

DATA BRIEF: Allegheny County Suicides Increased by Almost 50 Percent in the Past Decade, with Recent Rates Higher than the State's and the Nation's

Suicide rates have been rising in nearly every state in the U.S. according to the Centers for Disease Control and Prevention (CDC).¹ In Pennsylvania, there was a 34 percent increase in suicide rates from 1999 to 2016 compared to a national increase of 25 percent during that time period.²

This data brief explores trends in suicide totals and rates for Allegheny County residents between 2008 and 2017, causes of death, demographics, and people's encounters with publicly funded services prior to their death. See the [accompanying dashboard](#) for further detail and periodically updated data.

DATA SOURCES

Only suicides that could be confirmed to have occurred within the boundaries of Allegheny County were included in this analysis. For this reason, data presented here may differ slightly from other summary data regarding suicides in the County.

The Allegheny County Office of the Medical Examiner (ACOME) is required to autopsy all premature and unexplained deaths that may have resulted from a sudden, violent, unexplained or traumatic event.³ ACOME data were used to identify people whose deaths were autopsied and coded as suicides. Data stored in the Allegheny County Data Warehouse⁴ was used to determine the involvement of individuals with publicly funded services prior to their death.

U.S. Census data from 2010 were used to calculate age-adjusted suicide rates. National and state comparison data were retrieved from the CDC,⁵ National Institute of Mental Health⁶ and the Pennsylvania Department of Health.⁷

¹ CDC Newsroom. (2018, June 07). Retrieved from <https://www.cdc.gov/media/releases/2018/p0607-suicide-prevention.html>

² Pennsylvania suicide rates provided by the Centers for Disease Control: <https://wisqars-viz.cdc.gov/>

³ Depending on the cause of death, suicide autopsies may be complete (internal and external) or external only. Both types of autopsies include a complete toxicological examination.

⁴ The Allegheny County Data Warehouse brings together and integrates client and service data from a wide variety of sources both internal and external to the County. For more information about the Data Warehouse, see <https://www.alleghenycountyanalytics.us/index.php/2018/08/13/allegheny-county-data-warehouse/>

⁵ Morbidity and Mortality Weekly Report (MMWR). (2018, April 12). Retrieved from <https://www.cdc.gov/mmwr/volumes/67/wr/mm6714a6.htm>

⁶ Mental Health Information: Suicides. Retrieved from <https://www.nimh.nih.gov/health/statistics/suicide.shtml>

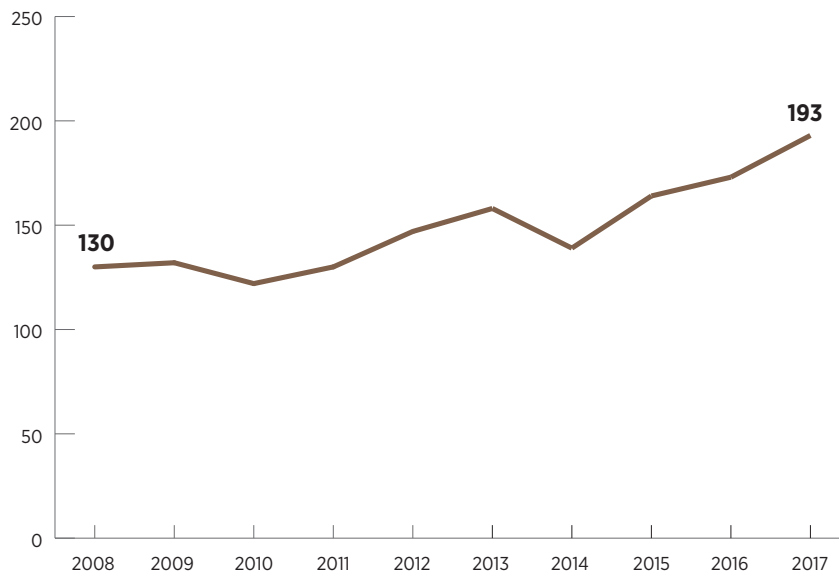
⁷ National Center for Health Statistics. (2018, January 11). Retrieved from <https://www.cdc.gov/nchs/pressroom/sosmap/suicide-mortality/suicide.htm>

8 ACOME data accessed May 2018.

FINDINGS

Between 2008 and 2017, 1,488 Allegheny County residents died by suicide.⁸ While the number of suicides has fluctuated year to year, there has been an increase of 48 percent in the annual number of suicides between 2008 and 2017. Yearly totals have ranged from a low of 122 in 2010 to a high of 193 in 2017 (**Figure 1**).

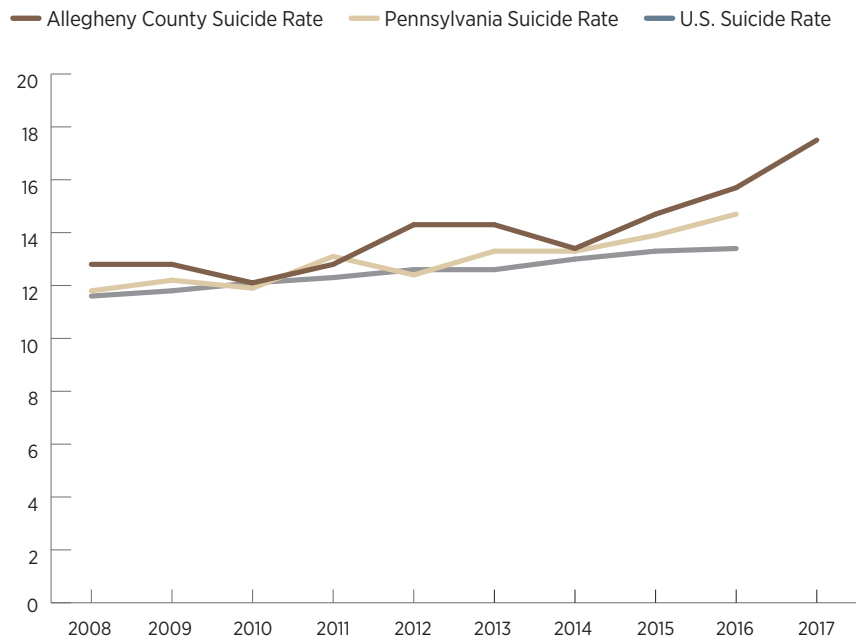
FIGURE 1: Number of Suicides in Allegheny County: 2008–2017 (n=1,488)



When looking at suicide rates per 100,000 people, Allegheny County's rate in 2016 (the most recent year for which comparison rates were available) was 15.7 suicides per 100,000 people. This was higher than the national suicide rate in 2016 (13.4 per 100,000) and also higher than Pennsylvania's suicide rate of 14.7 per 100,000 (**Figure 2**).

9 Population data from U.S. Census Bureau, 2010 Census. (Table P12B). Pennsylvania and U.S. suicide rates provided by the Centers for Disease Control: <https://wisqars-viz.cdc.gov/>

FIGURE 2: Age-Adjusted Suicide Rates (per 100,000) in Allegheny County: 2008–2017 (n=1,488)⁹



Causes of Death

The most frequent cause of death in the suicides in the County between 2008 and 2017 was firearm or explosion (668 people or 45%) — the majority of which were firearms — followed by asphyxiation¹⁰ (501 people or 34%) and drug intoxication, drugs, and/or poisoning¹¹ (167 people or 11%).

When considering cause of death for different age groups, asphyxiation and firearm/explosion were commonly used in the suicides of younger individuals, while firearms/explosions made up a large percentage of deaths of people in the older age categories (Figure 3, Table 1).

10 The asphyxiation category includes strangulation, hanging, drowning, carbon monoxide inhalation, smoke inhalation and mechanical asphyxiation.

11 A drug-related death is investigated as a suicide rather than as an accidental overdose when the death scene investigator or physician determines that there was intentionality (for example, a suicide note). Otherwise, the death is ruled accidental.

12 Other causes of death include blunt force trauma, burns, electrocution, fall and stabbing.

FIGURE 3: Most Common Causes of Death by Age, 2008–2017, Percentages (n=1,488)¹²

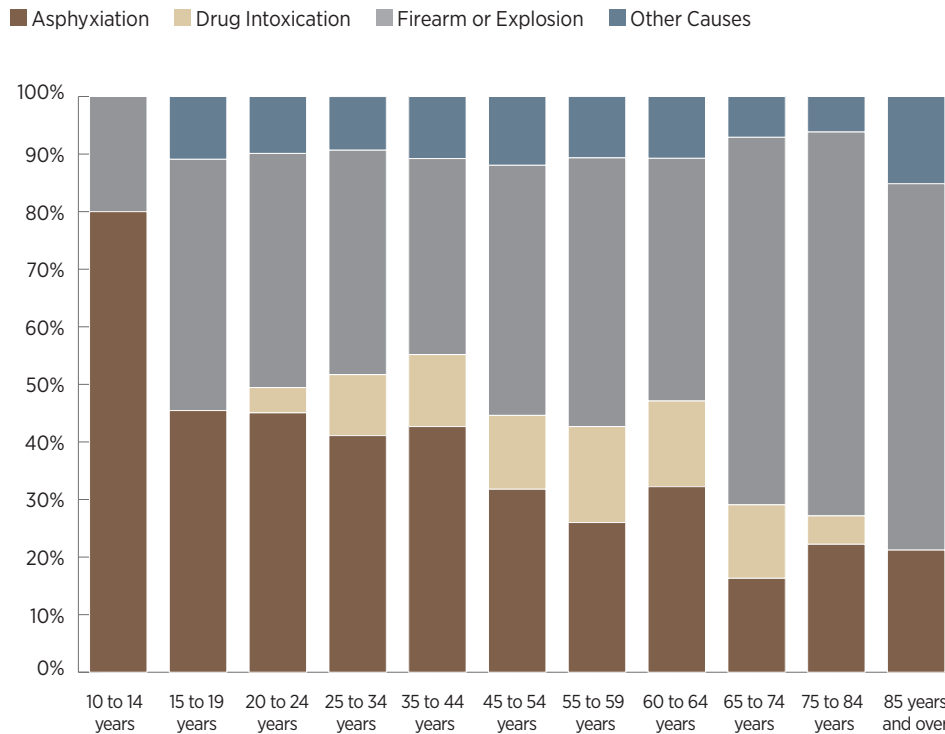
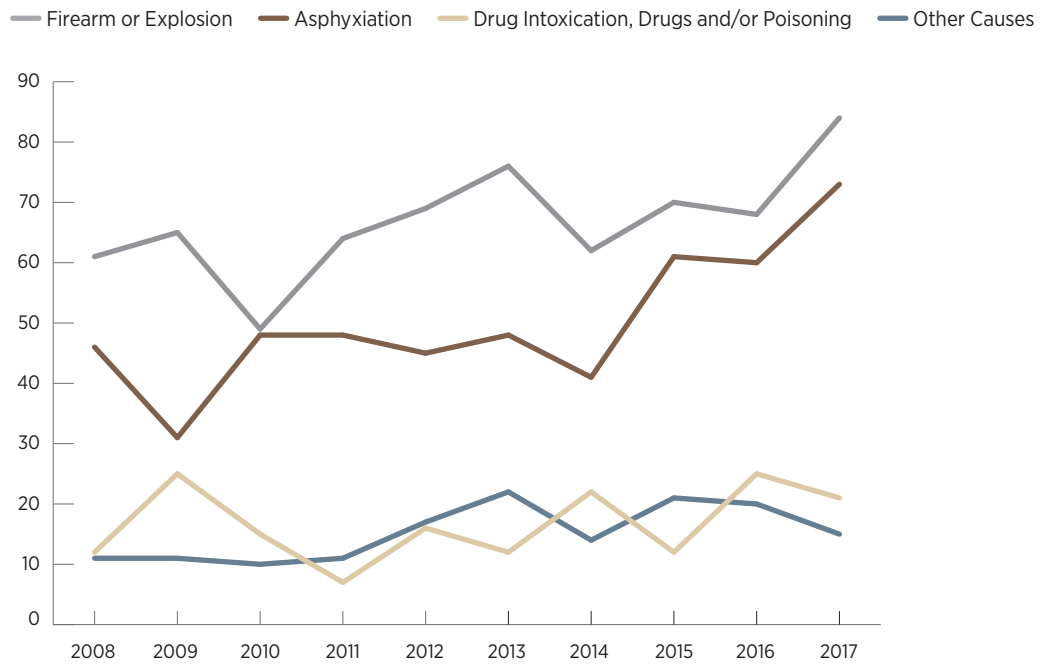


TABLE 1: Most Common Causes of Death by Age, 2008–2017, Totals (n=1,488)

	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	TOTAL
Firearm or Explosion	1	24	37	92	79	149	121	90	54	21	668
Asphyxiation	4	25	41	97	99	109	78	23	18	7	501
Drug Intoxication and/or Poisoning	0	0	4	25	29	44	43	18	4	0	167
Other Causes	0	6	9	22	25	41	29	10	5	5	152
Total	5	55	91	236	232	343	271	141	81	33	1,488

We also examined trends in causes of death over time to determine whether drugs (categorized by the medical examiner as drug intoxication, drugs and/or poisoning) have been increasingly involved in suicides. Between 2008 and 2017, the number of people whose cause of suicide death was identified as drug-related increased by 75 percent. In comparison, the number of people whose cause of death was firearms/explosions increased by 38 percent during the decade, while the number of people whose cause of death was asphyxiation increased by 59 percent.

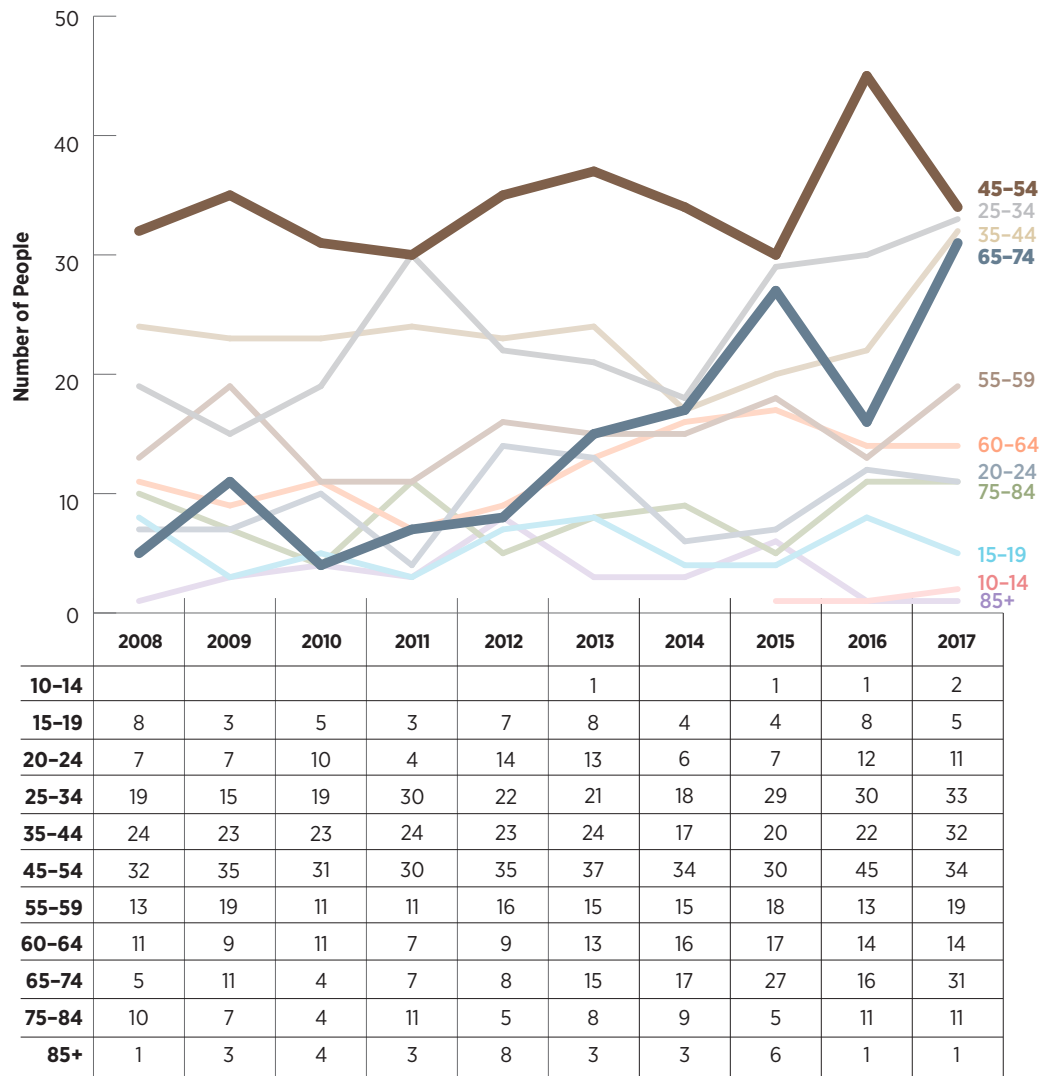
FIGURE 4: Number of Suicides by Most Common Causes of Death, 2008–2017



Demographics of People Who Died by Suicide

Figure 5 shows the trend in number of suicides over the decade by age. While fluctuations have occurred over the years, the 45–54 and 65–74 age groups have seen noted increases. All 31 people in the 65–74 age group in 2017 were white; 23 were men and 8 were women.

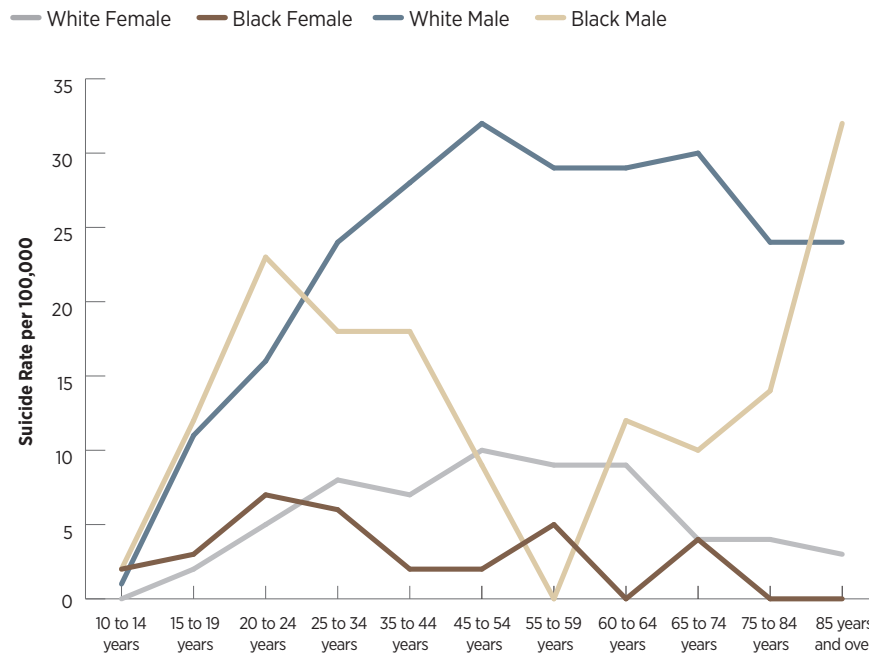
Figure 5: Number of Suicides by Year and Age Group, 2008–2017



Looking at rates during the decade, the demographic group with the highest rate of suicides was white males aged 25 and older, with the 45–54 age group experiencing a particularly high rate (32 per 100,000). Black males ages 85 years and older also saw a particularly high rate, but this is in part due to the relatively small number of people in that age category. Population-adjusted suicide rates are presented in **Figure 6**, below.

13 There were 32 (2.2%) people who died by suicide whose race was neither black nor white and who are not included in this figure.

FIGURE 6: Average Annual Age-, Race- and Sex-Specific Death Rates for Suicides in Allegheny County: 2008–2017 (n=1,456)¹³



Human Services and Public Systems Involvement of People Who Died by Suicide

Some of the individuals who died by suicide in 2008 through 2017 encountered human services and other public systems in the year prior to their death. Understanding the services that people used proximate to their death may help to inform future outreach and prevention efforts.

Nineteen percent (288) of these individuals had received Medicaid in the year prior to their death. Fifteen percent were involved with the Supplemental Nutrition Assistance Program (SNAP), and 12 percent had encountered the Allegheny County court system (either the Magisterial District Court or the Court of Common Pleas) in the year prior to their death.

There were few encounters with the Allegheny County Jail (5%) or the child welfare system (2%) (Table 2).

TABLE 2: Cross System Involvement Within a Year of Death of People Who Died by Suicide in Allegheny County, 2008–2017

HUMAN SERVICE OR PUBLIC SERVICE	# OF INDIVIDUALS ELIGIBLE FOR THE SERVICE	# OF INDIVIDUALS WITH A SERVICE ENCOUNTER IN THE YEAR BEFORE THEIR DEATH	% OF ELIGIBLE INDIVIDUALS WHO ENCOUNTERED THE SERVICE
HealthChoices Pennsylvania's managed care program for medical assistance recipients (also known as Medicaid)	1,488	288	19%
Supplemental Nutrition Assistance Program (SNAP)* Individuals are eligible for this program based on family income, and participants receive funds that can be used to make food purchases at grocery stores.	1,461**	213	15%
Court of Common Pleas The trial court in Allegheny County, hearing major civil and criminal cases.	1,461**	175	12%
Magisterial District Court The first level of judicial authority in Allegheny County. This court handles all traffic cases and minor criminal and civil cases as well as set bail and conduct preliminary hearings.	1,461**	123	8%
Allegheny County Jail Includes individuals who are admitted to the Allegheny County Jail and assigned a jail bed. An individual can be held in the jail for various reasons, including not posting bail after an arrest, violating a probation condition or beginning to serve a jail sentence.	1,461**	79	5%
Supplemental Security Income (SSI)* SSI is a federal program that provides monthly cash payments to people in need. SSI is for people who are 65 or older as well as for blind or disabled people of any age, including children.	1,488	84	6%
Child Welfare Parent Parent(s) associated with a child welfare case in Allegheny County.	1,487**	27	2%
Housing Supports Services for people experiencing housing instability. Includes Permanent Supportive Housing, Rapid Rehousing and supportive services.	1,488	41	3%
Homelessness Services Shelter services for people experiencing homelessness. Includes emergency shelters and street outreach.	1,488	5	<1%

* Information on SNAP and SSI benefits is based on data from the Pennsylvania Department of Human Services. Records of benefit receipt are incomplete for individuals who are receiving more than three benefits at once. Therefore, DHS has only a partial knowledge of who receives these benefits.

** Due to age restrictions for some services, not all individuals who died by suicide were eligible for all services, and therefore were not included in the denominator when calculating percentages.

Looking more closely at the group of 288 people who died by suicide and received Medicaid in the year prior to their death, 170 (59%) received a publicly funded mental health service, and 62 (22%) received publicly funded substance use treatment during the year (Table 3).¹⁴

14 Data about mental health services and substance use treatment utilization paid for by commercial insurance or self-pay were not available and, therefore, not included in this analysis.

TABLE 3: Mental Health and Substance Use Disorder Services Used by Medicaid Recipients Who Died by Suicide (During the Year Prior to Death)

PUBLICLY FUNDED SERVICE	# OF PEOPLE WHO RECEIVED MEDICAID IN THE YEAR PRIOR TO THEIR DEATH	# OF MEDICAID RECIPIENTS WHO RECEIVED SERVICE IN THE YEAR PRIOR TO THEIR DEATH	% OF MEDICAID RECIPIENTS WHO RECEIVED SERVICE IN THE YEAR PRIOR TO THEIR DEATH
Mental Health Service Includes both clinical services, such as individual and group therapy, and non-clinical services, such as case management.	288	170	59%
Substance Use Disorder Treatment Includes both clinical services, such as individual and group therapy, and non-clinical services, such as case management and peer recovery support.	288	62	22%

Among those who accessed public mental health services in the year prior to their death, the most common services and diagnoses are presented in Tables 4 and 5, below. Outpatient services were the most common type of clinical service. Major depression and depressive disorder were the most common diagnostic categories.

TABLE 4: Publicly Funded Mental Health Services Accessed Within a Year of Death of People Who Died by Suicide in Allegheny County, 2008–2017

SERVICE CATEGORY	DISTINCT COUNT	% OF PEOPLE WHO ACCESSED A MENTAL HEALTH SERVICE
Outpatient Evaluation and treatment services that may include psychiatric and psychological evaluation, medication management, and individual or group therapy.	162	59%
Medication Check An appointment, often at a behavioral health clinic, at which medication levels are checked, side effects discussed, and adjustments to prescriptions are made as necessary.	113	41%
Crisis Telephone, walk-in or in-home emergency counseling when a mental health crisis arises.	87	32%
Inpatient Psychiatric Evaluation and treatment services provided in a licensed psychiatric unit to individuals with acute illness where safety for self or others is an issue. Individuals may be involuntarily committed for evaluation and treatment.	61	22%
Service Coordination Services provided to help individuals obtain treatment and supports. Emphasis is given to housing, food, treatment services, employment and education.	49	18%
Emergency Room (Psychiatric) Hospital emergency room services provided to individuals experiencing a psychiatric emergency.	27	10%
Total Number of People (Unduplicated)	273	100%

Note: some clients utilized more than one type of mental health service and are counted in the table more than once. The bottom row provides an unduplicated count of clients who accessed a publicly funded mental health service.

TABLE 5: Most Common Diagnoses of People Who Died by Suicide and Accessed Publicly Funded Mental Health Services in the Year Before Their Death, Allegheny County, 2008–2017

DIAGNOSIS	DISTINCT COUNT	% OF PEOPLE WHO ACCESSED A MENTAL HEALTH SERVICE
Major Depressive Disorder A mood disorder characterized by persistent feelings of sadness and hopelessness and loss of interest in activities an individual once enjoyed. Symptoms must be present for at least two weeks.	146	53%
Bipolar Disorder A brain disorder that causes unusual shifts in mood, energy, activity levels and the ability to carry out day-to-day tasks.	53	18%
Schizophrenia A serious mental illness that interferes with a person's ability to think clearly, manage emotions, make decisions and relate to others.	35	12%
Total Number of People (All Diagnoses)	273	100%

Note: this table provides a list of the three most frequent diagnoses. Seventeen percent of clients had a diagnosis other than the three listed here.

As the suicide rate nationally and statewide has increased, Allegheny County's suicide rate has also risen over the decade. Particular demographic groups such as the 65–74 age group and white males ages 45–54 are of particular concern. While drug overdose in the region continues to be a concern, it does not appear to be the only contributor to the uptick in suicides, as other causes of death such as firearms and hangings also increased over the decade.

ANALYSIS

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