

Suicide is a growing public health problem and is the 8th leading cause of death in Vermont.¹ In addition to the 109 suicide deaths among Vermont residents in 2019, there were approximately 4,250 emergency department visits for suicide ideation and self-directed violence, which are both risk factors for suicide. This suggests that suicide is a small part of an even bigger problem.² Emergency departments (ED's) are an important setting to monitor trends in suicidal ideation and self-directed violence in near real time.³ In 2019 Vermont was awarded the Emergency Department Surveillance of Suicide-Related Outcomes grant, which aims to improve suicide-related query definitions and timeliness in reporting of suicide-related data. This brief provides an overview of the trends seen from 2017 to 2019.* Statistically significant increases will be noted as "significant" and an asterisk.

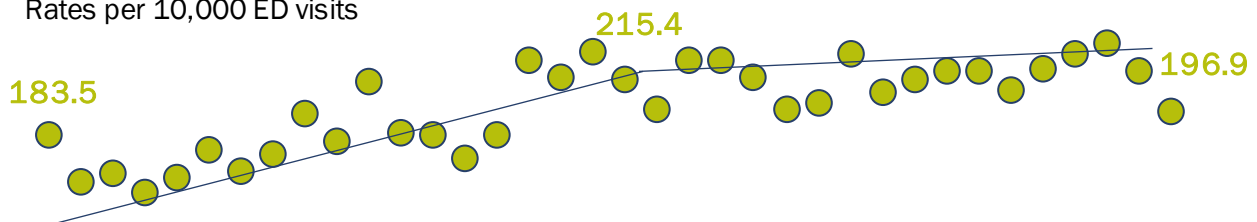
KEY POINTS

- Suicidal ideation and self-directed violence are risk factors for suicide, and is increasing in ED's
- The increasing rate is consistent among males. Rates among females fluctuated over the past three years.
- Visit rates for BIPOC Vermonters are significantly higher than visits for white non-Hispanic Vermonters.

ED visits for suicidal ideation and self-directed violence have increased 7% from 2017 to 2019. The largest significant increase in ED visits occurred from January 2017 to June 2018 (17%), where the rate went from 183.5 to 215.4; an average increase of 1.8% each month. After July 2018, the monthly rate of increase is no longer statistically significant; however, the annual rate in 2019 is significantly higher than the 2017 rate.

ED visits for suicidal ideation and self-directed violence significantly increased 17% from Jan 2017 to June 2018.

Rates per 10,000 ED visits



Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec												
2017												2018												2019											

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics, 2017-2019.

* Trend analysis were performed using Joinpoint regression, p-values <0.05 were considered statistically significant.

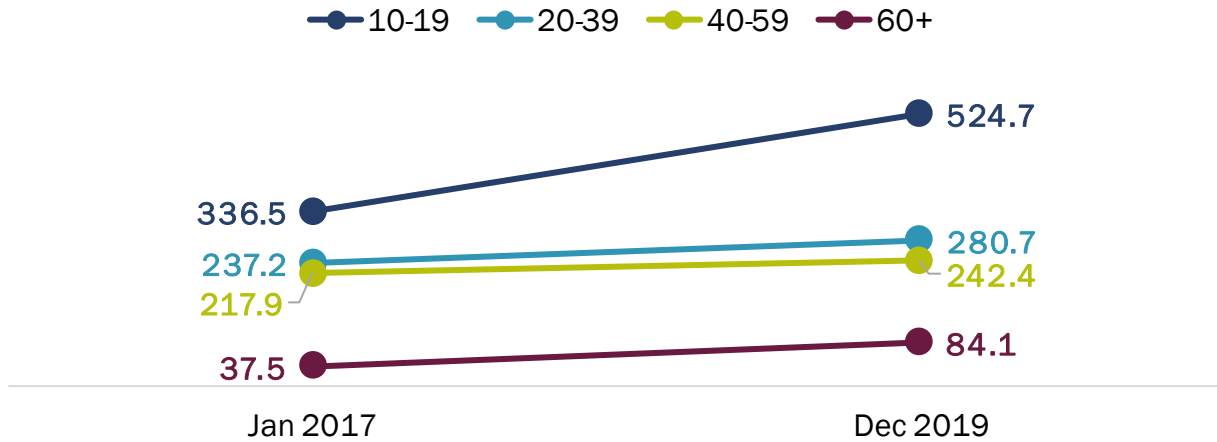
Suicidal Ideation and Self-Directed Violence

Males

During the past three years, ED visits for males with suicidal ideation and self-directed violence significantly increased by 29%. Rates significantly increased for males aged 10-19 years (56%), 20-39 (18%), 40-59 (11%), and 60 years and older (124%).

Male ED visits for suicidal ideation and/or self-directed violence significantly increased for all age groups at different rates.

Rates per 10,000 ED visits



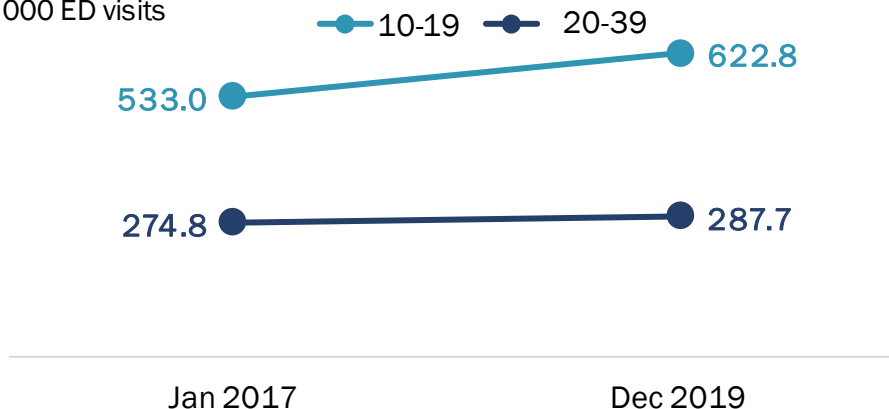
Females

ED visits for females with suicidal ideation and self-directed violence fluctuated over the past three years. From January 2017 to April 2017, there was a decrease in ED visits for suicidal ideation and self-directed violence. From April 2017 to September 2018, there was a significant 45% increase, and from September 2018 through December 2019 a 20% decrease.

From January 2017 to December 2019, rates significantly increased for females aged 10-19 years (17%) and those aged 20-39 (5%). For females 40 to 59, and 60 years and older, the rates fluctuated over time.

Female ED visits for suicidal ideation and self-directed violence increased steadily over time for 10 to 39 year olds.

Rates per 10,000 ED visits



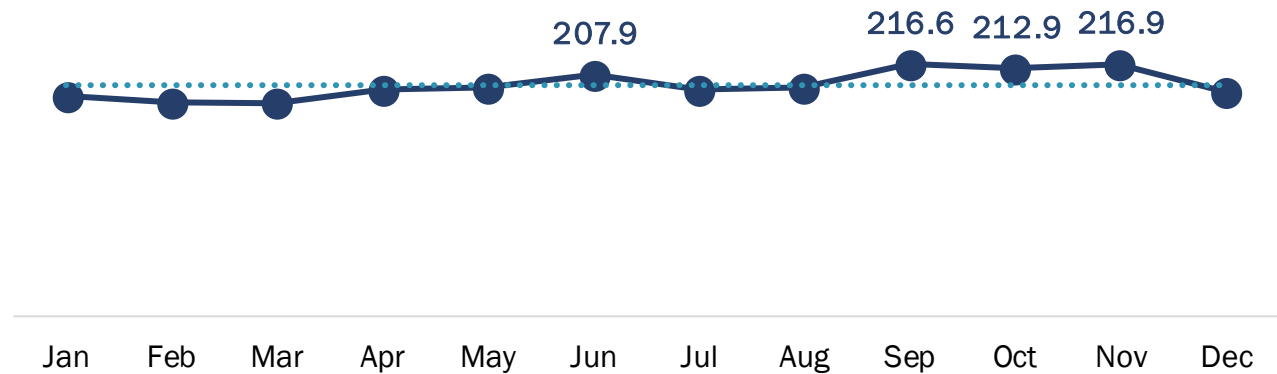
Suicidal Ideation and Self-Directed Violence

There is very little seasonal variation in ED visit rates for suicidal ideation and self-directed violence.

Studies suggest there may be seasonal variations in suicidal and self-directed violence, however this is not widely established in the literature.^{4,5} Over the past three years, the average monthly rate of ED visits for suicidal ideation and intentional self-harm was 199.0 per 10,000. June, September, October and November are higher than the average rate, however this is not statistically significant.

ED rates for suicidal ideation and self-directed violence by month

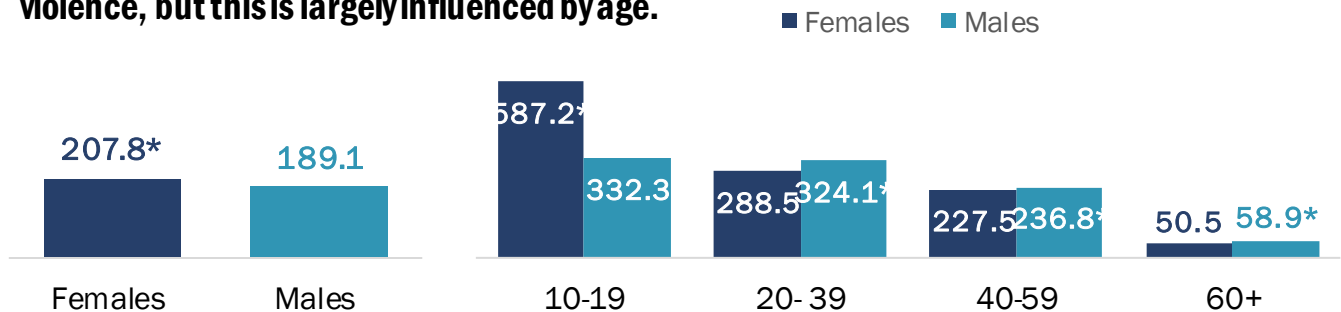
monthly average and annual monthly average rates per 10,000 ED visits



Persons at disproportionate risk.

Visit rates for suicidal ideation and self-directed violence from 2017 to 2019 are significantly higher for females compared to males, 207.8 vs. 189.1 per 10,000 visits, respectively. However, the visit disparity is largely dependent on age. Females are significantly higher than males in the 10-19 age group, and for the remaining age groups, males have significantly higher rates than females. This indicates that there is important statistical variation by age and sex.

Overall, females have significantly higher rates of suicidal ideation and self-directed violence, but this is largely influenced by age.



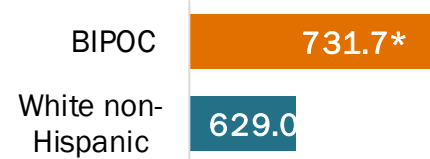
Black, indigenous, and people of color (BIPOC) Vermonters have higher rates of suicidal ideation and self-directed violence compared to white non-Hispanic Vermonters. The BIPOC rate of suicidal ideation and self-directed violence is 731.7 versus 629.0 per 10,000 white non-Hispanic ED visits. According to Vermont's youth risk behavioral survey (YRBS), BIPOC students (middle and high school aged) are significantly more likely to report self-harm, suicidal thoughts, and attempts compared to white non-Hispanic students.⁶ Similar to the YRBS disparity, the rate of ED visits for

Suicidal Ideation and Self-Directed Violence

suicidal ideation and self-directed violence is also significantly higher for this age group (i.e. 10 to 18 year olds), BIPOC rate 877.4, white non-Hispanic rate 800.9 per 10,000 visits. This disparity also holds true when looking at visits for all ages. This indicates that BIPOC Vermonters are disproportionately more likely to visit the ED for suicidal ideation and self-directed violence compared to white non-Hispanic Vermonters.

Suicidal ideation and self-directed violence visit rates are significantly higher for BIPOC Vermonters.

Rates per 10,000 ED visits



Key Takeaways

ED's have an important role in monitoring suicide-related events, including suicidal ideation and self-directed violence. The variation in trends by age and sex over time highlights the potential benefit for targeted prevention and response efforts. This variation also demonstrates the potential utility of timely data for public health response for suicide prevention strategies.

Limitations:

There are limitations with syndromic surveillance data. First, the number of ED's participating, data completeness, and data quality varies over time. To help control for this limitation, suicidal ideation and self-directed violence are expressed as a rate of ED visits. Second, these findings are not representative of ED's not participating, or Vermonters who seek care out of state.† Third, syndromic surveillance data is a near-real time, ever changing data system, as such this data should not be considered final. Fourth, there is a chance for under-or-over estimation of suicidal ideation and self-directed violence due to the limitations mentioned above. Data completeness is assessed by the percentage of ED visits with complete (i.e. not missing) chief complaint and discharge diagnoses fields, both of which were 97% and 89% during 2017 to 2019.

References:

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6. Canner, J. K., Giuliano, K., Selvarajah, S., Hammond, E. R., & Schneider, E. B. (2016). Emergency department visits for attempted suicide and self harm in the USA: 2006–2013. *Epidemiology and Psychiatric Sciences*, 27(1), 94–102. doi: 10.1017/s2045796016000871
6. Vermont Youth Risk Behavior Survey, 2019.

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To see visit trends by month and more data, please see the data tables posted on our website.

† The data used in these analyses all 14 hospitals in Vermont, however the number of hospitals participating varies over the 3 year period used in these analyses.