July 2020

Suicide and Self-Harm in Virginia

Injury and Violence Prevention Program, Office of Family Health Services,
Virginia Department of Health

Summary points:

- **Suicide is preventable.**
- Suicide and self-harm are increasing public health issues in Virginia.
- From 2010-2018, deaths by suicide increased 25% in Virginia. There was a slight decrease in 2019.*
- Priority populations to monitor for self-harm: persons younger than 45 years, females, and persons living in the Southwest health region.
- Priority populations to monitor for suicide: males, Black, non-Hispanic/Latinx persons, persons aged 15-24 and 55 -64 years, and persons living in the Southwest health region.

Suicide in Virginia

Suicide is defined as death caused by injuring oneself with the intent to die.[1] In 2018, Virginia ranked 35th in the United States for the rate of suicide deaths; however, suicide was the 10th leading cause of death in Virginia in 2018.[2] As shown in Figure 1, deaths by suicide in Virginia increased 25% from 2010 to 2018, with a slight decrease in 2019 to 1,045 suicide deaths.*

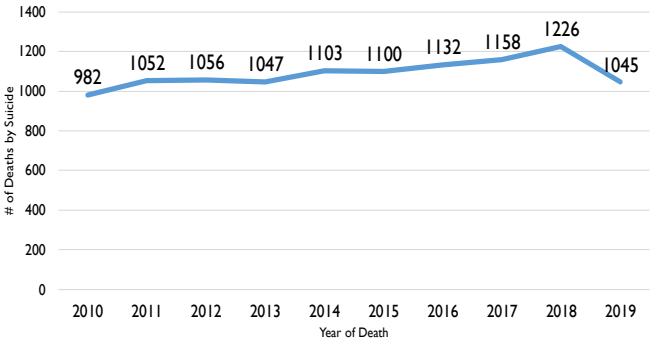

Figure 1: Deaths by suicide in Virginia, 2010-2019

There are several factors that increase risk for suicide, including a history of mental health disorders or alcohol and substance abuse, barriers to accessing mental health treatment, any type of loss, physical illness, or social isolation.[3] To prevent suicide or self-harm, one must address risk factors and increase protective factors, such as family and community support and effective clinical support for mental health conditions.[3] Suicide is preventable.

About one in five Virginians in 2018 who died by suicide served in the Armed Forces. This same trend was seen for the five-year time period of 2014-2018. In 2018, 9% of suicide deaths were among persons working in the construction/extraction industry, followed by manufacturing and production (7%), and computer and mathematical science (7%).

Suicide deaths by locality

Figure 2 shows the rate of deaths by suicide per 100,000 persons by locality in 2018. Dark blue localities have the highest rates of deaths by suicide. Although suicide affects almost all localities in Virginia, the map does show higher rates in the Southwest region of Virginia. The Southwest region stretches from Lynchburg city to the border of Tennessee, such as Wise County. The light yellow localities, like localities in Northern Virginia, have lower rates of deaths by suicide per 100,000 population, but it is also important to note that some of these localities have larger population sizes. Localities with larger population sizes may report larger numbers of deaths by suicide. Rates offer a standardized measure of comparison for localities with varying population sizes.

Figure 2: Deaths by suicide by locality in Virginia, 2018

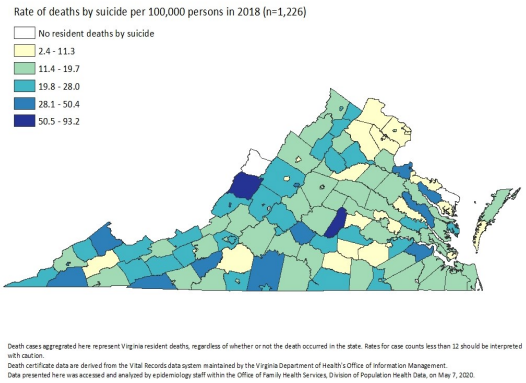

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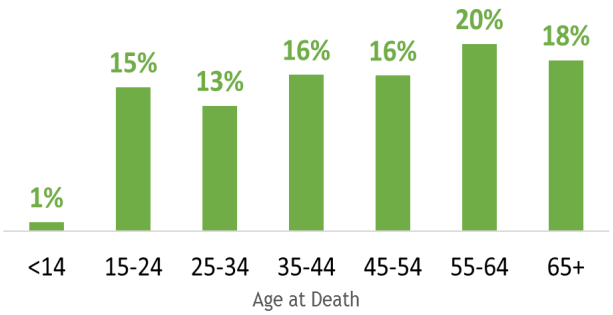
Figure 3: Deaths by suicide by age at death in Virginia, 2018

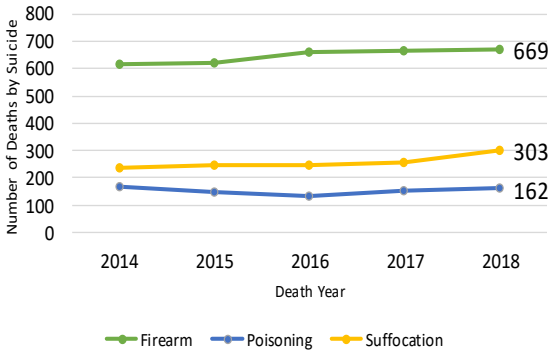


Suicide deaths by sex, age group, and race/ethnicity

In 2018, 77% of deaths by suicide were male. Over the five-year period of 2014-2018, approximately three out of four deaths by suicide were male. Deaths by suicide affected all age groups in Virginia in 2018 (Figure 3). Fifty-four percent of deaths by suicide were among persons aged 45 years or older at time of death. By race/ethnicity in 2018, 85% of deaths by suicide were White, non-Hispanic/Latinx, followed by 10% Black, non-Hispanic/Latinx, and 4% Hispanic/Latinx. On average, from 2014-2018, almost nine out of 10 deaths by suicide were among the White population. From 2014-2018, the number of deaths by suicide increased among specific age groups. In particular, deaths by suicide increased by 37% and 29% among the 15-24 and 35-44 age groups, respectively. In 2018, the highest rate of deaths by suicide were among White persons aged 55-64 years (28.5 per 100,000 population). Overall, in 2018, White persons were over three times more likely to die by suicide than Black persons and two times more likely than Hispanic/Latinx persons.

Suicide deaths by mechanism

Figure 4: Deaths by suicide by mechanism in Virginia, 2014-2018



Mechanism is the cause of the injury. The top three mechanisms for deaths by suicide over the five-year period of 2014-2018 were by firearm, suffocation, and poisoning. In 2018, 55% of deaths by suicide were by firearm, followed by 25% suffocation, and 13% poisoning (Figure 4). Most notably, suicide deaths by suffocation have increased 27% from 2014 to 2018. Thirty-six percent of suicide deaths among females in 2018 were due to firearms, 31% were due to poisoning, and 20% were due to suffocation. Whereas, 60% of suicide deaths among males were due to firearms, 25% were due to suffocation, and 8% were due to poisoning. Thus, females died by suicide due to poisoning at higher rates than males, and males died by suicide due to firearms at higher rates than females.

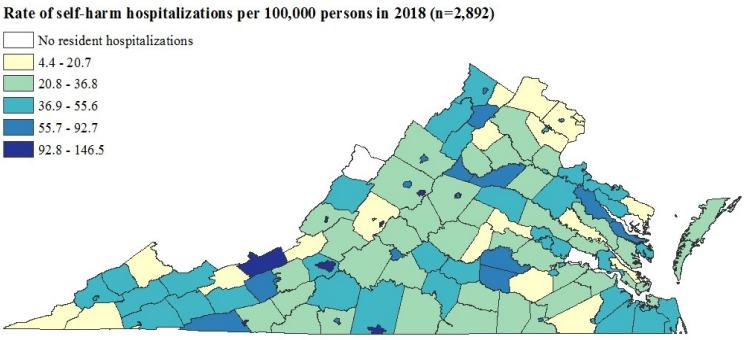
Self-harm hospitalizations in Virginia

Self-harm, or self-injury, is defined as anything that a person does with the intent to hurt or cause an injury to themselves, including death.[4] In 2018, there were 2,892 hospitalizations due to self-harm in Virginia. From 2016-2018, self-harm hospitalizations have remained relatively stable, with only a 4% decline (3,195 in 2016 to 2,892 in 2018). A transition in the type of coding used in medical billing occurred on October 1, 2015. The new coding standard, ICD-10-CM, has many more codes and classifications of injuries than the previous coding standard, ICD-9-CM. As such, intent and mechanism of injury are classified differently in the newer data. Only 2016-2018 data will be presented due to this transition. In 2018, the average length of stay for a self-harm hospitalization was almost four days, and the average cost was almost $32,000. Virginia residents were hospitalized for a self-harm-related injury a total of 11,133 days with over $98 million dollars in hospitalization costs in 2018. Approximately 19% of patients self-paid for their hospitalization, followed by 18% who paid through Medicare and 13% through Medicaid.

Self-harm hospitalizations by locality

Figure 5 shows the rate of hospitalizations due to self-harm per 100,000 persons by locality in 2018. Dark blue localities have the highest rates of self-harm hospitalizations. Although self-harm hospitalizations affect almost all localities in Virginia, the map does show higher rates in the Southwest region. Four out of five localities with the highest rates for self-harm hospitalizations in 2018 were in the Southwest region: the cities of Covington (146.5 per 100,000 population), Galax (140.1), Salem (113.1), and Roanoke (108.1). The light yellow localities, such as localities in Northern Virginia, have lower rates of self-harm hospitalizations per 100,000 persons, but it is also important to note that some of these localities have larger population sizes. Localities with larger population sizes may report larger numbers of self-harm hospitalizations. Rates offer a standardized measure of comparison for localities with varying population sizes.

Figure 5: Self-harm hospitalizations by locality in Virginia, 2018



Self-harm hospitalizations by sex, age group, and race/ethnicity

In 2018, females were hospitalized for self-harm at 1.4 times the rate than males. On average, from 2016-2018, three out of five self-harm hospitalizations were among females. Of the 2,892 self-harm hospitalizations in 2018, 65% were among persons aged 44 years or younger. Similar trends by age group were seen for the three-year period of 2016 -2018. Males and females of the same age groups were mostly hospitalized at similar rates; however, females aged 10-14 years were hospitalized for self-harm at almost five times the rate of males the same age in 2018 (34.8 versus 7.4 per 100,000). By race/ethnicity, 72% of the self-harm hospitalizations in 2018 were among White persons, followed by 17% Black. One percent identified as Hispanic/ Latinx. In 2018, White females were hospitalized for self-harm at 1.5 times the rate of Black females (45.6 versus 30.6 per 100,000); however, White and Black males were hospitalized for self-harm at similar rates (31.9 versus 28.5 per 100,000).

Self-harm hospitalizations by mechanism

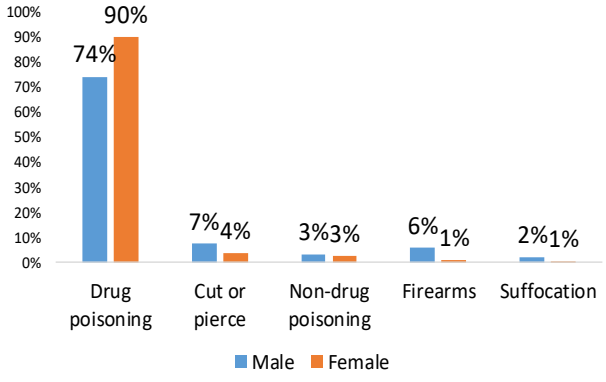


Figure 6: Self-harm hospitalizations by sex and top five reported mechanisms in Virginia, 2018

In 2018, 84% of total self-harm hospitalizations were due to drug poisoning, 5% to cutting or piercing, and 3% each due to non-drug poisoning or firearms, respectively. While suffocation only represented about 1% of self-harm hospitalizations in 2018, over the three-year time period, self-harm hospitalizations due to suffocation increased 41%. Firearm-related self-harm hospitalizations represented only 3% of self-harm hospitalizations in 2018, but self-harm hospitalizations due to firearms increased 12% from 2016-2018. By sex, nine out of 10 self-harm hospitalizations among females in 2018 were due to drug poisoning, and males were hospitalized for self-harm by firearm more than females (6% versus 1%) (Figure 6).

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Self-harm behaviors among Virginia youth

The Virginia Youth Risk Behavior Survey (YRBS) is a survey of students in randomly selected public middle and high schools statewide. YRBS is administered every odd year and gathers information about students' health behaviors to help develop prevention strategies to support healthier behaviors and outcomes of students in Virginia. YRBS asks questions about sadness or hopelessness, suicidal ideation, planning, and attempts. In 2017, the most recent data available, 15.7% of high school students and 21.4% of middle school students reported seriously considering attempting suicide. Figure 7 shows the results of these data for middle and high school students by sex. In middle and high school settings, females were significantly more likely to feel sad or hopeless, consider suicide, develop a suicide plan, and attempt suicide than males in the 2013, 2015, and 2017 versions of the survey. All responses were statistically significant. The only response that did not reach statistical significance was attempted suicide in 2013 for high school students by sex.[5]

Figure 7: Responses from Virginia Youth Risk Behavior Survey about Suicide-related Behaviors, 2013-2017

High School	**Male**	**Female**
Felt sad or hopeless	2013: 17.6% 2015: 17.3% 2017: 20.6%	2013: 33.8% 2015: 37.1% 2017: 38.9%
Seriously considered attempting suicide	2013: 10.4% 2015: 9.6% 2017: 10.2%	2013: 19.2% 2015: 18.6% 2017: 21.1%
Made a plan about how they would attempt suicide	2013: 11.7% 2015: 8.1% 2017: 9.4%	2013: 15.2% 2015: 11.7% 2017: 12.6%
Attempted suicide	2013: 9.3% 2015: 4.6% 2017: 5.4%	2013: 10.2% 2015: 8.7% 2017: 9.0%
Middle School	**Male**	**Female**
Ever seriously thought about killing themselves	2013: 12.6% 2015: 13.0% 2017: 16.1%	2013: 22.7% 2015: 20.2% 2017: 27.2%
Made a plan about how they would kill themselves	2013: 8.0% 2015: 6.7% 2017: 11.0%	2013: 14.3% 2015: 12.2% 2017: 18.2%
Ever tried to kill themselves	2013: 4.2% 2015: 3.7% 2017: 6.0%	2013: 8.6% 2015: 8.0% 2017: 11.2%

Poor mental health among Virginia adults (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone survey of randomly selected adults aged 18 years and older asking about their health behaviors. BRFSS is administered every year to identify prevention strategies to improve health outcomes for adults statewide. Although BRFSS does not ask specific questions about self-harm or suicidal ideation, it does ask questions about mental health status. One of the questions asks whether respondents experience frequent poor mental health days, meaning 14 or more days out of a month, where the persons experiences stress, depression, and problems with emotions. In 2018, adult females were 1.4 times more likely to have frequent poor mental health days than adult males. By race/ethnicity, Black, non-Hispanic/Latinx and White, non-Hispanic/Latinx respondents experienced frequent poor mental health days at similar rates, but Hispanic/Latinx respondents were less likely to have frequent poor mental health days than White, non-Hispanic/Latinx respondents. High school graduates were 2.1 times more likely than college graduates with a 4+ year degree to have frequent poor mental health days. People who were unable to work were six times, people who were out of work for less than or more than a year were almost three times, and people who were students were almost two times more likely to have frequent poor mental health days than people who were employed with wages.[6] Finally, people who reside in more rural areas were more likely to have frequent poor mental health days than people who reside in more urban areas.[7]

Contrasting trends in self-harm hospitalizations and deaths by suicide

When looking at self-harm hospitalizations and deaths by suicide, some contrasting trends emerge. While females were 1.4 times more likely to be hospitalized for self-harm than males in 2018, males were 3.4 times more likely to die by suicide than females. In addition, self-harm hospitalizations were primarily due to drug poisoning (84%), and 3% were due to firearms. However, for deaths by suicide in 2018, 13% were due to poisoning and 55% were due to firearms. Thus, Virginians were more likely to be hospitalized for self-harm due to drug poisoning but were more likely to die by suicide by firearm. Further, persons who are hospitalized due to self-harm are more likely to be slightly younger compared to persons who die by suicide. In 2018, 65% of the self-harm hospitalizations were among persons under 45 years of age; whereas, 46% of suicide deaths were among persons of the same age.

Over half of persons who died by suicide in 2018 died by firearm. However, only **3%** of persons hospitalized for self-harm were injured by a firearm.

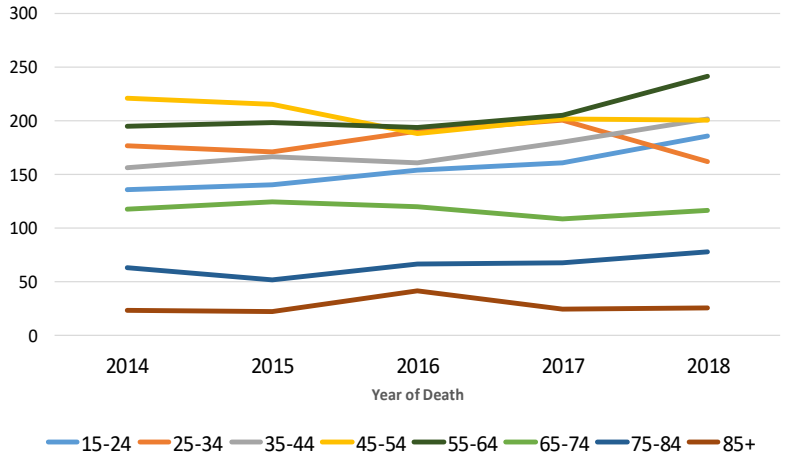
What to watch: populations with increasing trends in self-harm and suicide

Recent data indicate that there are some increasing trends about self-harm and suicide to consider when developing suicide prevention programs.

Although suicide deaths increased from 2014-2018 by every race and ethnicity, deaths particularly increased among Black, non-Hispanic/Latinx persons by 62% (77 deaths in 2014 to 125 in 2018). Hispanic/Latinx communities also experienced an increase in the number of deaths by suicide (22%; 37 deaths in 2014 to 45 in 2018). Further, during the same five-year time period, deaths by suicide among youth and younger adults aged 15-24 years increased 37%. Virginians aged 35-44 (29%), 55-64 (24%), and 75-84 years (22%) also saw increases over the five-year time period (Figure 8). Figure 8 does not include data on persons less than 14 years due to low case counts. From 2016-2018, Virginia also saw a 29% increase in self-harm hospitalizations among persons aged 75-84 years. As data from BRFSS, hospitalization discharge, and death certificate data show, persons living in more rural areas, particularly the Southwest health region, had a greater number of frequent poor mental health days, were hospitalized at higher rates for self-harm (49.0 per 100,000 population) and died by suicide at higher rates (21.8 per 100,000 population) compared to the other four health regions in Virginia.

Finally, self-harm hospitalizations due to suffocation increased 59% for males from 2016-2018 (17 hospitalizations in 2016 to 27 in 2018). Likewise, deaths by suicide due to suffocation/strangulation among males also increased during that same time period by 27% (184 deaths in 2016 to 234 in 2018).

Figure 8: Deaths by suicide by age group in Virginia, 2014-2018



Suicide Prevention in Virginia and Where to Get Help

VDH VIRGINIA DEPARTMENT OF HEALTH

To protect the health and promote the well-being of all people in Virginia.

Injury and Violence Prevention Program, Office of Family Health Services, Virginia Department of Health

109 Governor St.

Richmond, VA 23219

Data requests:

Population.health@vdh.virginia.gov

https://www.vdh.virginia.gov/injury-and-violence-prevention/

VDH is focusing efforts on suicide prevention through training and resources, technical assistance, and policy development. VDH aligns all state and local suicide prevention activities with the Centers for Disease Control and Prevention's (CDC) *Preventing Suicide: A Technical Package of Policy, Programs, and Practices* to promote a comprehensive and evidence-based approach to preventing suicide for all Virginians.[8]

Trainings:

- Applied Suicide Intervention Skills Training (ASIST)
- Suicide Alertness for Everyone (SafeTALK)
- Question, Persuade, Refer (QPR)
- Recognizing and Responding to Suicide Risk

For more information on suicide prevention trainings: https://www.vdh.virginia.gov/suicide-prevention/training/.

Reducing Access to Lethal Means:

Lock and Talk: This project promotes safe and responsible storage of guns, medications, and other forms of lethal means through trainings and the distribution of free cable/trigger locks for firearms and locking medication boxes.

Collaborations:

Suicide Prevention Interagency Advisory Group (SPIAG): Interagency workgroup, with the Virginia Department of Behavioral Health and Developmental Services and other state and local organizations, that works to develop suicide prevention policy and primary prevention efforts through the *Suicide Prevention Across the Lifespan Plan for the Commonwealth of Virginia.*[9]

National Suicide Prevention Lifeline:

Free and confidential 24/7 phone line available for people who are in distress and seeking help or their loved ones, and for healthcare professionals looking for best practices for suicide prevention.

1-800-273-TALK (8255)

Citations and Data Notes

[1]Suicide Prevention|| CDC. Retrieved July 1, 2020, from https://www.cdc.gov/violenceprevention/suicide/index.html
[2]Stats of the States|| CDC. Retrieved July 1, 2020, from https://www.cdc.gov/nchs/pressroom/sosmap/suicide-mortality/suicide.htm
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[5]1991-2017 High School Youth Risk Behavior Survey Data||CDC. Retrieved July 7, 2020, from http://nccd.cdc.gov/youthonline/
[6]BRFSS Web Enabled Analysis Tool|| CDC. Retrieved on July 7, 2020, from https://nccd.cdc.gov/weat/#/analysis
[7]County Health Rankings and Roadmaps: Virginia. Robert Wood Foundation. Retrieved July 10, 2020, from https://www.countyhealthrankings.org/app/virginia/2020/measure/outcomes/42/map
[8]Stone, D.M., Holland, K.M., Bartholow, B., Crosby, A.E., Davis, S., and Wilkins, N. (2017). Preventing Suicide: A Technical Package of Policies, Programs, and Practices. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
[9]Suicide Prevention Across the Lifespan Plan. Retrieved July 27, 2020, from https://www.sprc.org/sites/default/files/Virginia%20Suicide%20Prevention%20Across%20the%20Lifespan%20Plan.pdf

Death data: Death certificate data are from VDH Office of Vital Records Vital Statistics Program. Death cases represent Virginia resident injury deaths, regardless of whether or not the death occurred in the state. Hospitalization data: Hospitalization data are from the Virginia inpatient hospitalization database maintained by VDH. Hospitalization cases represent Virginia resident injury hospitalizations occurring within Virginia. Virginia resident cases hospitalized outside of Virginia would therefore be excluded. This may cause case counts and rates in areas immediately adjacent to border regions to appear lower than they actually are. Overall data notes: Death and hospitalization data analyzed by VDH Injury and Violence Prevention epidemiology staff, July 2020. Population denominator data are derived from midyear Census population estimates provided annually by the National Center for Health Statistics. *2019 data are considered provisional and subject to change.