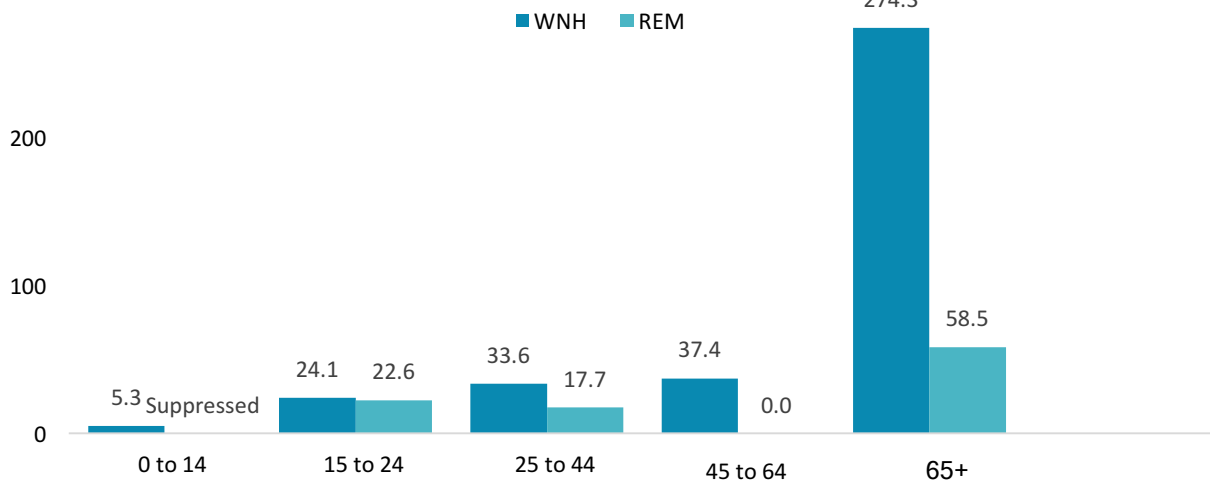
The rate of injury death among white, non-Hispanic Vermont residents increased from 71.3 per 100,000 in 2012 to 79.3 per 100,000 in 2014. During this same time, the rate of injury death among Vermonters of color decreased from 26.8 per 100,000 in 2012 to 24.7 per 100,000 in 2014.

Injury Death Rates by Race and Ethnicity per 100,000, 2012-2014

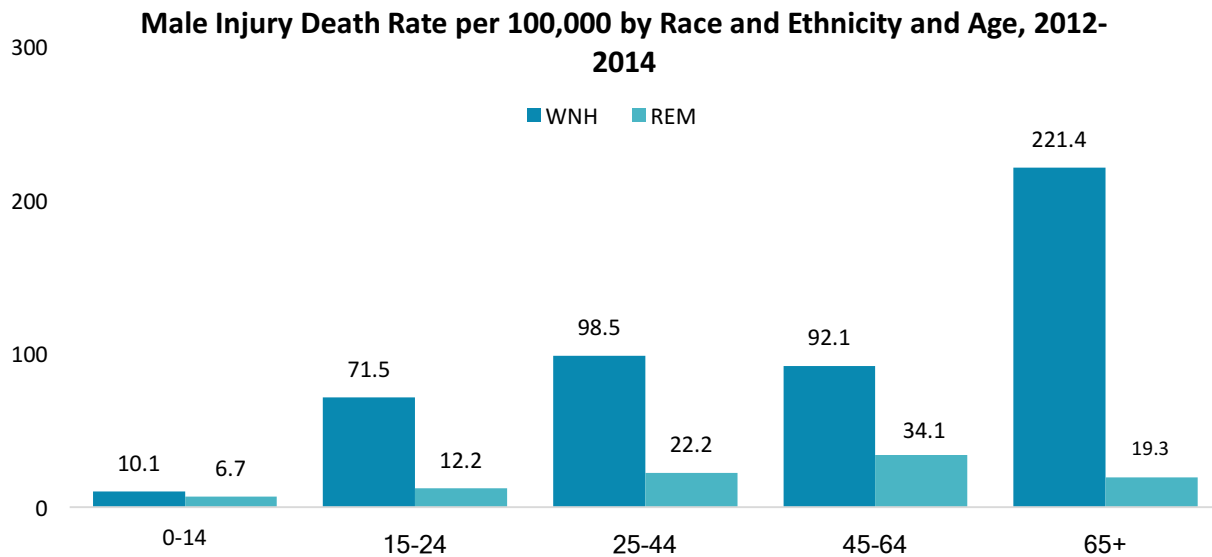


White, non-Hispanic female Vermont residents have higher rates of injury death than Vermont females of color, regardless of age. The only age group for which this difference is not statistically significant is among females age 15-24. The largest difference is among females age 65 and older, where the rate among white, non-Hispanic females is 274.3 per 100,000, and the rate among females of color is 58.5 per 100,000.

Female Injury Death Rate per 100,000 by Race and Ethnicity and Age, 2012-2014



White, non-Hispanic male Vermont residents have higher rates of injury death than among males of color, across all age groups. The only age group for which this difference is not statistically significant is males age 0-14. The largest difference is among males ages 65 and older, where the rate among white, non-Hispanic males is 221.4 per 100,000 and among males of color the rate is 19.3 per 100,000.



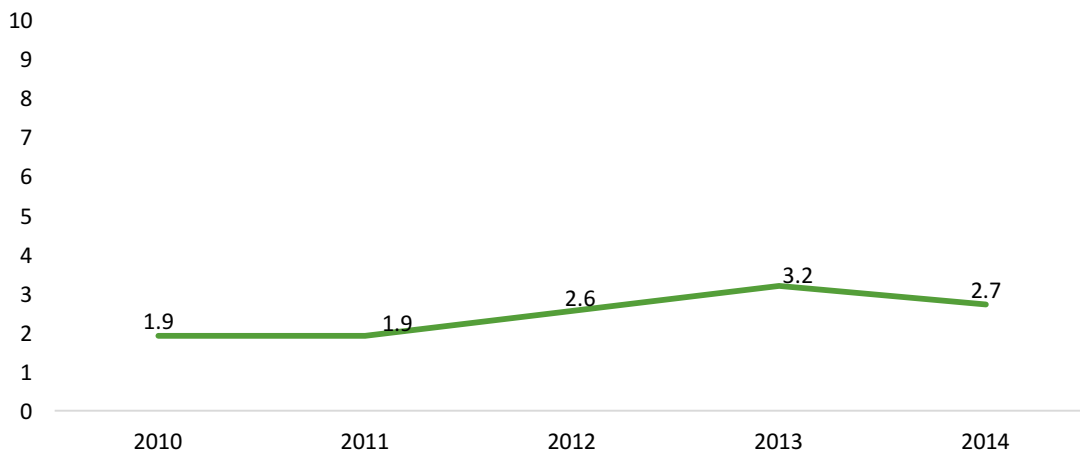
Intimate Partner Violence

Trend

Despite a small increase from the 1.9 deaths per 100,000 to 2.7 deaths per 100,000, the rate of intimate partner violence-related deaths remained statistically similar from 2010-2014. Hospitalization and emergency department data are not included for intimate partner violence.

These injuries are likely under-reported at the hospital/emergency department. This under-reporting may be due to the stigma surrounding intimate partner violence, fear on the part of victims, etc. It is also difficult to assess such injuries using ICD-9 codes, as many of the codes also capture injuries unrelated to intimate partner violence, such as elder abuse.

Intimate Partner Violence Death Rate per 100,000, 2010-2014



Behavioral Risk Factor Surveillance System

In recent years, the prevalence of both sexual violence and intimate partner violence have been assessed via the Behavioral Risk Factor Surveillance System. Sexual violence was reported infrequently, with fewer than one in 10 male adults reporting they have ever experienced sex without their consent (7%) and 1% experiencing this in the past year.

Females are much more likely to have ever experienced unwanted sex than males (11% vs. 2%). And 1% of adults said that during the last 12 months someone touched sexual parts of their body without consent, or they were exposed to sexual situations that did not involve touching.

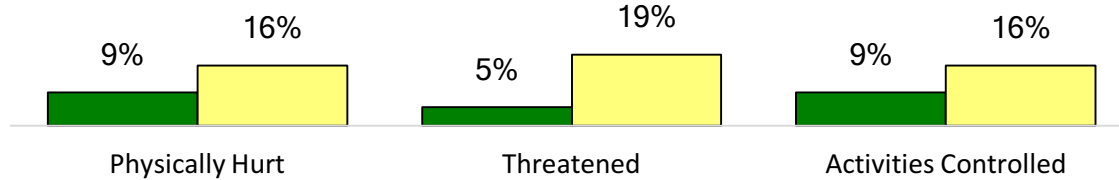
More than one in 10 Vermont adults have ever experienced intimate partner violence (13%): 13% reported ever being physically hurt by an intimate partner or that a partner had tried to control their activities; 12% said an intimate partner had ever threatened them or made them feel unsafe.

As with sexual violence, females are significantly more likely than males to report these experiences. Very few Vermont adults report experiencing intimate partner violence in the last 12 months: 2% of adults reported a partner had physically hurt them or had a partner try to control their activities in the last year; 1% said a partner threatened them during this time.

Experiences with Intimate Partner Violence (ever)

2014 BRFSS

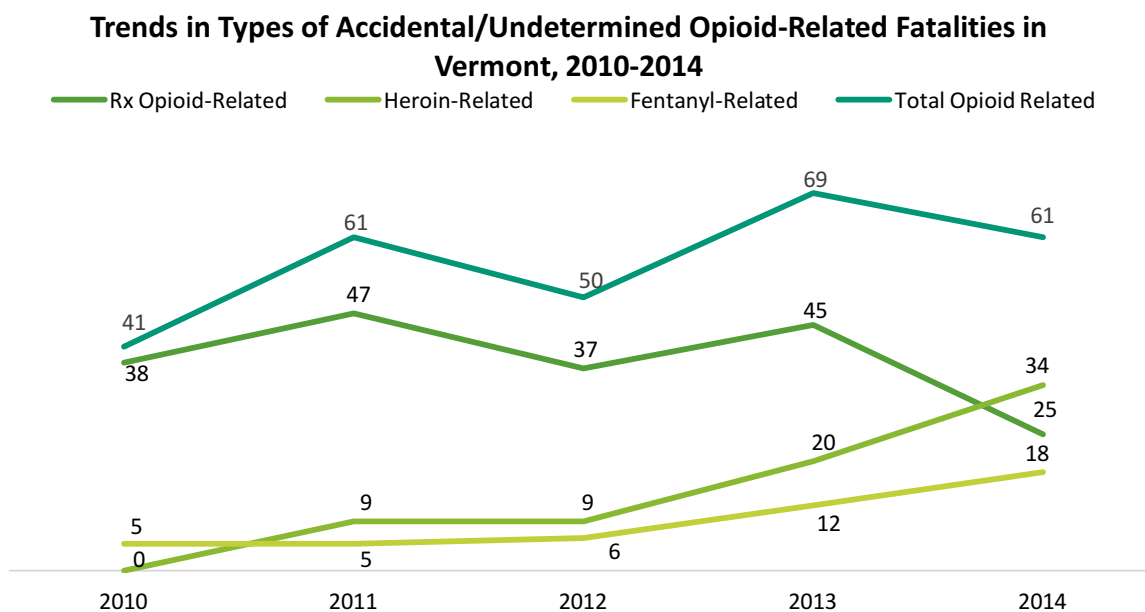
■ Male ■ Female



Unintentional or Undetermined Opioid Overdose

Note: Fatality data in this section refers to all opioid-related deaths occurring in Vermont. Therefore, it includes some deaths among non-Vermont residents. However, these deaths make up a small percentage of the overall number of deaths referred to. In 2015, Vermont had the fifth highest prevalence of past year heroin use in the United States¹. Males comprise about two-thirds of these deaths in Vermont (68%), and most of these opioid-related fatalities are among those between 30 and 50 years of age (59%).

Most opioid-related fatalities involve multiple substances. Half of opioid-related deaths (accidental and undetermined) involve either heroin or fentanyl (48% each). One-third involved prescription opioids (36%).



Naloxone Pilot Project (Opioid Overdose Prevention and Reversal Project)

To reduce the number of opioid-related fatalities, the Health Department began distributing naloxone (Narcan®) as part of the Naloxone Pilot Project in December of 2013.

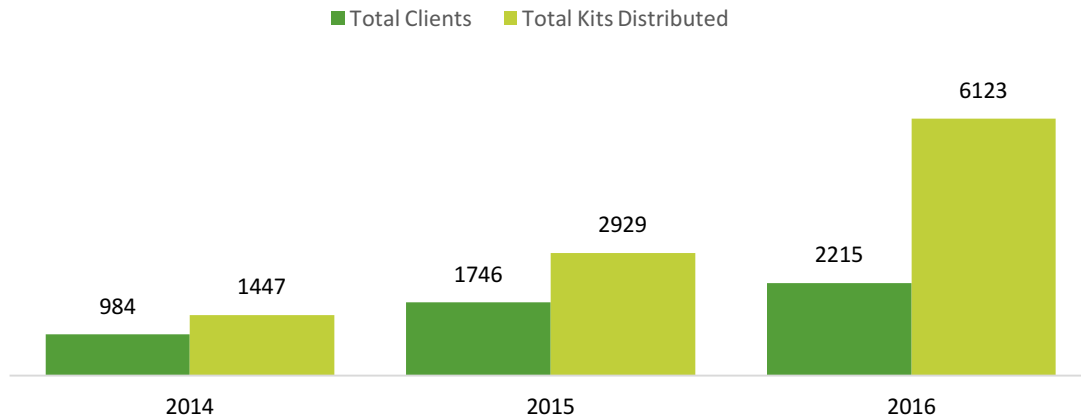
The goal of the project is to distribute naloxone overdose rescue kits, containing a single 4 mg dose of nasal naloxone spray (until July of 2016, two 2 mg doses were distributed), to individuals who are at risk for overdose, family members of those at risk, and anyone who may be positioned to help in the event of an overdose. Community-based organizations that distribute naloxone provide overdose response training, opioid misuse prevention training, and referrals to treatment.

In 2016, the project collected information from new clients. New clients were mostly male (54%), white (93%) and non-Hispanic (98%). More than half (53%) said they had witnessed at least one overdose in their life. Of the quarter (24%) of new clients who reported they had overdosed at least once in their life, two-thirds (67%) said they most recently overdosed on heroin.

¹ National Survey on Drug Use and Health (NSDUH) Data Review: <https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR2-2015/NSDUH-FFR2-2015.htm#tabb-3>
34 . Vermont Department of Health

The increase in the number of kits distributed from 2014 to 2016 may be due to expanded distribution, increased awareness of the program, etc. The increase is not solely due to more overdoses. Specifically, increases in naloxone distribution in mid-2016 was due a switch from the kit that needed to be assembled to a new, easier to use kit with the same amount of naloxone as two of the old kits.

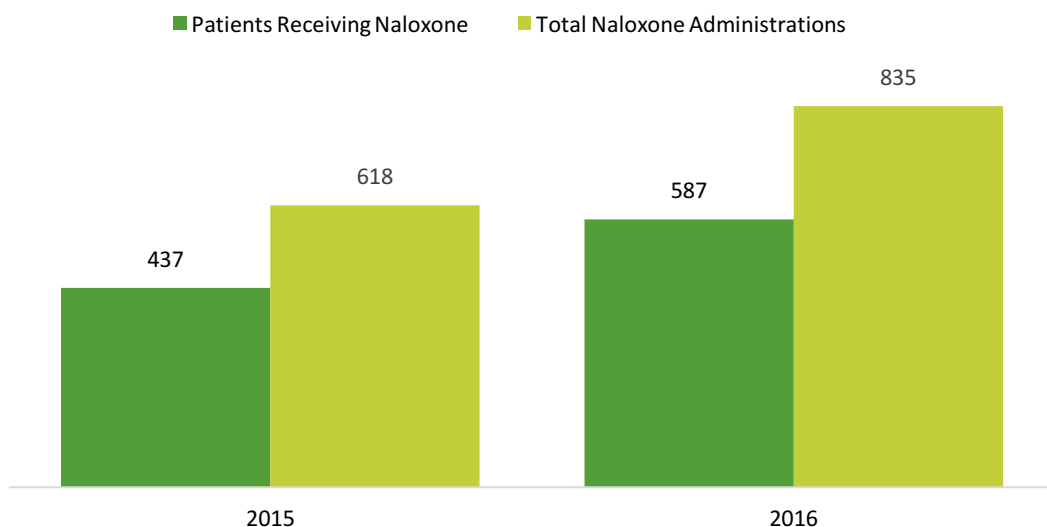
Total Number of Clients and Kits Distributed, 2014-2016



SIREN Data

EMS agencies in Vermont may carry and use naloxone in accordance with the Vermont Statewide EMS Protocols. Note that indications for use of naloxone may be more expansive than solely for known/suspected acute opioid/opiate overdose reversal, meaning naloxone may be administered when an opioid has not been used. In 2016, SIREN data indicates that individuals who were administered naloxone by EMS personnel were 61% female, and 55% were between 30 and 59 years of age. Both the number of patients receiving naloxone and the number of naloxone administrations increased from 2015 to 2016.

Total Uses of Naloxone by Vermont EMS Agencies, 2015-2016



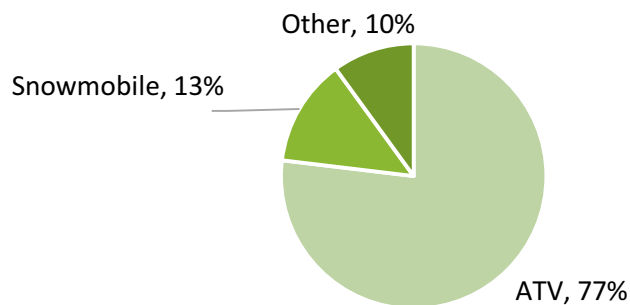
For more information on Vermont Department of Health’s approach to opioid use disorders: http://www.healthvermont.gov/sites/default/files/docummalests/2017/03/ADAP_Opioid_Strategy_Brief.pdf

Recreational Vehicles

There is no clear way to assess recreational-related injuries in Vermont using vital statistics or hospital/emergency department discharge data. There are specific ICD codes for injuries resulting from the operation of snow or off-road vehicles. However, it is difficult to assess the exact type of these broad categories of vehicles that were being operated at the time of injury in the vital statistics or hospital discharge/emergency department data. As a result, only data from SIREN is presented in this section. From 2015 to 2016 there were 160 injuries to Vermont residents who were operating or riding a recreational vehicle that resulted in an EMS call.

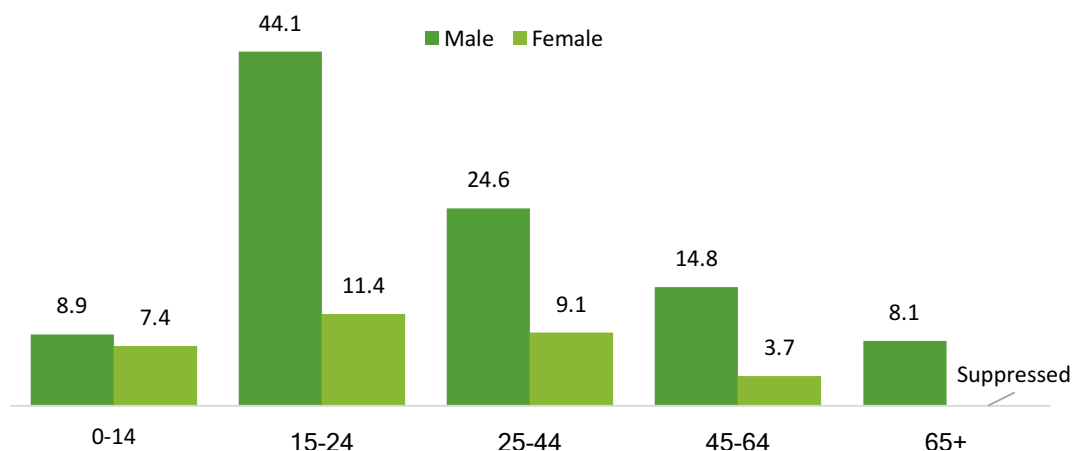
This translates to a rate of 12.8 per 100,000 residents. Nearly nine in 10 (87%) of these injuries resulted in transport by EMS to the hospital, while 1.3% resulted in death at the scene of the crash. The majority (76.9%) of these injuries were the result of all-terrain vehicle (ATV) use, while approximately equal amounts were due to the use of snowmobiles (13.1%), and “other” vehicles, such as boats (10.0%).

Cause of Recreational Vehicle Injury in Vermont, 2015-2016



Males have statistically significantly higher rates of recreational-vehicle related injuries that result in EMS calls than females (19.4 per 100,000 males compared to 6.3 per 100,000 females). This statistically significant gender difference holds across all age groups, with males having higher rates of recreational-vehicle related injuries than females. The highest rates of injury were seen among males age 15-24 (44.1 per 100,000) and age 25-44 (24.6 per 100,000).

Rate of Recreational Vehicle-Related Injury EMS Calls per 100,000 by Gender and Age, 2015-2016

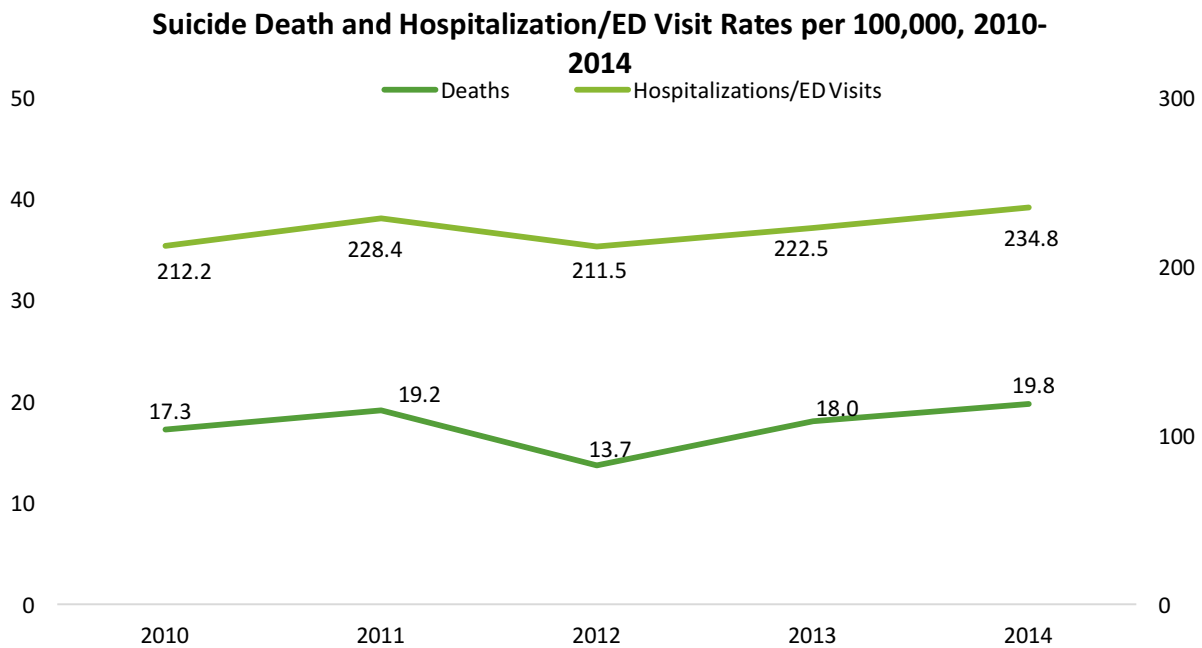


Suicide

Trend

Rates of death by suicide increased steadily in Vermont from 13.7 per 100,000 in 2012 to 19.8 per 100,000 in 2014, but this increase is not statistically significant. More than half (55.1%) of all suicide deaths in Vermont are caused by firearms. The next leading causes of suicide death are suffocation (19.1%) and poisoning (19.1%).

Rates of hospitalization/emergency department visits for self-harm in Vermont have been relatively stable since 2010.

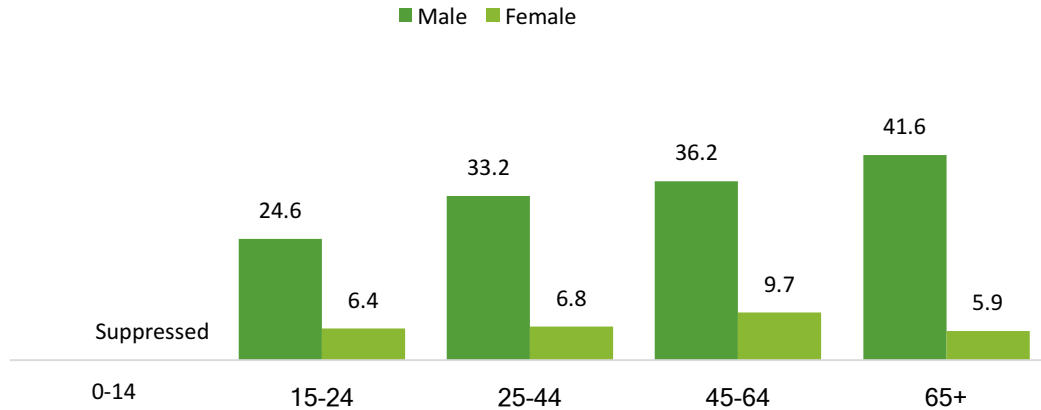


Rates by Age and Gender

Males are more than three times as likely as females to die by suicide, regardless of age category, a statistically significant difference. In general, as age increases, the likelihood of dying from suicide increases, except among females 65+.

The highest rate of suicide is among males age 65 and older with a rate of 41.6 per 100,000 Vermonters in 2010-2014. Among Vermont males, 60.1% of all suicide deaths are caused by firearms. Among Vermont females, 42.5% of all suicide deaths are caused by poisoning.

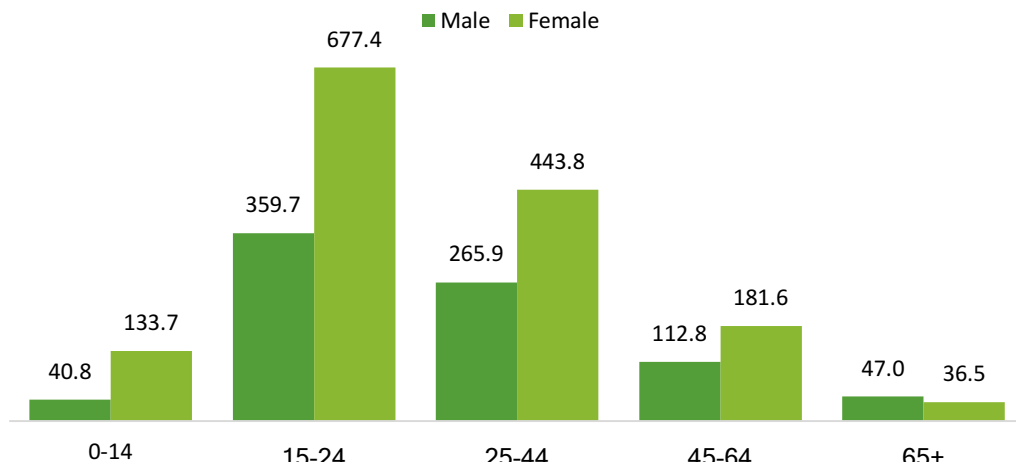
Suicide Death Rate per 100,000 by Gender and Age, 2010-2014



In contrast to suicide deaths, intentional self-harm at the emergency department and hospital is higher among younger females. Females age 15-24 have the highest rate of emergency department /hospitalization visits of 677.4 per 100,000 from 2010-2014.

For both males and females, the rate of self-harm seen at the hospital/emergency department decreases after 24 years of age.

Self-harm Hospitalization/ED Visit Rate per 100,000 by Gender and Age, 2010-2014



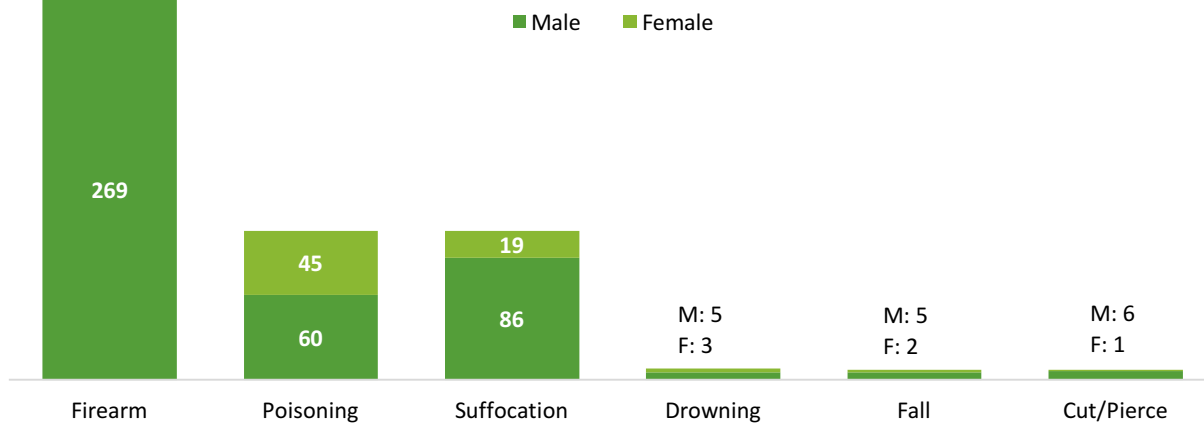
Leading Causes of Suicide Death

The majority (55%) of all suicide deaths are completed with firearms and the majority (80%) of suicide deaths occur among males.

Firearms are the leading cause of suicide among males, while poisoning is the leading cause among females. More than 90% of suicides are caused by firearms, poisoning or suffocation and the remainder are caused by drowning, falls, cut/pierce or other.

Among those 1-14, suffocation was the leading cause of suicide death (67%), while firearm was the leading cause among the remaining age groups.

Suicide Death 2010-2014, by Cause and Gender



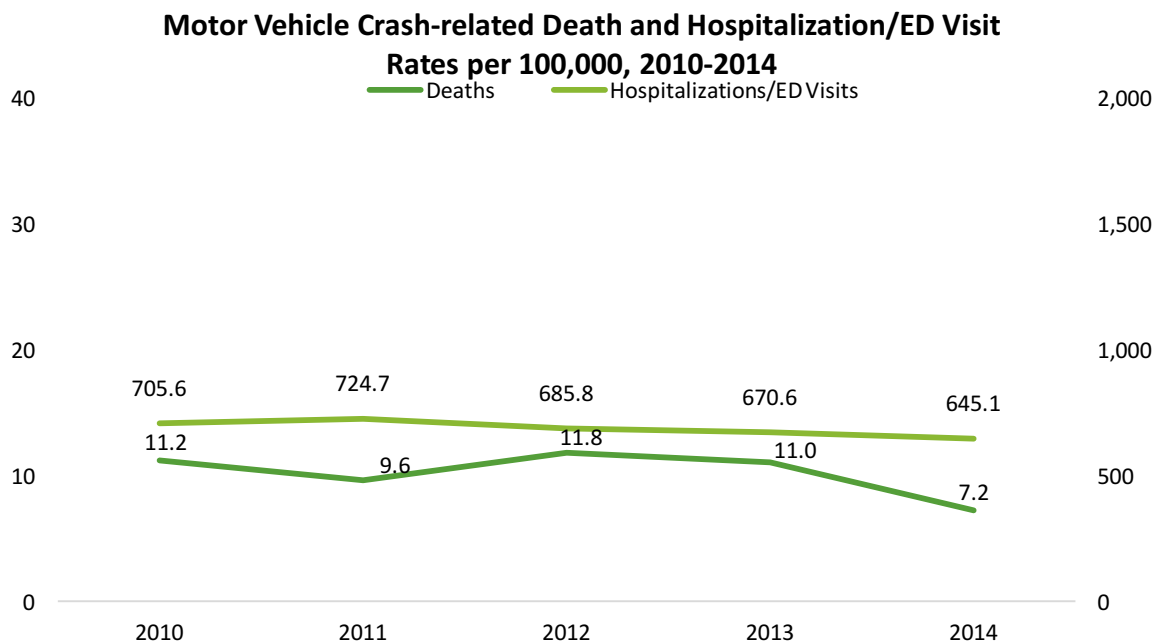
Traffic Safety

This special topic section includes injuries resulting from motor vehicle crashes. The first three charts illustrate trends and gender/age differences in deaths and hospitalizations/emergency department visits for all motor vehicle crash-related injuries. The last two charts illustrate trends in two subsets of this type of injury: those involving pedestrians struck by motor vehicles, and those involving bicyclists struck by motor vehicles.

Trend

The rate of motor vehicle crash-related deaths decreased from 11.2 deaths per 100,000 in 2010 to 7.2 deaths per 100,000 in 2014. However, the change is not statistically significant.

Motor vehicle crash-related hospitalization/emergency department visits peaked in 2011 (724.7 visits per 100,000), and then steadily declined through 2014 to 645.1 visits per 100,000. The difference in rates between 2011 and 2014 is statistically significant.

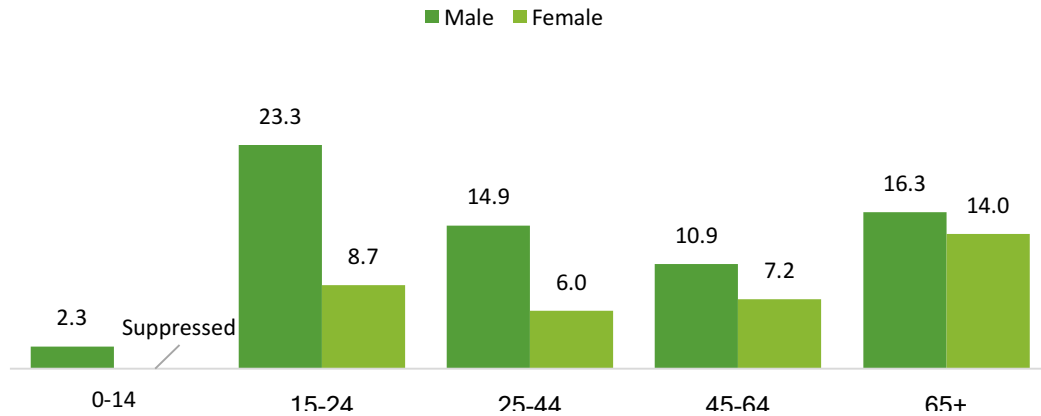


Rates by Age and Gender

From 2010 to 2014, males (13.0 per 100,000) had a higher rate of motor vehicle crash-related death than females (7.3 per 100,000) overall, although this difference was not statistically significant.

Across all age categories, males have a higher motor vehicle crash-related death rate than females. Differences by gender among those 15-24 and 25-44 years of age are statistically significant. Among males, those under the age of 15 had statistically significantly lower rates of motor vehicle crash-related death than the other age groups. There were no other statistically significant differences within either gender by age group.

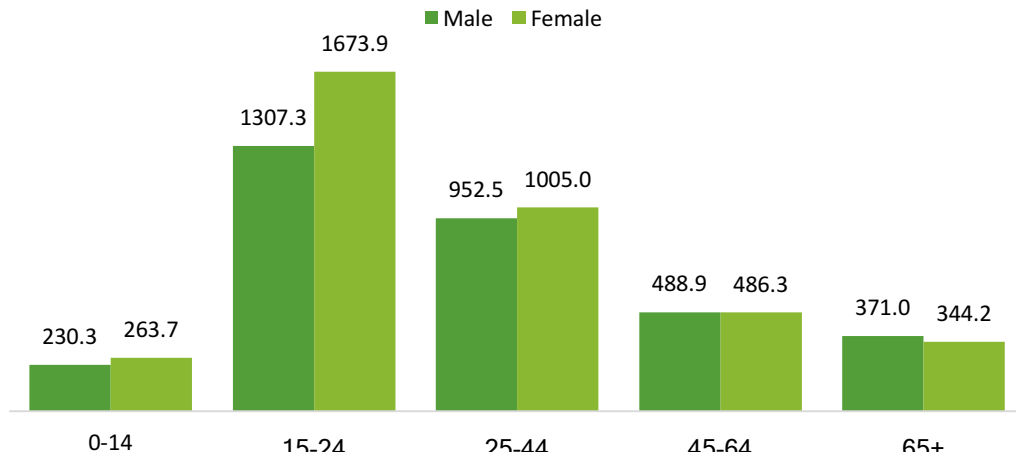
Motor Vehicle Crash-Related Death Rate per 100,000 by Gender and Age, 2010-2014



From 2010-2014, females (710.5 per 100,000) had statistically significantly higher rates of motor vehicle crash-related hospitalization/emergency department visits compared to males (659.9 per 100,000). For both males and females, the highest rates of motor vehicle crash-related hospitalization/emergency department visits were seen among those 15 to 24 years of age.

For both genders, the difference in rates for those ages 15-24 and other age groups is statistically significant. Within the 15-24 age group, females had statistically significantly higher rates of motor vehicle crash-related hospitalization/ emergency department visits compared to males.

Motor Vehicle Crash-Related Hospitalization/ED Visit Rate per 100,000 by Gender and Age, 2010-2014

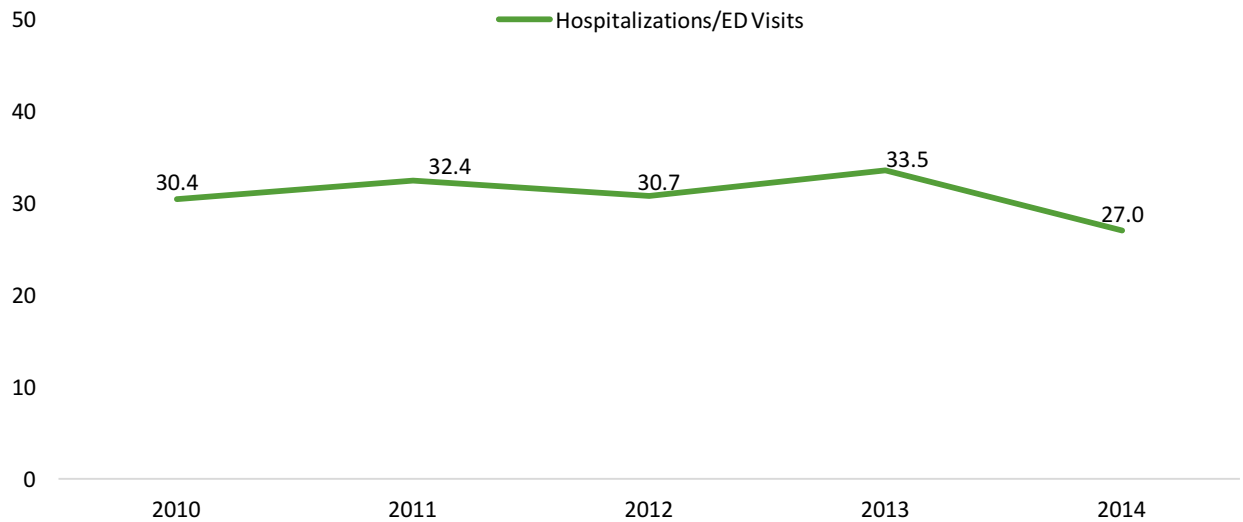


Pedestrians

From 2010-2014, an average of 193 pedestrians were hospitalized or visited the emergency department each year as the result of being struck by a motor vehicle. The rate of hospitalization/emergency department visits among pedestrians has not changed significantly since 2010. Over this time, there were no gender differences in rate of pedestrian related hospitalization/ED visits overall.

Among both males and females, the statistically highest rates of pedestrian-related hospitalization/emergency department visits were seen among those ages 15 to 24 and those age 25 to 44. The number of pedestrian fatalities over this time are too small to calculate stable rates. However, from 2010-2014, 32 Vermont pedestrians died.

Pedestrian-related Hospitalization/ED Visit Rates per 100,000, 2010-2014

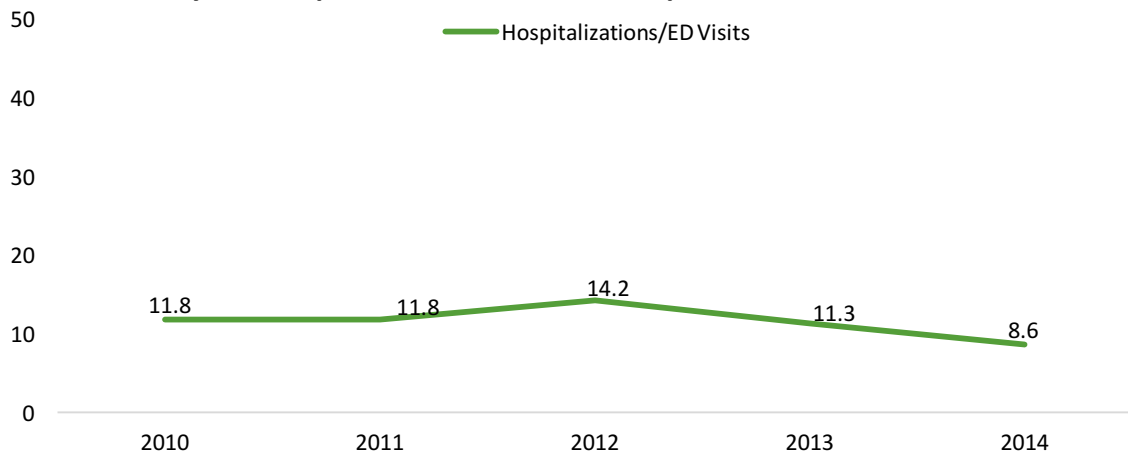


Bicyclists

From 2010 to 2014, an average of 72 bicyclists were hospitalized or visited the emergency department each year as the result of being struck by a motor vehicle. The rate of hospitalization/emergency department visits for bicyclists has not changed significantly since 2010. Over this time, male bicyclists had a statistically significantly higher rate of injury (17.4 per 100,000) compared to female bicyclists (5.9 per 100,000).

Among both males and females, the statistically significantly highest rates of bicycle injury-related hospitalization/emergency department visits were seen among those ages 15 to 24. The number of bicyclist fatalities over this time are too small to calculate stable rates. However, from 2010-2014, four Vermont bicyclists died.

Bicyclist Hospitalization/ED Visit Rates per 100,000, 2010-2014



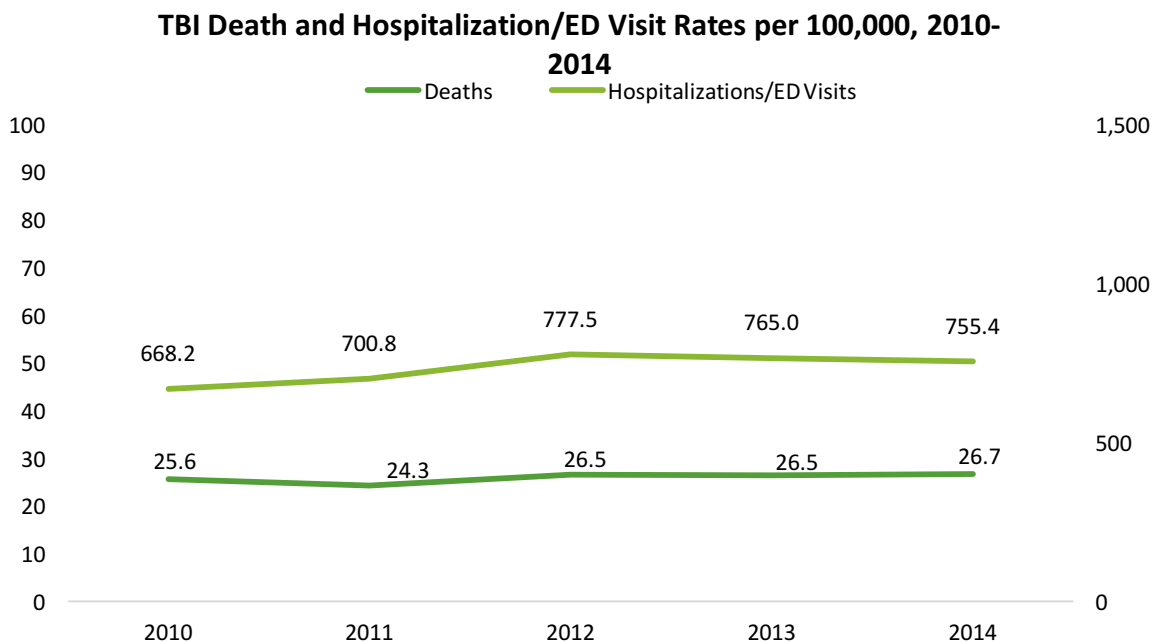
Traumatic Brain Injury (TBI)

Trend

Traumatic Brain Injury (TBI) is caused by a bump, blow, jolt, or penetrating head injury that disrupts the normal function of the brain. TBI has multiple causes (including firearms, motor vehicle traffic, falls, etc.) and multiple descriptions (including: open head wound, fracture of skull and facial bones, etc.). The severity of TBIs are difficult to determine in surveillance definitions.

Of the 815 TBI-related deaths from 2010-2014, all had a cause other than TBI listed as the primary cause of death. One-third (35%) were due to firearms, three in 10 (31%) were due to falls, and one-quarter (24%) were due to motor vehicle traffic crashes. The remainder (10%) were made up of a variety of causes, each less than 2%, including drowning, machinery and being struck. More than six in 10 (62%) of TBI-related deaths were unintentional. About four in 10 (38%) were intentional (34% suicide, and 3% homicide), and 1% was of undetermined intent.

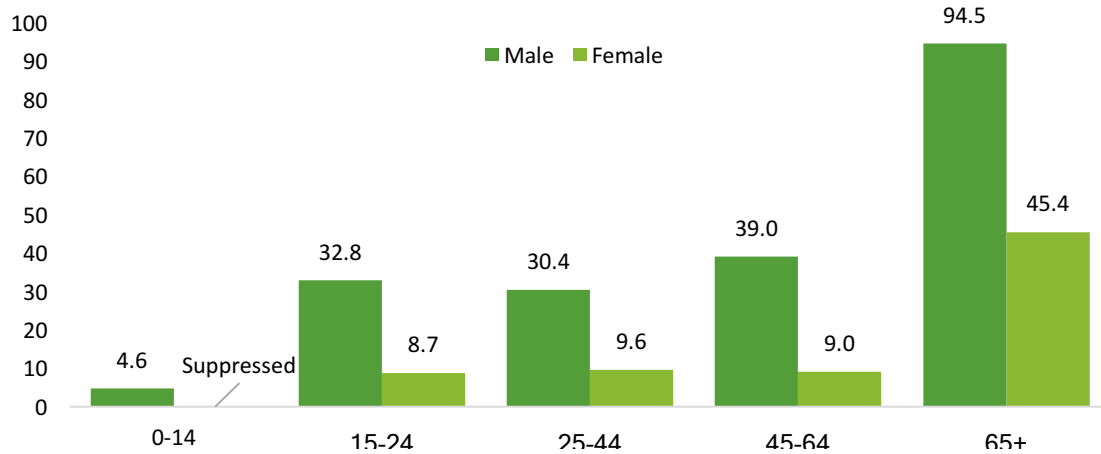
The rate of TBI-related deaths has remained relatively stable from 2010-2014, increasing slightly from 25.6 per 100,000 to 26.7 per 100,000 during this time. The rate of TBI-related hospitalization/emergency department visits peaked in 2012 (777.5 visits per 100,000), and then declined slightly through 2014 to 755.4 per 100,000.



Rates by Age and Gender

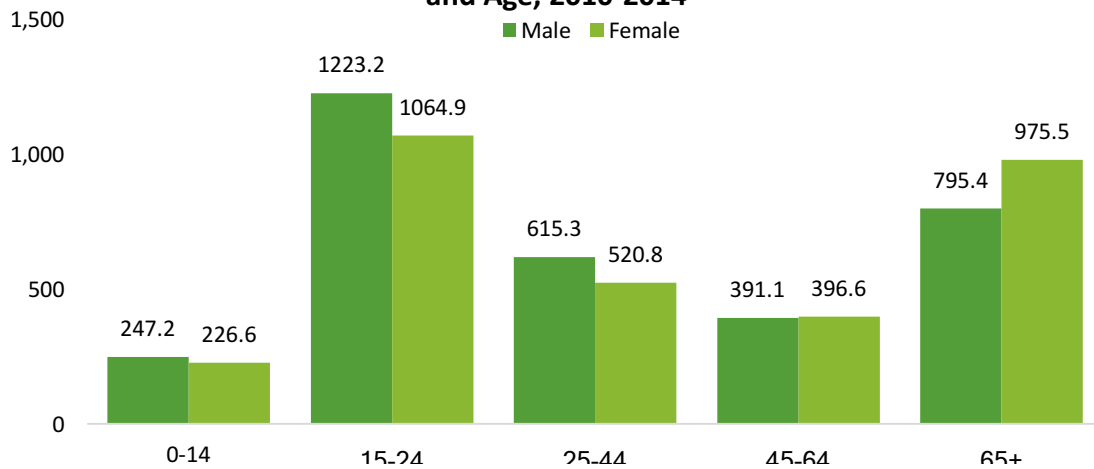
Across all age categories, males have a statistically higher rate of TBI-related death rates than females (38.2 vs 14.0 per 100,000 from 2010-2014). These differences are statistically significant regardless of the age category. Among males, those 65+ years of age (94.5 per 100,000) have the highest rate of TBI-related death, statistically higher than all other age categories, and females also follow the same pattern. In general, for both males and females the rate of TBI-related death increases with age.

TBI-Related Death Rate per 100,000 by Gender and Age, 2010-2014



Males have a slightly higher rate of TBI-related hospitalization/emergency department visits compared to females (602.2 vs 589.6 per 100,000 from 2010-2014). For both males and females, the highest rates of TBI-related hospitalization/emergency department visits are among those 15 to 24 years of age, followed closely by those 65 and older. Males have a slightly higher rate of TBI-related death for ages 0-44, while females have a higher rate among those 45 and older. Differences between the 15-24 age group and other age groups are statistically significant.

TBI-Related Hospitalization/ED Visit Rate per 100,000 by Gender and Age, 2010-2014



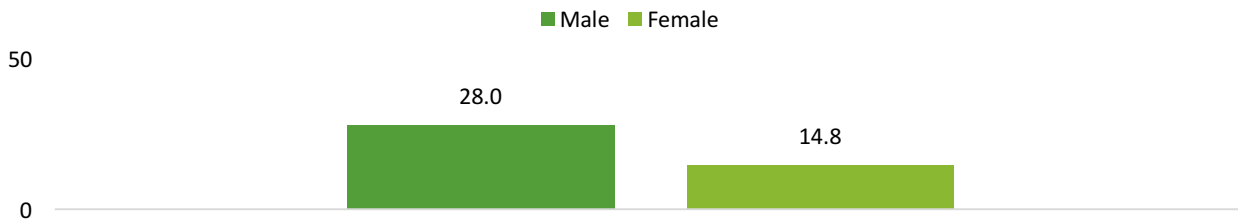
Winter Sports

Note: This section only contains data from SIREN as there is no clear way to assess winter sport-related injuries in vital statistics or hospital/emergency department discharge data. While there are ICD-9-CM activity codes specific to skiing or snowboarding, there are not external cause of injury codes specific to these types of sports.

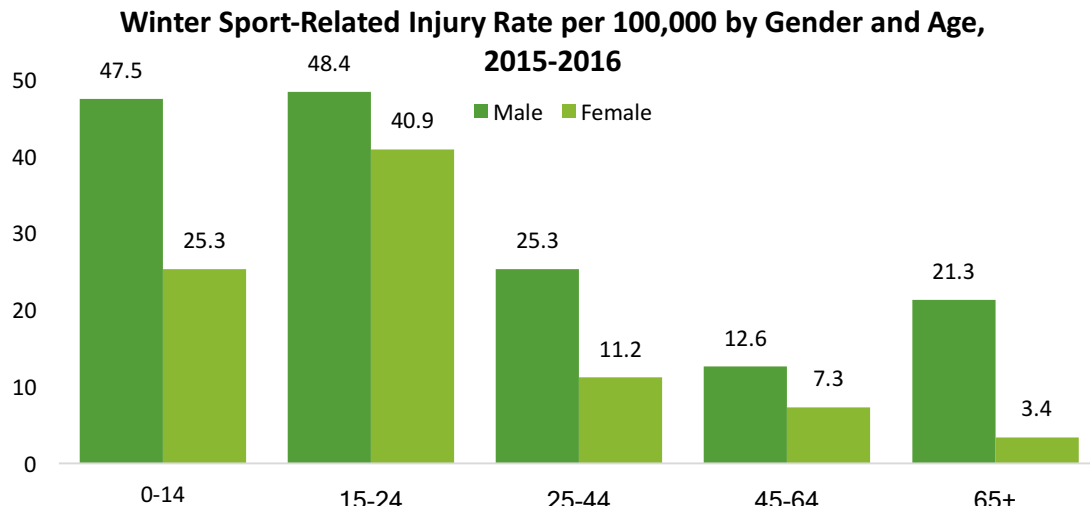
From 2015 to 2016 there were 272 injuries in Vermont among Vermont residents who were skiing, snowboarding, or sledding that resulted in an EMS call. This represents a rate of 21.7 per 100,000 Vermont residents. Nearly all (95%) of these calls resulted in transport of the patient by EMS to the hospital.

From 2015 to 2016, males had a statistically significantly higher rate of winter-sports related injuries compared to females.

Winter-Sport Related Injury EMS Calls per 100,000 by Gender, 2015-2016



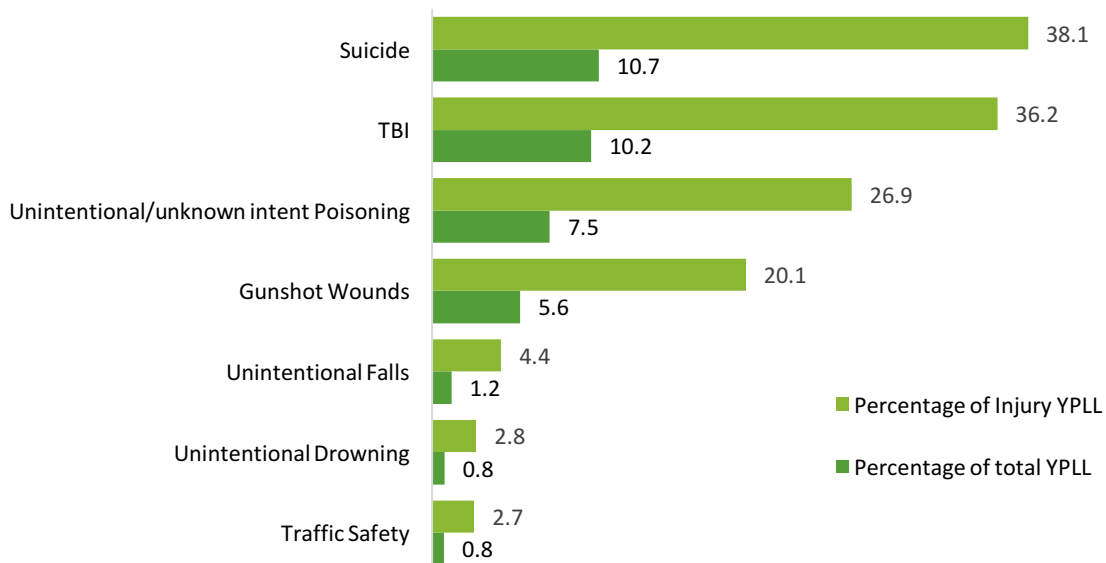
Males have higher rates of winter sport-related injuries than females across all age groups, although this difference is only statistically significant among those ages 65 and older. Among both males and females, the statistically significantly highest rates of winter sport-related injuries are among those ages 0-14 and 15-24.



Years of Potential Life Lost

Years of potential life lost (YPLL) is a standard measure of the extent of premature mortality in a population and is based on life expectancy. Years of potential life lost is defined as the sum of the years of life lost by persons who suffered early deaths, for those whose death occurred before 74. In 2014, the measure of years of potential life lost in Vermont was 33,782 years and the years of potential life lost due to injury in Vermont was 9,474 years. This means that injury made up over 28% of all the years of potential life lost in Vermont. As the average age of injury increases, the number of years of potential life lost will decrease, and the inverse is also true.

Percentage of Years of Potential Life Lost, by Special Topic



Note: Percentages will not add up to 100% as special topics may overlap. (Suicide and gunshot wounds are not mutually exclusive, TBI and traffic safety are not mutually exclusive, etc.)

Description of Data Sources and Technical Notes

Data Sources

The Statewide Incident Reporting Network (SIREN): SIREN is Vermont's pre-hospital electronic documentation database hosted by ImageTrend, Inc. All Vermont licensed ambulance agencies are required to submit electronic patient care reports within one business day after responding to an incident. SIREN is overseen by the Emergency Medical Services data manager at the Health Department.

Vermont Uniform Hospital Discharge Data Set: Vermont's acute care hospitals participate in the hospital data system. The data set consists of inpatient discharge data, outpatient procedures and services data, and emergency department data. Records relating to Vermont residents are obtained from Massachusetts, New Hampshire and New York hospitals for a more accurate picture of the hospitalization of Vermonters. However, Massachusetts data are currently only available as incomplete data sets for 2014.

Vermont Vital Statistics: Although a physician, physician assistant or advanced practice registered nurse is responsible for filing the death certificate, the task is often delegated to the funeral director. Most of the information needed to complete the death certificate is obtained from the family of the deceased. However, it must be a physician, physician assistant or advanced practice registered nurse who completes and certifies the cause of death information. Once a death record is completed in the Electronic Death Registration System (EDRS), it is registered, and the death certificate is available to the town clerks for filing. In addition to receiving copies of vital records from Vermont town clerks, the Health Department also receives copies of certificates of all Vermont resident births and deaths that occur in other states and in Canada. This allows the Health Department to do statistical analyses of vital events involving Vermont residents even if the birth or death occurred outside of the state.

Wide-ranging Online Data for Epidemiologic Research (WONDER): WONDER is an interactive database system that provides customized reports about a variety of public health topics, including injury-related deaths. It is maintained by the Centers for Disease Control and Prevention. In this report, WONDER is used for producing the national injury-related death data.

Behavioral Risk Factor Surveillance System (BRFSS): Since 1990, Vermont and 49 other states and three territories have tracked risk behaviors using a telephone survey of adults (age 18+) called the Behavioral Risk Factor Survey. These data are self-reported and therefore may differ from information obtained from records of health care providers. The sample is also limited to non-institutionalized adults with telephones.

Technical Notes and Definitions

Morbidity: Morbidity refers to the total amount of a disease or condition in the population. In this report, injury morbidity is measured by hospitalization/emergency department visits coded using International Classification of Diseases, Ninth Revision Clinical Modification (ICD-9-CM).

Mortality: Mortality refers to the number or rate of deaths from injury. The mortality data presented here were coded using the International Classification of Diseases, Tenth Revision (ICD-10).

Confidence Intervals: A confidence interval is a range of values within which the true rate is expected to fall. If the confidence intervals of two groups (such as males and females, or Vermont and the U.S.) overlap, then any difference between the two rates is not statistically significant. All rates in this report are calculated at a 95% confidence interval.

Rates: All rates in this document are crude rates unless otherwise specified. Age-adjusted rates are standardized to the 2000 U.S. standard population. This allows the comparison of rates among populations having different age distributions by standardizing the age-specific rates in each population to one standard population.

Statistical Significance: The use of the terms “higher” and “lower” in this document refer to a statistically significant difference. A statistically significant difference indicates statistical evidence that there is a difference that is unlikely (5%) to have occurred by chance alone.

Suppressed: A rate is suppressed if the numerator is less than five.

Intent of Injury: Intent of injury reflects the manner of injury (e.g. unintentional, intentional self-inflicted, assault, undetermined, or other). Whether an injury was caused by an act carried out on purpose by oneself or by another person(s), with the goal of injuring or killing. Unintentional injuries are unplanned. Intentional injuries results from purposeful human action (whether directed at oneself or others). Undetermined injuries are those that cannot be classified as unintentional, suicide or assault. Other injuries are predominantly caused by legal intervention.

Cause of Injury: Vital records (death data), hospitalization and emergency department records include a summary of the circumstances causing the injury, the intent (e.g. intentional and unintentional) and the mechanism (e.g. falls, motor vehicle crashes, firearms) of the injury. The ICD-9-CM system is used for hospitalization and emergency department data and the ICD-10 classification system is used for death data. Both systems were developed by the World Health Organization (WHO). (See also E-code and Intent of Injury).

External Cause of Injury Code (E-code): The external underlying cause of injury is the way in which the person sustained the injury, how the person was injured, or the process by which the injury occurred. External causes for injuries are coded by hospital medical records staff according to the International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM).

For mortality data, coding guidelines indicate the use of an external cause of injury as the underlying cause of death when the morbid condition is classifiable to an injury diagnosis. The underlying cause of death is defined as the mechanism which results in the ultimate cause of death, or chain of events leading directly to death, or circumstances of the accident or violence that produced the fatal injury.

Unintentional: Injury or poisoning that is not inflicted by deliberate means (i.e. not on purpose). This category includes those injuries and poisonings described as unintended or "accidental", regardless of whether the injury was inflicted by oneself or by another person.

Suicide: Intentionally self-inflicted injury that results in death.

Self-Harm: Injury or poisoning resulting from a deliberate violent act inflicted on oneself with the intent to take one's own life, or with the intent to harm oneself. This category includes suicide, suicide attempt, and other intentional self-harm.

Homicide: injuries inflicted by another person with intent to injure or kill, by any means. Excludes injuries due to legal intervention and operations of war.

Assault: Injury from an act of violence where physical force by one or more persons is used with the intent of causing harm, injury, or death to another person; or an intentional poisoning by another person. This category includes perpetrators as well as intended and unintended victims of violent acts (e.g. innocent bystanders). This category excludes unintentional shooting victims (other than those occurring during an act of violence), unintentional drug overdoses, and children or teenagers "horsing" around.

Undetermined: Intent of injury could not be determined.

Legal Intervention/War: Injury or poisoning caused by police or other legal authorities (including security guards) during law enforcement activities. Includes injuries and poisonings (mace, pepper spray) inflicted during legal action or execution, or while attempting to enforce the law, such as arrest or restraint of arrested persons. This category also includes injuries to military personnel or civilians caused by war or civil insurrection, including those occurring during the time of war or insurrection and after cessation of hostilities.

Cut/Pierce: Injury resulting from an incision, slash, perforation, or puncture by a pointed or sharp instrument, weapon, or object. This category does not include injury from being struck by or against a blunt object (such as the side of a night stick) or bite wounds. These injuries fall in the category "struck by/against."

Drowning: Suffocation (asphyxia) resulting from submersion in water or another liquid.

Fall: Injury received when a person descends abruptly due to the force of gravity and strikes a surface at the same or lower level.

Fire/Burn: Severe exposure to flames, heat, or chemicals that leads to tissue damage in the skin or places deeper in the body; injury from smoke inhalation to the upper airway, lower airway, or lungs.

Firearm: A penetrating force injury resulting from a bullet or other projectile shot from a powder-charged gun. This category includes gunshot wounds from powder-charged handguns, shotguns, and rifles. This category does not include injury caused by a compressed air-powered paint gun or a nail gun, which falls in the "other specified" category.

Machinery: Injury that involves operating machinery, such as drill presses, fork lifts, large power-saws, jack hammers, and commercial meat slicers. This category does not include injury involving machines not in operation, falls from escalators or moving sidewalks, or injuries from powered lawn mowers or other powered hand tools or home appliances.

All Transport: Injury involving modes of transportation, such as cars, motorcycles, bicycles, and trains. This category is divided into further categories according to the person injured: motor vehicle occupant, motorcyclist, pedal cyclist, pedestrian, and other transport. This category also involves another factor--whether the injury occurred in traffic (on a public road or highway).

Natural/Environment: Injury resulting from exposure to adverse natural and environmental conditions (such as severe heat, severe cold, lightning, sunstroke, large storms, and natural disasters) as well as lack of food or water.

Bites/Stings: Injury from a poisonous or non-poisonous bite or sting through the skin, other than a dog bite. This category includes human bite, cat bite, snake or lizard bite, insect bite, stings from coral or jellyfish, or bites and stings by other plants and animals.

Overexertion: Working the body or a body part too hard, causing damage to muscle, tendon, ligament, cartilage, joint, or peripheral nerve (e.g. common cause of strains, sprains, and twisted ankles). This category includes overexertion from lifting, pushing, or pulling or from excessive force.

Poisoning: Ingestion, inhalation, absorption through the skin, or injection of so much of a drug, toxin (biologic or non-biologic), or other chemical that a harmful effect results, such as drug overdoses. This category does not include harmful effects from normal therapeutic drugs (i.e. unexpected adverse effects to a drug administered correctly to treat a condition) or bacterial illnesses but does include overdose deaths including those involving opioids.

Struck by / against: Injury resulting from being struck by (hit) or crushed by a human, animal, or inanimate object or force other than a vehicle or machinery; injury caused by striking (hitting) against a human, animal, or inanimate object or force other than a vehicle or machinery. Struck by / against includes assault injuries such as fights, brawls, rape, or being struck with a blunt or thrown object.

Suffocation: injury that causes a threat to breathing. This includes suffocation or strangulation in bed, threats to breathing by caving-in earth due to cataclysm, inhalation of gastric contents or food, foreign bodies entering an orifice (through eyes, nose, or mouth) causing obstruction of the respiratory tract, being trapped in a low oxygen environment and strangulation/hanging.

Other: Injury associated with any other specified cause that does not fit another category. Some examples include causes such as electric current, electrocution, explosive blast, fireworks, overexposure to radiation, welding flash burn, or animal scratch.

Matrices

ICD-9-CM

	Unintentional	Self-Inflicted	Assault	Undetermined	Legal Intervention/ war
All Injury	E800-E869, E880-E929	E950-E959	E960-E969	E980-E989	E970-E978, E990-E999
Cut/Pierce	E920.0-.9	E956	E966	E986	E974
Drowning	E830.0-.9, E832.0-.9, E910.0-.9	E954	E964	E984	--
Fall	E880.0-E886.9, E888	E957.0-.9	E968.1	E987.0-.9	--
Fire/Burn*	E890.0-E899, E924.0-.9	E958.1,.2,.7	E961, E968.0,.3	E988.1,.2,.7	--
Firearm	E922.0-.9	E955.0-.4	E965.0-.4	E985.0-.4	E970
Machinery	E919 (.0-.9)	--	--	--	--
All Transport**	E810-E819(.0-.9), E800-E807(.0,.1,.2,.3,.8,.9), E820-E825(.0-.7,.8,.9), E826(.1-.9), E826-E829(.0), E827-E29(.1-.9), E831.0-.9, E833.0-E845.9	E958.5,.6	E968.5	E988.5,.6	--
Natural/ Environment	E900.0-E909, E928.0-.2	E958.3	--	E988.3	--
Bites and Stings	E905(.0-.6,.9)	--	--	--	--
Overexertion	E927	--	--	--	--
Poisoning	E850.0-E869.9	E950.0-E952.9	E962.0-.9	E980.0-E982.9	E972
Struck by or Against	E916-E917.9	--	E960.0, E968.2	--	E973, E975

Suffocation	E911-E913.9	E953.0-.9	E963	E983.0-.9	--
Other	E846-E848, E914-E915, E918, E921(.0-.9), E923(.0-.9), E925.0-E926.9, E929(.0-.5) E928.8, E929.8 E887, E928.9, E929.9	E955(.5,.9), E958(.0,.4) E958.8, E959 E958.9	E960.1, E965(.5-.9), E967(.0-.9), E968.4 E968.8, E969 E968.9	E985.5, E988(.0,.4) E988.8, E989 E988.9	E971, E978, E990- E994, E996, E997(.0-.2) E977, E995, E997.8, E998, E999 E976, E997.9

*Fire/Burn includes two categories: Fire/flame and hot object/substance.

**All transport includes motor vehicle (broken down into occupant, motorcyclist, pedal cyclist, pedestrian, unspecified), pedal cyclist – other, pedestrian – other, and other transport.

Note: The following are external causes, that are not included as part of standard injury calculations: Adverse effects (E870-E879, E930.0-E949.9), Medical Care (E870-E879), and Drugs (E930.0-E949.9)

ICD-10

	Unintentional	Suicide	Homicide	Undetermined	Legal Intervention/War
All Injury	V01-X59, Y85-Y86	X60-X84, Y87.0	X85-Y09, Y87.1	Y10-Y34, Y87.2, Y89.9	Y35-Y36, Y89(.0, .1)
Cut/Pierce	W25-W29, W45	X78	X99	Y28	Y35.4
Drowning	W65-W74	X71	X92	Y21	--
Fall	W00-W19	X80	Y01	Y30	--
Fire/Hot Object or Substance*	X00-X19	X76-X77	X97-X98	Y26-Y27	Y36.3
Firearm	W32-W34	X72-X74	X93-X95	Y22-Y24	Y35.0
Machinery	W24, W30-W31	--	--	--	--

All Transport**	V01-V99	X82	Y03	Y32	Y36.1
Natural/Environment	W42, W43, W53-W64, W92-W99, X20-X39, X51- X57	--	--	--	--
Overexertion	X50	--	--	--	--
Poisoning	X40-X49	X60-X69	X85-X90	Y10-Y19	Y35.2
Struck by or Against	W20-W22, W50-W52	X79	Y00, Y04	Y29	Y35.3
Suffocation	W75-W84	X70	X91	Y20	--
Other	W23, W35- W41, W44	X75, X81	X96, Y02, Y05-Y07	Y25, Y31	Y35(.1,.5), Y36(.0, .2, .4-.8)

*Fire/Hot Object or Substance includes two categories: fire/flame and hot object/substance.

**All transport includes motor vehicle (broken down into occupant, motorcyclist, pedal cyclist, pedestrian, other, unspecified), pedal cyclist – other, pedestrian – other, other land transport, and other transport.

Appendices

Appendix A: Leading Causes of Injury-Related Death in Vermont by Gender/ Age Group, 2010-2014

Totals may not match between matrices because gender/age information may be missing.

Five Leading Causes of Injury-Related Death by Gender

Rank	Male	Female
1	Unintentional Falls 288	Unintentional Falls 399
2	Suicide Firearm 269	Unintentional Motor Vehicle Traffic 116
3	Unintentional Motor Vehicle Traffic 202	Unintentional Poisoning 100
4	Unintentional Poisoning 185	Suicide Poisoning 45
5	Suicide Suffocation 86	Unintentional Suffocation 37

Data source: Vermont Vital Statistics.

White cells indicate deaths due to unintentional injuries. Green indicates deaths by suicide.

Five Leading Causes of Injury-Related Death by Age Group, Males

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Unintentional Suffocation 7	Unintentional Motor Vehicle Traffic 54	Unintentional Poisoning 91	Suicide Firearm 102	Unintentional Falls 236	Unintentional Falls 288
2	Unintentional Motor Vehicle Traffic 6	Suicide Firearm 31	Suicide Firearm 62	Unintentional Poisoning 68	Suicide Firearm 70	Suicide Firearm 269
3	Unintentional Drowning -	Suicide Suffocation 18	Unintentional Motor Vehicle Traffic 54	Unintentional Motor Vehicle Traffic 51	Unintentional Motor Vehicle Traffic 36	Unintentional Motor Vehicle Traffic 201
4	Three Tied -	Unintentional Poisoning 18	Suicide Suffocation 34	Unintentional Falls 44	Unintentional Suffocation 16	Unintentional Poisoning 185
5	Five Tied -	Unintentional Drowning -	Suicide Poisoning 17	Suicide Poisoning 34	Unintentional Fire/Flame 10	Suicide Suffocation 86

Data source: Vermont Vital Statistics. Counts less than 6 are suppressed.

White cells indicate deaths due to unintentional injuries; Green indicates deaths by suicide.

Five Leading Causes of Injury-Related Death by Age Group, Females

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Unintentional Suffocation 8	Unintentional Motor Vehicle Traffic 19	Unintentional Poisoning 43	Unintentional Poisoning 43	Unintentional Falls 379	Unintentional Falls 399
2	Two Tied -	Suicide Suffocation 6	Unintentional Motor Vehicle Traffic 22	Unintentional Motor Vehicle Traffic 35	Unintentional Motor Vehicle Traffic 38	Unintentional Motor Vehicle Traffic 116
3	Three Tied -	Two Tied -	Suicide Poisoning 12	Suicide Poisoning 23	Unintentional Suffocation 23	Unintentional Poisoning 100
4		Two Tied -	Suicide Firearm 10	Unintentional Falls 19	Two Tied* 9	Suicide Poisoning 45
5		Unintentional Drowning -	Undetermined Poisoning 7	Suicide Firearm 13	Two Tied** 7	Unintentional Suffocation 37

Data source: Vermont Vital Statistics. Counts less than 6 are suppressed.

White cells indicate deaths due to unintentional injuries; Green indicates deaths by suicide.

*Unintentional poisoning and unintentional not specified

**Suicide firearm and unintentional natural/environment

Appendix B: Leading Causes of Injury-Related Hospitalization in Vermont by Gender/ Age Group, 2010-2014

Five Leading Causes of Injury-Related Hospitalizations by Gender, Vermont 2010-2014

Rank	Male	Female
1	Falls 3,690	Falls 5,979
2	Motor Vehicle Traffic 629*	Poisoning 995
3	Poisoning 491	Poisoning 471*
4	Poisoning 452	Motor Vehicle Traffic 395
5	Motor Vehicle, Other 351	Motor Vehicle, Other 177
*where "other" would have replaced this cause	Other 1,369	Other 918

Five Leading Causes of Injury-Related Hospitalization by Age Group, Males

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Falls 98	Motor Vehicle Traffic 147	Falls 252*	Falls 882	Falls 2,343	Falls 3,690
2	Poisoning 39	Falls 115	Poisoning 194	Motor Vehicle Traffic 189*	Poisoning 111*	Motor Vehicle Traffic 629*
3	Motor Vehicle, Other 32	Poisoning 99	Motor Vehicle Traffic 172	Poisoning 159	Motor Vehicle Traffic 106	Poisoning 491
4	Struck by/against 26*	Motor Vehicle, Other 65*	Poisoning 94	Poisoning 158	Suffocation 60	Poisoning 452
5	Motor Vehicle Traffic 15	Poisoning 49	Motor Vehicle, Other 92	Motor Vehicle, Other 105	Struck by/against 56	Motor Vehicle, Other 351
* where "other" would have replaced this cause	Other 28	Other 72	Other 259	Other 519	Other 491	Other 1,369

Data source: Vermont Uniform Hospital Discharge Data Set

White cells indicate unintentional injuries. Green indicates intentional injuries (including self-inflicted).

Five Leading Causes of Injury-Related Hospitalization by Age Group, Females

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Falls 61	Poisoning 185	Poisoning 429	Falls 837	Falls 4,886	Falls 5,979
2	Poisoning 24*	Motor Vehicle Traffic 77	Falls 147	Poisoning 320	Poisoning 173*	Poisoning 995
3	Poisoning 20	Falls 48*	Poisoning 100*	Poisoning 147*	Motor Vehicle Traffic 111	Poisoning 471*
4	Motor Vehicle, Other 12	Poisoning 27	Motor Vehicle Traffic 90	Motor Vehicle Traffic 110	Overexertion 76	Motor Vehicle Traffic 395
5	2 Tied** 7	Poisoning 49	Poisoning 58	Motor Vehicle, Other 77	Struck by/against 73	Motor Vehicle, Other 177
* where "other" would have replaced this cause	Other 26	Other 56	Other 145	Other 260	Other 431	Other 918

Data source: Vermont Uniform Hospital Discharge Data Set

White cells indicate unintentional injuries. Green indicates intentional injuries (including self-inflicted). Blue coloring indicates injuries of undetermined intent.

**Motor Vehicle Traffic, Struck by/against

Appendix C: Leading Causes of Injury-Related Emergency Department in Vermont Visits by Gender /Age Group, 2010-2014

Five Leading Causes of Injury-Related ED Visits by Gender, Vermont 2010-2014

Rank	Male	Female
1	Falls 45,741	Falls 54,558
2	Struck by/against 23,869	Overexertion 17,896
3	Cut/Pierce 19,727	Struck by/against 15,478
4	Overexertion 18,156	Motor Vehicle Traffic 10,884*
5	Motor Vehicle Traffic 9,559	Cut/Pierce 10,326
*where "other" would have replaced this cause	Other 14,684	Other 14,134

Data source: Vermont Uniform Hospital Discharge Data Set

All leading causes by sex are of unintentional intent.

Five Leading Causes of Injury-Related ED Visits by Age Group, Males

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Falls 11,647	Falls 7,267	Falls 9,216	Falls 9,149	Falls 8,462	Falls 45,741
2	Struck by/against 7,272	Struck by/against 7,101	Overexertion 7,146	Cut/Pierce 4,649	Cut/Pierce 1,399*	Struck by/against 23,869
3	Cut/Pierce 2,649	Cut/Pierce 4,490	Cut/Pierce 6,540	Overexertion 3,939	Overexertion 1,017	Cut/Pierce 19,727
4	Bites/Stings 1,955*	Overexertion 4,162	Struck by/against 5,645	Struck by/against 2,894*	Bites/Stings 989	Overexertion 18,156
5	Overexertion 1,891	Motor Vehicle Traffic 2,884	Motor Vehicle Traffic 3,271*	Motor Vehicle Traffic 2,105	Struck by/against 957	Motor Vehicle Traffic 9,559
* where "other" would have replaced this cause	Other 2,618	N/A	Other 4,542	Other 3,307	Other 1,672	Other 14,684

Data source: Vermont Uniform Hospital Discharge Data Set

All leading causes among males are of unintentional intent.

Five Leading Causes of Injury-Related ED Visits by Age Group, Females

Rank	0-14	15-24	25-44	45-64	65+	Total
1	Falls 9,136	Falls 6,293	Falls 10,331	Falls 12,335	Falls 16,463	Falls 54,558
2	Struck by/against 4,462	Struck by/against 4,042	Overexertion 6,218	Overexertion 3,956	Overexertion 1,508*	Overexertion 17,896
3	Overexertion 2,412	Overexertion 3,802	Struck by/against 3,699*	Cut/Pierce 2,580*	Bites/Stings 1,128	Struck by/against 15,478
4	Bites/Stings 1,701*	Motor Vehicle Traffic 3,573	Motor Vehicle Traffic 3,592	Motor Vehicle Traffic 2,257	Struck by/against 1,089	Motor Vehicle Traffic 10,884*
5	Cut/Pierce 1,494	Cut/Pierce 2,016	Cut/Pierce 3,376	Struck by/against 2,186	Cut/Pierce 860	Cut/Pierce 10,326
* where "other" would have replaced this cause	Other 2,296	N/A	Other 4,135	Other 2,880	Other 2,024	Other 14,134

Data source: Vermont Uniform Hospital Discharge Data Set

All leading causes among females are of unintentional intent.