Suicide Data-Linkage Project

2020-2021 Data Analysis

September 2023

VERMONT

DEPARTMENT OF HEALTH

This report is dedicated to the many Vermonters who have died by suicide and their loved ones. While the work is data-driven, we must not lose sight of the fact that each data point is far more than that. The Vermont Department of Health, along with the partner departments and people that contributed to this project, analyze these data in the context of this humanity. We believe that the findings and recommendations within this document are valuable to informing our collective work to prevent future losses of life due to suicide.

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Executive Summary

Suicide is an important public health issue facing Vermont. Approximately 120 Vermonters die by suicide each year, and Vermont's suicide rate has been increasing over the past 18 years. For each of these suicide deaths, countless other Vermont family members, friends and colleagues are greatly impacted. As a state, Vermont needs to better understand the circumstances of these deaths and utilize this information to improve our efforts to prevent future suicides. The Suicide Data Linkage Project was created to improve the identification of risk factors for suicide, populations at disproportionate risk for suicide and patterns in how Vermonters who died by suicide interacted with various state, community systems and services prior to death. The overall goal of this project is to utilize data to improve how Vermont service agencies can promote protective factors, and how we can identify and support individuals who may be at risk for suicide. The first publication of the Suicide Data Linkage project includes Vermont resident suicide deaths that occurred during 2020 and 2021. This analysis reflects interactions that occurred during the global COVID-19 pandemic. We are unable to determine the extent interactions were impacted by the pandemic.

Overall findings of the project include:

People who died by suicide often experienced stressors or crises shortly before their death.

Of people who died by suicide:

- 45% experienced a crisis within two weeks of death. Almost two thirds of those who experienced a crisis used a firearm (60%).
- 22% had a court case within a year of death, many of whom had a case that was still active within a month of death. The specific case types that were more likely to be closed within a month of death include relief from abuse orders, a recent divorce or dissolution, felonies, misdemeanors, and civil suspensions.
- 4% were arrested or served paperwork by law enforcement within a year of death. Most of these interactions occurred within a month of death.
- 2% were released from a correctional facility within a year of death. People who were recently released from a correctional facility were six times more likely to die by suicide compared to the general population.

Experiencing a crisis or life stressor in combination with other risk factors may influence risk for suicide. These results emphasize the importance of promoting protective factors and reducing risk factors, like access to lethal means, during a time of crisis.

Within a year of death, 65% of people interacted with healthcare services.

Of people who died by suicide:

- 59% had a primary care visit within a year of death.
- 42% had a prescription for a controlled substance within a year of death.
- 35% had a visit to the emergency department (ED) within a year of death and 24% had an ED visit related to mental health or suicide within a year of death.

- 28% were in mental health treatment within a year of death.
- 20% had an inpatient visit within a year of death and 7% had an inpatient visit within a month of death for mental health or related to suicide.
- 17% interacted with emergency medical services (EMS) within a year of death.
- 9% were seen by a Designated Mental Health Agency within six months of death.

People also interacted with non-healthcare entities within a year of death, with the most common being law enforcement.

Of people who died by suicide:

- 27% interacted with law enforcement within a year of death.
- 22% interacted with a court system within a year of death.
- 20% received a financial benefit from the Economic Services Division of the Department of Children and Families (DCF) within a year of death.
- 6% were receiving a homeless service within a year of death.
- 4% interacted with the Family Services Division of DCF within a year of death.
- 3% interacted with an Area Agency on Aging within six months of death.
- A small number of people interacted with the Brain Injury Program, Adult Protective Services and HireAbility.[1]

Some people had multiple interactions with services and agencies within a year of death.

Of people who died by suicide:

- 22% had more than one ED visit within a year of death.
- 10% had more than one case with the court system.
- 9% had more than one interaction with law enforcement and 3% had more than two involvements.
- 7% had more than one EMS interaction within a year of death.
- 6% had more than one inpatient visit within a year of death.

People with more than one service interaction may have unmet health, social or financial needs. These results support the need for coordination of care between entities and enhanced supportive services for individuals with unmet needs.

While this analysis identified a number of populations who are disproportionately impacted by suicide death, it does not represent some populations with high suicide morbidity (i.e., suicidal ideation, suicide plans or attempts). Vermont data shows that Black, Indigenous, People of Color (BIPOC) and youth populations have high suicide morbidity, but the data doesn't demonstrate high mortality. Vermont data also shows that individuals who identify as LGBTQAI+ have high suicide morbidity, but the data sources used in this analysis may not reliably capture sexual orientation or gender identity.

[1] This number is fewer than six and is suppressed as per data agreements with the data owner.

In addition, because the total number of individuals who died by suicide in this analysis is statistically small, some groups could not be analyzed in the same way as others. We acknowledge that all Vermonters are impacted by suicide in various ways and strive to ensure that their experiences of people who have died by suicide are captured in this report.

Recommendations

The following recommendations were developed based on the data in this report:

1. Establish and enhance linkages to care.

- **Increase Zero Suicide framework implementation in healthcare settings including:** primary care, emergency departments, inpatient programs, emergency medical services, mental health services, substance use services, pharmacies, geriatric specialists and telehealth/telemental health providers. The Zero Suicide Framework is a practical framework for system-wide transformation to safer suicide care and works to ensure providers have access to and the capacity to implement evidence-based protocols for suicide risk screening, assessments, safety planning, and postvention. There is also a strong focus on follow-up and transitions of care for individuals identified as at-risk for suicide.
- **Develop model protocols to promote screening for suicidal risk, safer suicide systems of care and postvention**. Protocols that promote safer suicide care work to improve the access and delivery of suicide care in health care and mental healthcare systems. These protocols can be used by staff in a variety of settings identified in this report to help identify people at risk of suicide and ensure they are connected to necessary services.
- **Expand Screening, Brief Intervention, and Navigation to Services (SBINS) programming.** Focus on better integration of mental health with overall health and healthcare, recognizing that risk for suicide often co-occurs or intersects with mental health disorders, substance use disorder, chronic physical illness, terminal physical illnesses, and disability. There is a need for Agency of Human Services (AHS) departments to increase collaborative efforts to expand screening for suicidal risk in a variety of settings as many AHS programs interact with individuals experiencing these mental and physical challenges.
- **Expand suicide prevention education to healthcare and mental health providers, law enforcement, domestic violence advocates and economic services staff.** Develop and implement trainings to improve awareness of risk factors for suicide at agency touchpoints before potential suicide death. These trainings should provide evidence-based strategies and support staff in connecting at-risk individuals to prevention and treatment resources.

2. Integrate state and local prevention and response efforts.

- **Create and expand population focused suicide prevention programming.** Specific populations are disproportionately impacted by suicide and related risk factors, as described in this report. Suicide prevention partners should continue to tailor prevention strategies specific to each of these populations.

- **Continue to support the work of the Governor's Challenge to Prevent Suicide among Service Members, Veterans and their Families.** Collaborate with the Veteran's Affairs and Vermont National Guard to expand identification and support of service members and veterans at risk of suicide, including younger veterans and their families. Work with the Veteran's Health Administration to understand interactions among veterans who died by suicide.
- **Raise awareness around the intersection between being in crisis and risk of suicide.** Establish partnerships with the corrections system and first responders to train staff and related community partners around the risk of suicide during a crisis. Develop and distribute resources focused on firearm safe storage practices, relief from abuse and extreme risk protection order laws for people in a crisis and their families.
- **Develop a community education campaign focused on lethal means safety.** This should include firearm safe storage promotion and lethal means safety tailored to populations at increased risk of suicide by firearm and intentional self-poisonings. Evaluate the potential benefits of a centralized process for ordering and distributing firearm safe storage and medication locking devices to streamline access to these resources.
- **Implement wraparound services following release from a correctional facility or an inpatient setting**. Findings from this report demonstrate an increased risk of suicide following release from these settings. Supports should be focused on those at high risk of suicide following release.
- **Expand supports for telemental health when treating suicidality**. Increase training and ongoing support for clinicians who are providing services via telehealth to ensure they feel prepared to assess and treat suicidality over text, phone and video.
- **Coordinate state prevention efforts and messaging**. Engage AHS departments, other State agencies and community organizations throughout Vermont to address suicide prevention and reduce stigma around mental health. Expand public awareness and suicide awareness training and education in workplaces and across State agencies. Increase messaging around mental health and suicide prevention resources including lethal means safety, Suicide and Crisis Prevention Lifeline 988, and FacingSuicideVT.com.
- **Develop a 'How to help a friend in crisis' campaign to educate community members and families**. This campaign should focus on educating friends and families around warning signs, how to support people struggling with thoughts of suicide and connect them with resources.

- **Expand first responder suicide prevention trainings and support services**. First responders (including but not limited to emergency medical services, law enforcement, fire departments, corrections officers, dispatchers, crisis/outreach teams) serving our communities, responding to many emergencies including suicides. The difficult nature and feelings that can come from this work can create moral injury and negatively affect first responder mental and emotional health. As such, it is critical to assess impacts on first responders, implement recommendations from the Emergency Service Provider Wellness Commission Report and ensure access to mental health treatment and support services, mental health training and postvention practices available to limit this occupational stress and promote resiliency.
- **Implement initiatives to address loneliness and isolation, and to build connection and sense of belonging.** Engage AHS departments, other state agencies and organizations throughout Vermont to promote programs addressing adverse childhood experiences, building protective factors and reducing loneliness and isolation among Vermonters.

3. Expand data collection and analysis to inform future interventions.

- **Expand Suicide Data-Linkage Project analysis.**
    - Explore inclusion of additional data sources that could:
        - Understand interactions and services utilized by veterans who died by suicide.
        - Collect reliable data on sexual orientation and gender identity.
    - Using VHCURES data, conduct additional analyses about:
        - People who had a claim for mental health treatment within a year of death.
        - The demographics and method of suicide death by people who were seen by a healthcare provider for mental health or suicidality compared to people without a history of mental health or suicidality.
    - Explore the interactions and risk factors for other high-risk populations (e.g., working age Vermonters, males, industry and occupation groups, other groups with disproportionate suicide rates). Evaluate the benefit of expanding the number of data years utilized for smaller population analyses.
    - Continue to assess the ability to link multiple data sets to determine how people who died by suicide interacted with multiple systems.
    - Create comparison rates for interactions for the general Vermont population. For example, the percent of Vermont residents who had an emergency department visit within a given year.

- **Improve data collection and postvention following a suicide death.** Work with the Office of the Chief Medical Examiner to create a forensic social worker position to support families and loved ones and collect additional data on the circumstances leading up to deaths of despair including deaths by suicide and unintentional drug overdoses. This role should connect families and other loss survivors with bereavement and grieving services. Additionally, this position should aim to improve data collection on health insurance status, LGBTQIA+ identity, firearm storage practices, lethal means access, intimate partner violence and tribal affiliation.
- **Expand and promote use of surveillance systems that capture suicide morbidity**. Data from this report show that some individuals who died had a healthcare interaction related to mental health or suicidal ideation in the year prior to death. Youth, people who identify as Black, Indigenous, and People of Color (BIPOC), LGBTQIA+, and adults living with a disability experience high morbidity (e.g., suicidal ideation, attempt, self-harm) but are not overrepresented in this report. This emphasizes the need for:
    - Current surveillance systems to continue to collect data on suicide morbidity; this includes the Behavioral Risk Factor Surveillance System (BRFSS), Youth Risk Behavior Survey (YRBS), Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE), and Vermont Uniform Hospital Discharge Data System (VUHDDS).
    - Continue to monitor timely data to identify changes in trends and demographics of populations experiencing suicide morbidity.
    - Encourage urgent care centers to participate in the National Syndromic Surveillance Platforms ESSENCE system.

4. Disseminate report findings.

- **Conduct outreach and promote the Zero Suicide framework.** Based on the data, there are several touchpoints people had in the months before their death by suicide. Outreach should be made to these services and organizations to improve knowledge of these data and promote the Zero Suicide framework.
- **Develop data presentations with key findings from this report.** Dissemination of this report is critical to improve knowledge and facilitate change. In addition to the publication of this report on the healthvermont.gov website, data presentations, fact sheets, and infographics sent directly to target audiences will help facilitate effective data dissemination.

These recommendations were developed as a result of the data presented in the following sections of the report. Due to the frequent co-occurrence of substance use and mental health challenges, many of these recommendations align with the Vermont Social Autopsy Report on unintentional drug overdose deaths. For more recommendations specific to youth suicides, please refer to the Child Fatality Review Team's annual reports to the legislature.

Methodology, Data Sources and Limitations

Suicide deaths were identified using death certificate data from Vermont Vital Statistics. This analysis examined Vermont residents who died by suicide in the state of Vermont during 2020 or 2021. Data matching was made possible through the establishment of a Data Use Agreement or Memorandum's of Understanding with each partner. Depending on the permissible types of data sharing with that partner, data was returned for analysis either in an aggregate format, a de-identified line level format, or a line level format. Data matching was completed by matching the decedents first and last name, date of birth, social security number and sometimes additional demographic information to the partners data source.

Throughout the report, many data points are presented as an interaction or encounter with an agency or service within a given timeframe. Interactions were defined as the number of months or days before an individual's death, which were calculated using the individual's death date from the date of interaction, hospital discharge or the date the court case was closed. For individuals missing a day of death (24% of suicide deaths), for nearly every data source except the Vermont Health Care Uniform Reporting and Evaluation System (VHCURES), one day less than the date they were pronounced dead was used. For VHCURES, the day of death was set to the 15th of the month of death.

There are a few limitations of the analysis that may impact the representativeness and reliability of the results. For one, not all individuals were identified in every data source, this could be due to the availability or completeness of the data fields that were used for matching, or that the individual was captured in another data source not used in the analysis. Second, this analysis didn't look at every possible risk factor or interaction type that an individual may have had, so some important populations (e.g., individuals who identify as LGBTQAI+), risk factors or interactions may be missing. Third, rate calculations for interactions within a year of death have denominators that combine 2020 and 2021. In some instances, these denominators may not include all of the individuals with an interaction in the same timeframe as the denominator (e.g., an individual who died in 2020 with an interaction in 2019). Lastly, some of the findings are based on a small number of individuals. This decreases the certainty that the same results are true over time, impacting the reliability of findings.

Vermont Vital Statistics collects death certificate information from people who died in Vermont. This is the primary data source used to identify suicide deaths and was linked to the data sources seen throughout the report. Suicide deaths are determined using the ICD-10 code for the underlying cause of death (X60-X84, Y87.0, U03). Suicide deaths do not include deaths from assisted death/suicide, death with dignity or medical aid in dying. Rural status was defined using the county of residence. All individuals living outside of Chittenden County were defined as rural residents.

The **Vermont Health Care Uniform Reporting and Evaluation System (VHCURES**) is Vermont's All-Payer claims database that collects medical and pharmacy claims, as well as eligibility status from private and public payers. The payers in VHCURES include 75% of commercial insurers, certain third-party administrators/self-funded (e.g., State of Vermont health plan, University of Vermont, Vermont Education Health Initiative, and opt-in employers) and 100% of Medicaid, Medicare and/or Medicare Advantage. Some of the following payers are not included in the VHCURES data: most non-governmental self-insured employers, uninsured and self-paying individuals, individuals covered under the Veteran Administration (VA), TRICARE, Federal Employees Health Benefits Program (FEHBP) and payers with Vermont resident enrollment less than 200. The VHCURES data analysis is therefore not fully representative of all Vermonters who died by suicide, either because they don't have a payer that submits into VHCURES, or the person did not have insurance. Most Vermonters who died by suicide were matched in VHCURES (95%). Claims dating back to 2017 were included in this analysis. The analyses, conclusions, and recommendations drawn from the VHCURES data are solely those of the VDH and are not necessarily those of the GMCB. The following visit types were defined as per recommendations by OnPoint, the Green Mountain Care Board's contracted data collection and consolidation vendor:

- Emergency department visits were defined using the variable "emergency room flag" is "Y" (yes). This variable captures place of service codes, revenue codes and procedure codes associated with the emergency room.
- Inpatient visits were defined if either of the following variables had a response of "Y" (yes) for the inpatient acute flag or inpatient nonacute flag variables. These variables capture place of service codes, revenue codes and procedure codes associated with an inpatient visit.
- Primary care visits can be defined in several ways. For this analysis, they were defined using a two-step approach as per recommendation of OnPoint. First, claims had to have a provider identification code associated with persons who would be administering primary care. Then a claim needed to have a procedure code, revenue code or a place of service code associated with primary care visits.
- Mental health treatment was defined when the psychiatric flag variable had a response of "Y" (yes). This variable captures claims with various procedure codes associated with psychiatric visits or therapy.

The **Vermont Prescription Monitoring System (VPMS)** is a statewide electronic database of controlled substance prescriptions dispensed by Vermont-licensed pharmacies. The prescriptions collected in VPMS are Schedule II-IV and are assigned by the Drug Enforcement Agency, which means they are more likely to be misused or to cause dependence. Most prescriptions fit into drug classes, which are based on the U.S. Centers for Disease Control and Prevention:

- Opioid Analgesics: opioid medications used in the treatment of pain.
- Medication for Opioid Use Disorder (MOUD) opioid agonist/ antagonist: medications used to treat opioid use disorder.

- Benzodiazepines: sedatives used to treat anxiety, insomnia and other conditions.
- Stimulants: medications to increase alertness, attention and energy.

Data provided from the **Department of Corrections** reflects individuals who were incarcerated by the Vermont Department of Corrections, not those who were only under community supervision. This data comes from the Offender Management System (OMS). The OMS tracks an offender's progress throughout their sentence, from intake and assessment, through treatment and referral, and to parole or release.

The **Statewide Incident Reporting Network (SIREN)** is Vermont's emergency medical services (EMS) electronic patient care reporting system. All EMS ambulance agencies with transport capabilities are required to use SIREN to document each incident within one business day of when it occurred. During the data years included in this analysis, nearly half of first response agencies voluntarily reported data into SIREN, and some non-transporting agency data were not included. SIREN interaction types included in this analysis (e.g., mental health, suicide ideation or attempt, overdose) were defined using the record's working diagnosis, situation complaint, and/or information from the narrative which was manually reviewed to ensure accuracy.

The **Vermont Violent Death Reporting System** (VTVDRS) collects information from the data sources used as part of the death scene investigation for deaths resulting from violence, including suicide. The data sources reflected in this analysis include reports from the Office of the Chief Medical Examiner, which includes the medicolegal death investigator, law enforcement, autopsy and toxicology reports. Not all of these data sources routinely collect the variables in VTVDRS, therefore some data may be underestimated. At the time of analysis, deaths from 2021 were not yet available.

The Institute for Community Alliances is a nonprofit organization that manages the **Homeless Management Information System (HMIS)** database. The Chittenden County Homeless Alliance and the Vermont Coalition to End Homelessness work with shelters and service providers across the state to ensure people have access to affordable housing. HMIS data captures people of any age receiving a homeless service, which includes youth under the age of 18, both in families and unaccompanied. Those who were receiving a homeless service include people experiencing homelessness, people at risk for experiencing homelessness, and people who were using a service that prevents homelessness. The data may exclude providers of services to victims of abuse, street outreach only services and any persons not actively seeking assistance from providers. The project types captured in HMIS data include coordinated entry, emergency shelter, homelessness prevention, housing with services (no disability required for entry), permanent supportive housing (disability required for entry), rapid re-housing, safe haven, services only, street outreach, transitional housing, and other (for any other programs not meeting any of the previous criteria).

Vermont Department of Labor provided data on employment. The employment data comes from jobs covered by Vermont Unemployment Insurance laws. By law, employers are required to report wages to the Vermont Department of Labor for all Vermont-based employees. Unemployment Insurance laws cover around 95% of all jobs per national estimates. Self-employed individuals, railroad workers, most agriculture-related jobs, and small religious or non-profit organizations are notable exceptions from Vermont Unemployment Insurance laws. Data excludes individuals involved in any of those employment circumstances. Employment counts are a snapshot based on quarterly reporting requirements, so employment during the six months prior to death is any employment in the quarter of death or the two quarters prior to death. Likewise, employment during one year prior to death is any employment in the quarter of death or the four quarters before death.

There are five **Area Agencies on Aging** that offer services for older Vermonters, caregivers and adults with disabilities. Data for people who were receiving services from each agency were compiled to generate statewide numbers.

Data on law enforcement interactions came from **Valcour**. Valcour collects information from all but three law enforcement agencies (Hartford, Norwich and Windsor) in the state.

The **Vermont Judiciary** is a unified court system that consists of an appellate court, which is the Vermont Supreme Court, and a trial court, also known as the Vermont Superior Court. The Superior Court has 14 units, one for each county, and two statewide divisions – the Environmental Division and the Judicial Bureau. The Vermont Judiciary hears civil, criminal, environmental, family, probate and minor civil violations including traffic violations and municipal ordinance violations. The data provided by the Judiciary in connection with this study include state court cases that were filed in the State of Vermont for all of its divisions. The Vermont Judiciary attempted to locate in its records those people identified in connection with this study who were named as a party in a case that was pending or opened in the year before the individual's death. Results could therefore be impacted by limitations or inaccuracies in reported name or other identifying information. Due to the phased transition of the Vermont Judiciary from its legacy case management system (VTADS) to its new case management system (Odyssey) which occurred between June 2019 and February 2021, there is a lack of comparability between some data elements in the two systems. For purposes of this study, the Judiciary sought to verify and reconcile these data elements, but the possibility for error due to this transition exists. The Vermont Judiciary does not warrant that the data or information provided in connection with this study is complete or accurate; makes no representations regarding the identity of any persons whose names appear in data or information; and does not assume any liability whatsoever resulting from the release or use of the data or information.

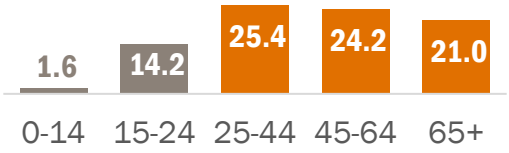
Data provided from the Economic Services Division focused on three ESD benefit programs – 3Squares Vermont, Fuel Assistance and Reach Up. 3Squares Vermont is a supplemental nutrition assistance program offered to Vermonters with low-income. The fuel assistance program helps pay for heating bills for Vermonters with low-income who rent or own a home. Reach Up provides case management and financial support to families with low-income.

General Demographics and Method of Injury

During 2020 and 2021, 246 Vermont residents died by suicide in Vermont. Using information from death certificates, the following populations have the highest rates of suicide death per population: adults over the age of 25, males, white non-Hispanic people, those who are single, never married, or divorced, those with a high school education or less, those who live in rural areas of the state and veterans (i.e., those who ever served in the U.S. armed forces) (See appendix).

Age

Adults 25 years and older have the highest rate of death.

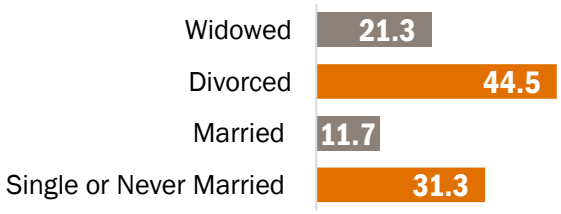


Biological Sex

More than 8 in 10 of those who died were male.

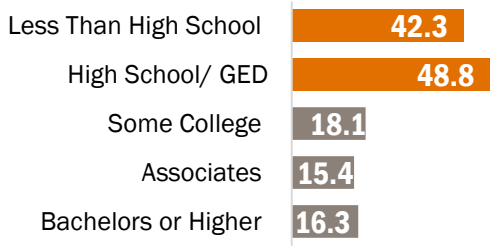
Marital Status

People who are divorced, single or never married had the highest rate of death.

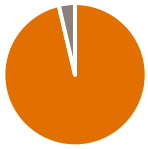


Education

People with a high school education or less had the highest rates of death.



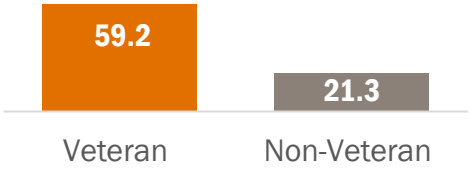
Race and Ethnicity



96% who died were white non-Hispanic.

Veterans

Veterans had a suicide rate that is nearly 3 times higher than non-Veterans.

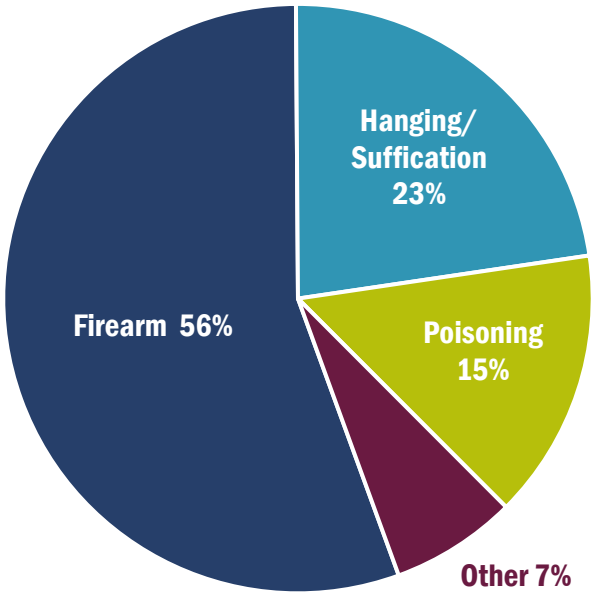


Rates per 100,000 residents
Source: Vermont Vital Statistics, Vermont Residents who passed away in Vermont 2020-2021

Method of Injury

There were three common methods among suicide deaths during 2020 and 2021. Firearms, accounted for 56% of deaths, hanging or suffocation (23%), and poisonings (15%). Less than one in ten deaths died by cutting, jumping, drowning, fire or flames, or another method (7%).

Firearms account for more than half of suicide deaths.



Source: Vermont Vital Statistics, 2020-2021

Objective 1: Assess healthcare interactions within a year of death.

Reviewing healthcare system interactions prior to death may identify where suicide prevention supports and safety measures would be beneficial. Data from medical billing claims, prescription dispensaries, emergency medical services and Designated Mental Health Agencies shows the health services that the individual accessed prior to their death.

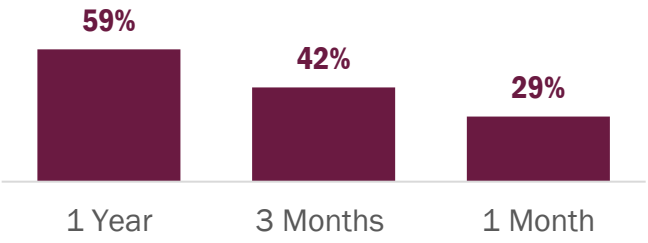
Evidence of Healthcare Coverage

A majority of those who died had health insurance that submitted claims data to VHCURES within a year of death (76%). A little less than a quarter of people who died by suicide did not have evidence of insurance, either because they did not have health insurance or did not have health insurance that submitted claims to VHCURES (24%). For more information, see the data sources and limitations section. The likelihood of healthcare insurance coverage increased with age: 61% percent of people ages 0 to 24 years had healthcare insurance, 69% of people 25 to 44, 73% of people 45 to 64, and 98% of those 65 years and older had healthcare insurance. People had either Medicare (31%), Medicaid (27%) and/or commercial insurance (20%). Within a year of death, 65% had a healthcare claim.

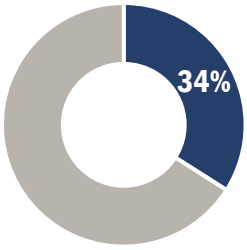
Primary Care Visit

A primary care visit is a service that is provided by a family medicine physician, nurse practitioner, internal medicine physician, clinical nurse specialist, naturopath, pediatrician, physician assistant or someone in general practice who offers office visits, consultations, preventative medicine, wellness visits or a clinical visit. The most common healthcare encounter was with primary care, where 59% of people visited primary care within a year of death.[2] Most primary care encounters were billed as services lasting 15 to 25 minutes in length (67%). Over a third of people who died had a primary care visit for mental health within a year of death (34%).[3]

More than half of people who died by suicide had a primary care visit within a year of death.



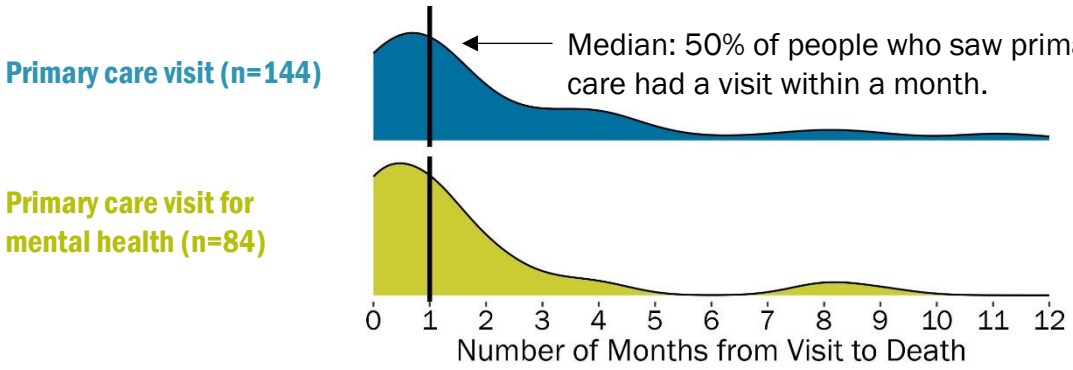
Over a third of people who died by suicide had a primary care visit for mental health within a year of death.



Source: VHCURES, 2019-2021

[2] For this analysis, the provider table was used to identify specific types of providers that typically provide primary care. The provider table does not include verified information on providers, and may include inaccuracies. Therefore, this number may be an overestimate of actual persons who visited primary care. Future analyses will examine this more using alternative data tables.
[3] These visits had a primary billing code for a mental health diagnosis.

Among people with a primary care visit, most had a visit within a few months of death.

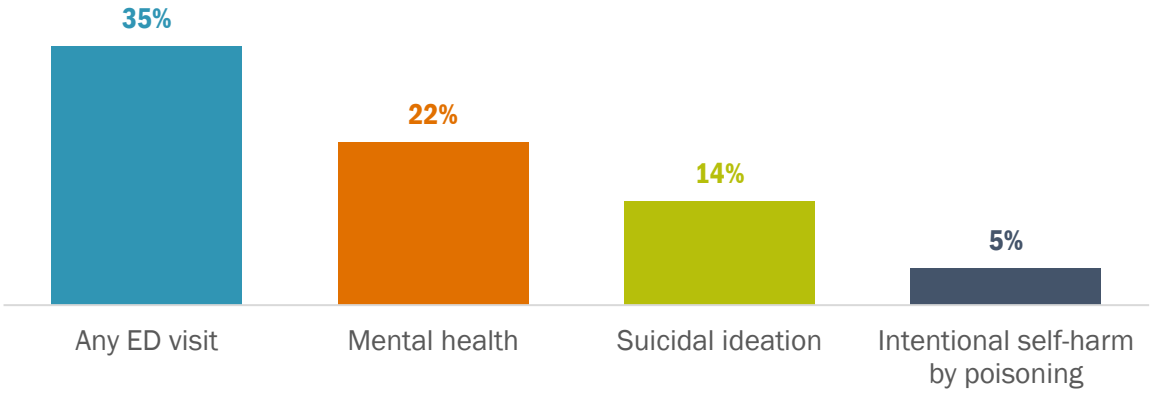


Source: VHCURES, 2019-2021

Emergency Department Visit

The next most common healthcare encounter was with the Emergency Department (ED), where 35% of those who died had an ED visit within a year of death. Nearly a quarter of people who died had an ED visit related to mental health or suicide (24%). Twenty-two percent had two or more ED visits within a year. Within a month of death, 11% of people visited an ED and 8% visited an ED with mental health, suicidal ideation or intentional self-harm.[4,5]

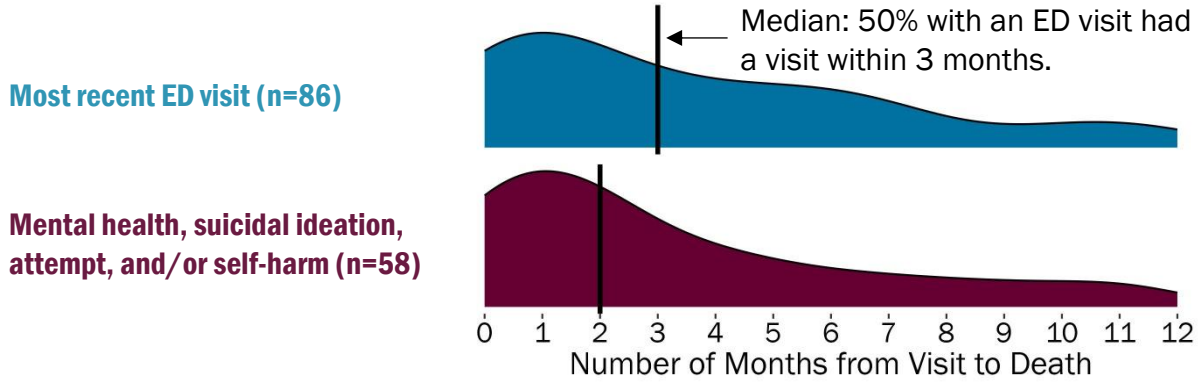
Some people who died by suicide had an ED visit related to mental health or suicide within a year of death.



Source: VHCURES, 2019-2021

[4] An ED visit can have multiple diagnosis codes, a primary code and then other codes. This analysis looked at all codes associated with a visit.
[5] These data are not mutually exclusive. For example, an ED visit can have a diagnosis code for suicidal ideation and mental health.

Among people with an ED visit, most occurred within a few months of death.



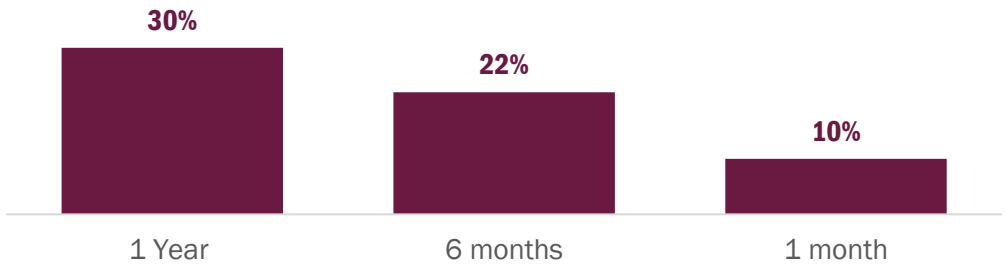
Source: VHCURES, 2019-2021

Mental Health Treatment

A claim for mental health treatment is when someone was provided counseling, psychotherapy, psychoanalysis, medication management, psychiatric services or an evaluation. Nearly a third of people who died received mental health treatment within a year of death (30%). Sixteen percent of people who died received treatment via telehealth.

The most common mental health diagnoses people were in treatment for within a year of death included anxiety, stress-related and other non-psychotic mental disorders (20%), followed by depression (12%) and substance use disorders (9%).[6] A few people had a diagnosis for bipolar disorder, gender identity disorder, or a diagnosis of schizophrenia, schizotypal, delusional, or another non-mood psychotic disorder, or a suicide-related diagnosis.[7]

Nearly a third of people who died by suicide were in mental health treatment within a year of death.



Source: VHCURES, 2019-2021

[6] These data are not mutually exclusive. For example, one person could have both a diagnosis for anxiety and depression. A claim for mental health treatment can have multiple diagnosis codes. This analysis looked at all diagnosis codes for a mental health diagnosis.

[7] A suicide-related diagnosis is suicidal ideation or intentional-self harm.

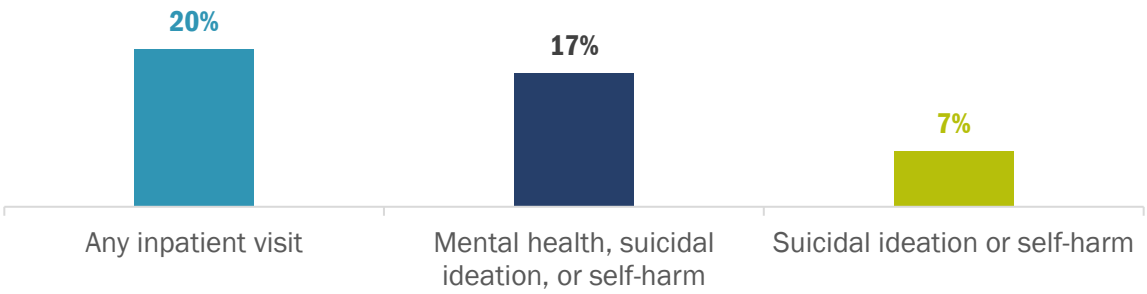
Inpatient Visit

Twenty percent of people who died had an inpatient hospital visit within a year of death, most of these visits were related to mental health or suicide. Six percent of people who died had more than one inpatient visit. Seven percent of people who died were discharged from an inpatient visit within a month of death, and nearly all of these had a diagnosis for mental health, suicidal ideation or intentional self-harm. Based on the data, there is reason to believe that the first ten days after release is a very vulnerable time.

7% of people who died were discharged from an inpatient visit for mental health, suicidal ideation, or self-harm within a month of death.

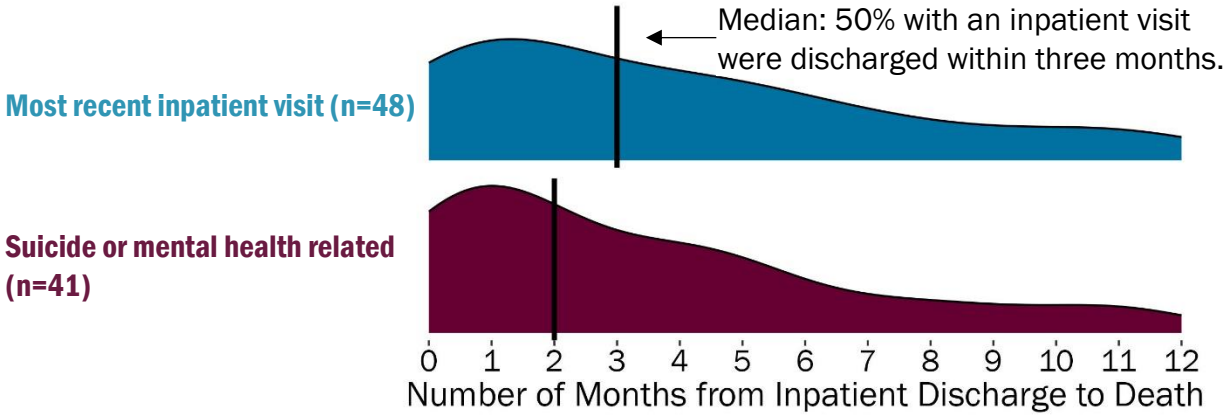
Source: VHCURES, 2019-2021

Almost a fifth of people who died by suicide had an inpatient visit related to mental health or suicide within a year of death.



Source: VHCURES, 2019-2021

Among people with an inpatient visit, most were discharged within a few months of death.

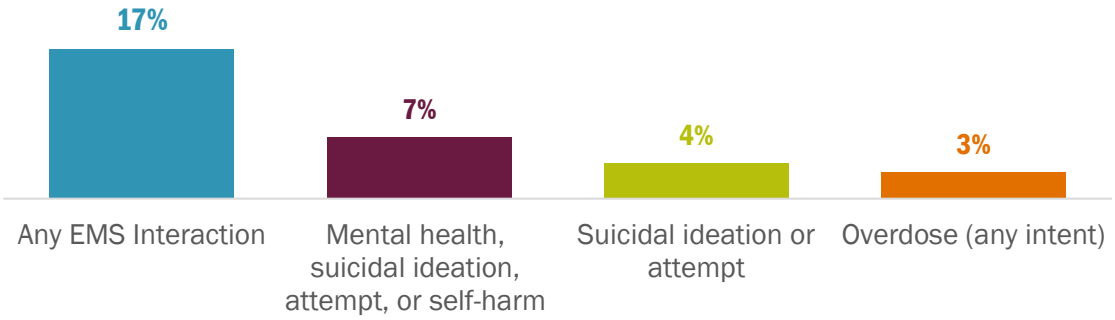


Source: VHCURES, 2019-2021

Interactions with Emergency Medical Services

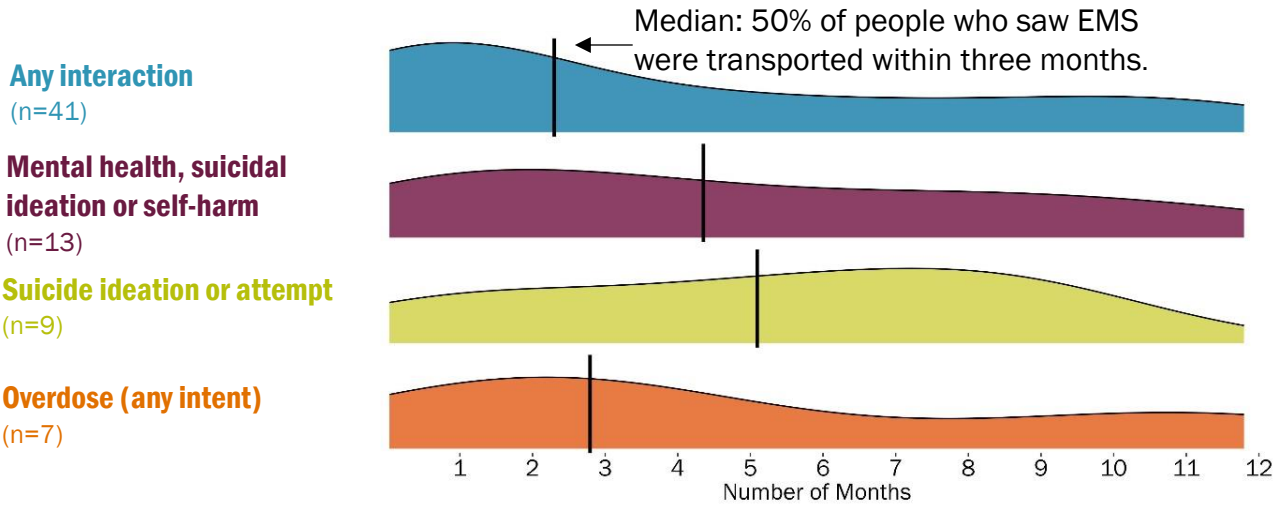
Within a year of death, 17% of people who died interacted with emergency medical services.[8] A little less than half of those with an EMS interaction had a call related to mental health, a suicide attempt, overdose or altered mental state. In nearly all interactions the person was transported to a hospital. Seven percent of people who died had more than one interaction with EMS.

Interaction types with EMS within a year of death.



Source: Statewide Incident Reporting Network (SIREN), 2019-2021

Number of months from an EMS interaction to death by suicide.



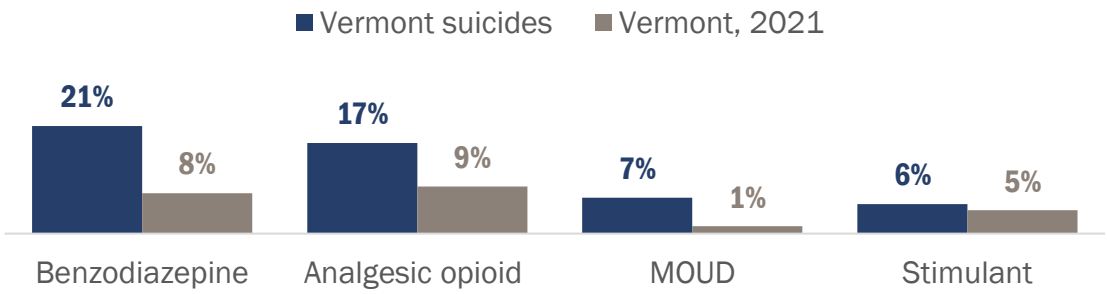
Source: SIREN, 2019-2021.

[8] This analysis does not include the incidents where the injury resulted in death or where the person was found deceased. Forty eight percent of people who died were responded to by EMS (i.e., either on the day of the injury or the day they were found deceased).

Prescriptions for Controlled Substances

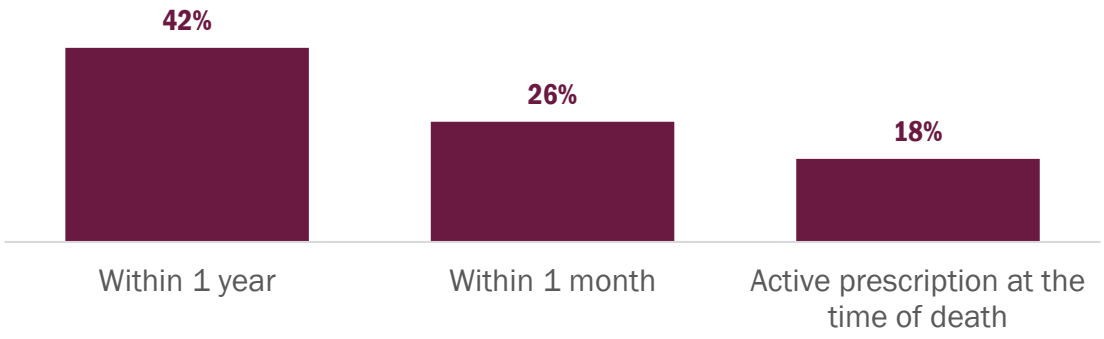
In Vermont, those who have died by suicide were more likely to have had a prescription for a controlled substance within the past year compared to the general Vermont population. The most common prescription treatment class prescribed to these individuals was benzodiazepines, followed by analgesic opioids (opioids used to treat pain), medications for opioid use disorder (MOUD) and then stimulants. All prescription types, except for stimulants, were prescribed at a rate significantly higher than the general Vermont population. In addition, most people who died by suicide with a prescription for a controlled substance received an active prescription within a month of their death.

People who died by suicide were more likely to have a prescription for a controlled substance compared to the general population within a year of death.



Source: Vermont Prescription Monitoring System (VPMS), 2019-2021.

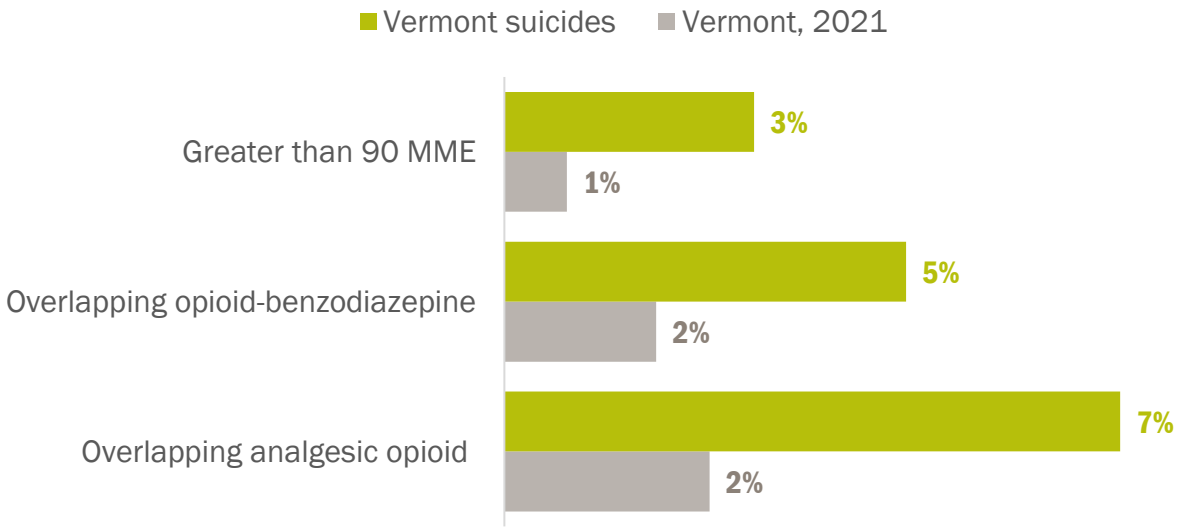
More than a quarter of people who died by suicide had a prescription for a controlled substance within a month of death.



Source: VPMS, 2019-2021

Prescription combinations for controlled substances are a higher risk for misuse or overdose if they include overlapping opioid prescriptions, overlapping opioid and benzodiazepine prescriptions and analgesic opioid prescriptions equal to 90 morphine milligram equivalents (MME) or greater. Vermonters who have died by suicide are more likely to have a prescription that places them at higher risk for substance misuse or overdose compared to the Vermont general population.

People who died by suicide were more likely to have a prescription that places them at higher risk for overdose within a year of death.



Source: VPMS, 2019-2021.

Mental Health Treatment at a Designated Mental Health Agency

The Department of Mental Health works with private nonprofit agencies to provide mental health care. In Vermont, there are 10 Designated Mental Health Agencies (DA) which provide a subset of mental health services in the state to approximately 25,000 Vermont adults and over 10,000 children and youth annually. Nine percent of people who died by suicide interacted with a DA within a year of death; these individuals were also seen within six months of death.

Designated Mental Health Agencies provide treatment and care to people with mental health concerns, thus they are at increased risk for suicide. The rate of suicide for those receiving mental health treatment at a Designated Agency is 43.3 per 100,000 clients. This rate is two times higher than the overall rate of suicide (19.1).

9% of people who died by suicide interacted with a designated mental health agency within six months of death.

Source: DMH, 2019-2021

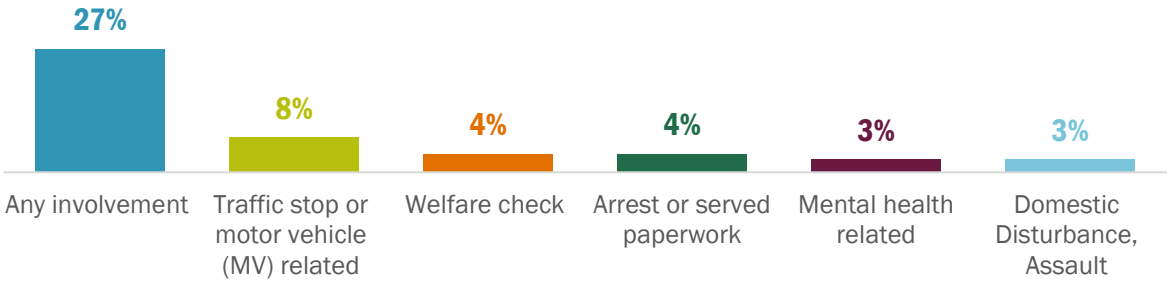
Objective 2: Assess interactions with organizations, services and non-healthcare entities within a year of death.

The purpose of this section is to identify non-healthcare related intervention points that are close to an individual's death by suicide.

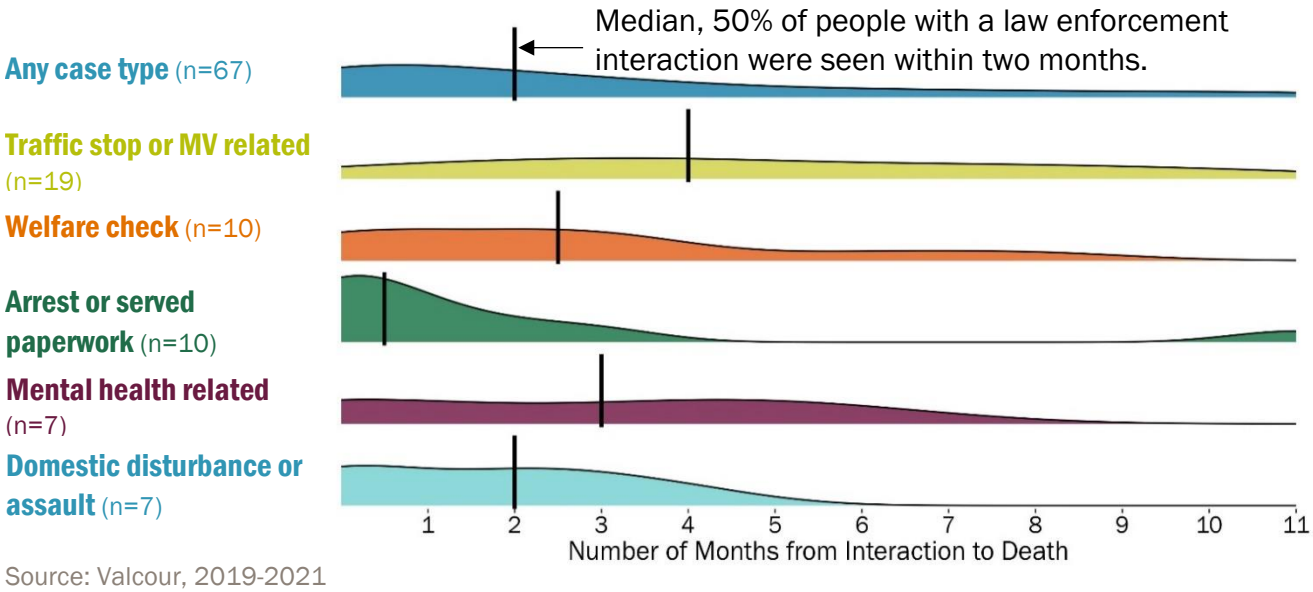
Law Enforcement

Twenty-seven percent of people who died by suicide interacted with law enforcement within a year of death, and 13% were involved within two months of death.[9] There were five common interaction types seen among people who died by suicide, with traffic stops being the highest. Most interactions occurred within six months of death, with the exception of being arrested or served paperwork, which mostly happened within a month of death. Nine percent of people who died had more than one interaction with law enforcement, and 3% had more than two involvements.

Less than a third of people who died had an interaction with law enforcement within a year of death.



Among people with a law enforcement interaction, most occurred within 6 months of death.



Source: Valcour, 2019-2021

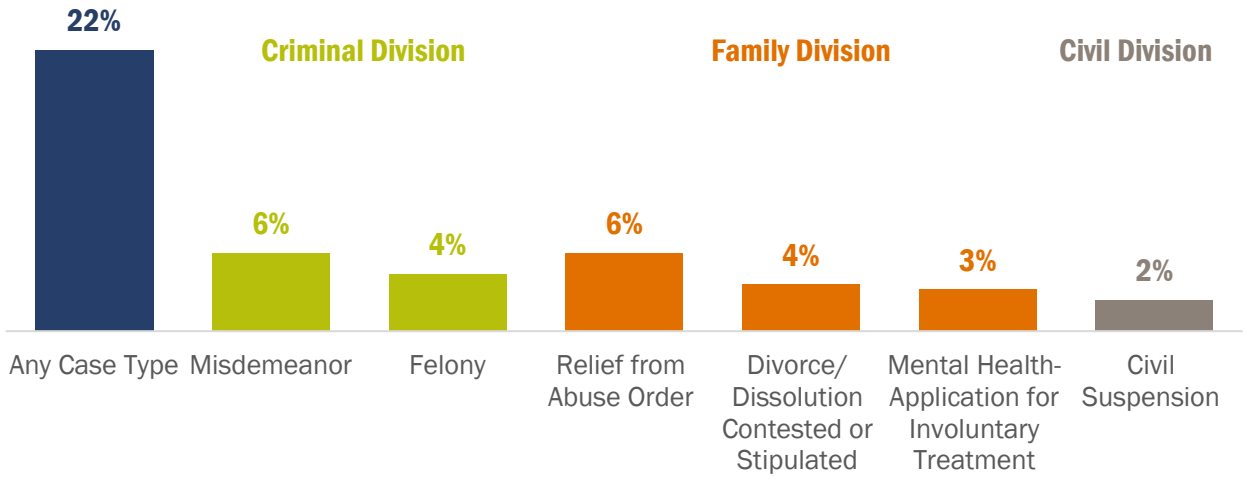
[9] Interactions with law enforcement exclude when the individual was found deceased.

Vermont Judiciary: State Court System

Twenty-two percent of people who died by suicide were involved in a state court case within a year of their death.[10] Most of those cases were still open within a month of death. One in 10 people who died had more than one case pending within a year of death (10%).

There were several case types pending within a year of death among people who died by suicide, relief from abuse (RFA) and misdemeanors being the most common (6% of deaths for each of these two case types).[11] Most individuals who were parties to a RFA case who died by suicide were the defendant. There were also two people who had an extreme risk protection order in place that expired within a year of death.

Over a fifth of people who died had a case with the court system within a year of death.

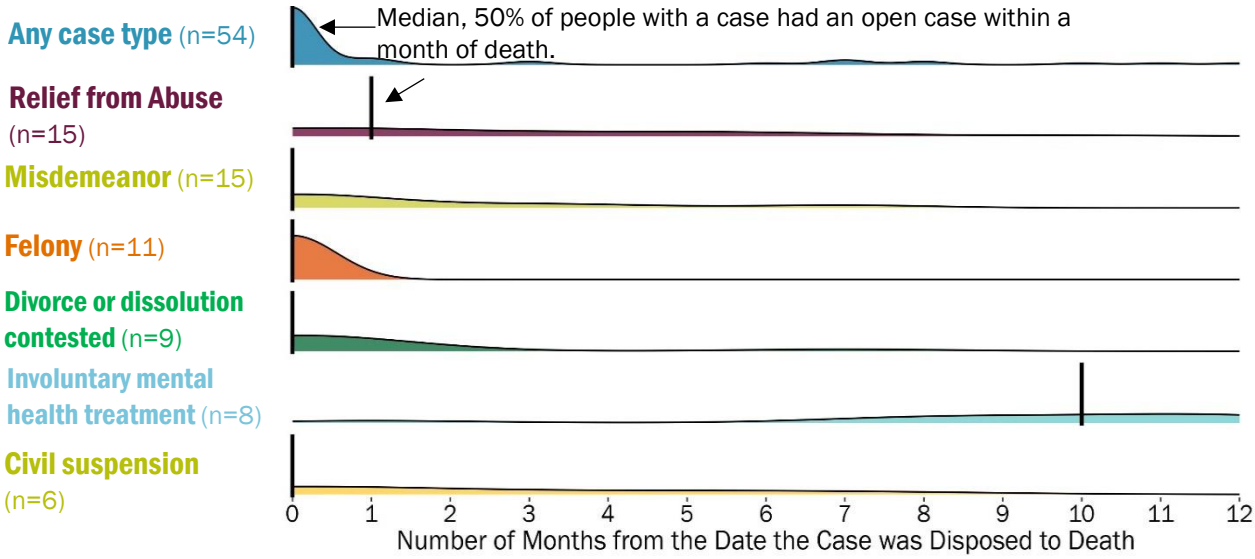


Source: Vermont Judiciary, 2019-2021

[10] Cases involving will and estate matters that were opened due to an individual's death were omitted from this part of the analysis. In addition to these case types, 10% of people who died by suicide were involved in a case within a year of death where no further information is available due to sealing or expungement of the record. The 10% with a sealed or expunged case may or may not have another case type within a year of death. A Vermont conviction or charge may be sealed or expunged as a matter of Vermont law under certain limited circumstances, such as when the conviction is no longer prohibited by law, for certain qualifying misdemeanors and felonies, certain matters relating to a child who has been adjudicated delinquent, or for successful completion of a court diversion program. *See generally* 13 V.S.A. § 7602; 33 V.S.A. § 5119; 3 V.S.A. § 163; 3 V.S.A. § 164. Expungement means that all the records related to the criminal charge are physically destroyed by court order. Sealing means the criminal history record is placed in a confidential file but is not physically destroyed.

[11] A civil suspension seeks to suspend and/or disqualify an individual's driver's license or commercial driver privileges.

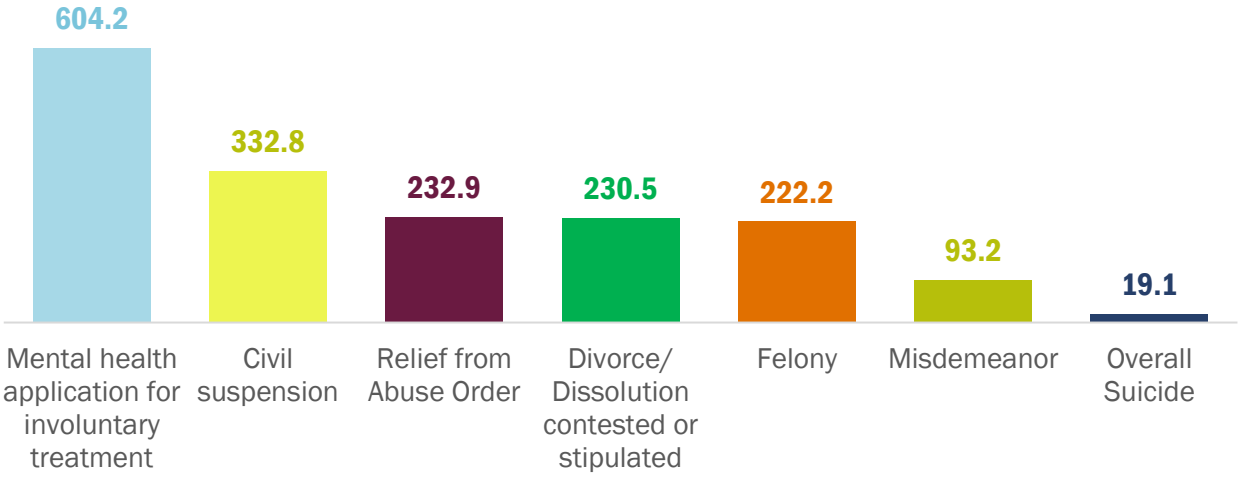
Among people with court involvement, nearly all had a case that was still open within a month of death.



Source: Vermont Judiciary, 2019-2021

The rate of suicide for court-involved persons was significantly higher than the rate of suicide in the general population, with the highest rate of suicide attributable to persons i nvolved in a mental health application for involuntary treatment.[12]

The rate of suicide for court-involved persons is significantly higher than the overall suicide rate.



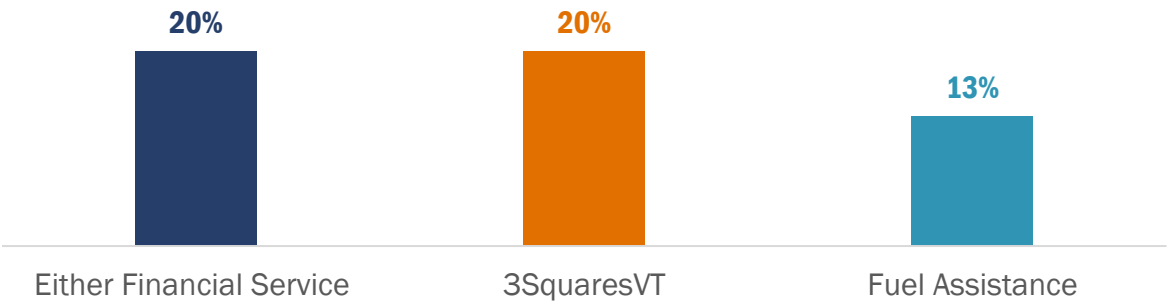
Source: Vermont Judiciary, 2019-2021; Vermont Vital Statistics, 2020-2021

[12] Rates were calculated by taking the number of people who died by suicide with each case type, and then dividing that by the number of cases within each case type in the state court system. The decimal is then multiplied by 100,000 to convert it to the rate per 100,000 people for each case type. This is done to make the rate comparable to the overall suicide death rate used in this report, which is the rate per 100,000 people.

Low Income

The Economic Services Division (ESD) of the Department for Children and Families provides financial assistance to families and people in need. Within a year of death, 20% of Vermonters who died by suicide received at least one benefit from 3Squares Vermont and/or the Fuel Assistance program. Part of the eligibility requirements for 3Squares Vermont and the Fuel Assistance program is for an individual's household income level to be at or below the 185% Federal Poverty Level. Within six months of death, 17% were still receiving at least one of these benefits.

One fifth of people who died by suicide were at or below the 185% Federal Poverty Level within a year of death.



Source: Economic Services Division, 2019-2021.

Homeless Services

In Vermont, individuals who receive services for experiencing homelessness are captured in the Homeless Management Information System (HMIS). The rate of suicide among people receiving a homeless service in 2020 and 2021 is similar to the rate of suicide in the general population. Within a year of death, 6% of people who died by suicide received a homeless service. Within six months of death, 5% received a homeless service.

People who received a homeless service had a similar rate of suicide compared to the general population.

Rate per 100,000

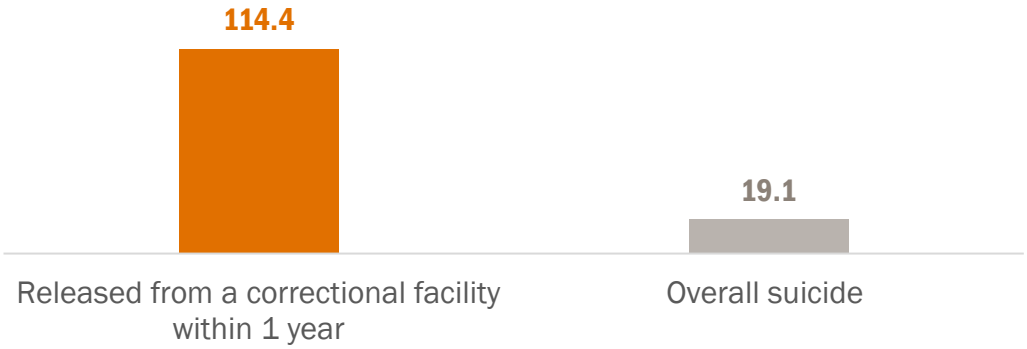
Source: HMIS, 2019-2021; Vermont Vital Statistics, 2020-2021

Corrections

Recent release from incarceration is a risk factor for suicide. One study found the risk of suicide was 1.6 times higher for those who were ever incarcerated compared to the general population.[13] The rate of suicide for people recently released from prison in 2020 and 2021 was 114.4 per 100,000 released inmates, significantly higher than the rate of suicide in the general population (19.1).[14] A few individuals who were released within a year of death were incarcerated multiple times. Within a year of death, 2% of people who died by suicide were incarcerated.

People recently released from a correctional facility were six times more likely to die by suicide.

Rate per 100,000



Source: Department of Corrections, 2019-2021; Vermont Vital Statistics, 2020-2021

Family Services Division within the Department for Children and Families

The Family Services Division (FSD) is responsible for ensuring youth are safe from abuse and neglect and provides supports and services to youth and families. Four percent of people who died by suicide were involved with FSD within a year of death. Most of those who were involved with FSD within a year of death were adults being investigated for abuse or neglect of a child. There were also a few adults who had children in custody, all of whom (i.e., the adults) had a mental health problem noted in their record. Three percent of people who died were involved with FSD within six months of death, and a few of these people had cases still open at the time of death.

[13] Morgan, E. R., Rivara, F. P., Ta, M., Grossman, D. C., Jones, K., & Rowhani-Rahbar, A. (2022). Incarceration and subsequent risk of suicide: A statewide cohort study. *Suicide and Life-Threatening Behavior*, 52, 467– 477. https://doi.org/10.1111/sltb.12834

[14] The rate of suicide among those who were released from a correction facility within 1 year of death was calculated by taking the number of individuals who died by suicide during 2020-2021 and were released from a correctional facility within 1 year of death and dividing that by the number of individuals who were released from a correctional facility in 2020 and 2021.

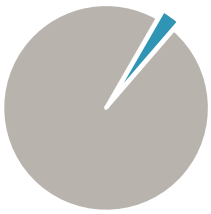
Percent of people who died by suicide with FSD involvement within a year of death.

Most involvements within a year of death were adults who were being investigated for abuse or neglect of a child.

Source: Department of Children and Families, Family Services Division, 2019-2021

Services offered through an Area Agency on Aging (AAA).

In Vermont there are five Area Agencies on Aging which offer services to older Vermonters, caregivers and adults living with a disability. Three percent of Vermonters who died by suicide received a service offered through an AAA within six months of death, most of whom were 65 years or older. The AAA also provides some services to caregivers and persons under 65 years of age; fewer than six people who died had this interaction within a year.



3% of people who died by suicide interacted with an Area Agency on Aging within 6 months of death.

Source: AAA 2019-2021.

Brain Injury Program, HireAbility and Adult Protective Services

The Department of Disabilities, Aging and Independent Living (DAIL) provides services to individuals with a moderate to severe brain injury, disability and older adults. Within a year of death, fewer than 6 individuals (but not zero) received services. While the number of individuals is too small to share in this report, it is important to recognize that both having a disability and experiencing a traumatic brain injury are risk factors for suicide. Furthermore, the number of individuals participating in these programs is relatively small, approximately 80 adults are served by the Brain Injury Program and approximately 4,500 adults are served annually by HireAbility. Future analyses could combine more years of data to minimize the need for data suppression.

Adult Protective Services (APS) through DAIL also conducts investigations for abuse, neglect and exploitation in adults. On average, APS investigates around 630 cases a year. Within a year of death, fewer than 6 individuals were part of an investigation (as either a victim or perpetrator) with APS.

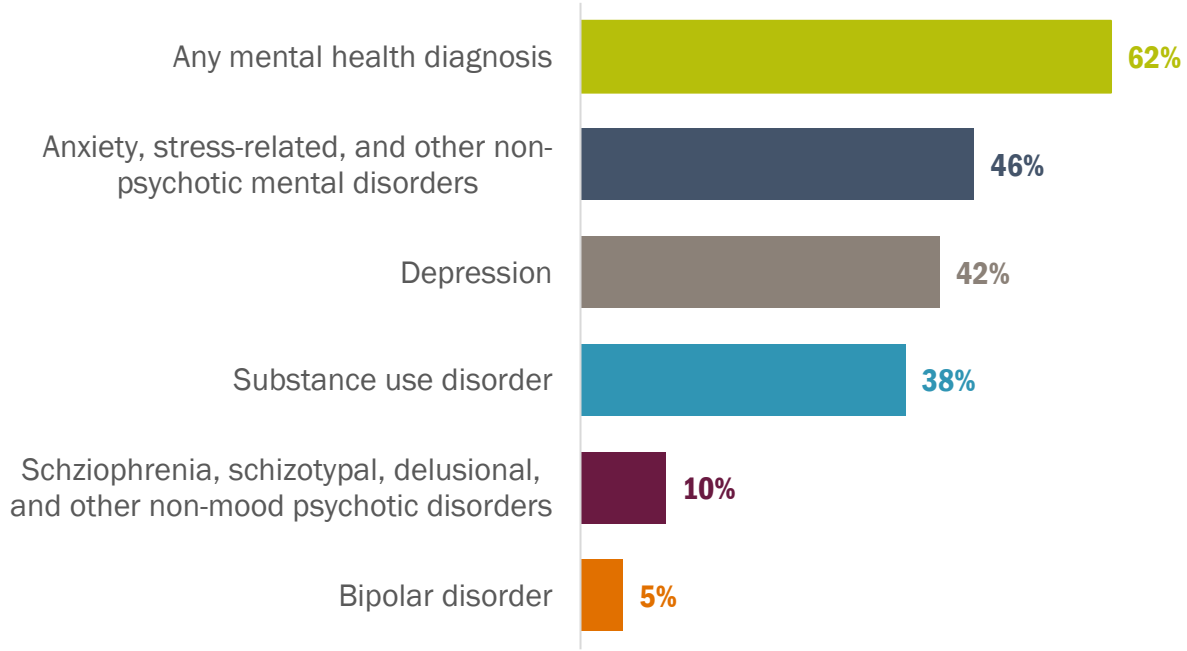
Objective 3: Assess Risk Factors

There are several risk factors for suicide. The purpose of this section is to identify the prevalence of risk factors among those who have died by suicide in Vermont. The risk factors examined include having a mental health diagnosis, a history of suicidal thoughts or behaviors, experiencing homelessness or incarceration, being unemployed, living with a chronic disease, having a history of a cancer diagnosis, experiencing abuse or neglect as a youth, or experiencing a recent crisis.

Mental Health Diagnosis

Having a mental health disorder can be a risk factor for suicide death. Among those who have died, 62% had a history of ever receiving a mental health diagnosis in a healthcare setting.[15] The most common diagnoses were anxiety disorder, depression and substance use disorder (46%, 42% and 38% respectively). A few people had a diagnosis for a gender identity disorder.[16]

The majority of people who died by suicide had a history of receiving a mental health diagnosis in a healthcare setting.



Source: VHCURES, 2017-2021

[15] Ever receiving a mental health diagnosis since 2017.
[16] Exact number not shown because the value was less than 11.

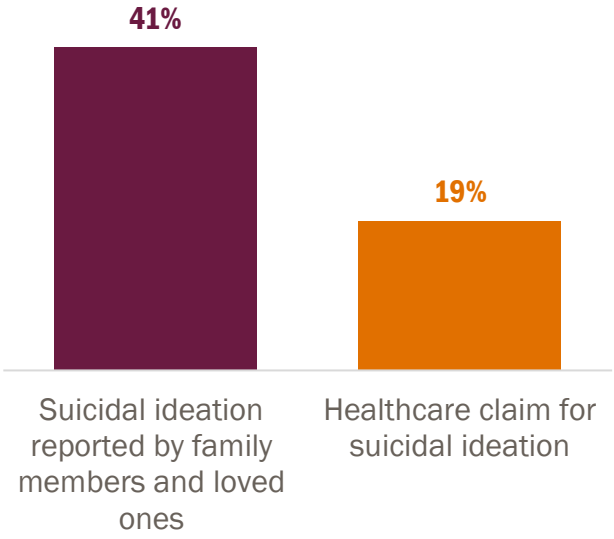
History of Suicidal Thoughts or Behaviors and Self-Harm and Disclosed Intentions

Having a history of suicidal thoughts or behaviors is a risk factor for suicide death. Among those who died, 41% had a history known to family members or loved ones of suicidal thoughts or plans and 20% had a known suicide attempt. In addition, 5% of people who died had a known history of self-harm.

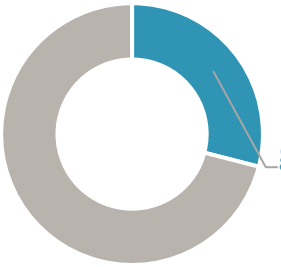
While 41% of people who died had a known history of suicidal thoughts or plans, only 19% of people who died had a healthcare encounter for suicidal ideation. This may mean that there are people struggling with suicidal thoughts but are not reaching out for help from the healthcare system. More than one in 10 deaths had a healthcare encounter for intentional self-harm (11%).[17] The most common method of self-harm were poisonings (7% of deaths).[18]

Some people may express their intentions of suicide to others before they take their life. Twenty-nine percent of those who died had disclosed their intentions or plans to take their life to a family member, intimate partner, friend or on social media within a month of their death.

Not all people who think about or make a suicide plan may be getting help from a healthcare system.



Source: VHCURES, 2017- 2021; VTVDRS,



29% of people who died told someone they were planning or going to take their life within a month of their death.

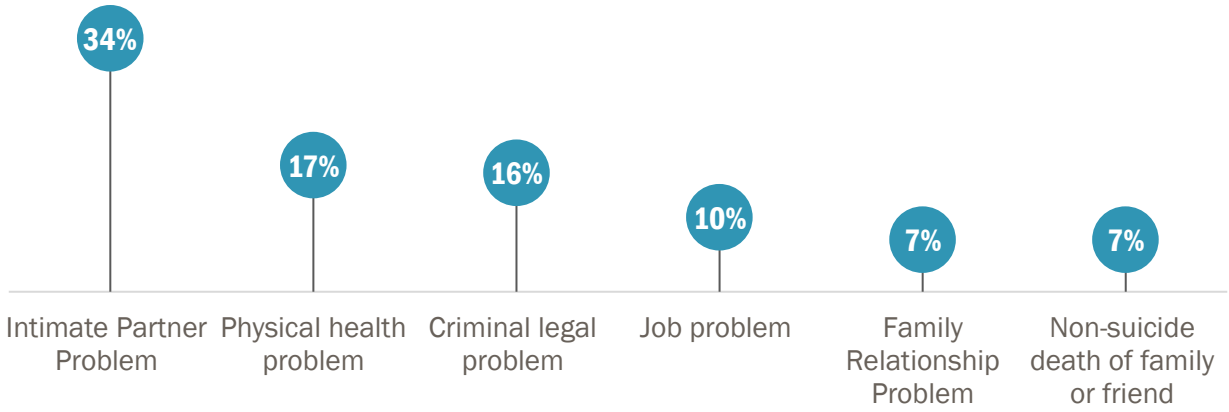
Source: VTVDRS, 2020.

[17] A claim within up to the past 5 years, 2017- 2021
[18] These are not mutually exclusive. Someone may have had a claim for more than one form of self-harm.

Circumstances and Crises

There can be many reasons or contributors to a suicide death, which may or may not be disclosed to family members or people who knew the person who died by suicide. The most commonly known circumstance among those who died by suicide was a problem with a current or former intimate partner (34%).[19]

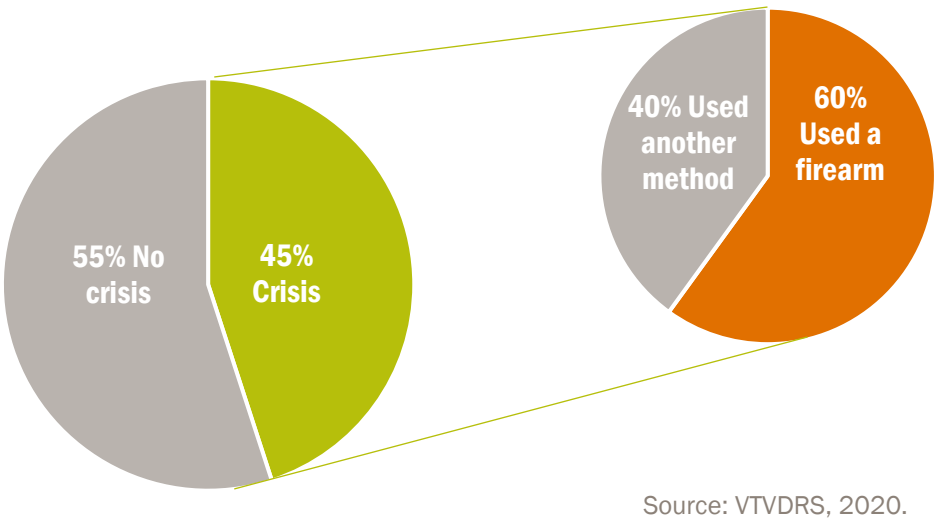
Some people who died by suicide had circumstances noted that contributed to their death.



Source: VTVDRS, 2020

Forty-five percent of people who died experienced a crisis within two weeks of death. Of those who experienced a crisis, 60% used a firearm to take their life. In other words, those who experienced a crisis were more likely to use a firearm compared to any other method. Those who experienced a crisis and used a firearm represent 27% of suicide deaths.

A little less than half of people who died by suicide experienced a crisis within two weeks of death; among them nearly two thirds used a firearm.



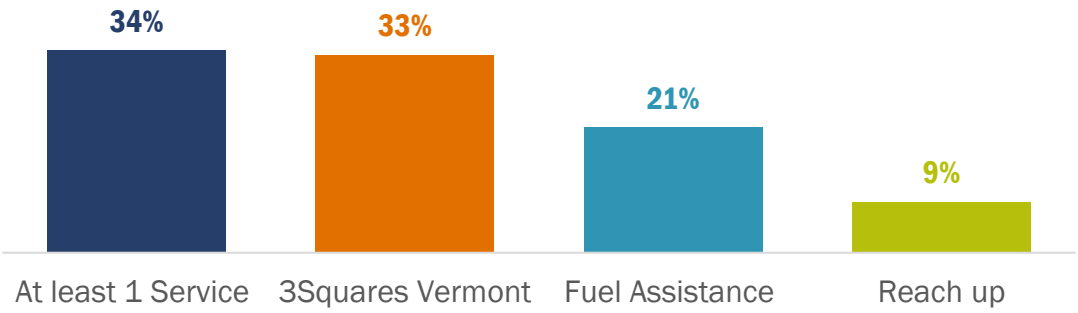
Source: VTVDRS, 2020.

[19] A family relationship problem does not include a problem with an intimate partner.

Low Income

Having lower income may be associated with an increased risk for suicide.[20] Over one-third of Vermonters who died by suicide had a history of receiving at least one financial benefit from ESD prior to their death.[21] The most received benefit was 3Squares Vermont (33%), followed by Fuel Assistance (21%), and Reach Up (9%).

Over a third of people who died by suicide ever received a financial benefit.



Source: ESD, 1993- 2021

History of Incarceration

Individuals with a history of incarceration have been shown to be at risk for negative health outcomes, including suicide.[22] In Vermont, one in six individuals who died by suicide had a history of ever being incarcerated (17%). Of these individuals, release from incarceration spanned from 1989 to within a year of death (median= 5 years). Some of these individuals were incarcerated multiple times throughout their lifetime.

17% of people who died by suicide had a history of ever being incarcerated.

Source: DOC, 1970s (approximate)-2021

[20] Liang, A. (2022). Does Money Buy Enough Happiness: Investigating the Relationship Between Income and Suicide Rates.
[21] The income eligibility during this timeframe varies year to year, so no exact income threshold is provided.
[22] Morgan, E. R., Rivara, F. P., Ta, M., Grossman, D. C., Jones, K., & Rowhani-Rahbar, A. (2022). Incarceration and subsequent risk of suicide: A statewide cohort study. *Suicide and Life-Threatening Behavior*, *52*(3), 467-477.

Experiencing Homelessness or Housing Insecurity

Experiencing homelessness is associated with an increased risk for suicide.[23] In Vermont, individuals who receive homeless services, which include services for people at risk or are experiencing homelessness, are captured in the Homeless Management Information System (HMIS). Among those who died by suicide, 15% had a history of receiving a homeless service.

15% of people who died by suicide had a history of receiving a homeless service.

Source: HMIS, 2001-2021.

Unemployment

Job insecurity and unemployment increases the risk for suicidal behaviors including death by suicide.[24] Forty-six percent of people who died by suicide had evidence of employment in the year leading up to their death. For comparison, 60% of the general Vermont population was employed at some point during 2020-2021.[25] Fifteen percent of those that died by suicide filed a claim for unemployment insurance benefits within the year before their death. For the general population, the rate was 18%.[26] There is a portion of the population without employment wage records, or an unemployment insurance claims history whose situation is unknown. These individuals could be in school, retired, on medical leave due to a disability, or some other situation. Please note relative to historical trends, claims' rates for unemployment insurance are elevated as 2020 was a period of high unemployment due to COVID and the subsequent economic downturn.

15% of people who died by suicide filed a claim for unemployment insurance benefits within a year of death.

Source: DOL, 2019-2021

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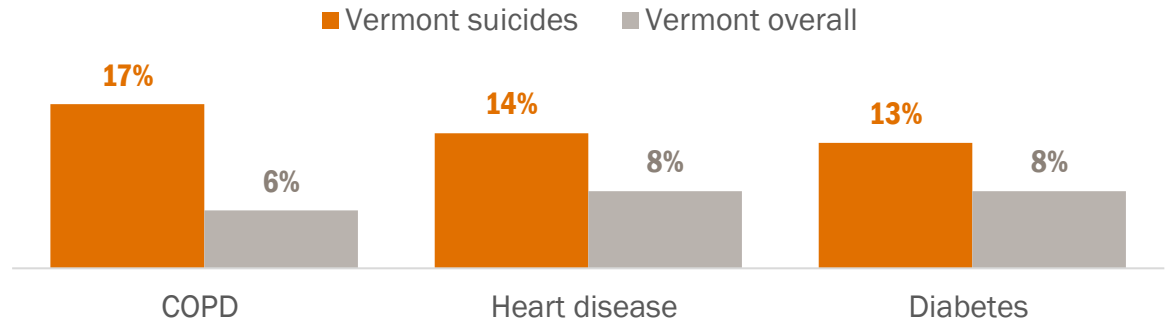
[23] Bommersbach, T., et al. (2020) Suicide Attempts and Homelessness: Timing of Attempts Among Recently Homeless, Past Homeless and Never Homeless Adults. Psychiatric Services. https://doi.org/10.1176/appi.ps.202000073

[24] Morgan, E. R., Rivara, F. P., Ta, M., Grossman, D. C., Jones, K., & Rowhani-Rahbar, A. (2022). Incarceration and subsequent risk of suicide: A statewide cohort study. *Suicide and Life-Threatening Behavior*, *52*(3), 467-477.
[25] Employment to population ratio 2020-2021 derived from Bureau of Labor Statistics (BLS)'s Local Area Unemployment Statistics (LAUS) program using civilian population 16 years and over.
[26] Unemployment insurance claimants to population ratio 2020-2021 derived from VDOL administrative records and BLS's LAUS program using civilian population 16 years and over.

Chronic Health Conditions

Some people who died by suicide had a history of chronic health conditions. The rate of people who died by suicide with chronic obstructive pulmonary disease, heart disease and diabetes is significantly higher than the general Vermont population.[27] The rate of people who died by suicide with hypertension, high cholesterol and who had a stroke were all similar to the general Vermont population (29%, 27%, 7%, respectively). Very few people who died by suicide ever received a diagnosis for Alzheimer's disease, Parkinson's disease, dementia, or Lou Gehrig's disease (ALS).[28]

People who died by suicide were more likely to have a chronic disease.



Source: VHCURES, 2017-2021, BRFSS 2019- 2020

Having a Traumatic Brain Injury (TBI) is associated with an increase in the risk of death by suicide.[29] Among those who died in 2020, 5% had a history of a traumatic brain injury. It's been shown that cancer survivors have a higher rate of suicide compared to the general population.[30] In Vermont, 8% of people who died by suicide had a healthcare claim for a cancer diagnosis.[31]

5% of people who died by suicide had a history of a TBI.

Source: VTVDRS, 2020.

8% of people who died by suicide had a history of cancer.

Source: VHCURES, 2017-2021.

[27] Behavioral Risk Factor Surveillance System, 2019-2020 Report
[28] Exact number not shown because the value was less than 11.
[29] Madsen T, Erlangsen A, Orlovska S, Mofaddy R, Nordentoft M, Benros ME. Association Between Traumatic Brain Injury and Risk of Suicide. *JAMA.* 2018;320(6):580–588. doi:10.1001/jama.2018.10211
[30] Hu X, Ma J, Jemal A, et al. Suicide Risk Among Individuals Diagnosed With Cancer in the US, 2000-2016. *JAMA Netw Open.* 2023;6(1):e2251863. doi:10.1001/jamanetworkopen.2022.51863
[31] This excludes common malignant skin cancers.

Interpersonal Problems, Violence and Conflict

Experiencing abuse or neglect during childhood is a risk factor for suicidal behavior.[32]
Of those who died by suicide:

- Less than 10% had a history of ever being involved with the Families Services Division of DCF in their youth (7%). This includes being involved in the court system, a victim in an assessment for abuse or neglect, experiencing abuse or neglect, or being placed in state custody.
- 3% were on probation when they were a minor.
- 4% were investigated for abuse or neglect. A few went on to have a substantiated case of abuse or neglect and were placed in state custody or in the care of another family member.[33]
- As adults, fewer than six individuals had a history of being involved with Adult Protective Services within a year of death.

[32] Angelakis, I., Gillespie, E. L., & Panagioti, M. (2019). Childhood maltreatment and adult suicidality: a comprehensive systematic review with meta-analysis. *Psychological medicine*, *49*(7), 1057-1078.
[33] A substantiated case of abuse or neglect is when there is a reasonable cause to believe that child abuse and neglect has occurred.

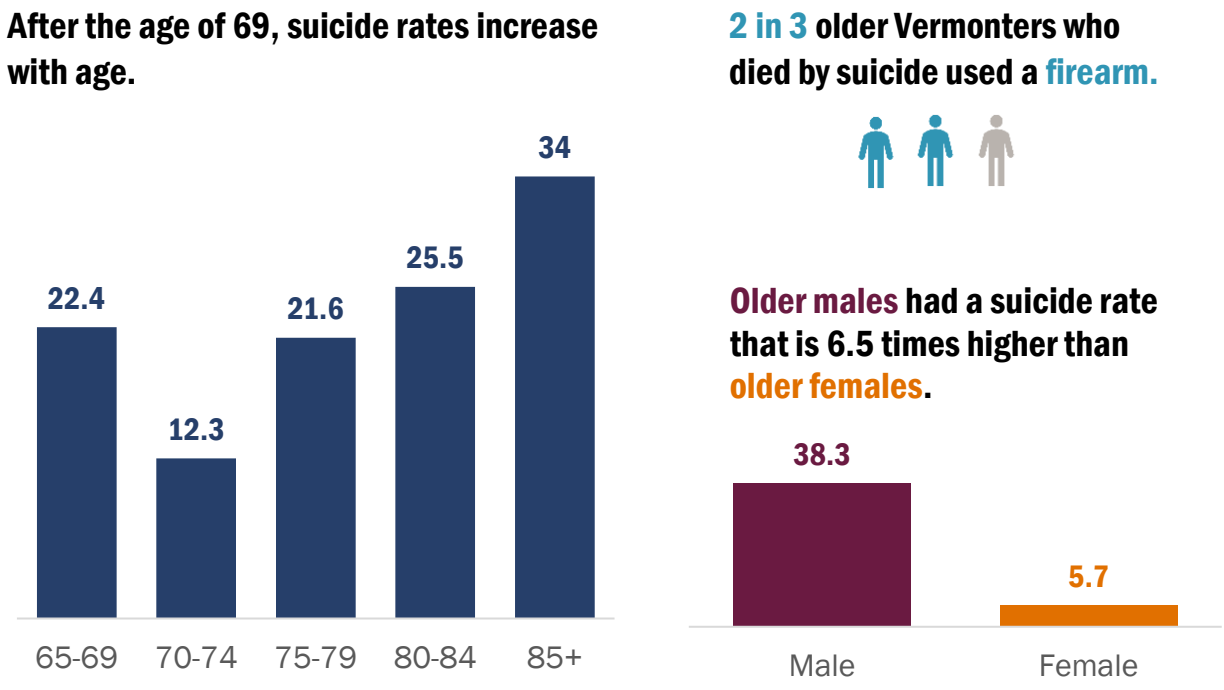
Objective 4: Understand how suicide is different for Vermonters 65 years and older.

The purpose of this objective it to examine recent interactions and risk factors faced by older Vermonters (65 years and older) who have died by suicide. Older Vermonters experience the highest rates of suicide of any age group from 2010-2018. Future analyses could combine more years of data to minimize issues around small numbers and suppression.

Demographics

Older Vermonters comprised 22% of suicide deaths in 2020 and 2021. The rate of suicide for older Vermonters was similar to the rate of suicide in the general population (21.0 per 100,000 older Vermonters vs. 19.1 per 100,000 Vermonters). After the age of 69, suicide rates increased with age, although this is not statistically significant. In addition, rates for older Vermonters are over 6.5 times higher for males compared to females, a ratio that is higher than the overall suicide rates by sex (4.4). All suicide deaths among older Vermonters identified as white non-Hispanic and a majority were residents of rural areas (84%). Veterans make up 44% of the older Vermonters who died by suicide.

The method used by older Vermonters heavily skews to firearms (67%), which was disproportionately higher than the use of firearms in all Vermonters who die by suicide (56%).



Rates per 100,000 residents
Source: Vermont Vital Statistics, 2020-2021

Healthcare Interactions

Nearly all older Vermonters who died by suicide had evidence of insurance in VHCURES within a year of death (98%). Eighty percent had a healthcare claim within a year.

The most common healthcare encounter was with primary care, where 71% of adults older Vermonters who died by suicide had a visit within a year. While a larger proportion of older Vermonters had a primary care visit than all Vermonters who died by suicide, the difference is not significant (71% vs. 59%).

71% of older Vermonters who died by suicide visited primary care within a year of death.

Source: VCHURES, 2019-2021

Forty-seven percent of older Vermonters who died by suicide sought care at an emergency department within a year of death, with half of them visiting the ED within three months of death. A few ED visits were related to mental health or suicide. Over a fifth of Vermonters who died had more than two ED visits within a year of death (22%). While the proportion of older Vermonters who had an ED visit is higher than all Vermonters who died by suicide, the difference is not statistically significant (47% vs. 35%). A few older Vermonters had an inpatient stay or a psychiatric visit with a year of death.

47% of older Vermonters who died by suicide visited an ED within a year of death.

Source: VCHURES, 2019-2021

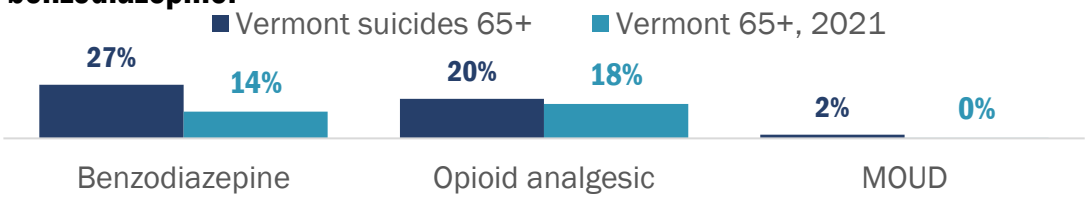
Fifteen percent of older Vermonters who died by suicide had an interaction with EMS within a year of death. Many with an interaction and died had an incident within 6 months of death. A few had more than one incident in the past year. There were no patterns in the type of incidents that were found.

15% of older Vermonters who died by suicide interacted with EMS within a year of death.

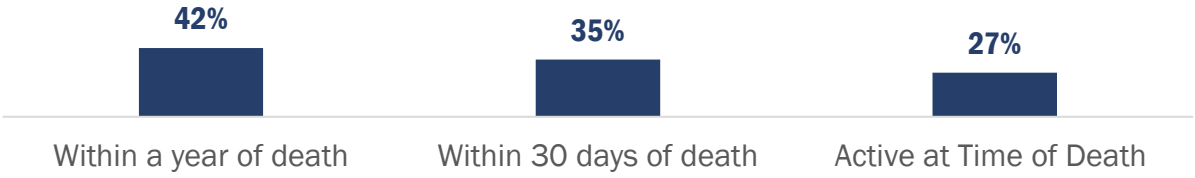
Source: SIREN, 2019-2021

Older Vermonters who died by suicide were significantly more likely to have a prescription for a benzodiazepine within a year of death compared to older Vermonters in general (27% vs. 14%).

Older Vermonters who died by suicide were more likely to have a prescription for a benzodiazepine.



A little less than half of older Vermonters who died by suicide had a prescription for a controlled substance within a year of death.



Source: VPMS, 2019-2021

Interactions with Other Services and Agencies

The most common touchpoint outside of healthcare for older Vermonters was with law enforcement. Eighteen percent of older Vermonters had at least one interaction with law enforcement within a year, most of which were motor vehicle related and occurred within three months of death.

18% of older Vermonters interacted with law enforcement within a year of death.

Source: Valcour, 2019-2021

The next most common interaction type was with the Economic Services Division of the Department of Children and Families, older Vermonters were receiving either Fuel Assistance (15%), or 3SquaresVT (13%). To qualify for services, the person had to be living at or below the 185% Federal Poverty Level.

15% of older Vermonters were at or below 185% Federal Poverty Level and received a financial benefit within a year of death.

Source: ESD, 2019-2021

The third most common interaction type was with an Area Agency on Aging (AAA), where 13% of older Vermonters received one of the offered services within six months of death. The most common service used by AAA was case management.[34] Fewer than six older Vermonters interacted with the state court system, DCF, DAIL, DOC, and/ or HMIS.

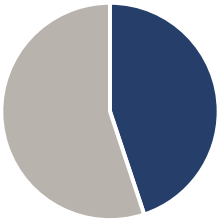
13% of older Vermonters used a service through one of the Area Agencies on Aging within six months of death.

Source: AAA, 2019-2021

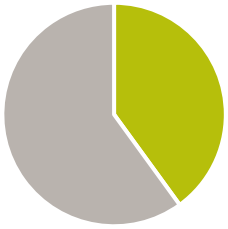
[34] The exact percent of older Vermonters using case management is not shown due to suppression rules.

Risk Factors

Older Vermonters who have died by suicide are significantly more likely to have had a chronic health condition, cancer diagnosis, a physical health problem, to have experienced a crisis within 2 weeks of their death and/or experienced a crisis and used a firearm compared to overall Vermonters who died by suicide.



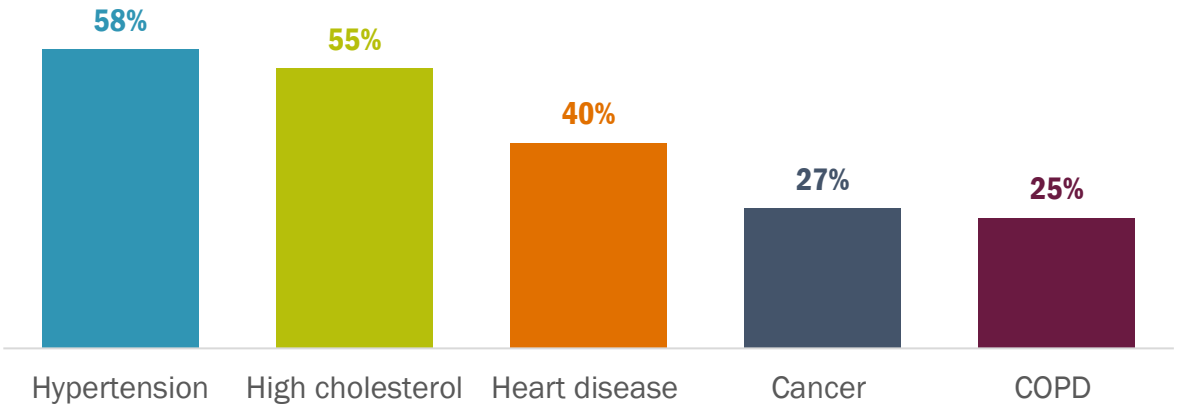
44% of older Vermonters had a physical health problem.



44% of older Vermonters experienced a crisis, most of whom used a firearm (82%).

Source: VTVDRS, 2020

Prevalence of chronic conditions among older Vermonters who died by suicide.



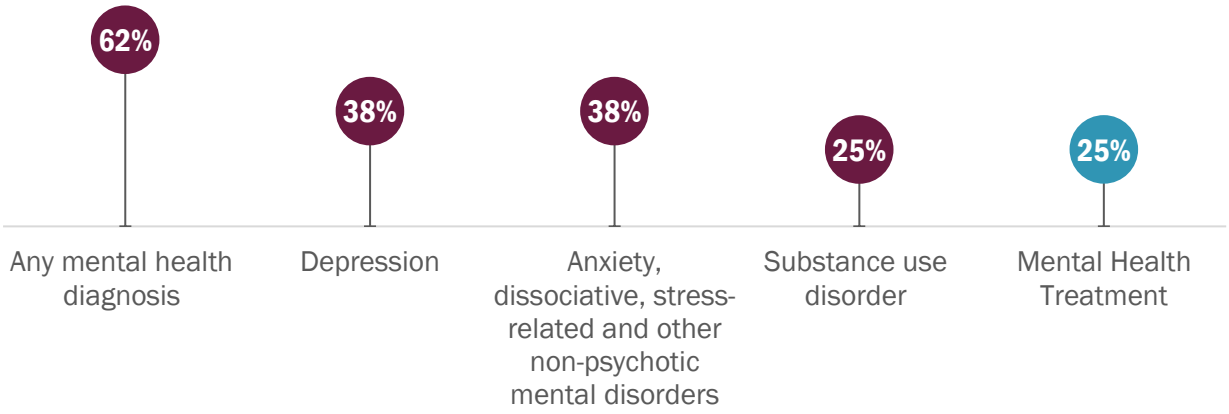
Source: VHCURES, 2017-2021

Mental Health

Older Vermonters were less likely to have received mental health treatment in a healthcare setting compared to overall Vermonters who died by suicide (25% vs. 41% overall Vermonters who had treatment within 3-5 years of death). In addition, the majority of older Vermonters received a mental health diagnosis (62%), but only one quarter received mental health treatment.[35] Over a third of older Vermonters had a history of suicidal ideation as reported by family member and loved ones (36%).[36] However, only a few older Vermonters had a healthcare encounter for suicidal ideation.

[35] Since 2017
[36] As per VTVDRS

A majority of older Vermonters received a mental health diagnosis in a healthcare setting, but only a quarter received mental health treatment.



Source: VHCURES, 2017-2021

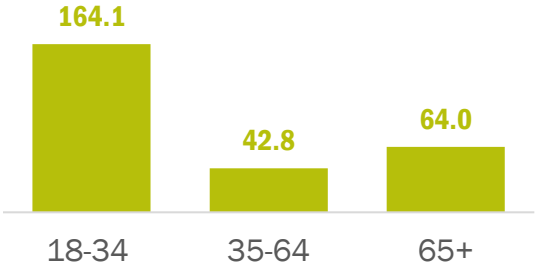
Objective 5: Assess interactions and risk factors among Veterans.

The purpose of this objective is to examine recent interactions and risk factors faced by persons who ever served in the U.S. armed forces (Veterans) and have died by suicide.[37] Veterans experience a high rate of suicide in Vermont, with the rates in 2020 being 36% higher than the U.S (2020 Vermont rate 43.0 per 100,000 vs. U.S. rate 31.7). Similar to the analysis specific to older Vermonters, future analyses could combine more years of data to minimize suppression.

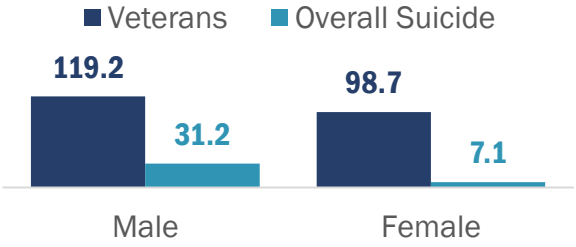
Demographics

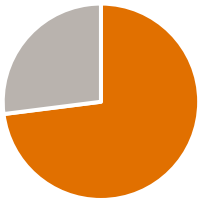
Veterans comprised 17% of suicide deaths in 2020 and 2021. The rate of suicide for Veterans was significantly higher than the rate of suicide in the general population (59.2 per 100,000 Veterans vs. 19.1 per 100,000 Vermonters). Suicide rates for Veterans were highest for those 18 to 34 years of age, followed by those 65 years and older and then those 34 to 64. Male Veterans had a higher rate of suicide compared to females, however both males and females had rates that were nearly four and 14 times larger than overall males and females who died by suicide. The rate of suicide for white non-Hispanic and BIPOC Veterans were statistically similar (62.2 and 45.8 per 100,000, respectively). Similar to overall suicide deaths, 80% of Veterans who died by suicide lived in rural areas. Firearms were more likely to be used by Veterans compared to suicide deaths overall (73% vs. 56%).

Younger Veterans had the highest rate of suicide death.



Veteran males and females had a higher rate of suicide compared to the overall suicide rates by sex.

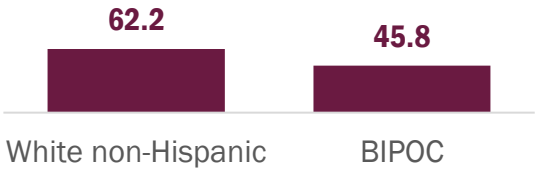




73% of Veterans who died by suicide used a firearm.

Source: Vermont Vital Statistics, 2020-2021
Rate per 100,000 Veterans

White non-Hispanic and BIPOC Veterans had a similar rate of suicide death.



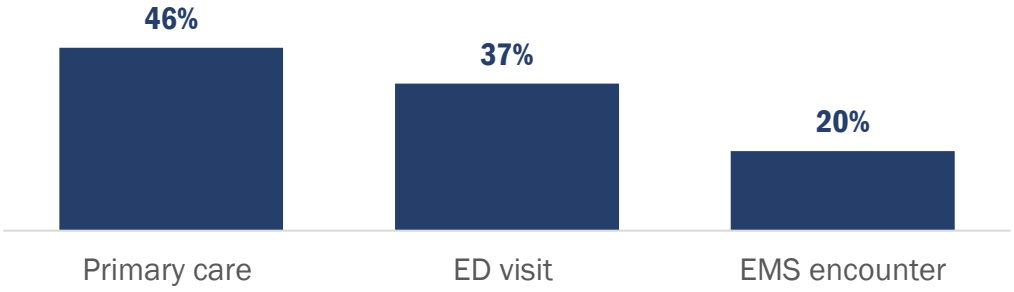
[37] In this analysis, a Veteran is defined as a person whose death certificate indicates the individual served in the U.S. armed forces.

Interactions with Healthcare

The majority of Veterans who died by suicide had evidence of insurance in VHCURES (83%). Of these, most had a claim within a year of death (61%). However, Veterans using the Veterans Administration, Tricare or Federal Employee Health Benefits insurance are not reflected in VHCURES, so these number may underrepresent actual healthcare interactions among this population.

- The most common interaction type was with primary care, where 46% of Veterans who died saw primary care. Over a third of Veterans who died visited primary care within 30 days of their death (34%).
- 37% were seen at an ED within a year of death. A few people had an ED visit for suicide or mental health within a year of death.
- 20% had an interaction with EMS. Some had more than one interaction.
- A few had an inpatient and psychiatric visit within a year of death.

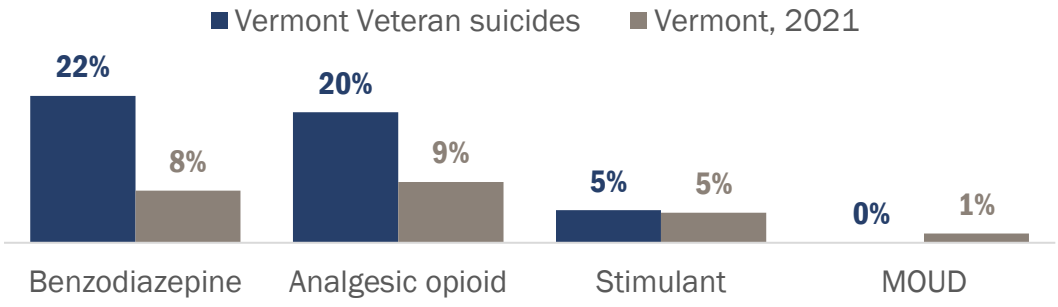
Percent of Veterans who died by suicide with a primary care, ED or EMS encounter within a year of death.



Source: VHCURES, 2019-2021, SIREN, 2019-2021

- Veterans were significantly more likely to have a prescription for a benzodiazepine or analgesic opioid within a year of death compared to the general population.

Veterans who died by suicide were more likely to have had a prescription for a benzodiazepine or analgesic opioid.



Source: VPMS, 2019-2021

Risk Factors

There were a few risk factors among Veterans who died by suicide.

- Veterans are at higher risk for experiencing homelessness.[38] Ten percent of Veterans who died by suicide had a history of receiving a homeless service.
- Less than half of Veterans who died by suicide had evidence of employment within a year of death (41%). Within six months of death 34% of Veterans who died were employed. No Veterans who died by suicide had evidence of unemployment.[39] There is a portion of the Veteran population without employment wage records, or an unemployment insurance claims history whose situation is unknown. These individuals could be in school, retired, on medical leave due to a disability, or some other situation.
- Nearly a quarter of Veterans who died ever received 3SquaresVT (24%), 15% ever received Fuel Assistance and 10% ever received Reach Up.
- Nearly half of Veterans who died had a claim for hypertension (46%). Thirty nine percent had high cholesterol and 27% had heart disease.
- Nearly half of Veterans who died had a claim for a mental health diagnosis (46%). The most common diagnoses were depression and anxiety disorders (37% and 34% respectively). The frequency of remaining mental health diagnosis is too small to report.

[38] https://www.research.va.gov/topics/homelessness.cfm

[39] Unemployment is defined as someone who filed for and was monetarily eligible for unemployment benefits. Many veterans who died were over 65 years of age, which is the average year of retirement (59%). This may explain the lower employment rates.

Appendix

General Demographics & Information				
Demographic	**#**	**2020-2021 Population Estimate**	**Rate per 100,000**	**% of Deaths**
Overall Suicide	246	1,288,065	19.1	-
Age Group				
0-14	3	191,389	1.6	1%
15-24	25	176,514	14.2	10%
25-44	78	307,115	25.4	32%
45-64	85	350,632	24.2	35%
65+	55	262,415	21.0	22%
Sex				
Male	200	640,383	31.2	81%
Female	46	647,682	7.1	19%
Race and Ethnicity				
White non-Hispanic	237	1,188,530	19.9	96%
Black, Indigenous, or Person of Color	9	99,535	9.0	4%
Marital Status				
Single or Never Married	109	348,751	31.3	44%
Married	62	530,174	11.7	25%
Divorced	60	134,825	44.5	24%
Widowed	13	61,033	21.3	5%
Education				
Less Than High School	24	56,672	42.3	10%
High School/ GED	123	252,020	48.8	50%
Some College	27	148,785	18.1	11%
Associates	12	78,057	15.4	5%
Bachelors or Higher	59	361,018	16.3	24%
Geography				
Rural	195	950,911	20.5	79%
Urban	51	337,154	15.1	21%
Veteran	41	69,262	59.2	17%
Non-Veteran	205	960,529	21.3	83%

Source: Vermont Vital Statistics, 2020-2021