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Death by Suicide Ottawa County, MI

2010-2021

Ottawa County suicide data for deaths reported in 2021 is considered preliminary while Vital Records data are finalized. However, substantial changes to 2021 data in this report are not expected. At the time of publication, 2021 suicide data for Michigan and the United States was unavailable.

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Introduction

The following report is a compilation of data and statistics about Ottawa County residents who died by suicide. Suicide is a serious public health issue affecting our community. The actual events are tragic, and the impact of each suicide on surviving family members and friends is deep and long-lasting. Suicides are not contained events; one study estimates that every suicide impacts 135 other people¹.

The aim of this report is to provide an accurate representation of suicide in Ottawa County. Most data comes from Vital Records, a data collection system used across the United States recognized as the universal standard for counting and describing death. Other data sources, such as the Ottawa County Youth Assessment Survey (YAS) and the Ottawa County Behavioral Risk Factor Survey (BRFS), are trusted local surveys that help us understand the mental health of teens and adults in the community. Each of these data sources provide a reliable snapshot of both suicide and mental health precursors like depression and suicidal ideation.

As you read through this report, please remember that each suicide is a unique person. Every person counted here had a different set of circumstances and life experiences. While considerable effort is made to learn about each suicide, many circumstances remain unknown. Because suicide is often not the result of a single incident, it is difficult to completely answer why each suicide occurred. Despite these challenges, the data can offer broader insights into which groups of people are more affected or at-risk and highlight some of the more common circumstances.

Compared to some other outcomes, suicide in Ottawa County is an uncommon event. However, one of the primary reasons public health and many community partners are dedicated to tracking and preventing suicide is that many people in the community are at elevated risk. According to the 2021 YAS, almost 20% of teens have seriously thought about taking their own life in the last year – an increasing trend since 2011². Although not as high as the proportion of teens, in 2020 about 5% of adults in Ottawa County report seriously thinking about taking their own life³. These are substantial numbers of at-risk people.

Lastly, we'd like to acknowledge the tireless work of our community – our schools, healthcare workers, mental health service providers, law enforcement, local non-profit organizations and the many community members and groups who respond to suicide and implement prevention programs. Ottawa County's suicide rate remains lower than the State of Michigan and the United States overall, which may be due, in part, to the efforts of passionate and committed community members who make suicide prevention and mental health a top priority.

Overview: Suicide in Ottawa County

- In 2021, 33 Ottawa County residents died by suicide.
- Across the last 30 years, suicides in Ottawa County have been increasing, even after accounting for population increases; however, over the last eight years the rate of suicide has stabilized. There is little evidence of a recent increase or decrease in the rate of suicide in Ottawa County.
- Since 2000, Ottawa County suicide rates are consistently lower than Michigan and the United States.
- Groups of people in Ottawa County with higher suicide rates are:
 - Veterans
 - Males
 - People 50 years and older
 - Those who identify as Non-Hispanic White
 - Residents of the northwest and southwest quadrants of the County
- Eight Ottawa County veterans died by suicide in 2021, more than any other year from 2010-2020.
- There have been higher rates of suicide on the west side of the County, with an increasing trend in death by suicide in the southwest quadrant encompassing the cities of Holland and Zeeland, plus Holland, Olive, Park and Port Sheldon Townships.
- The most common method of suicide is the use of a firearm, especially among males.
- Over the last decade, about 2-3 teen suicides occurred each year. In 2021 there was one teen suicide; in 2020 three teen suicides occurred, about the 10-year average. No teens aged 13-16 years died by suicide in 2021, the first year without a suicide in this age group since 2013.
- Ottawa County teens in 2019 (before the pandemic) reported about the same rates of depression and suicidal behavior as in 2021 (during the pandemic).

Overview: Suicide in the United States and Michigan

Background

Suicide continues to be a leading cause of death in the United States and in Michigan, with a substantial social and financial toll on the community. The considerable impact of suicide has led the Centers for Disease Control and Prevention (CDC)⁴ and the World Health Organization (WHO)⁵ to recognize suicide as a public health priority. As a public health priority, Healthy People 2030 has set a goal to reduce suicide by 10% across the next decade⁶.

Statistics

The suicide rate in the United States declined 2% in 2019 after increasing 35% from 2000-2018⁷. Despite the adverse mental health and financial stressors associated with the COVID-19 pandemic, suicide rates in the United States declined again in 2020, by nearly 3%⁸. Although declines were identified in 2019 and 2020, death by suicide in 2020 in the United States remained a top 10 leading cause of death for every age group except those younger than 4 years of age and persons 65 years and older. For people 10-34 years of age, suicide was in the top three leading causes of death⁹.

Similar to the United States, suicide rates in Michigan declined in 2020¹⁰ after years of increasing trends (up 28% from 2009-2019)¹¹. Also like the nation, suicide is a leading cause of death among young adults in Michigan⁹.

At-Risk Populations

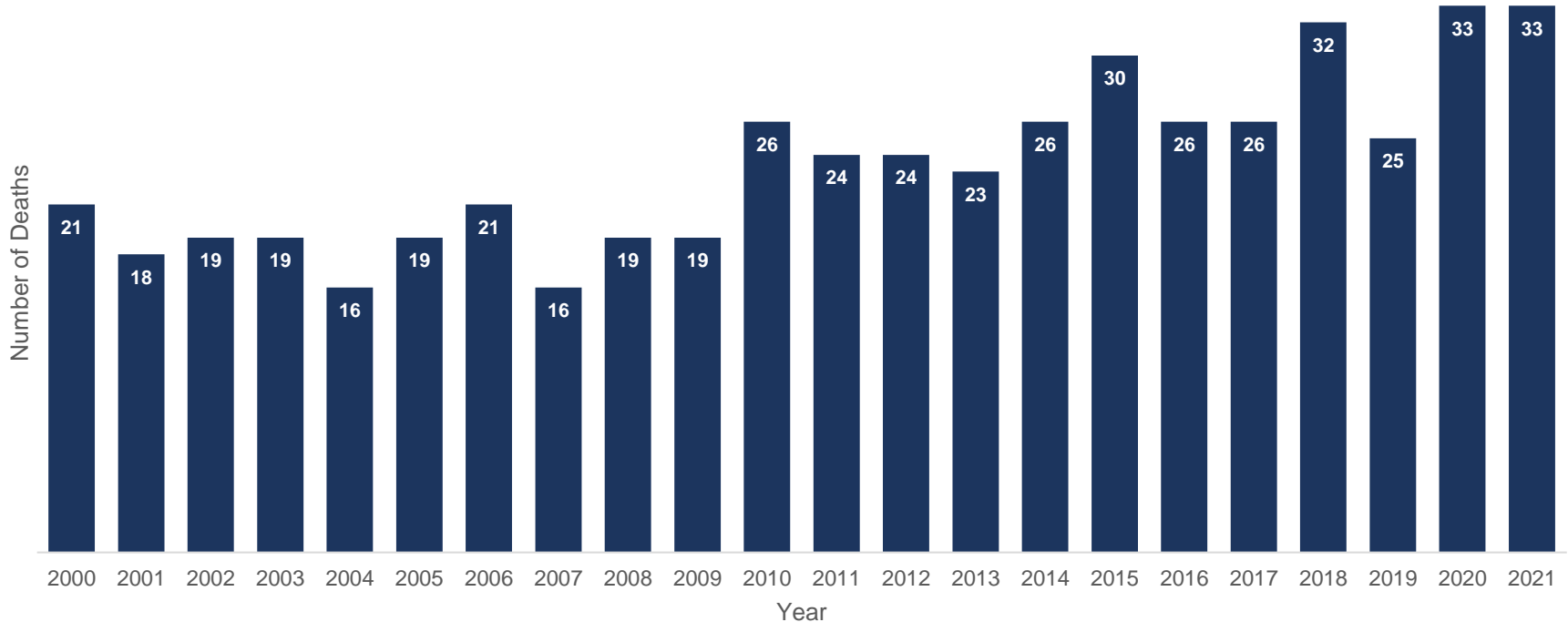
According to the CDC, veterans, people who live in rural areas, sexual and gender minorities, middle-aged adults, tribal populations, and people who have had Adverse Childhood Experiences (ACEs) may be at higher risk for factors associated with suicide¹².

Similar risk factors are noted in Michigan, with males, people living in rural areas, working adults aged 30-59, and veterans bearing more of the burden of death by suicide¹⁰.

Prevention

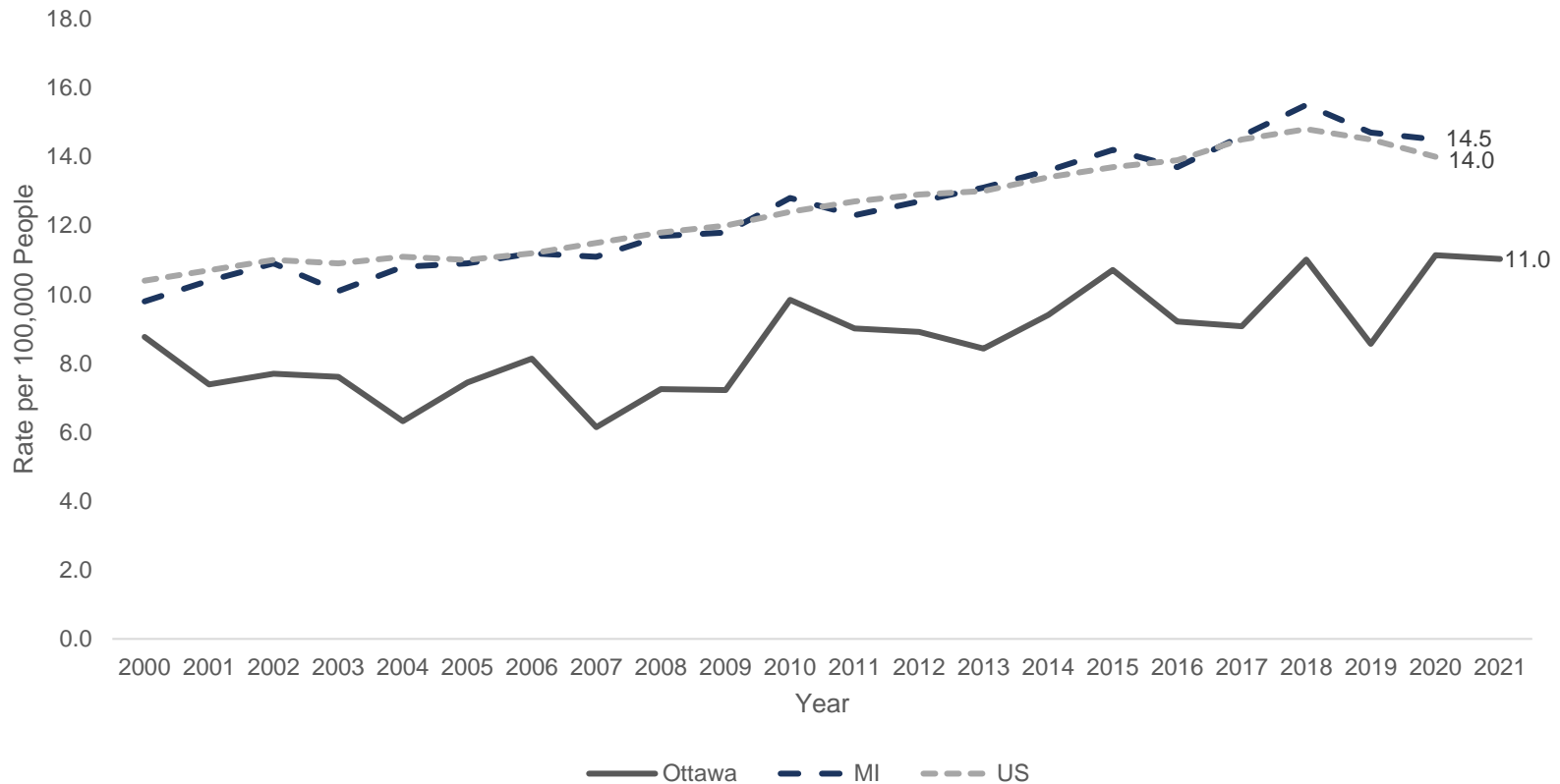
The CDC and the State of Michigan have both provided strategic frameworks or recommendations for addressing suicide. Recommended prevention efforts from both organizations include comprehensive approaches, broad partnerships and collaboration, and prioritization of data and research^{10,13}.

Number of Deaths by Suicide, Ottawa County, 2000-2021



In 2021, 33 Ottawa County residents died by suicide, the same as in 2020. Over the last two decades the number of suicides has increased; however, the population of Ottawa County has also seen rapid growth. To account for changes in population growth, a suicide rate is calculated. The rate of suicide over time is illustrated on the next slide and includes a comparison to the United States and the State of Michigan.

Death by Suicide Rates from 2000-2021



Note: Prior to 2010, most years had fewer than 20 deaths by suicide reported among Ottawa County residents, which may reduce the stability of rates calculated for those years.

While the rate of death by suicide remains lower in Ottawa County than in the State of Michigan and the United States, data indicate that as of 2021, there is a statistically significant increase in the annual number of suicides in Ottawa County over the past 32 years. Although a long-term increasing trend exists, over the last eight years, no upward or downward trend is detected, suggesting that the overall suicide rate has been stabilizing in Ottawa County.

Between 2010-2020 Ottawa County's population grew 11.7%, making it the fastest growing county in Michigan¹⁴. The number of suicides occurring among Ottawa County residents over this time also increased. To account for population changes, it is best to utilize the rate of suicide, rather than the number of suicides, for making comparisons across time and different groups.

Characteristics of People
Who Died by Suicide (All Ages)
Ottawa County, MI

2010-2021

Characteristics of People who Died by Suicide, 2021

Age Group	Count	%	Method	Count	%	Month	Count	%
<20	1	3%	Firearm	18	55%	January	3	9%
20-29	4	12%	Hanging	5	15%	February	3	9%
30-39	6	18%	OD/Poison	5	15%	March	2	6%
40-49	8	24%	Asphyxia	0	0%	April	5	15%
50-59	7	21%	Drowning	1	3%	May	2	6%
60-69	3	9%	Other	4	12%	June	4	12%
70-79	2	6%	TOTAL	33	100%	July	0	0%
80+	2	6%			August	6	18%	
TOTAL	33	100%			September	2	6%	
			Marital Status	Count	%	October	2	6%
			Divorced	7	21%	November	2	6%
Race/Ethnicity	Count	%	Married	12	36%	December	2	6%
White	26	79%	Never Married	12	36%	TOTAL	33	100%
Hispanic	2	6%	Separated	0	0%			
Asian	1	3%	Widowed	2	6%	Quadrant*	Count	%
Black	3	9%	Unknown	0	0%	NW	4	12%
Other	1	3%	TOTAL	33	100%	NE	5	15%
TOTAL	33	100%			SW	17	52%	
			Veteran	Count	%	SE	7	21%
			Yes	8	24%	TOTAL	33	100%
			No	25	76%			
			Unknown	0	0%	*Of residence		
			TOTAL	33	100%			
Gender	Count	%						
Male	30	91%						
Female	3	9%						
TOTAL	33	100%						

In 2021 most deaths by suicide were among white men, people younger than 60 years of age, and residents that lived in the southwest quadrant of Ottawa County. Veterans also bore more of the suicide burden with eight deaths in 2021, more than any year 2010-2021.

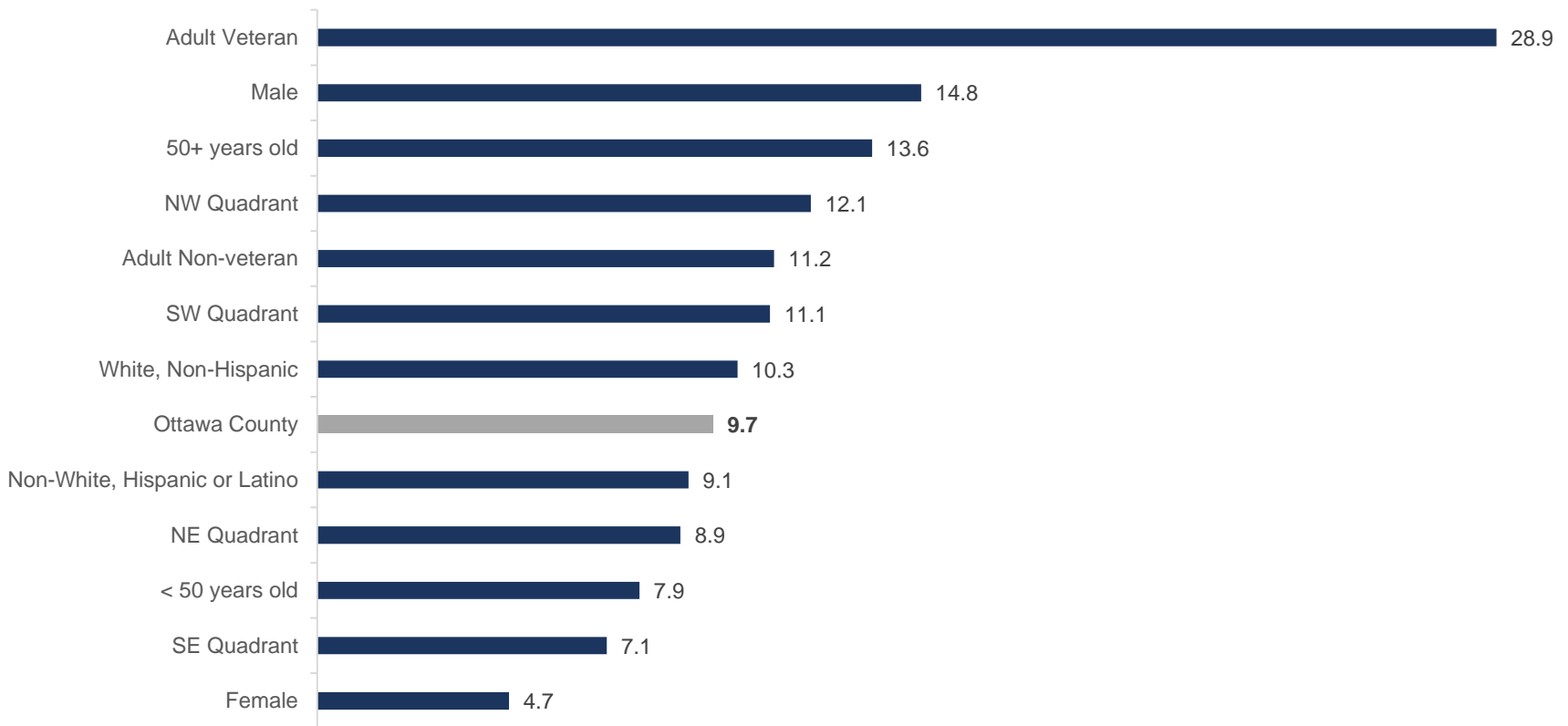
Characteristics of People who Died by Suicide, 2010-2021

Age Group	Count	%	Method	Count	%	Month	Count	%
<20	32	10%	Firearm	141	43%	January	24	7%
20-29	50	15%	Hanging	90	27%	February	22	7%
30-39	34	10%	OD/Poison	55	17%	March	24	7%
40-49	64	20%	Asphyxia	3	1%	April	34	10%
50-59	78	24%	Drowning	6	2%	May	39	12%
60-69	39	12%	Other	33	10%	June	21	6%
70-79	21	6%	TOTAL	328	100%	July	24	7%
80+	10	3%			August	25	8%	
TOTAL	328	100%			September	29	9%	
			Marital Status	Count	%	October	35	11%
			Divorced	56	17%	November	25	8%
			Married	134	41%	December	26	8%
			Never Married	96	29%	TOTAL	328	100%
			Separated	1	0%			
			Widowed	41	13%	Quadrant*	Count	%
			Unknown	0	0%	NW	80	25%
			TOTAL	328	100%	NE	47	14%
					SW	129	40%	
			Veteran	Count	%	SE	69	21%
			Yes	48	15%	TOTAL	325	100%
			No	280	85%			
			Unknown	0	0%	*Of residence		
			TOTAL	328	100%			
Sex	Count	%						
Male	247	75%						
Female	81	25%						
TOTAL	328	100%						

Note: Three decedents were not assigned to a quadrant due to missing address information.

Since 2010, 328 people have died by suicide in Ottawa County. Most deaths by suicide were among white men, people younger than 60 years of age, and residents that lived in the southwest quadrant of Ottawa County. Veterans made up 15% of deaths, contributing 48 suicide fatalities over the last twelve years. Lastly, firearms were used in 141 suicides, or 43% of all suicide fatalities reported from 2010-2021.

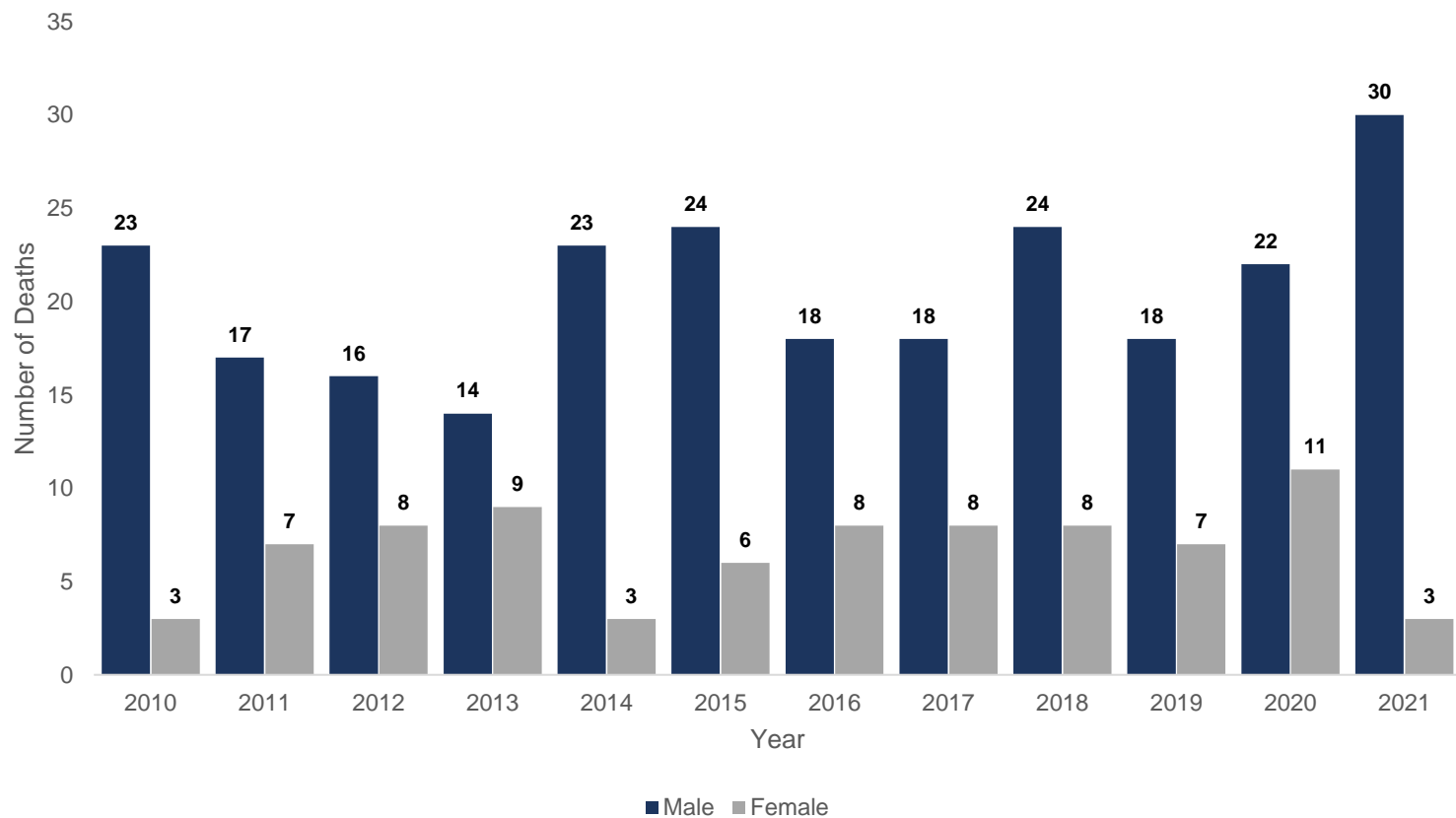
Groups With a Higher Burden of Death by Suicide, 2010-2021



Rates of deaths by suicide that occurred in the last 12 years are illustrated above and offer insights into which groups bear more of the suicide burden compared to other groups and Ottawa County overall. Veterans have the highest rate of suicide compared to any other group. Other groups with higher rates of suicide compared to the County overall include males, those aged 50+, persons living in the NW and SW quadrants and White, Non-Hispanic persons.

Suicide prevention programs tailored to veterans, males, people aged 50+ and possibly to people living on the west side of the County, may have a larger impact on reducing suicide rates in Ottawa County.

Sex of Persons who Died by Suicide, 2010-2021



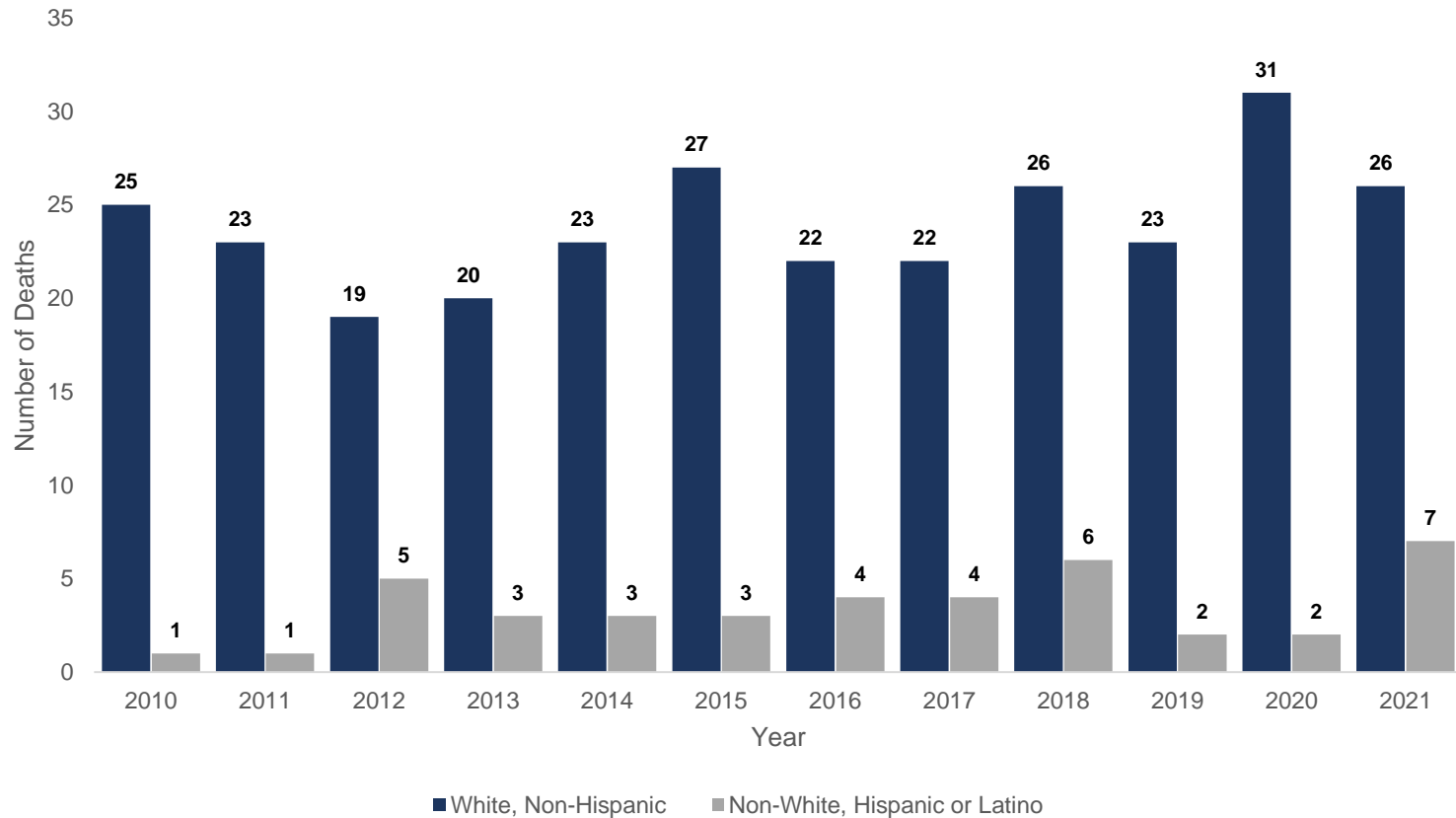
The majority of deaths by suicide (75%) among Ottawa County residents from 2010-2021 were among males, similar to state and national statistics^{7,10}. The variation among sexes is likely due to males selecting more lethal means than females. Although more males *die* by suicide, in the United States both male and female adults report *suicidal ideation* at comparable rates⁷. In Ottawa County, teen girls report suicidal ideation at almost twice the rate of teen boys².

Age of Persons who Died by Suicide, 2010-2021

Year	<20	20-29	30-39	40-49	50-59	60-69	70-79	80+	Total
2010	1	5	1	6	8	3	1	1	26
2011	2	2	2	4	7	3	3	1	24
2012	1	7	2	5	6	2	0	1	24
2013	2	3	3	7	5	2	1	0	23
2014	3	6	3	4	8	1	0	1	26
2015	5	3	4	3	7	4	2	2	30
2016	4	4	3	3	6	4	2	0	26
2017	2	4	1	6	5	6	2	0	26
2018	6	6	4	8	4	2	1	1	32
2019	2	0	3	6	8	2	4	0	25
2020	3	6	2	4	7	7	3	1	33
2021	1	4	6	8	7	3	2	2	33
Total	32	50	34	64	78	39	21	10	328

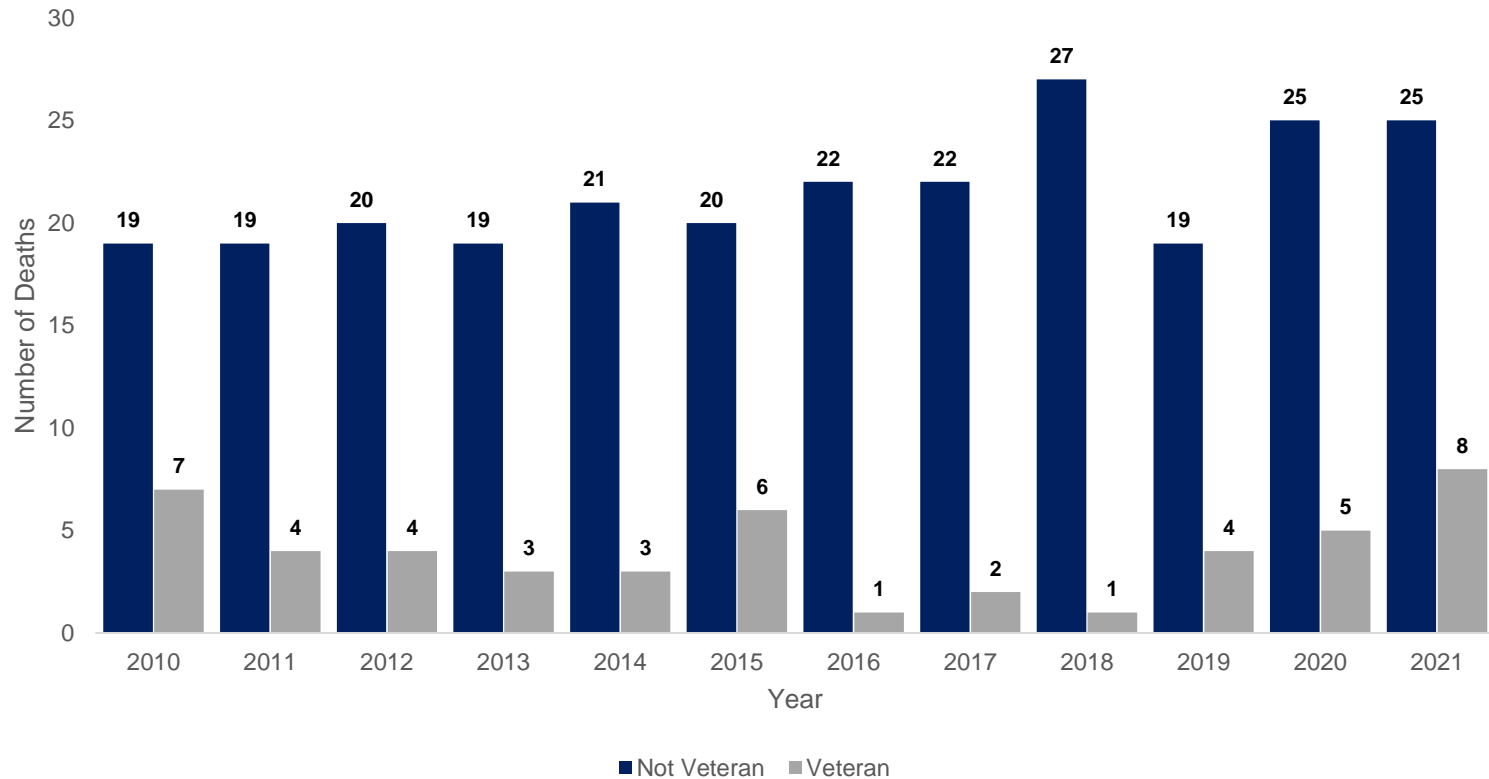
Over the last decade, most suicides occurred among people aged 20+. At least one teen suicide has been reported every year over the last 12 years. However, 2021 was the first year a teen aged 13-16 did not die by suicide since 2014. Three teens died by suicide in 2020, and one died by suicide in 2021. In the last 12 years, no suicides among children younger than 13 years of age occurred in an Ottawa County resident.

Race/Ethnicity of Persons who Died by Suicide, 2010-2021



Over the last 12 years most deaths by suicide occurred among White, Non-Hispanic people. The rate of suicide in this group is slightly higher than the County overall and higher than Non-White, Hispanic or Latino people. However, 2021 recorded the highest number of deaths by suicide (7) in a single year among racial or ethnic minority groups from 2010-2021.

Veteran Status of Persons who Died by Suicide, 2010-2021



Note: Only decedents 18 years old and older were included in the figure above.

In 2021, 8 veterans died by suicide in Ottawa County, the highest number recorded in a single year over the last twelve years. About 12,559 veterans were living in Ottawa County in 2021, roughly 6% of the population; yet veterans accounted for 24% of all suicides in 2021. The suicide rate among veterans in Ottawa County is 2.6 times higher than the rate among adult non-veterans.

Veterans are also substantially affected by suicide at the national level. In the United States in 2019, about 17 veterans died each day by suicide¹⁵.

Characteristics of Veterans Who Died by Suicide, 2010-2021

Age Group	Count	%	Month	Count	%
<20	0	0%	January	2	4%
20-29	3	6%	February	5	10%
30-39	3	6%	March	2	4%
40-49	5	10%	April	5	10%
50-59	9	19%	May	8	17%
60-69	11	23%	June	2	4%
70-79	10	21%	July	4	8%
80+	7	15%	August	5	10%
TOTAL	48	100%	September	4	8%
			October	4	8%
			November	3	6%
			December	4	8%
			TOTAL	48	100%
Sex	Count	%	Quadrant*	Count	%
Male	47	98%	NW	13	28%
Female	1	2%	NE	6	13%
TOTAL	48	100%	SW	20	43%
			SE	8	17%
			TOTAL	47	100%
			*Of residence		
Race/Ethnicity	Count	%			
White, Non-Hispanic	45	94%			
Non-White, Hispanic or Latino	3	6%			
TOTAL	48	100%			
Method	Count	%			
Firearm	30	63%			
All Other Means	18	38%			
TOTAL	48	100%			

*One veteran decedent was not assigned to a quadrant due to missing address.

Note: Only decedents 18 years old and older were included in the tables above.

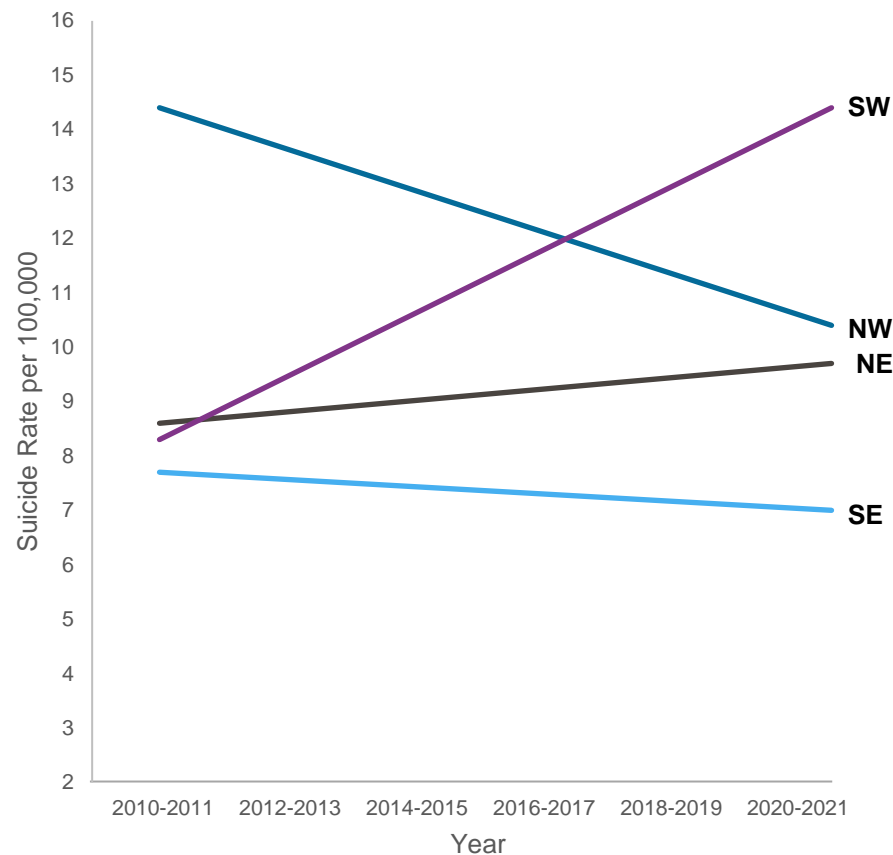
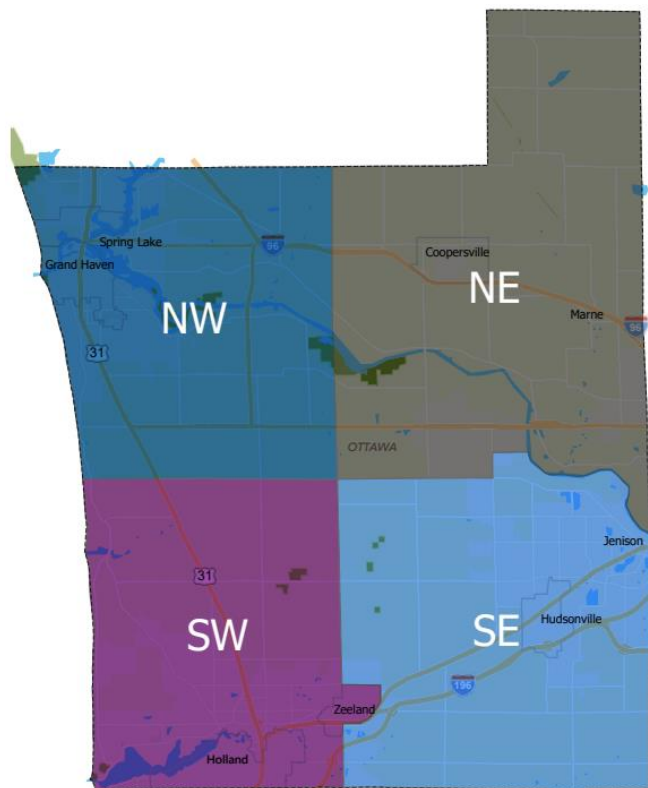
Most veterans who died by suicide were aged 50+, lived in the northwest or southwest quadrants, were male, used a firearm as the means of death and were White, Non-Hispanic. The Ottawa County data shown here also suggest that more veterans died by suicide in May compared to any other month over the last 12 years. Further review of Ottawa County veterans' dates of death in May and June found no evidence of clustering around Memorial Day.

Research has found that spring months may be associated with higher rates of suicide¹⁶. The same finding is true in Ottawa County among the general population and among veterans, highlighting spring as a potential time period for more aggressive prevention.

Death by Suicide
by County Quadrants
Ottawa County, MI

2010-2021

Death by Suicide Rates by County Quadrant, 2010-2021

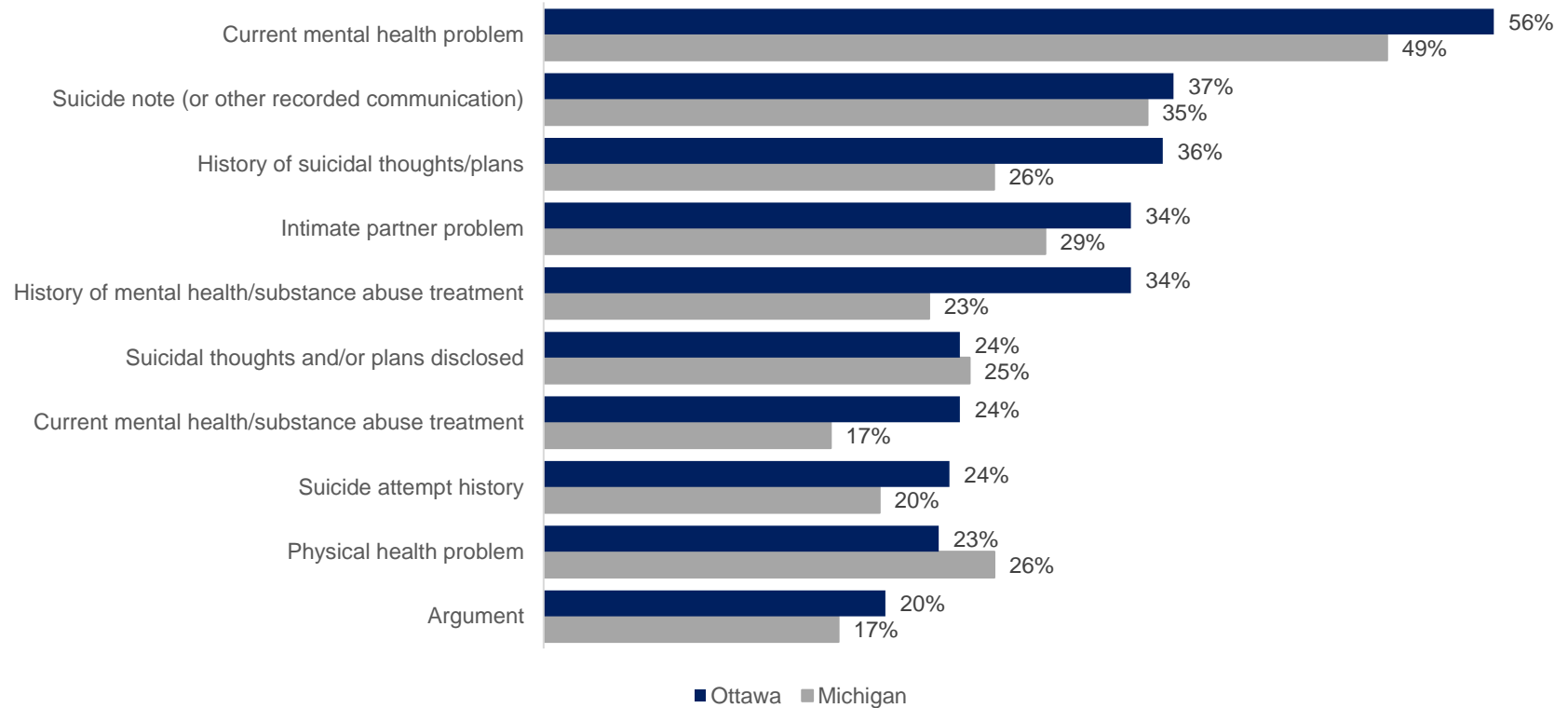


Nearly 40% of suicide deaths from 2010 to 2021 occurred in the SW quadrant of Ottawa County. The suicide rate in the SW quadrant was higher than the rate for Ottawa County with 11.1 deaths per 100,000 people compared to 9.1 deaths per 100,000 in the County overall. Over the last 12 years the suicide rate in the SW quadrant has significantly increased. Although statistically significant trends were not detected in the other three quadrants, suicide deaths may have decreased in the NW and SE quadrants and slightly increased in the NE quadrant.

Circumstances and Means of Death by Suicide Ottawa County, MI

2010-2021

Circumstances* of Death by Suicide, 2014-2019**

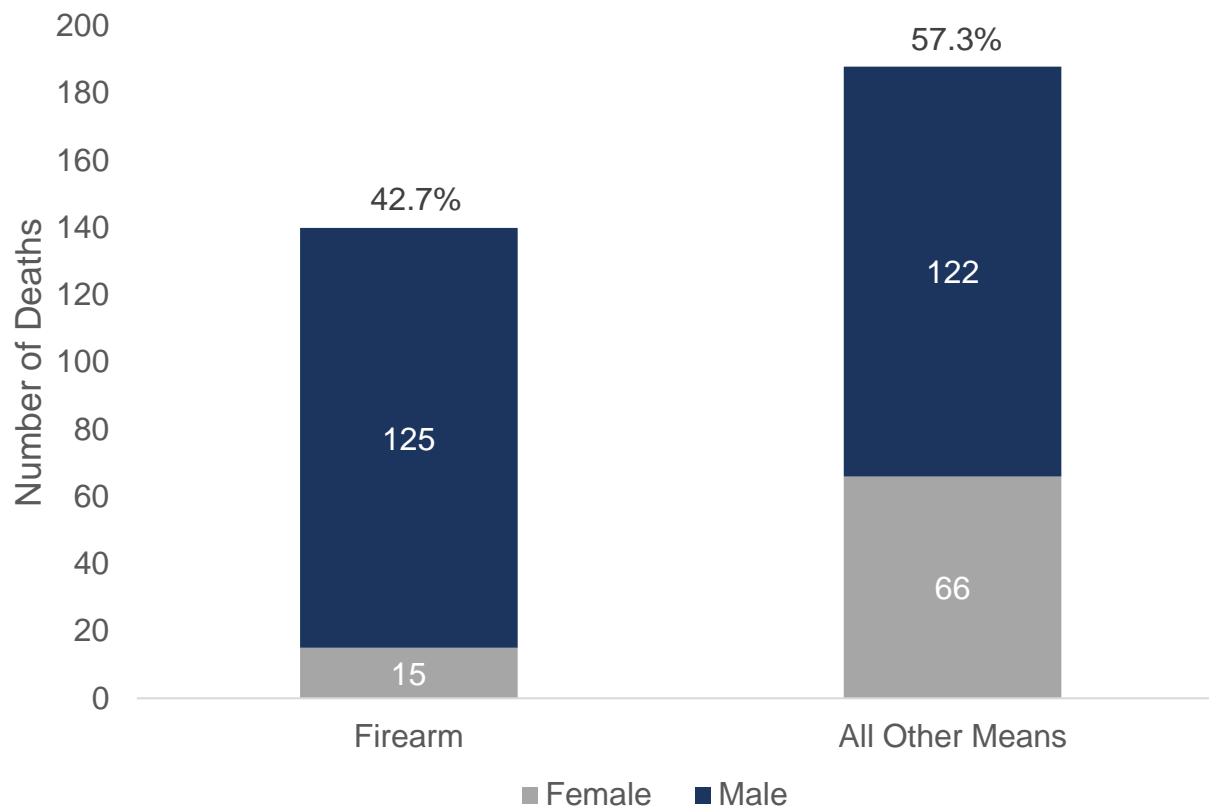


*This data only reflects circumstances that were identified by the law enforcement/medical examiner and may not reflect every circumstance in a suicide decedent's life.

**Data is sourced from the National Violent Death Reporting Systems (NVDRS) which is currently available for Ottawa only from 2014-2019.

Among the 165 deaths by suicide recorded in Ottawa County during 2014-2019, the top five most commonly identified circumstances were current mental health problems, suicide note, history of suicidal thoughts/plans, intimate partner problems and history of mental health/substance abuse treatment. Generally, circumstances identified among Ottawa County residents who died by suicide mirrored data from suicides across the state of Michigan for that same period of time¹⁷.

Means of Death by Suicide, 2010-2021



Firearms accounted for 42.7% of Ottawa County deaths by suicide from 2010 to 2021. Males use firearms as a means more frequently than females (50.6% vs 17.2%). Although a larger proportion of decedents used some other means such as hanging or poison, firearms contribute the largest proportion of any single means of death by suicide. The rate of death by suicide using a firearm for 2021 in Ottawa County was 6.0 per 100,000 residents, lower than the United States rate of 7.0 per 100,000 in 2020¹⁸.

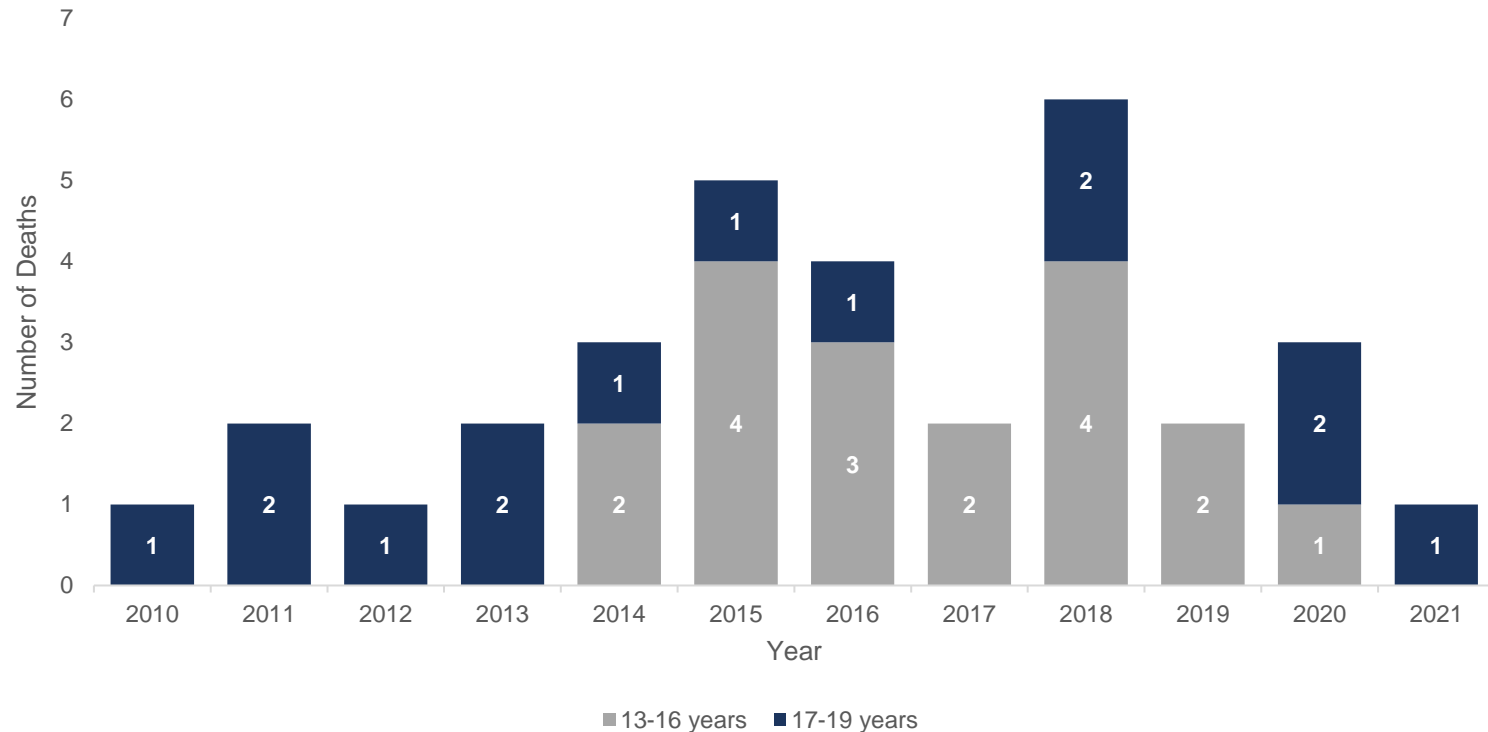
Since the early 2000s, the use of firearms as a means of suicide in Ottawa County has steadily increased but not at a statistically significant rate. The same is true for all other means of death by suicide. These trend observations suggest that the use of firearms remains a commonly used means, but utilization may not be increasing substantially over time.

Teen Death by Suicide Ottawa County, MI

2010-2021

Teen is defined as a person 13-19 years of age.

Suicide Fatalities Among Ottawa County Teens, 2010-2021



From 2010 to 2021, 32 suicide fatalities occurred among Ottawa County teens. Generally, the number of teen suicides increased each year from 2010 to 2017, peaking in 2018 with 6 deaths. Since 2018, a potential downtrend in the number of teen suicides may be occurring. Suicides in Ottawa County among teens 13-16 years of age occurred every year from 2014-2020. For the first time since 2013, there were no deaths by suicide in this age group in 2021.

Ottawa County rates of teen suicide were not calculated due to small numbers. The rate of teen suicide in Michigan in 2020 was 8.3 per 100,000 persons, lower than the United States teen rate of 9.0 per 100,000 persons¹⁹.

Characteristics of Teens who Died by Suicide, 2010-2021

Age Group	Count	%	Month	Count	%
13-16	18	56%	January	1	3%
17-19	14	44%	February	2	6%
TOTAL	32	100%	March	4	13%
			April	5	16%
Race/Ethnicity	Count	%	May	3	9%
White	23	72%	June	1	3%
Hispanic	5	16%	July	2	6%
Asian	2	6%	August	0	0%
Black	1	3%	September	2	6%
Other	1	3%	October	3	9%
TOTAL	32	100%	November	5	16%
			December	4	13%
Sex	Count	%	TOTAL	32	100%
Male	19	59%	Quadrant*	Count	%
Female	13	41%	NW	6	19%
TOTAL	32	100%	NE	8	25%
			SW	15	47%
Method	Count	%	SE	3	9%
Firearm	7	22%	TOTAL	32	100%
Hanging	17	53%			
OD/Poison	6	19%	*Of residence		
Asphyxia	0	0%			
Drowning	2	6%			
Other	0	0%			
TOTAL	32	100%			

From 2010-2021, most teen deaths by suicide were among white teens and those living in the southwest quadrant of Ottawa County.

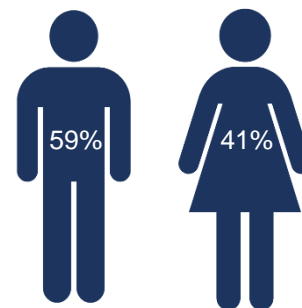
A larger proportion of teen suicides occurred in the Spring in March and April, and in the Winter in November and December. Teen suicides are less common in the summer, and over the last 12 years, no teen suicides occurred in August. In 2020, two teen suicides occurred in April, and one occurred in November. In 2021, one teen suicide occurred in November.

Summary of Teens who Died by Suicide, 2010-2021

Proportion of Ottawa County Suicides Occurring in Teens, 2010-2021



Teen Suicides by Sex, 2010-2021



Means of Death Among Teen Suicide Decedents, Ottawa County 2010-2021

	Females %	Males %	Total %
Means of Death			
Hanging	61.5	47.4	53.1
Firearm	7.7	31.6	21.9
OD/Poison	30.8	10.5	12.5
Unknown	15.4	0.0	6.3
Other	0.0	10.5	6.3

The percentage of Ottawa County suicides in teens has decreased since 2018, with teens making up 3% of all suicides in 2021. Since 2010, male teens account for 59% of teen suicides. The most common means of death for both male and female teens is hanging, but males tend to use a firearm more often than females, and females tend to use overdose/poison more than males.

Depression and Suicidal Behaviors Reported by Teens

	Ottawa County		Michigan*	United States*
	2021	2019	2019	2019
I stopped doing some usual activities during the past 12 months because I felt so sad or hopeless almost everyday for two weeks or more in a row	31.4%	31.0%	36.4%	36.7%
During the past 12 months, I have seriously thought about attempting suicide	19.5%	18.5%	18.7%	18.8%
During the past 12 months, I have made a plan about how to attempt suicide	13.2%	12.6%	14.6%	15.7%
I attempted suicide one or more times in the past 12 months	7.8%	7.9%	7.8%	8.9%

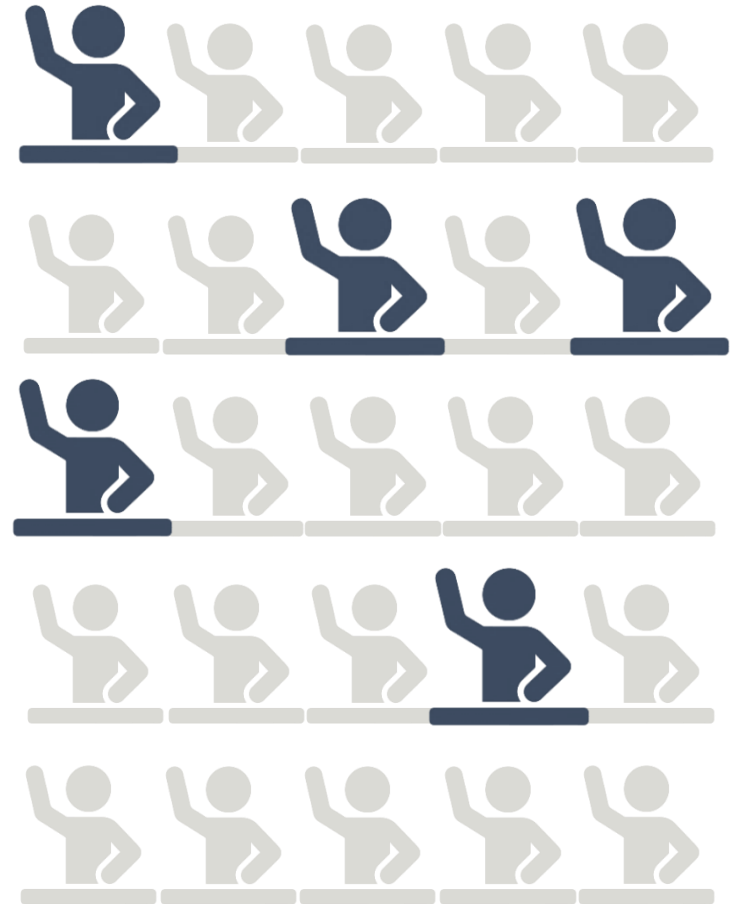
*Data is sourced from the Youth Risk Behavior Survey (YRBS).

The proportion of Ottawa County teens reporting feeling depressed, seriously thinking about suicide, or making a plan to attempt suicide in the past 12 months has been increasing since 2007 and remained elevated in 2019 to 2021, as did suicide attempt². Although small changes in these outcomes were observed between 2019 and 2021, none were statistically different, suggesting that teens' mental health and suicidal behavior were similar before and during the COVID-19 pandemic. However, national data shows that teen mental health issues and suicidal behavior were elevated at various times during the pandemic²⁰, particularly Emergency Department visits for suspected suicide attempts among adolescent girls²¹.

In each classroom of 25 students...

5
seriously
thought
about
taking their
own life*

and **2** made one or more
attempts*



*Source: 2021 Ottawa County Youth Assessment Survey, "Q53: During the past 12 months, did you ever seriously think about attempting suicide?"
"Q55: During the past 12 months, how many times did you attempt suicide?"

Ottawa County Suicide Prevention Coalition

Because the long-term rate of death by suicide has been increasing in Ottawa County, community partners have come together and organized the **Ottawa County Suicide Prevention Coalition**. The Coalition's mission is to decrease the number of suicides and the stigma associated with mental health in Ottawa County by educating the community about warning signs and prevention strategies, promoting existing suicide prevention and mental health resources, and identifying and addressing emerging issues regarding suicide and suicide prevention.

Here are some of the Coalition's activities to date:

- Created a webpage with local suicide prevention resources. For more information visit <http://www.miottawa.org/suicideprevention>.
- Supported the implementation of Spectrum Health's Blue Envelope team response pilot program with Ottawa County schools by training over 1,700 staff in 2021.
- Facilitated a follow-up program between Ottawa County Victim's Advocates program (Ottawa County Sheriff's Office) and Mosaic Counseling and Call 2-1-1 to ensure that families have access to community resources and support.
- Promoted be nice. and QPR (Question, Persuade, Refer) trainings in Ottawa County, in addition to other suicide prevention programs and trainings.
- Partnered with Momentum Center to send a suicide prevention mailing to 115,000 households in Ottawa County.
- Promoted www.mantherapy.org in partnership with Ottawa County Department of Veteran's Affairs.
- Hosted training with the State of Michigan to educate schools and community on how to support LGBTQIA+ youth specifically for suicide prevention.



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12. <https://www.cdc.gov/suicide/facts/disparities-in-suicide.html>
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14. <https://content.govdelivery.com/accounts/MIOTTAWA/bulletins/2d76c53>
15. <https://www.mentalhealth.va.gov/docs/data-sheets/2021/2021-National-Veteran-Suicide-Prevention-Annual-Report-FINAL-9-8-21.pdf>
16. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3315262/>
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Methods

Definitions

- Suicides are deaths where the manner of death is listed as suicide on the death certificate.
- Teen suicide is defined as any death by suicide among a person aged 13-19 years.
- County quadrants are used in this report to highlight geographical differences in suicide rates. The boundaries for each quadrant are generally 96th Avenue (north to south) and Fillmore Avenue (east to west). Quadrant boundaries deviate slightly in Zeeland, where the city is placed in the SW quadrant, and in Georgetown, where the area north of the Grand River but south of Fillmore (if Fillmore extended directly east) is included in the NE quadrant. This method has two purposes: 1) it utilizes natural recognizable boundaries such as city limits and rivers, and 2) it incorporates census tract boundaries which can be used to determine an underlying population and calculate a rate. Those that died by suicide were assigned a quadrant based on residence. See slide 18 for a map of quadrant boundaries.

Analytical Methods

- Deaths counted in this report are by residence of the decedent, not location of death.
- Rates are unadjusted; the unit for rates in this report is the number of events per 100,000 people.
- Because death by suicide is a relatively rare event each year in Ottawa County, multiple years are often combined to improve statistical stability, particularly for rates over time.
- Ottawa County data prior to 2010 was obtained from CDC Wonder.
- Michigan and United States suicide rate data was obtained from CDC Wonder.
- Population data when evaluating age categories, sex and mechanism were obtained from CDC Wonder. These estimates are bridged-race populations estimates after release of the bridged-race intercensal population estimates for July 1, 2010- July 2019.
- Population data when evaluating county rates utilized American Community Survey (ACS) 1-year estimates.
- Population data when evaluating quadrant rates utilized ACS 5-year estimates.

Methods

Trend Analysis

Overall (1990-2021): Ottawa County death by suicide trend was assessed from 1990-2021 using Poisson regression with annual population offset to accommodate for population changes. Year was associated with a positive increase in the annual number of suicides ($p < .0001$).

- Using the same methods, but limiting to 2000-2021, Year was significantly associated with an annual increase in the number of suicides ($p < .0001$).
- Using the same methods, but limiting to 2010-2021, Year was significantly associated with an annual increase in the number of suicides ($p=0.0010$).
- Using the same methods, but limiting to 2014-2021, Year was not significantly associated with an annual increase in the number of suicides ($p=0.0694$) indicating that over the last five years death by suicide has started to flatten.

Age

Ottawa County death by suicide trend was assessed from 2000-2021 for decedents less than 50 years old and decedents 50 years old and older using Joinpoint analysis. Deaths by suicide were grouped into two-year time periods to accommodate for small numbers.

- The final joinpoint model selected for the <50 age group included one joinpoint which indicated that year was not significantly associated with an annual increase/decrease in number of suicides ($p=0.5225$) from 2000-2006, but year was significantly associated with an annual increase in number of suicides ($p=0.0339$) from 2006-2021.
- The final joinpoint model selected for the 50+ age group included zero joinpoints which indicated that year was not significantly associated with an annual increase/decrease in the number of suicides ($p=0.1315$) for the 50+ age group from 2000-2021.

Sex

Ottawa County death by suicide trend was assessed from 2001-2021 by sex using Joinpoint analysis Deaths by suicide were grouped into three-year time periods to accommodate for small numbers.

- The final joinpoint model selected for both male and female included zero joinpoints which indicated that year was not significantly associated with an annual increase/decrease in the number of suicides ($p=0.5190$ for male and $p=0.6647$ for female).

Methods (continued)

Trend Analysis

Mechanism of death (Firearm vs All Other Means): Ottawa County death by suicide trend was assessed from 2001-2021 analyzing the mechanism of death using Joinpoint analysis. Deaths by suicide were grouped into three-year time periods to accommodate for small numbers. Mechanism of death was separated into firearm and all other means. The all other means group included hanging/suffocation, poisoning, drowning, and others.

- The final joinpoint model selected for both firearm and all other means included zero joinpoints indicating that year was not significantly associated with an annual increase/decrease in the number of suicides ($p=0.1991$ for firearm and $p=0.1149$ for all other means).

Quadrant: Ottawa County death by suicide trend was assessed from 2010-2021 analyzing quadrant of residence using Joinpoint analysis. Deaths by suicide were grouped into two-year time periods to accommodate for small numbers. Decedents were assigned to a specific quadrant based on the census tract they resided in at the time of death.

- The final joinpoint model selected for the NE quadrant included zero joinpoints indicating that year was not significantly associated with an annual increase/decrease in number of suicides ($p=0.7677$).
- The final joinpoint model selected for the NW quadrant included zero joinpoints indicating that year was not significantly associated with an annual increase/decrease in number of suicides ($p=0.1453$).
- The final joinpoint model selected for the SE quadrant included zero joinpoints indicating that year was not significantly associated with an annual increase/decrease in number of suicides ($p=0.7920$).
- The final joinpoint model selected for the SW quadrant included zero joinpoints indicating that year was significantly associated with an annual increase in number of suicides ($p=0.0092$).

Resources

If you need help for yourself or someone else, please contact the

Ottawa County Community Mental Health Crisis Line

Talk: 866-512-4357

National Suicide Prevention Lifeline

Talk: 1-800-273-TALK (8255)

Chat: www.suicidepreventionlifeline.org

Crisis Text Line: Text START to 741-741

Veterans Crisis Line

Talk: 1-800-273-8255 press 1

Text: 838255

Visit: <http://www.miottawa.org/suicideprevention>