



West Virginia Fatality and Mortality Review Team Annual Report 2022

Child Fatality Review Panel CY 2018

Domestic Violence Fatality Review Panel CY 2017

Infant and Maternal Mortality Review Panel

Maternal Deaths CY 2018-2019 & Infant Deaths CY 2016-2017

Unintentional Pharmaceutical Drug Overdose Review Panel CY 2019-2021

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West Virginia Fatality and Mortality Review Team
Annual Report 2022



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The following report is filed in compliance with W. Va. Code §61-12A-1, *et seq.*, known as the Fatality and Mortality Review Team which is created under the West Virginia Department of Health and Human Resources, Bureau for Public Health.

All individuals listed were in office at time of report distribution.

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INTRODUCTION

The following report is filed in compliance with W. Va. Code §61-12A-1, *et seq.*, by the Fatality and Mortality Review Team (FMRT) of the West Virginia Department of Health and Human Resources (DHHR), Bureau for Public Health.

W. Va. Code §61-12A-1, *et seq.* establishes standard procedures for the formation and conduction of business of the FMRT. The FMRT is a multidisciplinary team created to oversee and coordinate the examination, review, and assessment of special cases of death where other than natural causes are suspected.

The FMRT consists of four members which includes the Chief Medical Examiner (chairperson), Commissioner of the Bureau for Public Health (or designee), Superintendent of the West Virginia State Police (or designee) and a prosecuting attorney appointed by the Governor. To carry out the purpose of the team, four Advisory Panels were established and set up as follows:

- A Child Fatality Review Panel (CFRP) created to examine, analyze, and review deaths of children under the age of 18 years;
- A Domestic Violence Fatality Review Panel (DVFRP) created to examine, analyze, and review deaths resulting from suspected domestic violence;
- An Infant and Maternal Mortality Review Panel (IMMRP) created to examine, analyze, and review the deaths of infants and women who die during pregnancy, at the time of birth or within one year of the birth of a child; and
- An Unintentional Pharmaceutical Drug Overdose Review Panel (UPDORP) created to examine, analyze, and review deaths from unintentional prescription or pharmaceutical drug overdoses.

The FMRT is required to submit an annual report to the Governor and to the Legislative Oversight Committee on Health and Human Resources Accountability concerning its activities and the activities of the Advisory Panels including statistical information concerning cases reviewed during the year, trends and patterns concerning these cases and the panel's recommendations to reduce the number of fatalities and mortalities that occur in West Virginia.

Cases subject to review by the panels are prepared for review at different points in time. Each of the review panels has different timelines, caseloads, investigative approaches and processes that comprise the panel work. As such, the panels are currently working on different schedules and calendar year reviews.

This report embodies the findings of the CFRP for the calendar year 2018 which may differ from information reported by the West Virginia Health Statistics Center, and DVFRP for the calendar year 2017. The IMMRP data reporting includes maternal deaths for 2018-2019 and infant deaths for 2016-2017. The UPDORP used data reported in the *Review of Overdose Fatalities: An Analysis of West Virginia SUDORS and CSMP Data, 2019-2021 Interim Report*.

CHILD FATALITY REVIEW PANEL

Overview

The CFRP is responsible for reviewing the facts and circumstances surrounding deaths of all children, under the age of 18, who were residents of the State of West Virginia at the time of their death.

The CFRP is required to provide statistical data and analysis concerning the causes of child fatalities in West Virginia, promote public awareness of the prevalence and causes of child fatalities, as well as include recommendations for their reduction. The fundamental objective of the CFRP is to prevent future deaths of children by providing necessary tools and information to expectant parents, parents, grandparents, families, appropriate agencies, and the general public. CFRP recommendations are designed to make the needed changes in actions and policies to protect children, while holding perpetrators responsible for their actions, and reducing the overall number of child fatalities that occur in the state.

Membership

According to statute, CFRP operates under the auspices of the OCME, with the state Chief Medical Examiner acting as the chair of the panel and the coordinator housed within that office as well. Other mandated members of the panel include:

- Two prosecuting attorneys or their designees;
- State Superintendent of the West Virginia State Police or his or her designee;
- One law enforcement official other than a member of the State Police;
- One Child Protective Services (CPS) worker currently employed in investigating reports of child abuse or neglect;
- One physician specializing in the practice of pediatric or family medicine;
- One social worker who may be employed in the area of public health;
- Director of the Office of Maternal, Child, and Family Health (OMCFH) of DHHR's Bureau for Public Health or his or her designee;
- One representative of the Sudden Infant Death Syndrome Program in OMCFH;
- Director of the Division of Children's Mental Health Services of DHHR's Bureau for Behavioral Health or his or her designee;
- Director of the Office of Social Services in DHHR's Bureau for Children and Families [now Bureau for Social Services] or his or her designee
- Superintendent of the West Virginia Department of Education or his or her designee;
- Director of Division of Juvenile Services or his or her designee; and
- President of the West Virginia Association of School Nurses or his or her designee.

Types of Deaths Reviewed

The CFRP reviews all preventable death cases of any person under the age of 18. The majority of cases the panel reviews fit into the categories of accident, homicide, suicide, or undetermined. The deaths that occur attributable to natural disease typically are not selected for a panel review unless information reveals potential for the death to have been prevented.

Case Review Process

Initial screening of all fatalities is completed by the DHHR, Bureau for Public Health (BPH), and the OCME to determine if they meet the definition of a preventable child fatality. The OCME investigators, pathologists, and the CFRP Coordinator review all potential cases and make a

determination of the child's resident status based on all the information available at the time the case is first presented to the OCME. Typically, with this method of determination, it is rare that a case be overlooked. In an attempt to combat this issue, a list of all child fatalities is obtained from the West Virginia Health Statistics Center and serves as a way to catch any child deaths that may have been missed initially.

The CFRP Coordinator maintains a running list of all identified child fatalities to be reviewed by the panel. The panel only reviews closed cases and does not attempt to reopen the investigation of those deaths. The CFRP's definition of closed cases are those where the offender is dead, has been convicted in a death, or there is a determination of no further legal action. For the reasons previously mentioned, most cases are reviewed approximately two years following the actual event.

Case reviews are conducted in confidential meetings. All panel members and invited guests are required to sign an agreement to abide by the confidentiality standards specified in the FMRT statute.

Prior to case review by the CFRP, a request for records is sent to all agencies that were identified as having relevant information. The collected information typically includes demographic information, autopsy reports, criminal and civil court histories of the victim and offender, Child Protective Services (CPS) information, media reports, information regarding the use of legal or advocacy services, and the details of the incident including those occurring both prior to and following the death.

The CFRP members present a summary of the information collected for each case reviewed during the monthly meeting. This is followed by a panel discussion, which aims to address the following matters for each incident:

- What were the hazardous events that led up to the fatality?
- Were there any opportunities to prevent the fatality?
- Is training or education needed as it relates to specific areas or occupations?
- How does the incident relate to other reviewed incidents?
- Are there policies relevant to the incident that need to be reviewed or changed?
- Are there lessons or educational messages to be derived from this incident?

As part of the review, CFRP identifies which systems, if any, the victim or the offender, or both, had contact with prior to, during, or after the death. This information helps the panel identify possible recommendations for improvement to system responses to incidents. This method of constructing system recommendations does not in any way have the intention to place blame on any individual or organization. To further support this objective, the recommendations made throughout the year are assembled and presented as wide-ranging proposals for systemic improvements as opposed to case specific ones. The panel believes that these recommendations can be used to improve system responses across an array of agencies and service providers to drastically reduce or eliminate preventable child deaths in West Virginia.

Calendar Year 2018

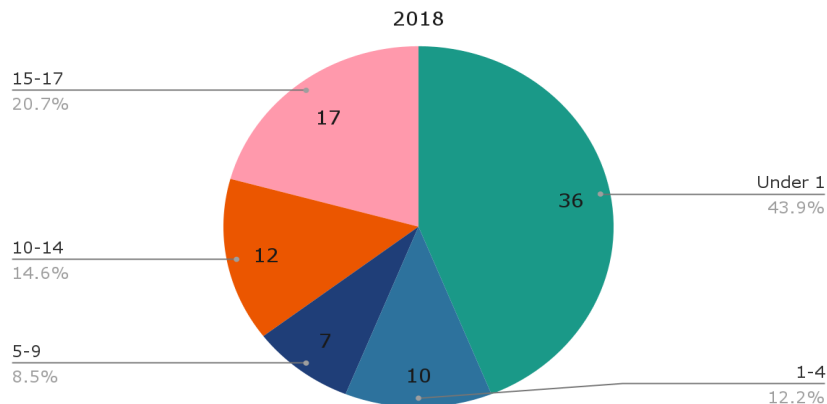
Findings

In 2018, the CFRP had 82 recorded preventable deaths. The information presented within this report will provide insight into the reasons children are dying and also provide recommendations as to the preventative measures that can be taken to reduce this number in the future.

Demographics

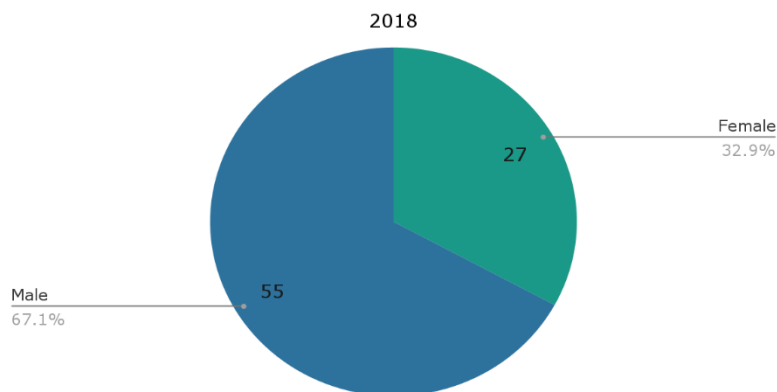
Figure 1 illustrates the distribution of child deaths by age with the percentages for each group. In 2018 infants under one year of age were the most commonly reviewed demographic. Of the 82 preventable deaths reviewed by the CFRP, 36 were infants. An infant death is defined as the death of a child prior to their first birthday. Young children aged one to four accounted for 10 total deaths. Children aged five to nine accounted for seven deaths. There were 12 deaths in adolescents aged 10 to 14. Teens aged 15 to 17 accounted for 17 deaths.

Figure 1: Child Fatality by Age



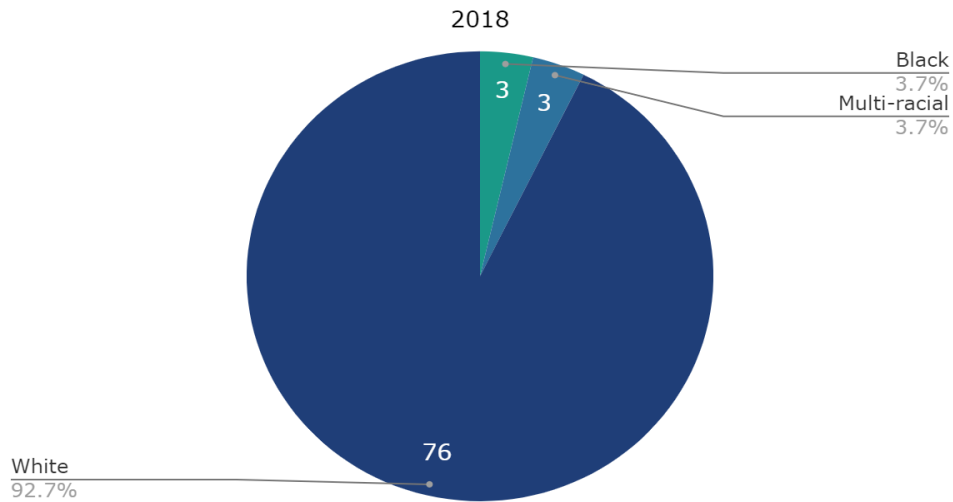
In Figure 2, the child deaths are separated by sex. There were 55 male child deaths and 27 female child deaths that occurred during 2018. This difference between male and female mortality is said to occur from birth and continue throughout life. Research shows the human male is more vulnerable than the female. At the time of birth, a male newborn is said to be about four to six weeks behind a female newborn physiologically. Also, the excess of fatal accidents involving males is attributed to the fact that they have a pattern of poor motor skills and cognitive regulation, which leads to a misjudgment of risk [11]

Figure 2: Child Fatality by Sex



The distribution of child deaths in West Virginia as related to race is shown in Figure 3. The data shows that 76 of the 82 deaths were Caucasian children. This is followed by three black child deaths, and three deaths of children identified as having two or more races. The mortality rate for preventable child deaths was 22.5 per 100,000 children. The rate for white children was 20.8 per 100,000 with black and multiracial being 0.82 per 100,000. All of these rates were a decrease from 2017.

Figure 3: Deaths by Race



Manner of Death

The data is broken down into five manner of death types: natural, accident, suicide, homicide, and undetermined. In 2018, there was one natural death found to be preventable. The remaining manners of death that were reviewed result from damage involving the structure and/or function of the body initiated by an external agent or force. These causes could be due to an accident (i.e., motor vehicle, drowning, fire, etc.) or intentional (i.e., suicide or homicide). Deaths that were ruled undetermined could have either an accidental or intentional cause.

Most preventable deaths, 34 of 82, in children from birth to age 17 were accidental, as shown in Figure 4. This was followed by undetermined deaths comprising 29 of 82. Suicides accounted for 12 of 82, and homicide deaths were six of 82.

Figure 4: Manner of Death

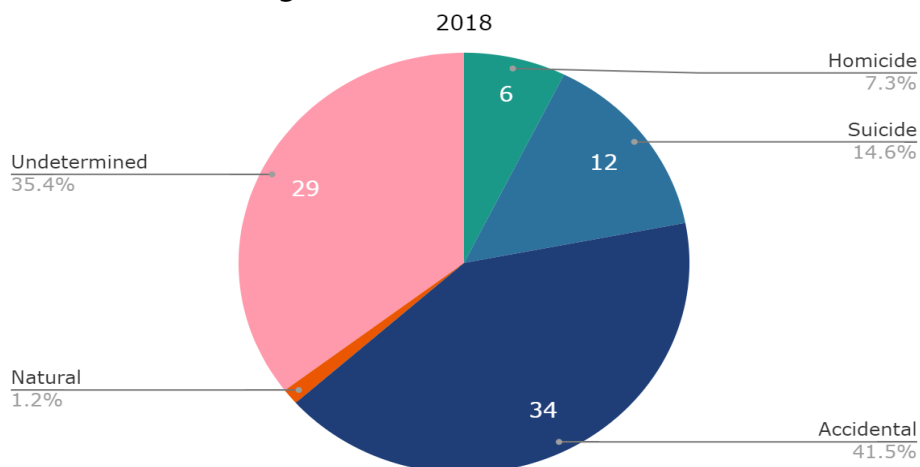


Figure 5 shows the manner of death by age group. Infants under age one accounted for 26 of the 29 undetermined deaths. Deaths in children between the ages of one and 17 were most often accidental.

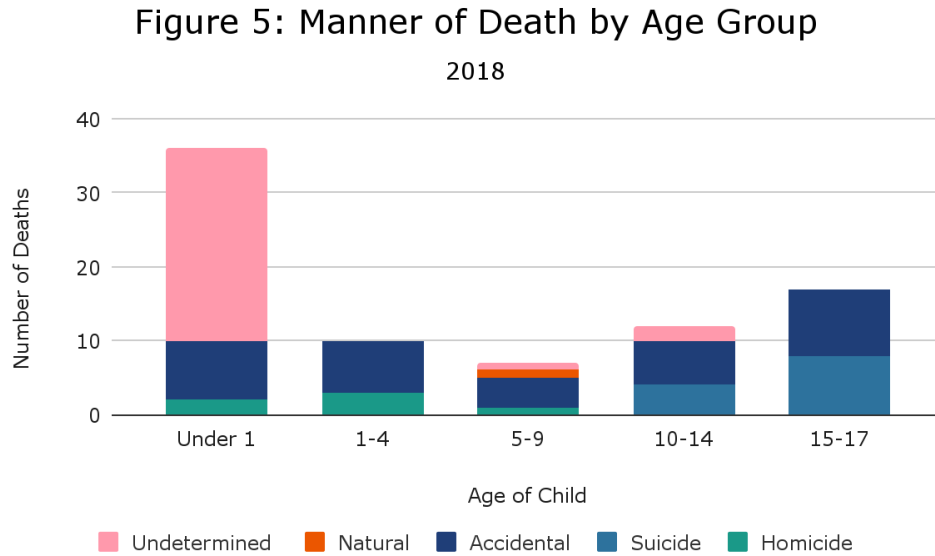
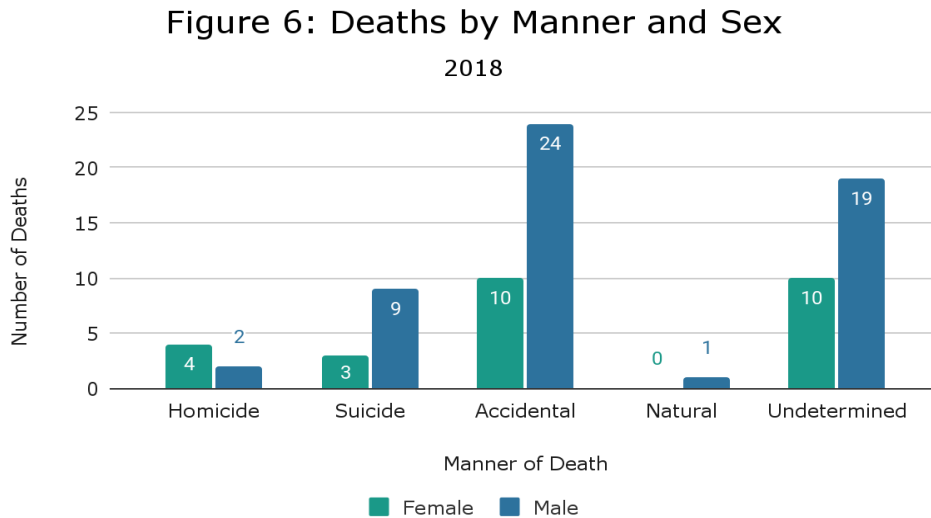


Figure 6 arranges 2018 deaths by manner of death and sex of the child. More male children died overall than female children. The data show females were more often the victims of homicide when compared to males. Males committed suicide three times more than females. It also shows that more male infants died as a result of undetermined causes of death when compared to females.



Cause of Death

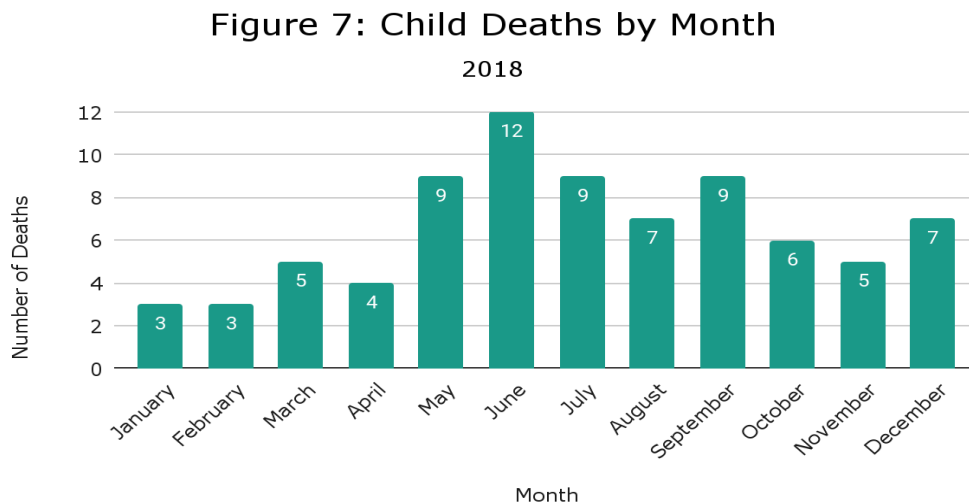
The top three causes of death overall were unknown (could not be determined) followed by motor vehicle (accident) and third was both unintentional asphyxia and suicide with a weapon. Unknown deaths accounted for 31 of the 82 total child deaths, which is 37.8% overall. Motor vehicle accidents were responsible for 18 of the 82 deaths, or 22%. Suicide by weapon and accidental

asphyxia were responsible for 7.3% or 6 of the 82 deaths, respectively. Table 1 shows a detailed list of all preventable causes of death by manner for all age groups that occurred in 2018.

Manner	Cause	>1	1-4	5-9	10-14	15-17
Accident	Motor Vehicle	1	5	2	3	7
	Unintentional Asphyxia	4	1	-	1	-
	Drowning	1	-	1	-	1
	Fire	-	-	-	-	-
	Poisoning	-	-	1	2	1
	Medical Condition	-	-	-	-	-
	Unknown	-	-	-	-	-
Homicide	Weapon	-	-	1	-	-
	Assault	2	3	-	-	-
	Fire	-	-	-	-	-
	Motor Vehicle	-	-	-	-	-
	Poisoning	-	-	-	-	-
	Neglect	-	1	1	-	-
Suicide	Weapon	-	-	-	2	4
	Hanging	-	-	-	1	4
	Poisoning	-	-	-	1	-
Undetermined		28	-	-	2	-
Natural		-	-	1	-	-

Distribution of Deaths for Various Categories

Figure 7 shows all preventable deaths that occurred for each month in 2018. When broken into seasons, most deaths occurred during summer (June, July, and August). Winter (December, January, and February) had the least number of deaths.



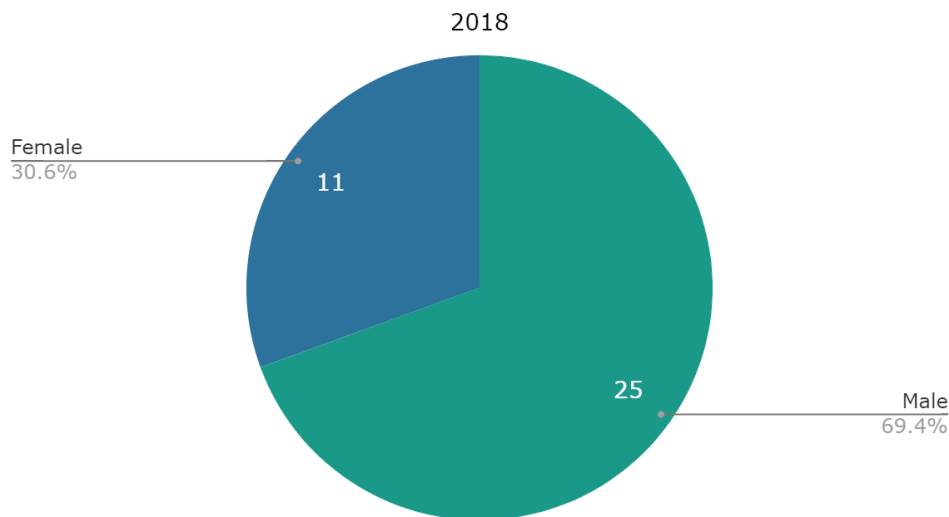
Infant Deaths

An infant death is the death of a child any time after their birth but prior to reaching their first birthday. In 2018, there were 36 preventable infant deaths reviewed by the CFRP. The age category with the most preventable deaths in 2018 was infants. Infant mortality is characteristically used as an indicator of overall health of a society [3].

Demographics

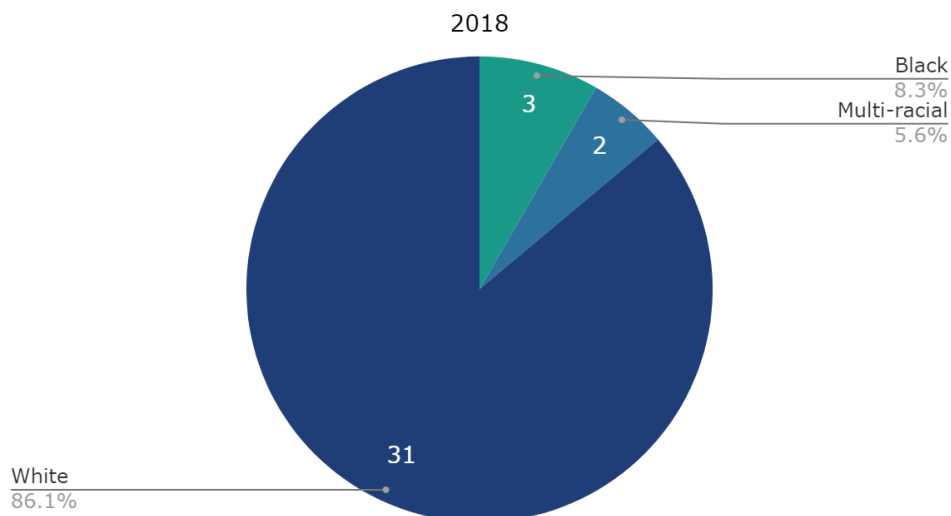
Figure 8 shows the infant deaths in West Virginia divided into the category of sex. It shows 25 male infants and 11 female infants died from a preventable cause in 2018.

Figure 8: Infant Deaths by Sex



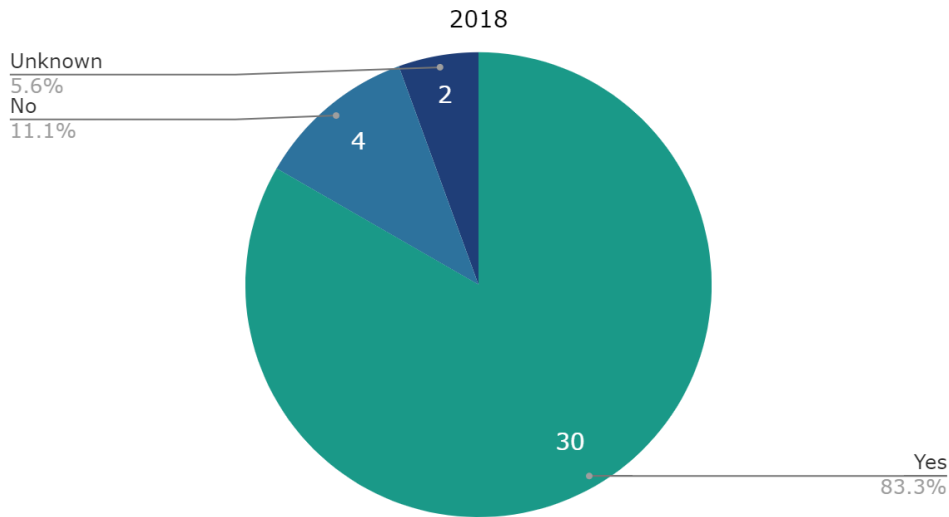
Infant deaths by race are shown in Figure 9. This figure shows that most of the deaths (31) occurred in white infants. There were 3 black infants, which was a decrease from 2017 where there were eight deaths. Two deaths were multiracial infants, a decrease from 2017 in which there were five.

Figure 9: Infant Deaths by Race



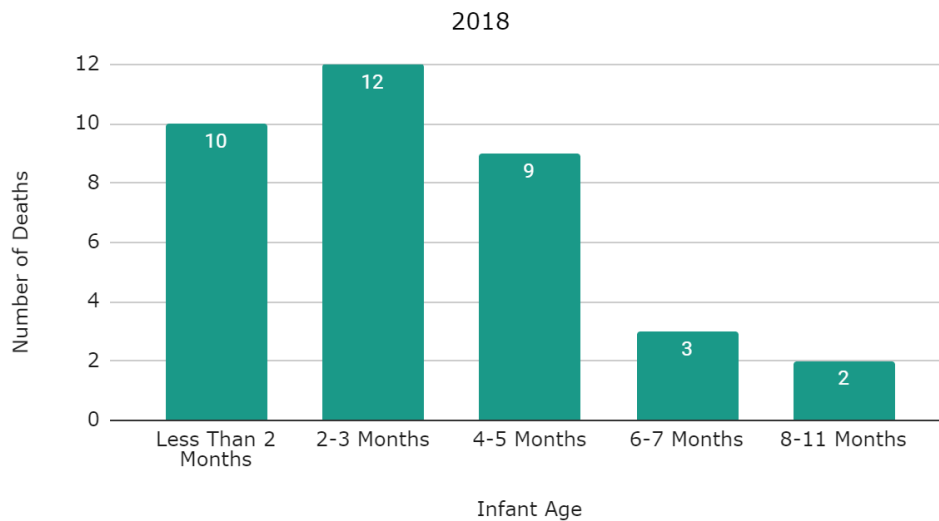
The poverty status^a of infants who died of preventable causes in West Virginia in 2018 provides a figure that indicates a possible correlation. Figure 10 shows 36 deaths by poverty status of the parents at the time of the infant’s death. Thirty of 36 infants were considered to be in poverty. This accounts for 83.3% of all preventable infant deaths. In West Virginia, the infants in poverty were more likely than their non-poverty counterparts to die from a preventable cause. A report by He *et al.* states the high infant mortality rate in the United States has some association with disparities in socioeconomic status [4]. A family’s financial situation can affect factors such as nutrition, food security, education, and health care [4].

Figure 10: Preventable Infant Deaths by Poverty Status



Infant deaths are distributed across age categories in Figure 11. Most infant deaths occurred during the first three months of life. There was a small decrease in deaths for the four-to-five month age range, with a significant reduction from six months onward.

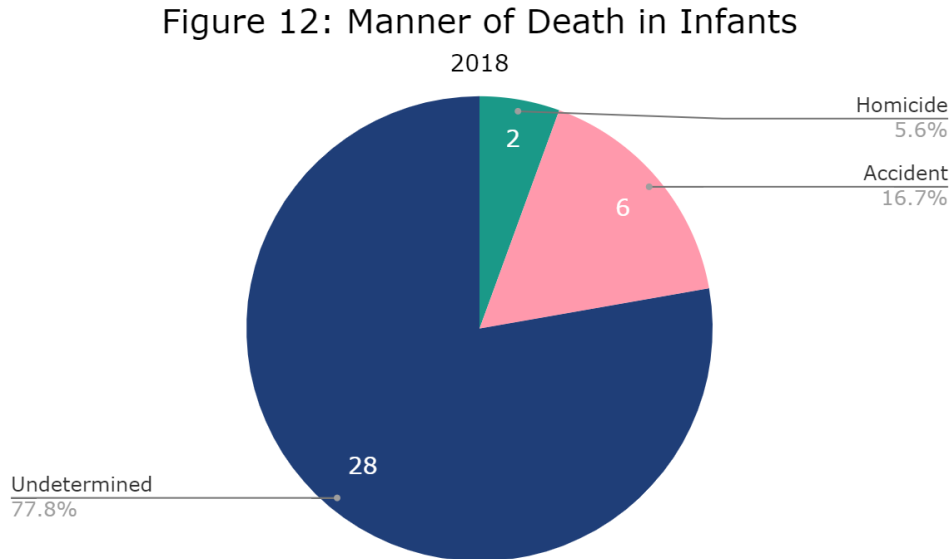
Figure 11: Infant Deaths by Age in Months



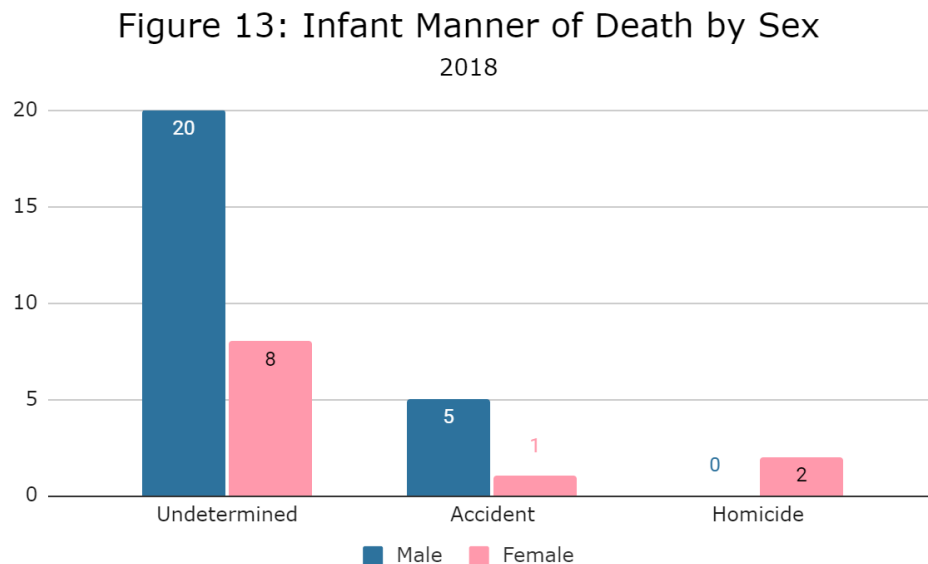
^a Poverty status is determined by family receiving Medicaid at time of infant’s death.

Manner of Death in Infants

The data on preventable death for infants is divided into three manner of death categories: accident, homicide, and undetermined. Figure 12 shows there were 28 deaths deemed undetermined, six accidents, and two homicides.



In Figure 13, the manners of death for infants are grouped by sex. Overall male infants died at higher numbers than female infants. Male infants accounted for the most undetermined and Accidental deaths. Only female infants were victims of homicide in 2018.



Causes of Death In Infants

The leading cause of death in West Virginia infants in 2018 was unknown (undetermined). Most of those deaths were attributed to an unsafe sleep environment. In the past, most deaths were labeled as Sudden Infant Death Syndrome (SIDS) even when there was evidence of unsafe sleep. Today they can be labeled differently depending on findings during investigation such as Sudden

Unexplained Infant Death (SUID), undetermined/unknown cause, asphyxia, or suffocation. SUID is a general category under which all sudden unexpected deaths in infants fall, including SIDS. To further differentiate between the two terms, SUID is an infant death that does not have a specific cause but has associated risk factors that may have contributed to the death. SIDS is the cause of death after the autopsy, death scene investigation, and medical history rules out all other possible causes and contributing risk factors.

There were 28 sleep-related deaths that occurred in 2018 in the state. It is important to look at the way these deaths were recorded to better understand the information within this report. The manner of death for 20 of 28 sleep-related deaths was undetermined. Two of 28 sleep-related deaths were designated as SUID. There were three sleep-related deaths determined as methamphetamine intoxication. These are included because the infants died in their sleep. The remaining two deaths were ruled as accidents due to asphyxia.

The 28 unsafe sleep-related deaths were assessed for four common risk factors: co-sleeping, unsafe sleep surface, unsafe sleep position, and unsafe bedding. Figure 14 displays this information.^b It is important to note that more than one category was a possible contributing factor to the infant death, so the total is more than the number of deaths. There were 20 cases in which the infant was put to sleep on an unsafe sleep surface. This category includes anything not designed for infant sleep such as an adult bed, couch, infant swing (unrestrained), or some type of pillow. Infants should be put to sleep on their back. Unsafe sleep position refers to any infant that was laid to sleep on either their stomach or side. Excessive bedding includes crib bumpers, pillows, blankets, stuffed animals, or any other unnecessary materials in the sleeping area.

Figure 14: Unsafe Factors in Sleep-Related Deaths
2018

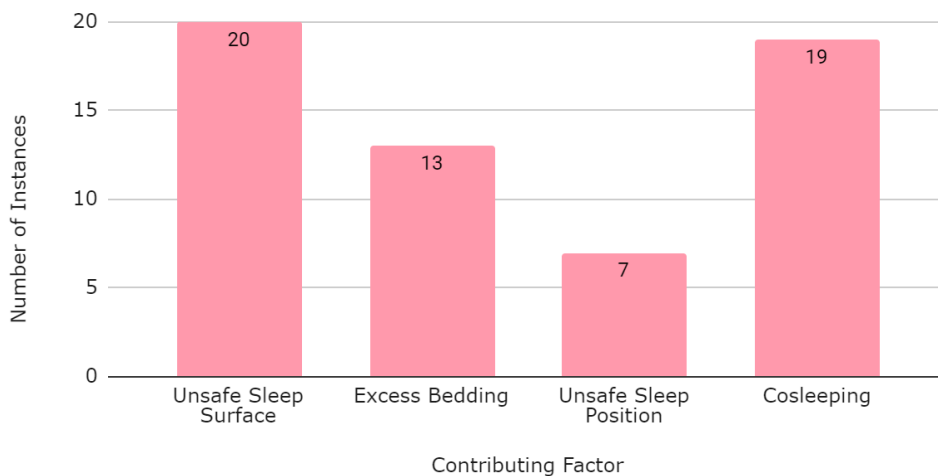


Figure 15 shows whether a crib or port-a-crib was in the home for infant use. The data states that 23 of 28 had a crib in the home for infant use. Only four of 28 infants were known to not have a crib available. There was one infant for which it was unknown if a crib was available. In many instances a crib was available and regularly used, however the infant death occurred on an unsafe surface. This is an important factor to consider since 19 of the 28 sleep-related deaths involved co-sleeping.

^b Information as found by investigators during unexpected infant death investigation.

Figure 15: Availability of a Crib in Home

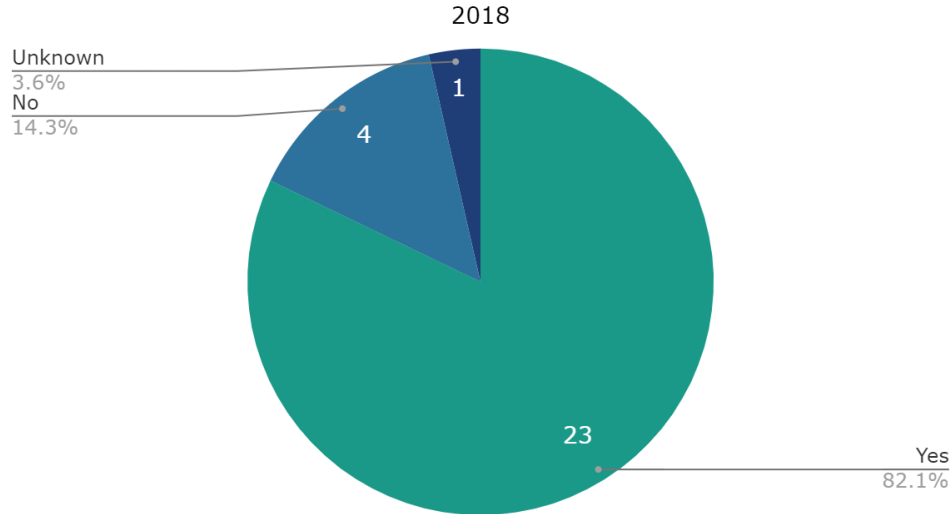
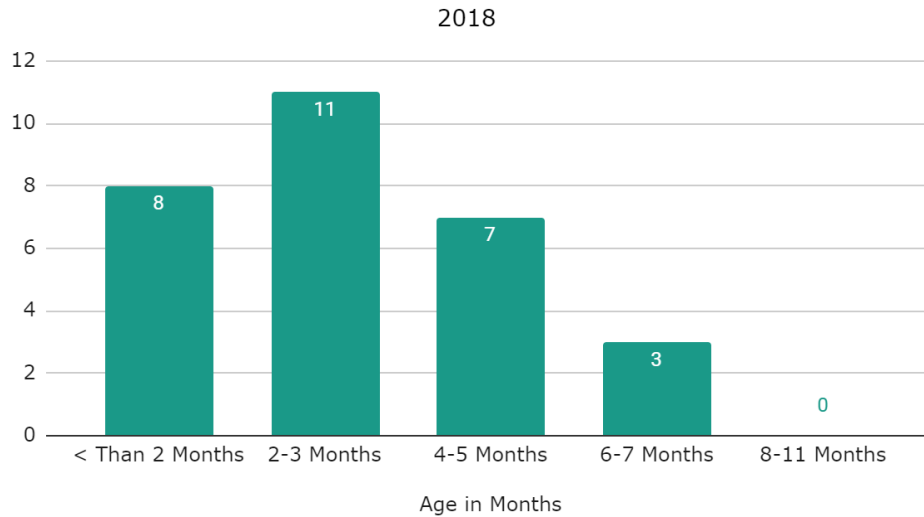


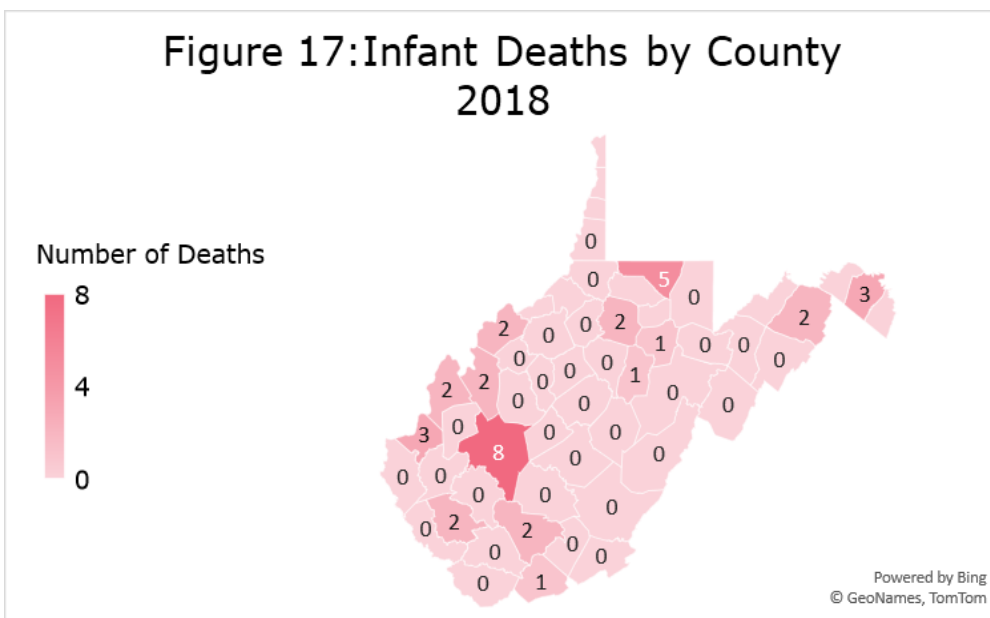
Figure 16 shows the unsafe sleeping deaths by age in months. According to the numbers for 2018, infants ranging in age from birth to five-months old were the most likely to die from unsafe sleep practices with a peak during the two-to-three month period. This number reduced to three deaths in the next age category of six- to seven months old and none in the eight- to 11 months old range.

Figure 16: Sleep-Related Deaths by Age



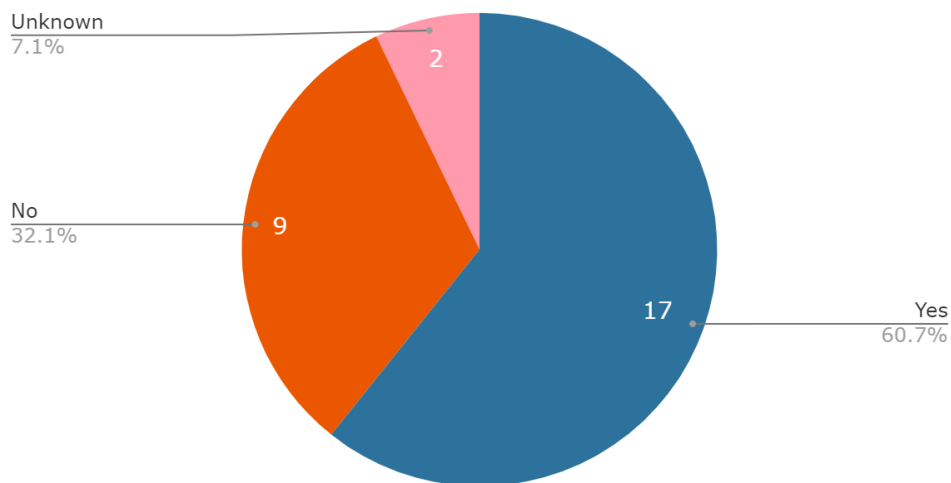
Fourteen of the 55 West Virginia counties had an infant death in 2018. As seen in Figure 17, most infant deaths occurred in Kanawha County where there were eight deaths in 2018 followed by Monongalia County with five deaths. Of note, this map shows the county in which the infant died. Some infants may have resided in a different county than the one they died in.

Figure 17: Infant Deaths by County
2018



Another interesting statistic is the number of mothers smoking tobacco during pregnancy. Smoking is also a risk factor in SUID deaths. Figure 18 shows that at least 17 of the 28 infants with a sleep-related death were exposed to smoke in utero. There were nine infants who did not have smoke exposure during pregnancy and two had an unknown status.^c This is an important risk to consider; the Centers for Disease Control and Prevention (CDC) states infants who are exposed to smoke in utero are at risk of birth defects such as cleft lip or palate, have an increased risk of being born premature and/or at a low birth weight. Carbon monoxide from cigarettes can also prevent the baby from getting adequate oxygen. Babies born under these conditions are at an increased risk of poor health or death [5].

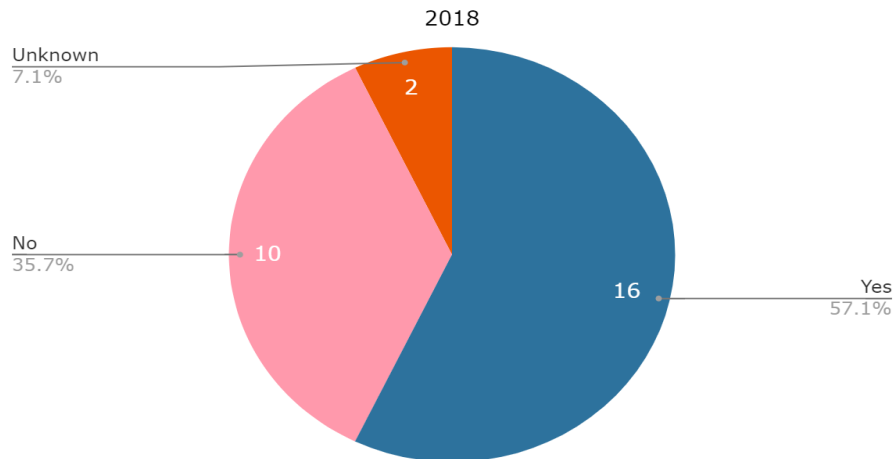
Figure 18: Smoke Exposure in Utero for Sleep-Related Deaths
2018



^c Information as found by investigators during unexpected infant death investigation.

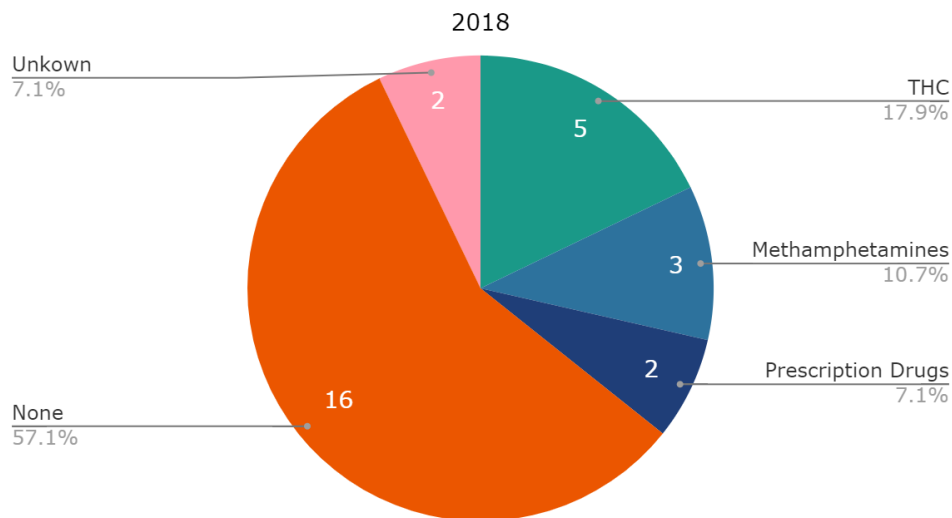
Sixteen of the sleep-related infant deaths were reported to have secondhand smoke exposure. Secondhand smoke is another contributing factor to SUID.^d According to the CDC, secondhand smoke exposure makes the baby three times as likely to die from SIDS. Infants exposed to tobacco smoke may develop respiratory-related illnesses like asthma [5].

Figure 19: Secondhand Smoke Exposure for Sleep-Related Deaths



Neonatal abstinence syndrome (NAS) is a major issue in West Virginia. Nationally from 2010 to 2017, NAS has increased by 82%. West Virginia led the nation in 2017 with 53.5 NAS babies per 1,000 births [11]. In 2018, ten of the 36 sleep-related deaths were born to a mother who reported using some type of illegal or unprescribed prescription drug during their pregnancy.^e Research has found that babies born with NAS have an average hospital stay nearly six times longer than a healthy baby, which can lead to medical costs of over \$8,000 [10]. Per the 2011 study by Athanasakis *et al.*, drug exposure increases the risk of sudden death by two to five times [12]. Exposure to marijuana has been found to cause low birth weights and neurological abnormalities. Additionally, secondhand marijuana smoke is harmful to infants [17].

Figure 20: Prenatal Drug Exposure



^d Information as found by investigators during unexpected infant death investigation.

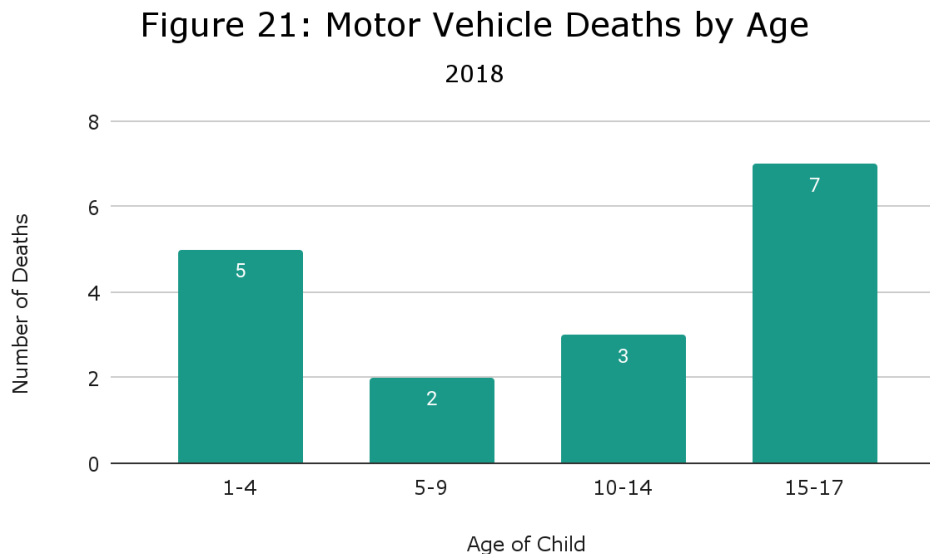
^e Information as found by investigators during unexpected infant death investigation.

According to death investigation reports, five of 28 infants, or 17.9% used a pacifier during sleep.⁵ Research has shown that through a currently indeterminate mechanism, pacifiers used at sleep time may reduce the risk of SIDS by as much as 90% [6]. In the Chicago Infant Mortality Study, it was found that pacifier use was associated with a reduced risk of SIDS. The data indicated that pacifier use may offer some additional protection for infants that sleep in high-risk environments such as those who sleep in the prone or side position, those who bedshare, or those who have soft bedding present in their sleeping environment [6]. This was consistent with the findings of a population-based, case-control study in a demographically diverse population that was conducted by Li *et al.*, 2006, but it has been noted that larger sample sizes need to be used for data to be statistically significant [6].

Motor Vehicle Deaths

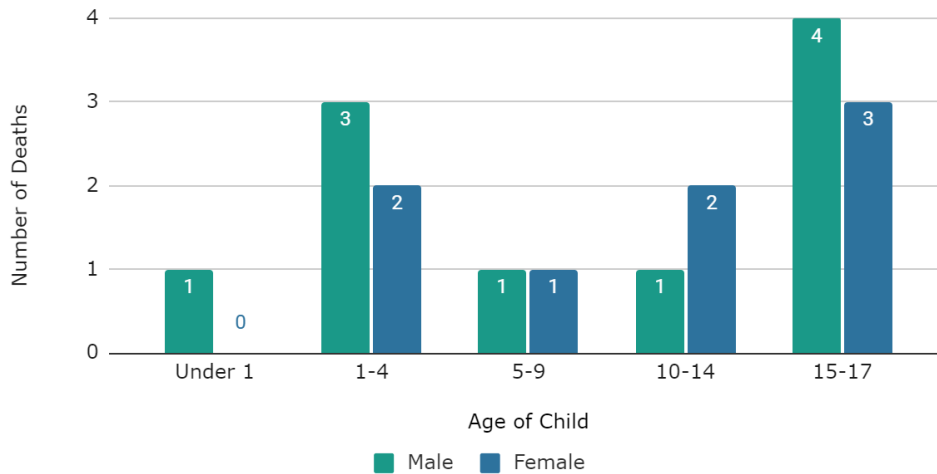
In 2018, a total of 18 children ages 1 to 17 died in West Virginia as a result of a motor vehicle accident as either the driver, passenger, or pedestrian. This is a decrease from 24 deaths in 2017. According to the West Virginia Division of Motor Vehicles 2018 Annual Report, there was a statewide decrease in car crashes from the previous year but an increase in fatalities. There were increases, however, in all-terrain vehicles (ATV) accidents and fatalities, as well as pedestrian fatalities [14].

Figure 21 shows the deaths by age categories. The data shows that most of the motor vehicle accident deaths that were reviewed occurred in teens aged 15--17. This was followed by children aged one to four with five deaths. There were three deaths in the 10 to 14 age range, and two in 5 to 9. There was one infant death. The data follow the statistics regarding motor vehicle accidents, which shows that the risk of motor vehicle crashes is higher among 16–19 year-old children than among any other age group [7].



The number of deaths by sex and age category is shown in Figure 22. Overall, males died more frequently than females. The 10 to 14 age range saw more female than male deaths.

Figure 22: Motor Vehicle Deaths by Age and Sex
2018



The majority of motor vehicle accidents involved a car. Data regarding vehicle type can be seen on the graph below. Of note, all of the incidents on an ATV were youth drivers. This is important when considering legislation regarding the operation of these vehicles. One death is **not** represented in Figure 23, which was a death involving a lawnmower.

Figure 23: Motor Vehicle Deaths by Type of Vehicle
2018

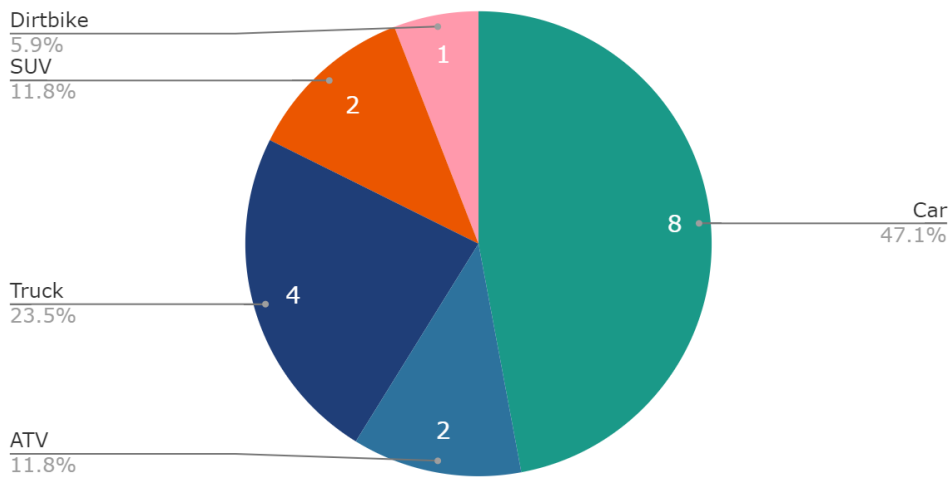


Figure 24 shows the majority of children who died were passengers at the time of their death. There were four children who were pedestrians at the time of their death, and four were operating the vehicle. Youth pedestrian deaths remained the same from 2017 to 2018. Children were driving half as often in 2018 as they were in 2016, resulting in a 75% decrease over a two-year span.

Figure 24: Position of Child in Vehicle

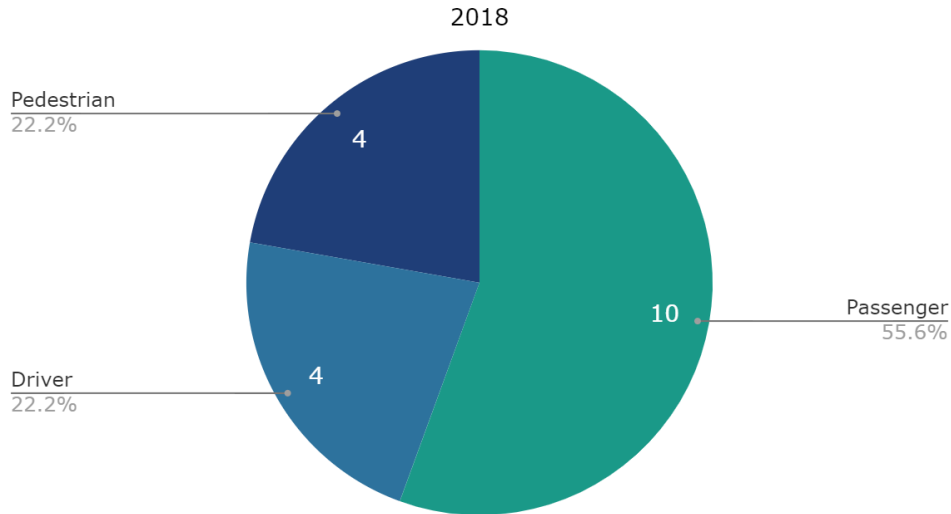


Figure 25 shows the party responsible for causing the motor vehicle accident that resulted in the death of a child. The figure shows that a majority of the deaths were caused by an adult driver. Out of the 14 deaths in which a child was not driving, eight of them were passengers in the vehicle responsible for the death. The remaining six were caused by another driver. Four deaths were caused by the child, which was a decrease from 2017 when they were responsible for one-third of the accidents. Adult drivers in the decedent's vehicles were most often a family member.

Figure 25: Person Responsible for Accident

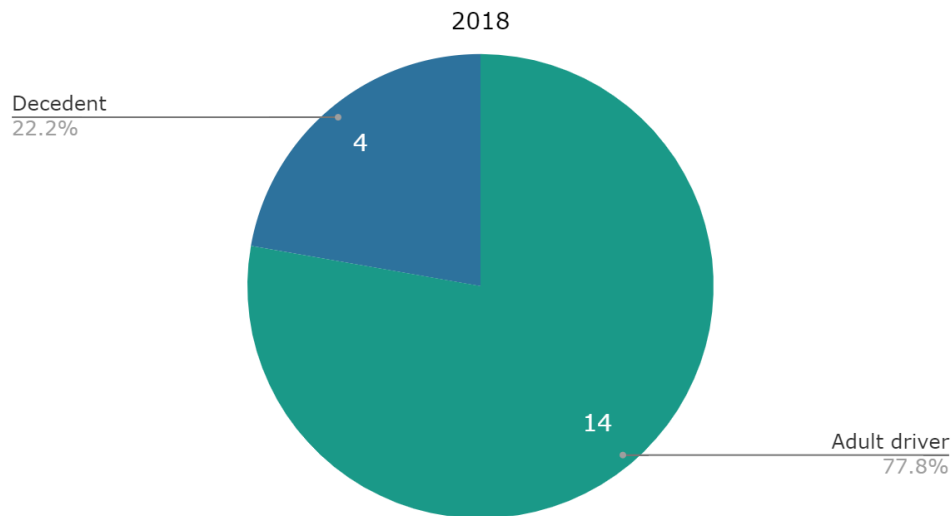
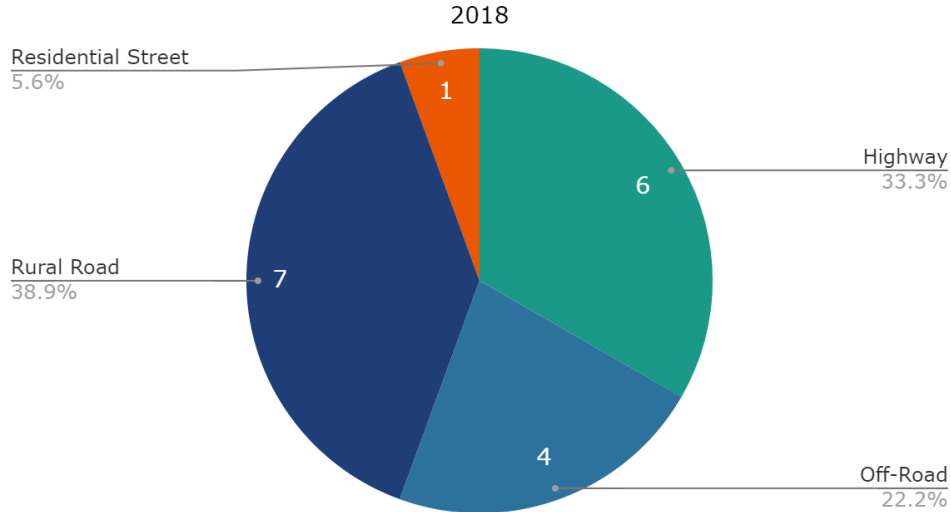


Figure 26 contains the locations in which the fatal incidents occurred. In 2018, fatal incidents occurred in four locations. Nearly 39% of motor vehicle accidents occurred on rural roads, followed by 33.3% occurring on highways. There was one death that occurred on a residential street, and four occurring in an off-road location such as a yard, field, or trail.

Figure 26: Location of Accident



With motor vehicle accidents accounting for 18 childhood deaths in West Virginia for 2018, it is important to look at some of the risk factors the fatalities shared. Out of all motor vehicle deaths, there were 13 cases in which the child should have been in restraints and/or wearing a helmet. In one death it was unknown if the child was restrained. Of the remaining 12 deaths, 50% were using appropriate safety measures. Causes of accidents included distracted driving, speeding, weather conditions, and operating a vehicle while under the influence.

Drowning Deaths

During 2018, there were five child drowning deaths in West Virginia. The accidents occurred in bathtubs or freshwater areas. Deaths in the bathtub occurred while children were left in the bathroom without adult supervision.

Suicide Deaths

In 2018, 12 children completed suicide, an increase from five in the previous year. The suicide deaths of children reviewed were comprised of children ranging in age from 12 through 17 years old.

Data indicates that for every successful suicide, there were 25 attempts [7]. The CDC Youth Risk Behavior Surveillance System (YRBSS) surveys high school aged children from across the nation on a range of topics known to contribute to death and/or disability. Per the YRBSS Annual Report for 2017,^f 17.2% of national respondent youths and 18.5% of West Virginia youth had seriously considered suicide with 13.6% national and 14.8% of West Virginians having made a plan. Of those, 7.4% nationally and 9.4% of West Virginians reported a suicide attempt [15,16]. Overall, females are three times more likely than males to attempt suicide; however, males are four times more likely to die by suicide [8]. Per the YRBSS report, 8.3% female and 10.3% male West Virginians reported a suicide attempt [16]. In 2018, nine males and three females completed suicide. Of the 12 deaths, four children left a suicide note.

^f YRBSS data is self-reported and may not be reflective of actual suicidal thoughts and attempts.

Figure 27 shows the suicide deaths by cause. There were six suicides completed by using a weapon, five were completed by asphyxia, and one by intentional overdose. All weapon suicides were completed using a firearm. Nationwide, firearm deaths account for half of all suicides [8].

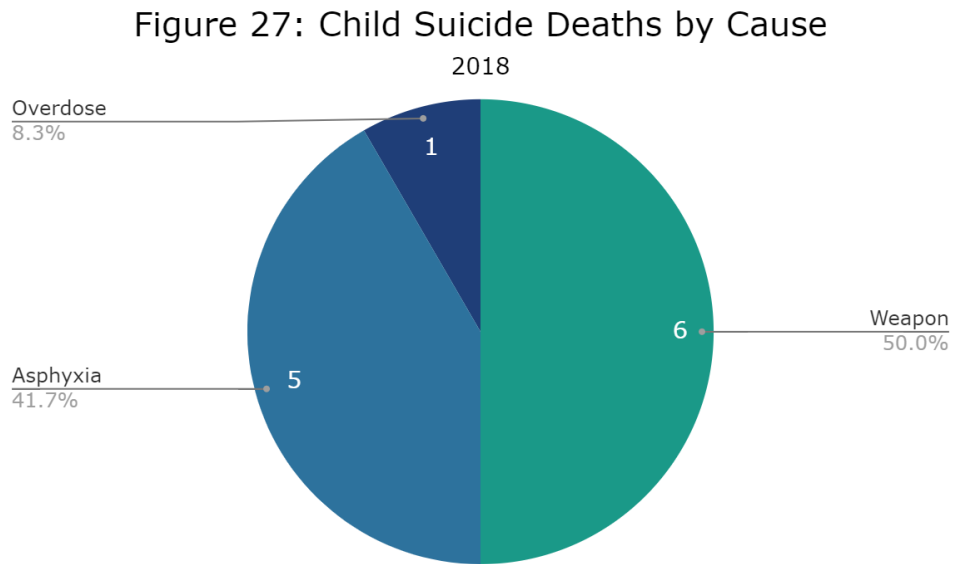
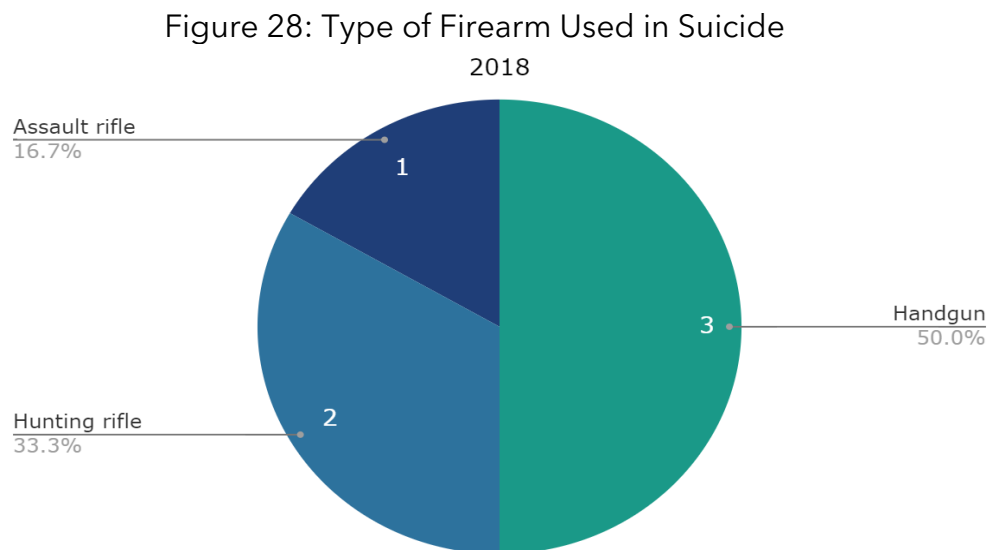
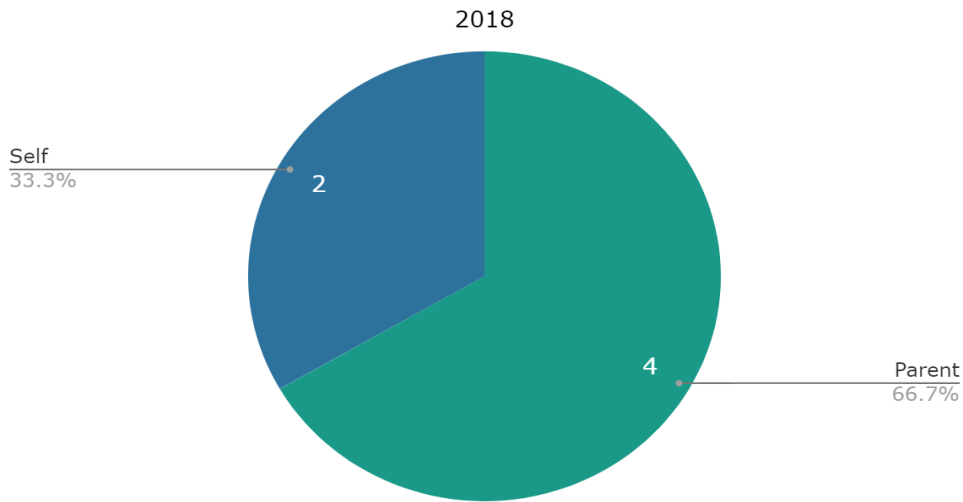


Figure 28 shows three handguns, one assault rifle, and two hunting rifles were used to complete suicides.



Ownership of the weapon used in the suicides can be seen in Figure 29. There were four deaths in which the parent was the owner of the firearm, one death in which the youth owned the hunting rifle, and one in which the youth owned the assault rifle.

Figure 29: Owner of Firearm Used in Suicide



The common factor in firearm deaths was that little to no safety features were used. Table 2 shows this information and displays whether the safety feature was used (yes) or not (no) in each of the firearm deaths.

Table 2: Firearm Safety Features			
	Yes	No	Unknown
Trigger lock	1	4	1
External safety	2	3	1
Loaded chamber indicator	1	4	1
Magazine disconnected	1	4	1
Minimum pull trigger	0	0	6
Locked storage cabinet	3	3	0
Stored with ammunition	4	2	0
Stored loaded	4	2	0

Looking at suicide deaths overall, there were some common risk factors involved in the deaths, which are relevant to suicide prevention. It is important to keep in mind that there could be multiple risk factors for each case. Table 3 shows the warning signs that the child showed that could have possibly been used as points of intervention.

Table 3: Possible Warning Signs	
Child talked about suicide	3
Prior suicide threats made	2
History of running away	1
History of self-harm	1

Another important issue to examine when discussing suicide is the events that took place at the time surrounding the suicide. These events are considered personal crises and could be either acute or cumulative with their effect on the child’s despondency. Those factors are found in Table 4.

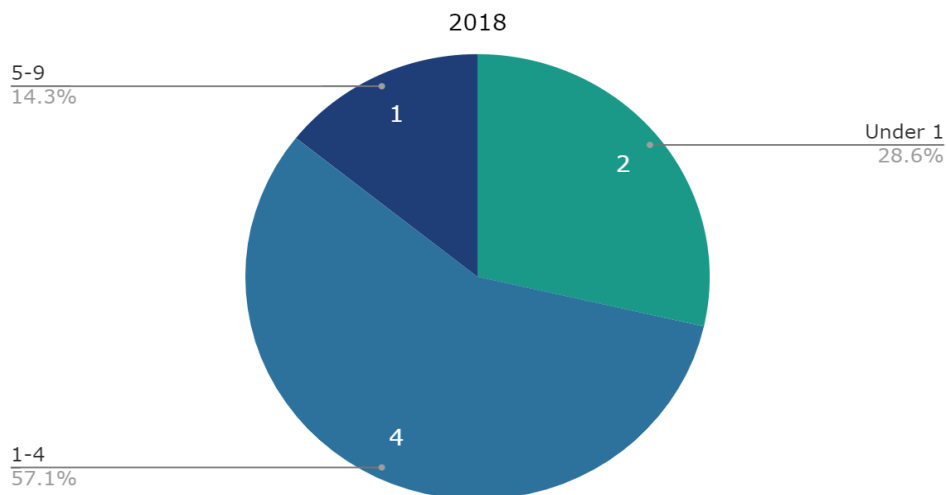
Table 4: Personal Crisis Prior To Death	
Family discord	3
Argument with parents/caregivers	1
Bullying as victim	2
School failure	4
Sexual assault	2
Drug/alcohol use	1
Argument or break up with significant other	4
Loss of friend/relative	2

CPS involvement was also examined. Four of the children who completed suicide had a history of abuse reported to child protective services. One child was removed and adopted while another child was removed and residing in a youth shelter at the time of death. Mental health was another factor that was considered. There were six children who had a history of mental illness and three were currently receiving treatment at their time of death.

Homicide Deaths

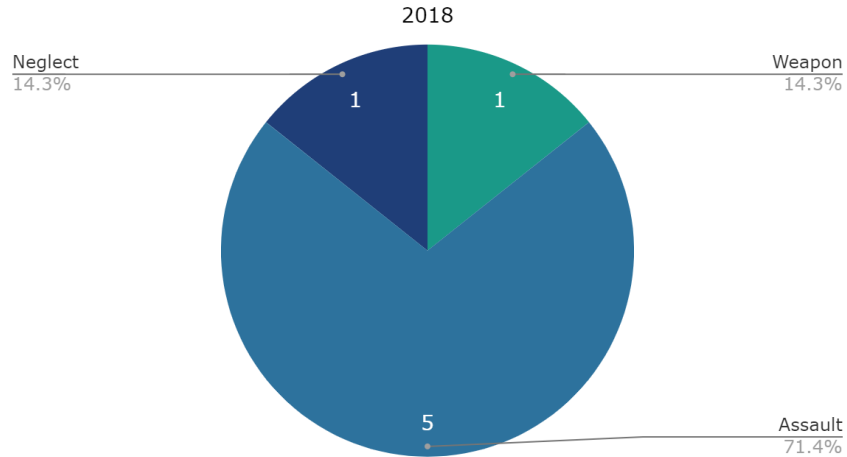
Homicide is among the top causes of death for young people in America [13]. Homicide accounted for seven childhood deaths for West Virginia in 2018, which was the same as the previous year. The homicide deaths of children reviewed were those ranging in age from under one through eight years old. Figure 30 provides a visualization. There were two homicides in infants, four in the one to four age group, and one in the five to nine age group. Looking at the sex of the homicide victims, three occurred in male children and four occurred in female children.

Figure 30: Child Homicide by Age



All child homicides were of children who were Caucasian. Figure 31 displays the means by which homicides were carried out. One death occurred due to the use of weapons. Five deaths were caused by means of abuse or assault. One death was a result of child neglect.

Figure 31: Child Homicide by Cause of Death



Per the United States Office of Juvenile Justice and Delinquency Prevention, a family member is the most likely perpetrator in victims less than six years old. Across all ages, most homicides are committed by an unknown offender with 28% being carried out by a family member [13]. The breakdown of homicide deaths by perpetrator is shown in Figure 32. Five of the seven homicides were committed by a parent or guardian. One homicide was committed by a babysitter, and one was undetermined.

Figure 32: Perpetrators of Child Homicides

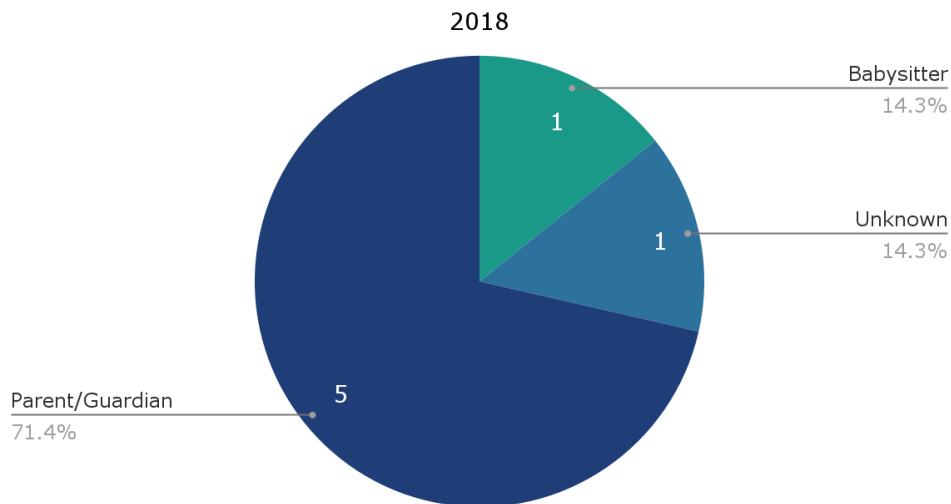
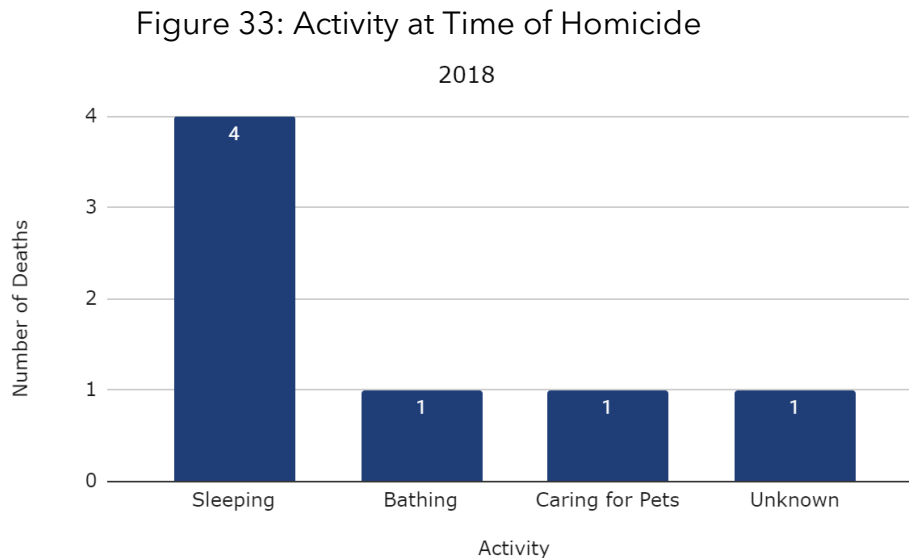


Figure 33 shows the activity at the time of or immediately prior to the homicide taking place. There were four homicides in which the fatal incident occurred while the child was sleeping. There was one death in which the victim was bathing before becoming unresponsive. There was one death

in which the activity at the time of or immediately prior to the homicide was unknown. There was one incident where the child was caring for their pets prior to the homicide.



Recommendations Based on 2018 Data Review

Note: Due to the retrospective nature of the CFRP, some of the recommendations listed may already be in the implementation process at time of report dissemination.

Infant Deaths

1. Continue to provide expectant mothers with information regarding smoking cessation during pregnancy and educate them on the dangers of secondhand smoke.
2. Ensure that parents are asked about their plans for infant sleep prior to leaving the facility after the baby is born. If they do not have a crib or bassinet, guidance should be given on the importance of safe sleep and resources available to help them obtain one.
3. Recommend expanding the current Safe Sleep Campaign to include an emphasis on always keeping the child in their own crib, alone, and on their backs. Increase education to parents, providers, and social service providers so anyone around an infant knows the current safe sleep information. Ensure that the hazards associated with co-sleeping are well known. Also, make it a point to let parents know that it can happen even if they only plan to co-sleep one time. Expand the information provided as part of training by DHHR's Birth to Three program to include special needs children and the importance of not co-sleeping. Make sure that safe sleep messaging is adapted to teen parents as well.
4. Educate minority parents on the increased risk of SIDS compared to their white counterparts. Develop targeted prevention campaigns in African American communities.
5. Expand the program reach of Mountain State Healthy Families (in-home family education) to cover all of West Virginia.
6. Recommend a ban on the sale of bumper pads in the state.
7. Recommend enactment of felony legislation for anyone who causes the death of their child while under the influence of substances.
8. Recommend medical professionals order further testing in instances when an infant does not meet developmental milestones to rule out possible abuse as opposed to waiting to see if the issue corrects itself.

Substance Use Disorder (SUD)

1. Recommend changing the current Child Protective Services (CPS) screening policy on drugs to include prescription drugs for the parent if levels are found to be above the therapeutic range.
2. Recommend expanding programs meant to support mothers while treating them for drug abuse. Included in this program should be help with parenting skills as well as training for CPS workers to be more aware of substances parents are prescribed for treatment and how they affect them.
3. Recommend reinforcing the importance of prenatal care to expectant mothers. Include in the education the importance of abstaining from drug, tobacco, and alcohol use during pregnancy. Reinforce the dangers of using these substances during pregnancy.
4. Educate caregivers of neonatal abstinence syndrome (NAS) and drug-exposed infants about the increased risk of SIDS.
5. Recommend instituting provider education to school personnel on overdose and the trauma caused to the children who witness it. Make sure there is full utilization and expansion of the Handle with Care Program.
6. Recommend increasing the availability of SUD facilities for youth. Additionally, provide access to services for families while the child is in treatment, so the child is not returning to a dysfunctional home life. Make sure appropriate therapy is provided.
7. Recommend implementation of expanded education on disposal of medications found in homes.

Automobile Safety

1. Recommend increasing safe driving education within school systems for children, which would include seatbelt safety and the importance of always using a seatbelt.
2. Recommend creating an updated safe driving video including the newer hazards that face teen drivers. Include real life stories to make the video feel more relatable for teens.
3. Recommend increasing car seat education programs to make sure parents know the correct size for the child, proper installation, and proper placement in the car.
4. Provide more advertisements for the West Virginia Child Passenger Safety Program. This program includes seat fitting stations around the state for certified technicians to assist and inspect car seat installations.
5. Recommend the Don't Drink and Drive Campaign be expanded to Driving Under the Influence, which would also include substance abuse.
6. Recommend increasing awareness for parents about installing apps on their child's phone to prevent texting while driving.

ATV/Motorcycle Safety

1. Recommend adding side-by-sides to the current ATV laws.
2. Recommend increased dissemination of information on the importance of wearing a helmet and not driving on paved roads. Include information on how to check for proper helmet size for a child.
3. Recommend a required license for an ATV and a required operator's course and make stricter age minimums. Hold parents responsible for children operating ATV/UTVs (utility task vehicle).
4. In addition to training courses, tire safety should be taught so operators are more aware of the road types intended for various tires.

Fire Safety

1. Recommend increasing fire safety prevention and education to school-aged children.

2. Recommend a campaign to make the public aware of the free smoke detectors that are available through the West Virginia Fire Marshal and American Red Cross.
3. Recommend educating the public on the importance of purchasing only electrical appliances, especially heaters, that contain an Underwriters Laboratories "UL" label.

Water Safety

1. Recommend a water safety campaign enhancing the message to parents and other adults regarding leaving children unattended near water, including the bathtub.
2. Recommend program to increase awareness of the importance of using life vests. Also, advise children that if they do not know how to swim, they should not horseplay around water.
3. Recommend that all public pools in the state have lifeguard stands that are elevated for visibility purposes.
4. Recommend teaching the importance of placing locks above child's height when barring access to a pool.
5. Increased signage around unsafe water such as drainage ditches to warn of drowning hazard.

Suicide Prevention

1. Recommend increasing the amount of child suicide prevention education. Suicide prevention in school systems needs to increase to include fact sheets on what to look for regarding child suicide risk. This should be available to everyone, especially parents, educators, and anyone who is in close contact with children.
2. Recommend increasing domestic violence education in middle and high school populations.
3. Recommend implementation and/or expansion of an anti-bullying campaign. This needs to include providing support against the stigma/bias against LGBTQ persons.
4. Recommend increasing education on symptoms of depression and drug use, which are correlated with suicide risk.
5. Recommend increasing training for the parental monitoring of social media. Make sure that everyone is aware that any suicidal ideation should be reported to a trusted adult. Promote the available options so parents can help their child seek therapy or therapeutic medication.
6. Recommend a campaign on educating adults on the importance of preventing unsupervised access to means of completing suicide. This includes education on methods of ensuring that guns are safely stored in a locked area and unloaded.
7. Recommend a statute that allows emergency department personnel to report the names of suicide attempt victims to suicide prevention programs so that victim and family support services could be offered.
8. Recommend giving licensed physicians the ability to call in a child advocate to help commit a child for psychiatric evaluation in instances where the parents do not consent.
9. Recommend that schools be required to provide supportive follow up to student body and personnel when a child completes suicide.
10. Recommend that schools provide students and their families with information regarding the 24/7 West Virginia Children's Crisis and Referral Line.
11. Expansion of West Virginia's Expanded School Mental Health (ESMH) program.

Hunting/Firearm Safety

1. Recommend additional hunting education campaigns and ensure campaigns are created to reach the target population.
2. Recommend reviewing and strengthening laws regarding gun purchases for children and increasing education on the importance of keeping guns in a locked safe.
3. Recommend that all West Virginia firearm retailers utilize a system to report a purchase refusal.

Miscellaneous

1. Recommend creating a campaign to teach CPR to all parents before they leave the hospital after a birth.
2. Recommend expanding services of free counseling/bereavement counseling to those in need after the death of a child.
3. Recommend linking the Child Abuse Registry, Vital Statistics, and health care provider information to ensure that if there is a pregnancy in someone known to be a child abuse offender, all are notified to watch for the baby to be born and notify CPS.
4. Recommend that an incident report be filed by law enforcement when attending a child death scene.
5. Recommend a statute that homeschooled children be regularly monitored by professionals to prevent abuse.
6. Recommend a requirement that all family court placements have background checks.
7. Recommend a public service announcement for “Camp Good Grief” and other grief programs for children so that grieving children can get the help they need following the loss of a loved one.
8. Recommend uniform use of Skylar’s Law (re: Amber Alert System) throughout the entire state.
9. Recommend that law enforcement treat all child death investigations with the same standards as a homicide investigation.
10. Recommend a campaign to make sure that mothers with type 1 diabetes are aware of the dangers of breastfeeding and hypoglycemia.

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DOMESTIC VIOLENCE FATALITY REVIEW PANEL

Overview

The West Virginia Domestic Violence Fatality Review Panel (DVFRP), a part of the FMRT, is a statutory body enabled by the West Virginia Legislature under W. Va. Code §61-12A-1. Panel coordination and staff services are housed in the West Virginia Department of Health and Human Resources' (DHHR) Office of the Chief Medical Examiner (OCME). The DVFRP is responsible for reviewing facts and circumstances surrounding all deaths that occurred in West Virginia of victims or suspected victims of domestic violence, including suicides, for those 18 years of age or older.

The DVFRP is required to provide statistical data and analysis concerning the causes of domestic violence fatalities in West Virginia, promote public awareness of the incidence and causes of domestic violence fatalities, as well as include recommendations for their reduction. The fundamental objective of the DVFRP is to prevent future homicides and suicides by providing necessary tools to families, individuals, and appropriate agencies. DVFRP recommendations are intended to protect victims and hold perpetrators accountable for their crime to reduce the number of domestic violence related deaths occurring in the state.

Membership

According to law, the DVFRP operates under the auspices of the OCME, with the Chief Medical Examiner acting as the chair of the panel. The coordinator is housed within that office as well. Other mandated members of the panel include:

- Four prosecuting attorneys or their designees;
- State Superintendent of the West Virginia State Police or his/her designee;
- One county law enforcement official;
- One municipality police officer;
- One physician, resident, or nurse practitioner specializing in the practice of family medicine or emergency medicine;
- One physician, resident, or nurse practitioner specializing in the practice of obstetrics and gynecology;
- One adult protective service worker currently employed in investigating reports of adult abuse or neglect;
- One social worker who may be employed in medical social work;
- Commissioner of DHHR's Bureau for Behavioral Health or his/her designee;
- Commissioner of DHHR's Bureau for of Social Services or his/her designee;
- One domestic violence advocate from a licensed domestic violence program;
- A representative of the West Virginia Coalition Against Domestic Violence;
- Commissioner of the West Virginia Division of Corrections and Rehabilitation or his/her designee; and
- Director of Office of Epidemiology and Prevention Services in DHHR's Bureau for Public Health or his/her designee.

Types of Deaths Reviewed

The DVFRP reviews cases where the manner of death is classified by the OCME as homicide, suicide, undetermined, or accident. The majority of cases the panel reviews falls into the following categories:

- Homicide committed by current or former intimate partner, current or former roommate, or family member following an act of domestic violence, sexual violence, or stalking, with or without a prior domestic violence history;
- Homicide of perpetrator following an act of domestic violence, sexual violence, or stalking incident to include those caused by officer-involved shootings or bystander intervention;
- Suicide committed by a victim following an act of domestic violence, sexual violence, or stalking; and
- Suicide committed by a perpetrator following an act of domestic violence, sexual violence, or stalking.

Case Review Process

Initial screening of all fatalities is completed by the OCME to determine if they meet the definition for domestic violence. OCME investigators, pathologists and the Fatality and Mortality Review Program (FMRP) Coordinator review all potential cases and make a determination of the domestic violence status based on information available at the time the case is first presented to the OCME. With this method of determination, it is possible some domestic violence cases may be overlooked as vital information is missing at the time of the initial review. In an attempt to identify domestic violence issues, an internet search is performed on West Virginia homicides and undetermined deaths, which sometimes results in the identification of additional domestic violence incidents.

The FMRP Coordinator maintains a running list of all identified domestic violence fatalities which is reviewed by the entire DVFRP. The panel only reviews closed cases and does not attempt to reopen the investigation of those deaths. Closed cases are considered those where the offender is dead, has been convicted in a death, or there is a determination of no further legal action. Consequently, most cases are reviewed approximately two years following the actual event. Case reviews are conducted in confidential meetings. All panel members and invited guests are required to sign an agreement to abide by the confidentiality standards specified in the FMRT statutes.

Prior to case review by the DVFRP, a request for records is sent to all agencies identified as having relevant information. Collected information typically includes demographic information, autopsy reports, criminal and civil court histories of the victim and offender, other known history of intimate partner violence, media reports, information regarding the use of legal or advocacy services, and the details of the incident including those occurring both prior to and following the death.

DVFRP members present a summary of the information collected for each case reviewed during the monthly meeting. This is followed by a panel discussion, which aims to address the following matters for each incident:

- Was the fatality the result of a domestic incident as defined by the state statute?
- What were the perilous events that led up to the fatality?
- Were there any opportunities to prevent the fatality?
- Is training or education needed as it relates to specific areas or occupations?
- How does the incident relate to other reviewed incidents?
- Are there policies relevant to the incident that need to be reviewed or changed?
- Are there lessons or educational messages to be derived from this incident?

As part of the review, the DVFRP identifies which systems, if any, the victim and/or the offender had contact with prior to, during, or after the death. This information helps the panel identify

possible recommendations for improvement to system responses to domestic violence. This method of constructing system recommendations does not in any way have the intention to place blame on any individual or organization. To further support this prerogative, recommendations made throughout the year are assembled and presented as wide-ranging proposals for systemic improvements as opposed to case specific ones. It is with optimism that the panel believes that these recommendations can be used to improve system responses across an array of agencies and service providers to reduce or eliminate domestic violence deaths in West Virginia.

Calendar Year 2017

A Note About COVID-19

In late 2019 and early 2020, the world began confronting a global pandemic. The novel coronavirus, SARS-CoV-2, better known as COVID-19, has impacted almost every facet of society worldwide. This respiratory virus caused disruption in work for the Fatality Review Panels and removed the ability of the DVFRP to meet in person. This decision was made in accordance with Governor Jim Justice's directives in order to better protect everyone's health and to mitigate the spread of a novel virus while public health experts develop knowledge and mitigation strategies. DVFRP in-person meetings ceased after March 2020 and have remained suspended since, adding challenges to the completion of the 2017 case review process. With some members of the review panel in quarantine, others working from home, and yet others still in the office – information, communication and workflow challenges had to be overcome, resulting in a report completed in circumstances that were less than ideal.

For 2017, at the time of suspension of the in-person meetings, the DVFRP had 34 remaining domestic violence death cases to review. In order to meet the reporting requirements, the DVFRP epidemiologist compiled all of the remaining case files and information that would have normally been reviewed during the monthly meetings and together with the DVFRP program coordinator reviewed the remaining cases utilizing the criteria defined in the state code for the DVFRP to make recommendations and ascertain whether or not the case could be ruled out. The results of this partial review were compiled and added to the results from previous meetings. This partial-review process allowed for the final compilation of 2017 data and statistics included in this report.

Findings

For 2017, there were 221 potential domestic violence cases to be reviewed by the panel. The process removed 80 cases, leaving 141 of the deaths to be related to domestic violence. Some of the 80 ruled out cases were a result of the partial-review process explained above.

Often an uninformed discussion of domestic violence creates the image of a male physically assaulting his female partner. Intimate partner violence like this occurs frequently, but as the National Coalition Against Domestic Violence (NCADV) states, "Domestic violence is an epidemic affecting individuals in every community regardless of age, economic status, sexual orientation, gender, race, religion or nationality."¹ NCADV's data indicates that domestic violence can vary greatly from situation to situation; however, the constant variable present in domestic violence cases is one person's consistent efforts to maintain power and control over the other.¹ As an example of the type of domestic violence most prevalent in West Virginia, the DVFRP provides the following hypothetical case:

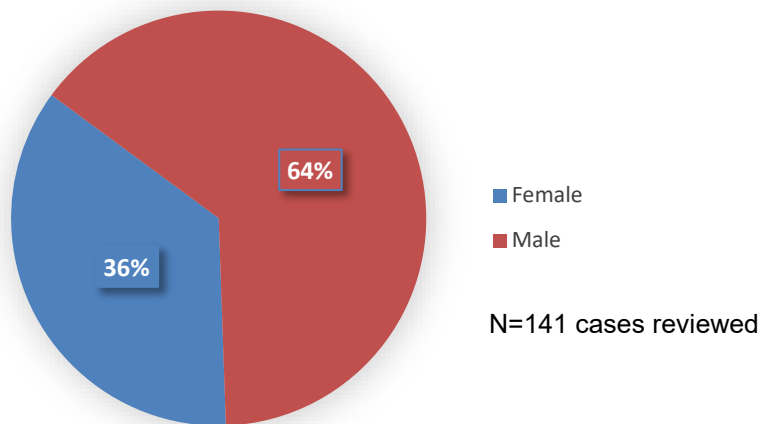
Jonah and Samantha, both white and in their late 30s, have been dating on and off for two years. While they tend to argue, it never became physical until recently. Jonah has recently pushed or shoved Samantha when they get into verbal arguments. Samantha declares that if he does it again, she is leaving and will never come back – for good this time. A week later, Jonah physically pushes Samantha while they are arguing in his home, and she tells him that their relationship is over, and she is not coming back. Jonah threatens one last time that she will be sorry if she leaves and that whatever happens next is her fault. Ignoring his final threats, Samantha leaves and goes back to her home knowing she will be dealing with Jonah’s apology texts, something he does every time they have broken up or gotten into an argument. After a few days of no texts, Samantha goes to his house, now worried he did something drastic, to find him on the floor deceased having shot himself.

This type of story is unfortunately common in West Virginia where some type of verbal, physical, or both types of altercation between two parties takes place and then the male party completes suicide. The goal of the DVFRP case reviews is to provide information and recommendations that can be utilized to prevent this from happening to another person.

2017 Domestic Violence Death Demographics

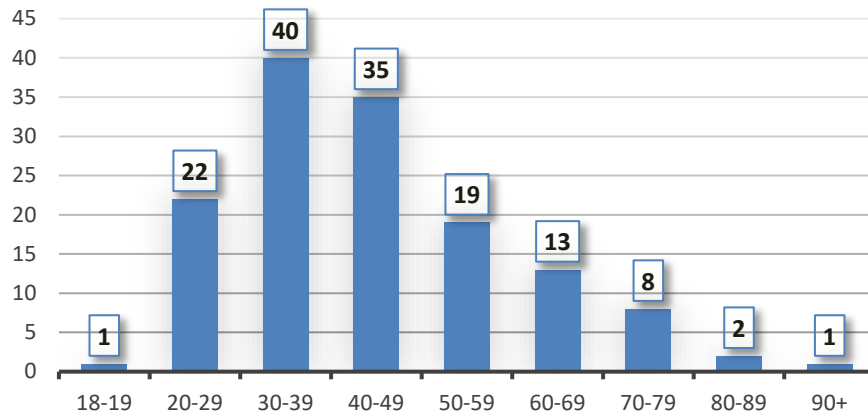
In 2017, the majority of West Virginia domestic violence deaths occurred to white men in their mid-40s. Of the 141 deaths reviewed, 49 were female (36%) and 92 were male (64%), as displayed in Figure 1.

Figure 1 Sex of Decedent



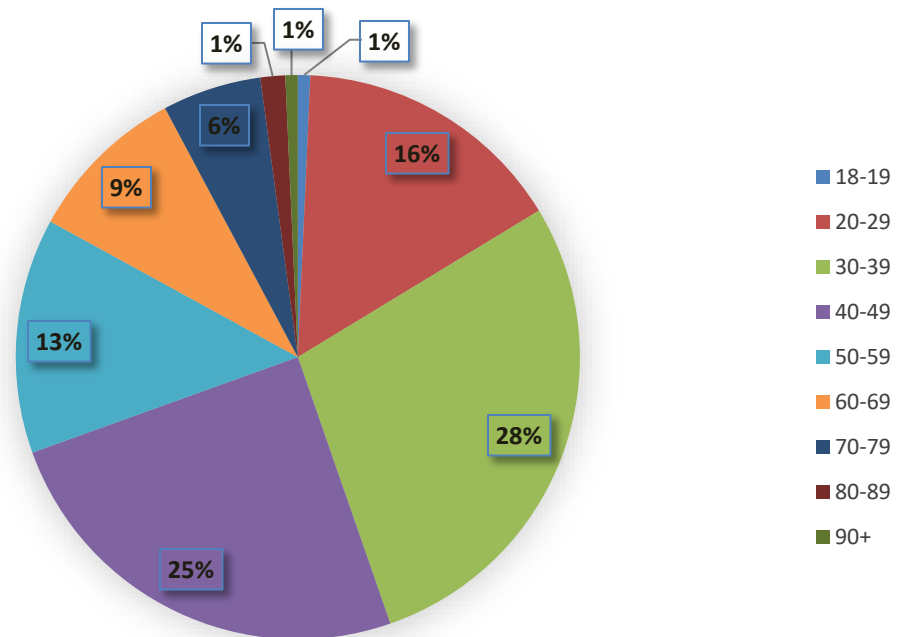
Age varied greatly as illustrated in Figure 2. The youngest decedent was 18 years old, while the oldest decedent was 92 years old. The average age is 44. While 44 years old is the average, the largest age group were those in the 30-39 year-old category, making up 28.4% of all deaths as demonstrated in Figure 3. Figure 2 displays a pyramid effect that indicates as age increases into the 40s the number of cases increases, followed by a reduction in the number of cases as age continues to increase. While the average age and number of cases indicate that victims with an age in their 40s is common for domestic violence deaths, it does not mean that it is a statistically significant risk factor, as this indicates the most common age group only for the year 2017.

Figure 2 Age of Decedents by Amount



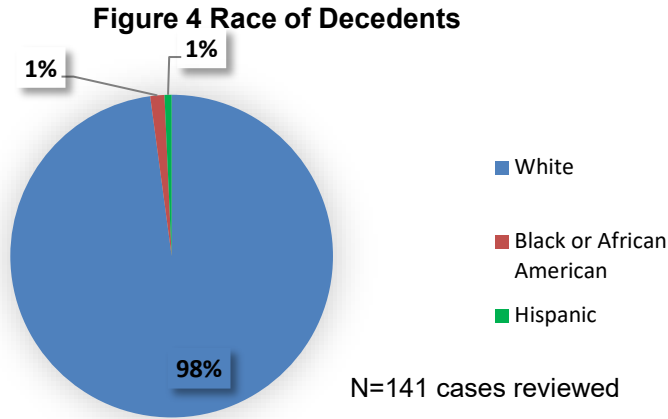
N=141 cases reviewed

Figure 3 Age of Decedents in Percent



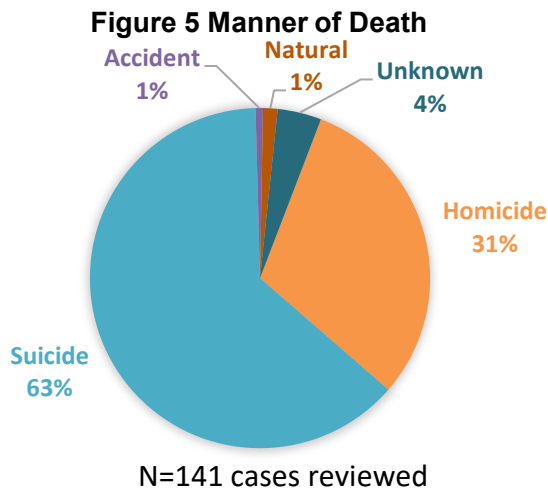
N=141 cases reviewed

The largest demographic dichotomy is found when reviewing the race of the victim. An overwhelming majority of deaths are white, with only ~2% of decedents categorized in all other races as displayed in Figure 4. The racial categories for all 2017 deaths include: white, black or African American, and Hispanic. Non-Hispanic/Latino were not racial categories found.



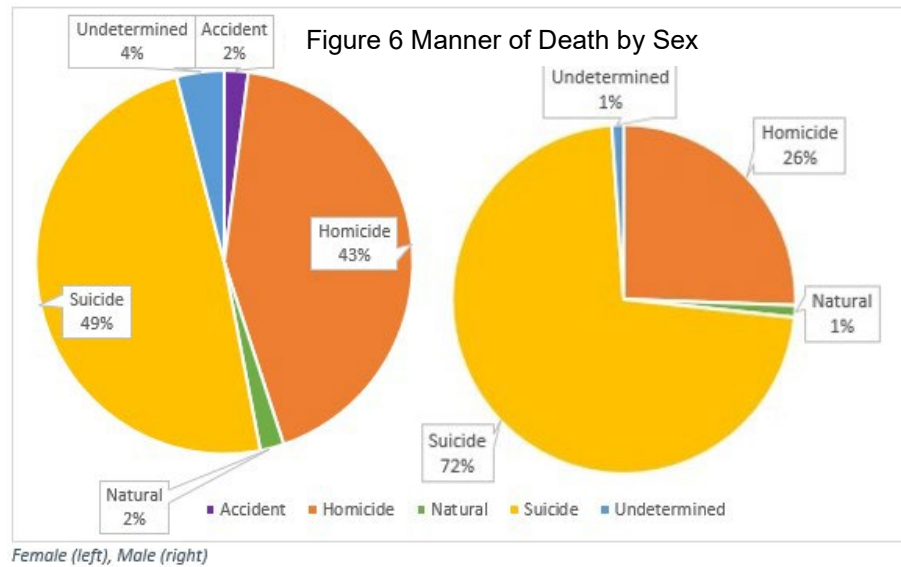
Manner of Death

Manner of death has five categories: homicide, suicide, accident, natural, or undetermined. The DVFRP focuses on homicides, suicides, and accidents with the very occasional natural or undetermined manner of death in certain “but for...” circumstances (see above). In 2017, West Virginia domestic violence deaths (141) were categorized with the manner of death as follows: 44 homicides, 89 suicides, 5 undetermined, 2 natural, and 1 accident. The percent of each manner of death is further demonstrated in Figure 5, indicating that suicide made up the majority of 2017 domestic violence related deaths at 63.1%.

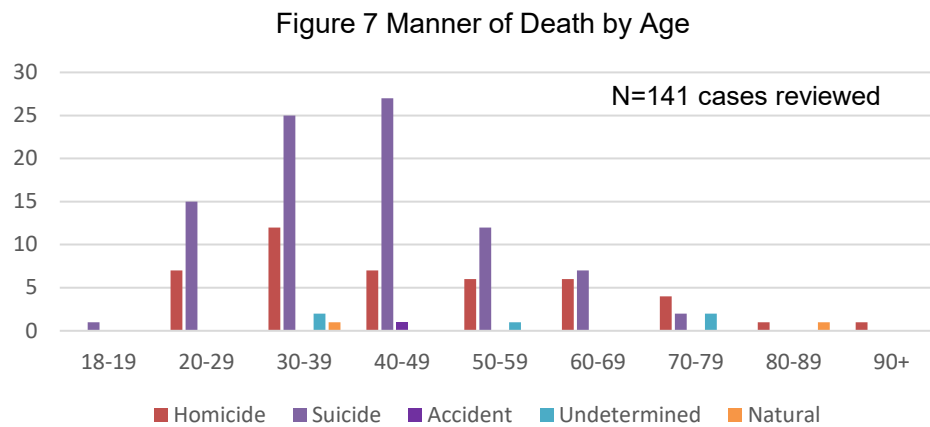


A further breakdown by manner of death and sex is demonstrated in Figure 6. The data indicates that male domestic violence victims (72%) are more likely to complete suicide than their female

counterparts (49%), while female decedents (43%) are more likely to be victims of homicide than their male counterparts (26%).

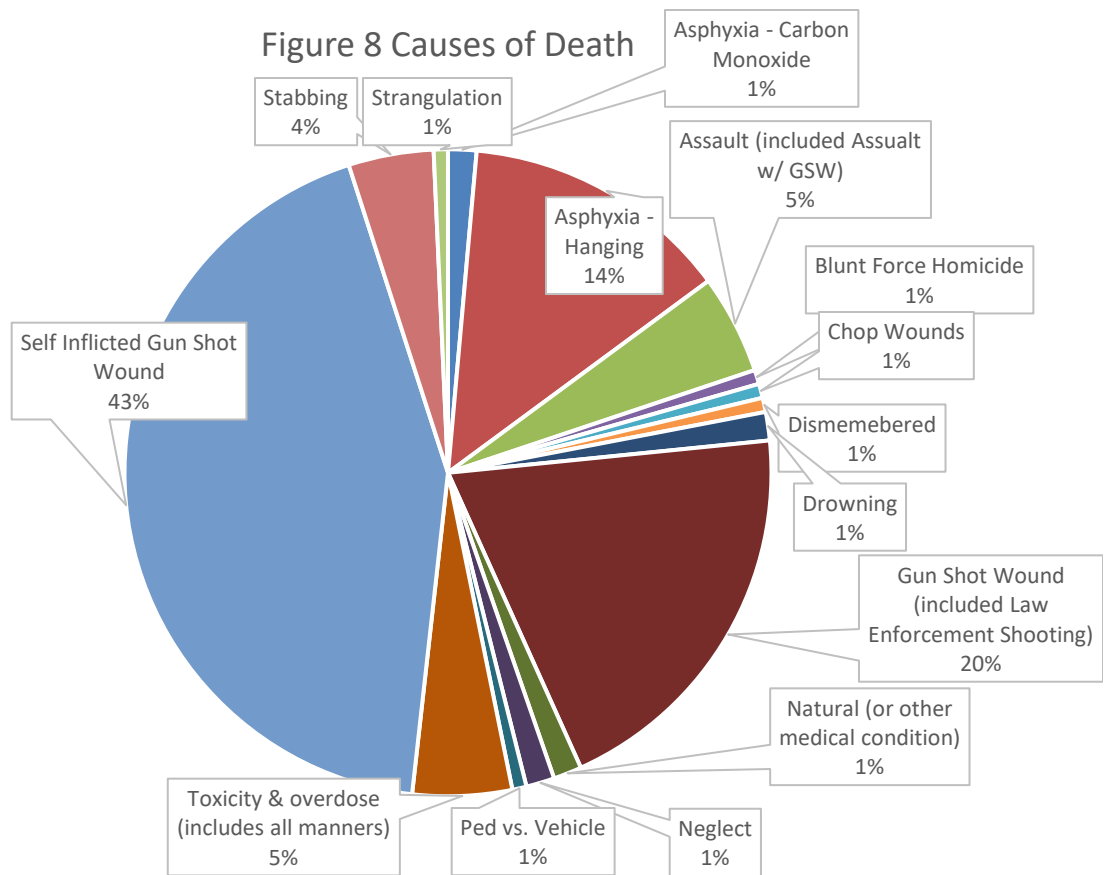


Additionally, the breakdown of manner of death by age is displayed in Figure 7. Suicide is the most common manner of death in each age group until age 70, when homicide is more common.



Cause of Death

When cause of death is determined, it provides a clearer picture of how a person died beyond the narrow categorization of manner. Figure 8 illustrates the reported cause of death for domestic violence victims in 2017. Some were combined to make it easier to read. As displayed above, suicide is the most common manner of death, with self-inflicted gunshot wound as the cause of death in 43% of the suicides. The second most common cause of death for suicides was asphyxia due to hanging at 14%. Homicides are the second most common manner of death overall, with gunshot wound(s) being the highest cause of death for homicides at 20%.



Distribution of Deaths

The distribution of victims and the counties where they resided before they died are in Table 1. Of West Virginia's 55 counties, 41 experienced at least one domestic violence-related death in 2017, resulting in 75% of West Virginia counties being fatally impacted by domestic violence in 2017. This further illustrates the truth of the statement that domestic violence is a problem for all of West Virginia. Four of the decedents in this report were not residents of West Virginia at the time of their death, but died in the state, are counted in the cases reviewed but are not represented in Table 1.

Table 1: County of Residence			
Barbour	2	Mercer	10
Berkeley	5	Mineral	1
Boone	2	Mingo	1
Braxton	2	Monongalia	5
Cabell	10	Monroe	1
Calhoun	2	Morgan	4
Clay	4	Nicholas	1
Doddridge	1	Ohio	1
Fayette	3	Out-of-State Residence	4
Greenbrier	2	Pendleton	1
Hampshire	2	Pocahontas	1
Hancock	1	Preston	1
Harrison	6	Putnam	4

Table 1: County of Residence			
Jackson	2	Raleigh	5
Kanawha	11	Randolph	5
Lewis	2	Roane	2
Lincoln	3	Summers	3
Logan	2	Taylor	3
Marion	1	Tucker	3
Marshall	4	Wayne	3
Mason	1	Wood	4
McDowell	6	Wyoming	4
Total number of WV counties = 41			

Additional important factors to consider when reviewing domestic violence deaths are history of domestic violence; active domestic violence protective orders (DVP) at time of death; and the proximity of an argument preceding the death. These factors are displayed in Figures 9, 10, and 11 respectively. Roughly 25% of decedents had a history of either being a perpetrator or victim of domestic violence. Despite 25% of the cases having domestic violence history, only 6% had an active DVP at the time of death.

Figure 9 History of Domestic Violence

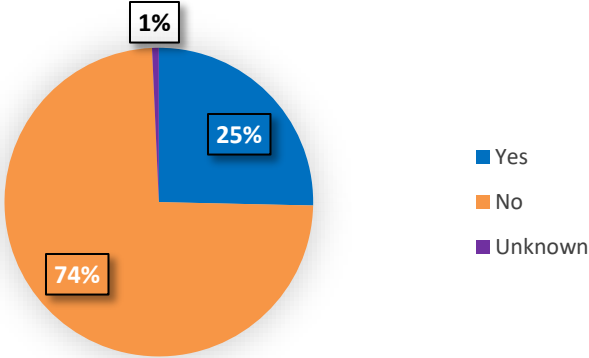
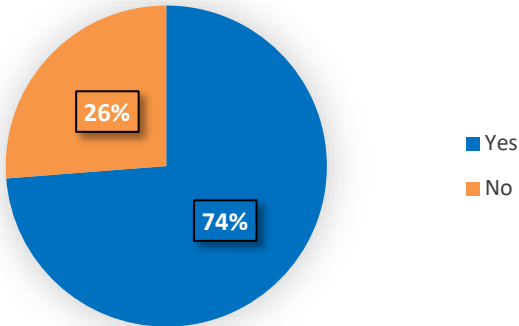


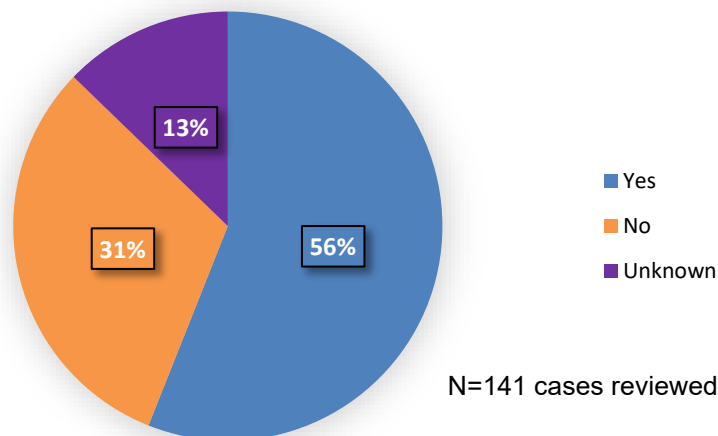
Figure 10 Active DVP at Time of Death



In researching the argument factor, the definition of an argument must be outlined. The term “argument” is broad and generally deemed by the review team as a verbal, physical, or combined

dispute. There is also a need to establish either an official history of domestic violence (meaning a record with a domestic violence help or prevention group and/or law enforcement) or a witnessed account received about whether or not someone had an argument preceding or during the violent act that led to death. In the cases reviewed by the DVFRP, many of the case files indicated that an argument directly preceded the violent action, as displayed in Figure 11 where 56% of deaths had what met the definition of an argument before death. While not proof that an argument was the catalyst for violent action, it indicates that causation cannot be ruled out.

Figure 11 Argument Before Death



Data Limitations

Domestic violence fatalities reviewed by the DVFRP were determined to meet the definition of domestic violence set forth in the W. Va. Code. Some fatalities reviewed may have had elements of domestic violence identified in the victims' lives, but it could not be determined that domestic violence was linked to the cause of death.

2017 DVFRP Recommendations

Note: Due to the retrospective nature of the DVFRP, some of the recommendations listed may already be in the implementation process at time of report dissemination.

1. The DVFRP recommends a centralized coordinator who would work to ensure that law enforcement response to domestic violence calls is consistent and conducted in accordance with West Virginia laws and Legislative rules. This includes one office to be established to coordinate the response statewide. This would be an office that could communicate and collaborate with all the systems and disciplines by employing a person(s) who would coordinate training and best practices based on the best examples from around the state and across the nation. By creating a collaborative environment, that includes the West Virginia Coalition Against Domestic Violence, the West Virginia Foundation for Rape Information Services, the DVFRP, all STOP Teams, all Sexual Assault Response Teams, and Title IX offices, a victim could expect the same comprehensive response anywhere in West Virginia.
2. The DVFRP recommends that a representative from the Department of Veterans Affairs be added to the panel to participate in reviews. The panel believes that this would help with gathering information about past military service of perpetrators and victims.
3. The DVFRP recommends that it be granted a specific point of contact who is able to access information in the Domestic Violence Offender Registry and share registry contents with the panel as it would help the panel gather more information on victims and perpetrators.

4. The DVFRP recommends an updated awareness campaign for domestic violence, which would include exploitation of the elderly.
5. The DVFRP recommends increased funding for and the expansion of Batterers Intervention and Prevention Programs (BIPPs) training at regional jails for incarcerated individuals prior to their release. The panel believes that this would allow intervention to be made at a point that could potentially save a life.
6. The DVFRP recommends expanding training for law enforcement in order to increase awareness of domestic violence beyond intimate partner violence and to make sure this training includes elder abuse.
7. The DVFRP recommends re-implementation and expansion of the Kanawha County Pilot Project with the magistrate court where one judge handles all cases of a domestic violence offender. This allows the judge to see the entire history of the offender and make sure that sentences are appropriate to the crimes committed.
8. The DVFRP recommends that prosecuting attorneys complete a thorough review of domestic violence cases to determine if “no access to firearms” should be a condition of bond. The panel believes that the limitation of access to firearms for offenders could potentially reduce the number of firearm related deaths.
9. The DVFRP recommends that more services be offered to families of victims. This would include access to scene cleanup as well as grief counseling free of charge. Increased awareness of these types of services that are provided to families of victims could greatly help in the grieving process.
10. The DVFRP recommends expansion to Adult Protective Services policies to include a requirement in contacting law enforcement when there is a reasonable suspicion of abuse, neglect, or exploitation even in cases that are not substantiated during their assessment.
11. The DVFRP recommends expanding “Mental Health First Aid” training to help first responders and other bystanders to identify, understand, and respond to signs of mental illnesses or substance abuse disorders. It would give individuals the skills needed to reach out and provide initial help and support to someone in need and possibly help save lives.
12. The DVFRP recommends broadening law enforcement training regarding calls for checking on the welfare of individuals to include screening for possible domestic violence issues.
13. The DVFRP recommends creating a public service announcement about reaching out for help if someone is threatening suicide or harm to themselves or others.
14. The DVFRP recommends increasing the number of monitored parenting and exchange centers (a neutral center where custody of children can be exchanged for visitation – with other accommodations depending on the parent’s and child’s situation) available as well as increasing the usage of such services in domestic violence situations.

References

1. Ncadv.org. 2020. *NCADV | National Coalition Against Domestic Violence*. [online] Available at: <<https://ncadv.org/learn-more>> [Accessed 26 November 2020].

INFANT AND MATERNAL MORTALITY REVIEW PANEL

Overview

The Legislature found that there was a need for a process to study the causes of infant and maternal deaths. Comprehensive studies indicate that these mortalities are more complex than they initially appear on death certificates and believe that more extensive studies will enable development of a plan to reduce these deaths in the future. Thus, an additional multi-year report was added by legislation passed in 2020, now codified in W. Va. Code §61-12A-2.

The Infant and Maternal Mortality Review process is a method of understanding the diverse factors and issues that contribute to preventable deaths and identifying and implementing interventions to address these problems. The knowledge gained from the reviews may be used to enhance services, influence public health policy, and direct planning efforts intended to lower mortality rates.

Responsibilities of the Infant and Maternal Mortality Review Panel (IMMRP)

The responsibilities of the IMMRP are as follows: (1) identify infant and maternal death cases; (2) review medical records and other relevant data; (3) determine preventability of deaths; (4) establish trends, patterns and risk factors and develop recommendations for the prevention of infant and maternal deaths; (5) provide statistical analysis regarding the causes of infant and maternal fatalities; (6) disseminate findings and make recommendations to policymakers, health care providers and facilities; and (7) promote public awareness of the incidence and causes of infant and maternal fatalities, including recommendations for their reduction.

The IMMRP submits an annual report to the FMRT and to the Legislature concerning its activities and the incidence of infant and maternal fatalities within West Virginia. The report is to include statistics setting forth the number of infant and maternal fatalities, identifiable trends in infant and maternal fatalities in the state, including possible causes, if any, and recommendations to reduce the number of preventable infant and maternal fatalities in the state.

Definitions

Infant Death: Death of a live born infant in the first year of life.

Infant Mortality Rate: Number of infant deaths divided by the number of live births (rate reported per 1,000).

Live Birth: The complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy, which, after such expulsion or extraction, breathes or shows any evidence of life such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

Maternal Death: Death of a woman during pregnancy, at the time of birth or within one year of the birth of a child from any cause related to or aggravated by pregnancy or its management, but not from accidental or incidental causes.

In 1986, the Centers for Disease Control and Prevention (CDC) and the American College of Obstetricians and Gynecologists (ACOG) collaborated to issue a statement recommending the

use of two enhanced surveillance definitions as an approach to more accurately identify deaths among women in which pregnancy was a contributing factor.

Pregnancy-Associated Death (ACOG/CDC): The death of a woman while pregnant or within one year of termination of pregnancy, irrespective of cause.

Pregnancy-Related Death (ACOG/CDC): The death of a woman while pregnant or within one year of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by her pregnancy or its management, but not from accidental or incidental causes.

Pregnancy-related deaths are caused by:

- Complications of the pregnancy itself
- Chain of events initiated by the pregnancy
- Aggravation of an unrelated condition or event by the physiologic effects of pregnancy

Pregnancy-Related Maternal Mortality Rate: Number of maternal deaths related to or aggravated by pregnancy divided by the number of live births (rate reported per 100,000).

Review: The process by which all facts and circumstances about a deceased infant who has died in the first year of life; or, a woman who has died during pregnancy, at the time of birth, or within one year of giving birth, are known, and discussed among members of the IMMRP.

Unexpected Death: The death of an infant who has died in the first year of life; or, a woman who has died during pregnancy, at the time of birth or within one year of the birth of a child, whose immediate death is not anticipated.

Unexplained Death: The cause and manner of death of an infant who has died in the first year of life; or, a woman who has died during pregnancy, at the time of birth or within one year of the birth of a child, that cannot be determined after an autopsy and thorough investigation of the circumstances surrounding the death.

Case Identification of Maternal Deaths

Maternal deaths are identified by linking death certificates for women aged 10-50 years with birth certificates and fetal death certificates. Additional maternal deaths are identified by ICD 10 diagnostic codes O00–O99 – pregnancy, childbirth and the puerperium. All maternal deaths occurring within 365 days of pregnancy conclusion are designated as pregnancy-associated and further investigated.

Cases for review are limited to women of childbearing age who were residents of West Virginia at the time of their death. West Virginia residents who died in other jurisdictions are counted in the official West Virginia Department of Health and Human Resources' (DHHR) Health Statistics Center reports, but they are included in the case reviews only when additional information is available due to the difficulty in obtaining records across jurisdictions.

A Nurse Reviewer reviews death and birth certificates for all pregnancy-associated deaths. Once cases are identified as potentially pregnancy-related, medical records are obtained from all health care facilities providing care before, during and after the pregnancy conclusion. Hospital records at the time of death and autopsy reports are included when applicable. Medical records are de-identified, and a summary of events is developed. These documents are sent to all members

prior to the meeting. Information is entered into a Centers for Disease Control and Prevention (CDC) database known as the Maternal Mortality Review Information Application (MMRIA, or “Maria”). MMRIA is a standardized data collection tool to assist in understanding the causes of maternal mortality and eliminating preventable pregnancy-related deaths.

The IMMRP reviews all pregnancy-associated deaths to determine if they are pregnancy-related. The Panel determines whether the maternal death was preventable, possibly preventable, or not preventable. Opportunities for prevention and recommendations are determined through IMMRP discussion.

Case Identification of Infant Deaths

Infant deaths are identified by linking birth and death certificates for infants in the first year of life. Due to perinatal influences of the mother’s health and maternal risk factors, maternal medical information obtained during pregnancy is also reviewed.

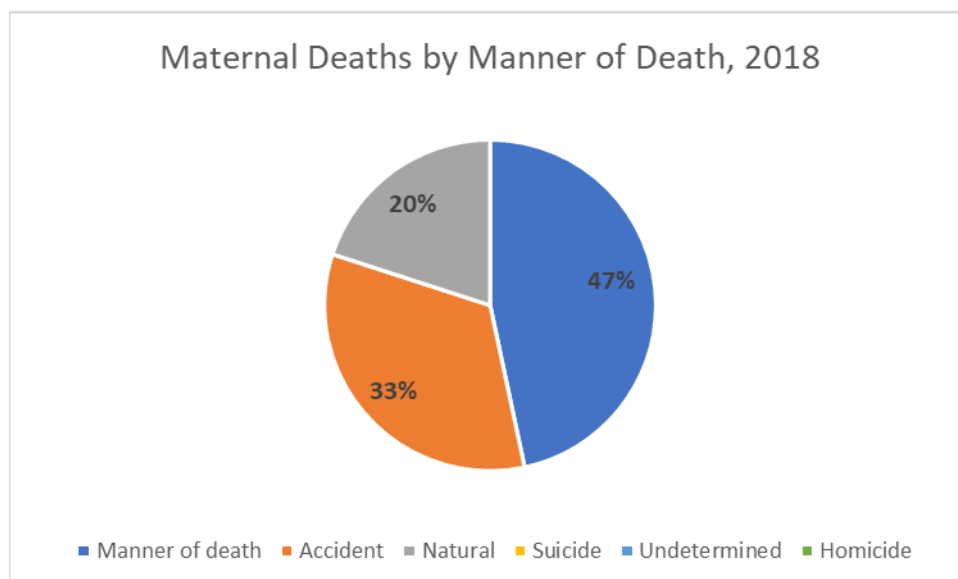
Case reviews are limited to live born infants who were residents of West Virginia at the time of their death. Infants who died in other jurisdictions are counted in official DHHR Health Statistic Center reports but are only included in case reviews when additional information is available due to the difficulty in obtaining records from other jurisdictions.

Maternal Deaths 2018

Manner of Death

In 2018, there were 15 pregnancy-associated maternal deaths of which three were determined to be pregnancy-related and two could not determine whether pregnancy related or associated. The manner of death was listed as: seven (47%) accident, five (33%) natural, and three (20%) suicides.

The rate of pregnancy-related maternal mortality in 2018 was 16.4 per 100,000 (calculated as three maternal deaths divided by 18,243 residence births – 2018 DHHR Health Statistics Center data).

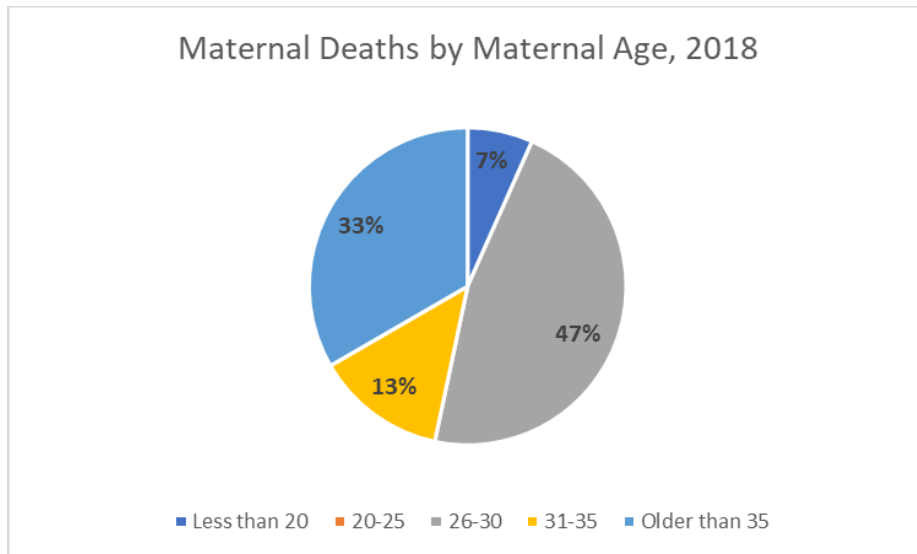


Cause of Death

In 2018, there were 15 pregnancy-associated maternal deaths. Drug abuse was the cause of five maternal deaths, but drug use was noted in eight of the 15 deaths. Two deaths were due to a motor vehicle crash and sepsis in the presence of fetal demise. Five deaths were attributed to natural causes with one each caused by: obesity, pneumonia, pulmonary embolism, peritonitis, and diabetes. There were three suicide deaths that included one self-inflicted gunshot wound, one hanging, and one insulin overdose.

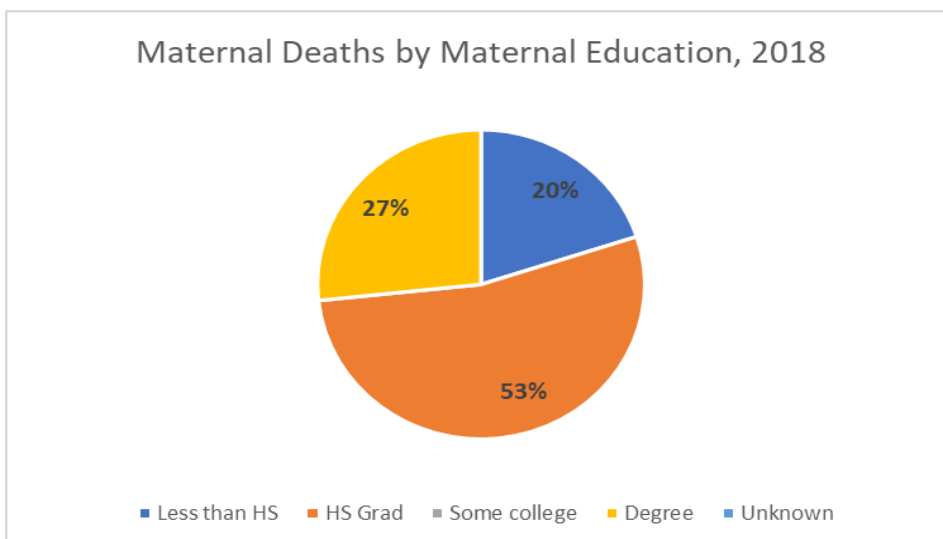
Maternal Age

In 2018, of the 15 pregnancy-associated maternal deaths, one was less than 20 years of age, seven were 26-30 years of age, two were 31-35 years of age, and five were older than 35 years of age.



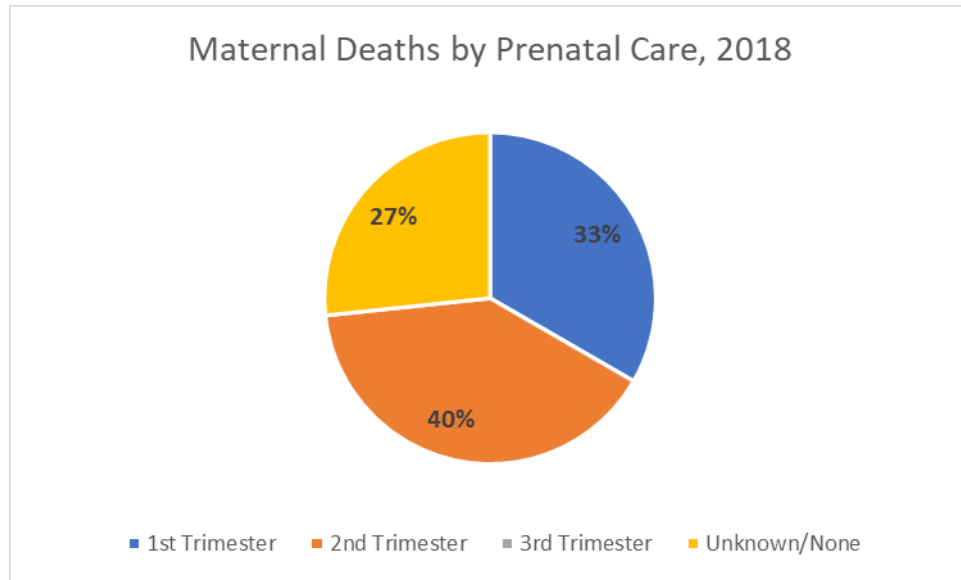
Maternal Education

In 2018, of the 15 pregnancy-associated maternal deaths, three had less than a high school education, eight had at least a 12th grade education, and four had a college degree.



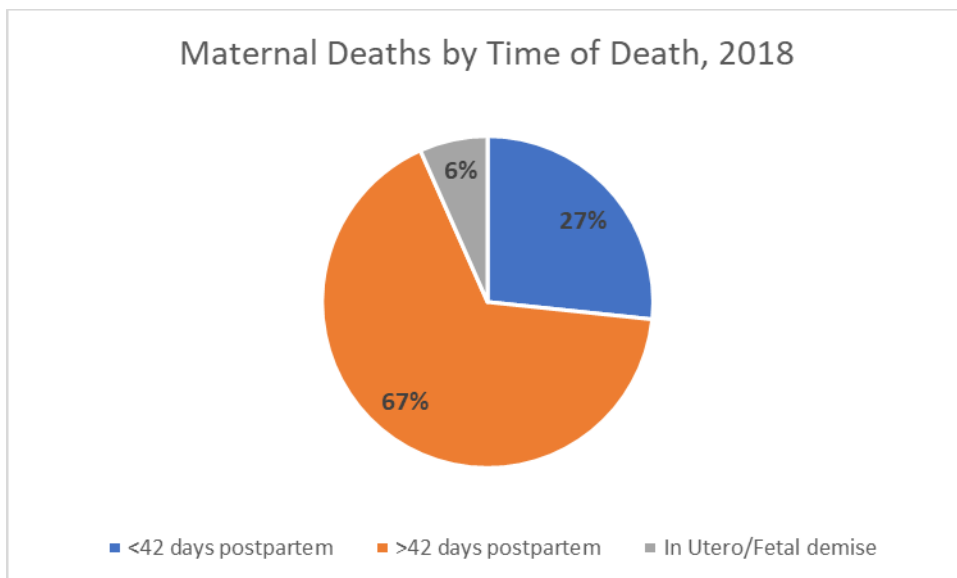
Maternal Prenatal Care

In 2018, of the 15 pregnancy-associated maternal deaths, five began prenatal care in the first trimester, six began in the second trimester, and four had unknown prenatal care.



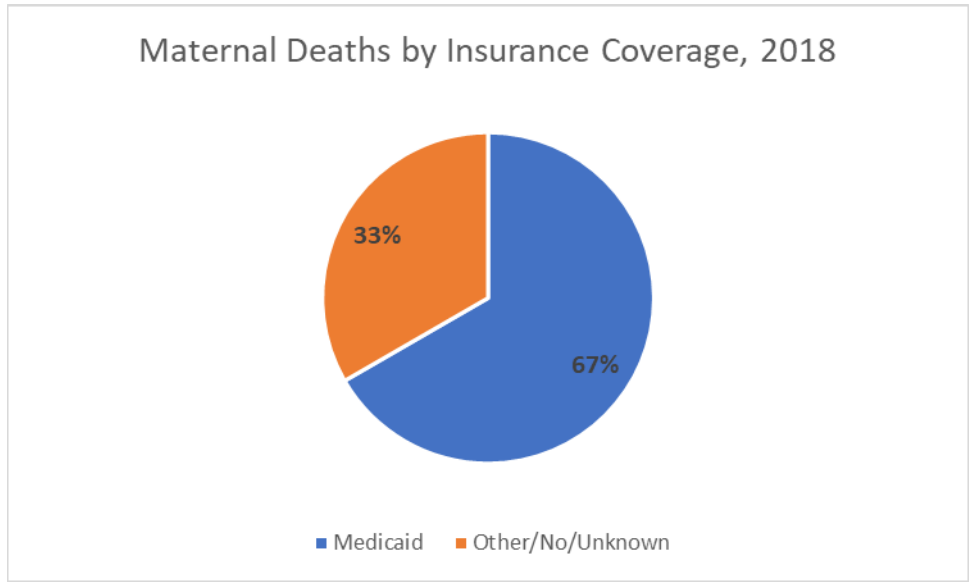
Time of Death

In 2018, of the 15 pregnancy-associated deaths, one death occurred with fetal demise; four deaths, of which one was pregnancy-related, occurred less than 42 days postpartum; and ten deaths occurred greater than 42 days postpartum.



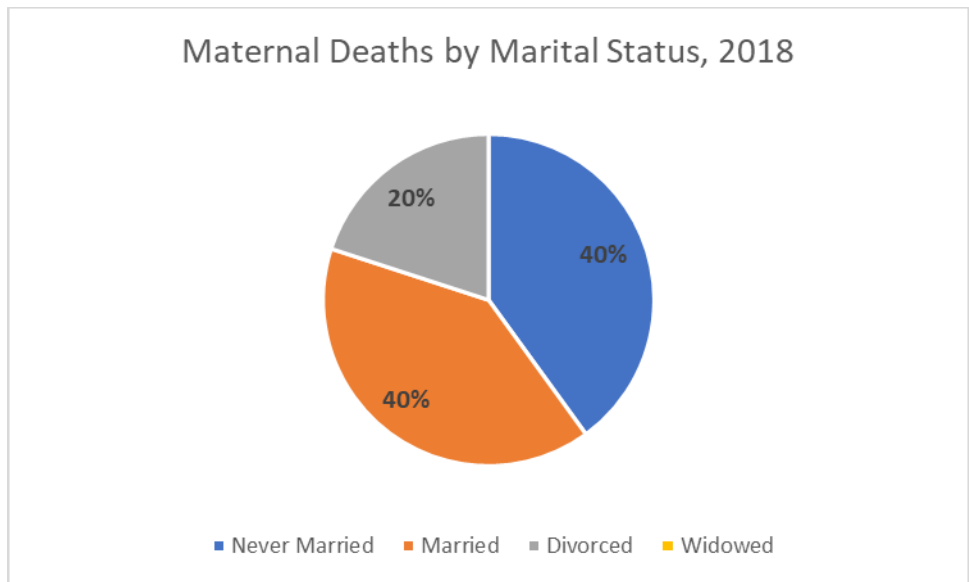
Maternal Insurance Coverage

In 2018, Medicaid was the primary insurance coverage for ten of the 15 pregnancy-associated maternal deaths; five deaths were either covered by other insurance or had no/unknown insurance coverage.



Maternal Marital Status

In 2018, six of the 15 maternal deaths were women who had never been married, six were married and, three were divorced.

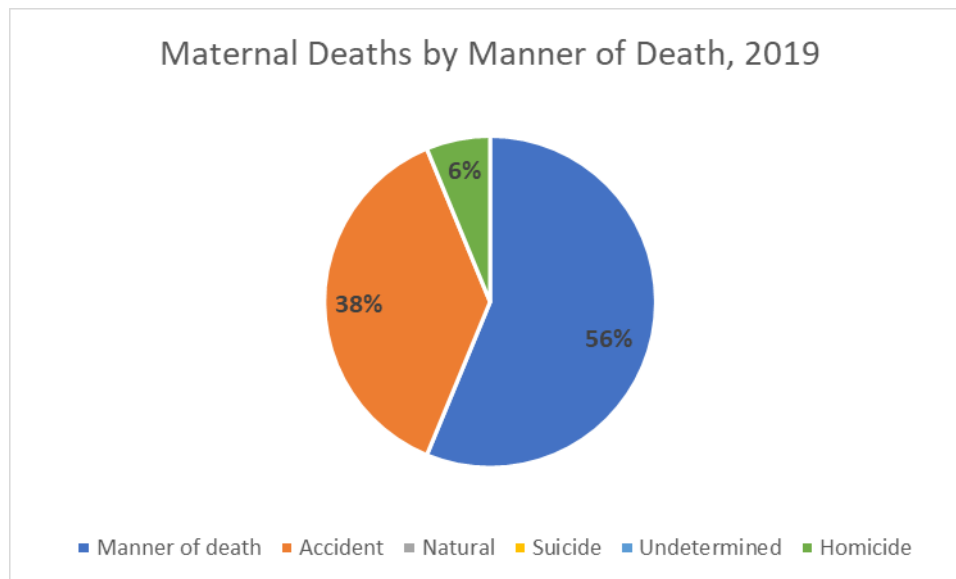


Maternal Deaths 2019

Manner of Death

In 2019, there were 16 pregnancy-associated maternal deaths of which one was determined to be pregnancy-related, and one could not determine whether pregnancy related or associated. The manner of death was listed as: nine (56%) accident, six (38%) natural, and one (6%) pending determination.

The rate of pregnancy-related maternal mortality in 2019 was 5.5 per 100,000 (calculated as one maternal death divided by 18,090 residence births – 2019 DHHR Health Statistics Center data).

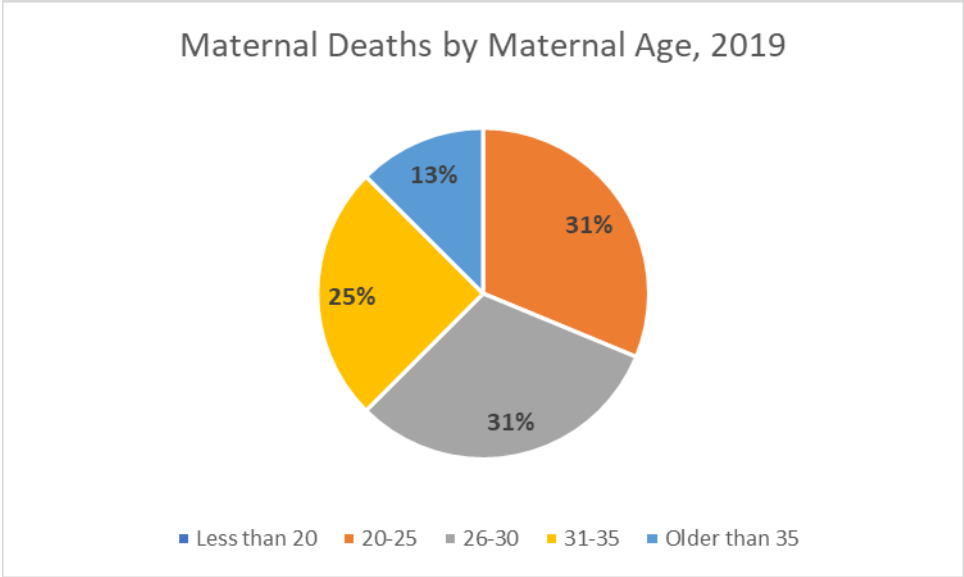


Cause of Death

In 2019, there were 16 pregnancy-associated maternal deaths. Drug abuse was the cause of four maternal deaths, but drug use was noted in eight of the 16 deaths. The three remaining accidental deaths include one drowning, one multiple organ dysfunction, and one pending determination. Three deaths were due to a motor vehicle crash. Six deaths were attributed to natural causes with two caused by sepsis, two caused by cancer (colorectal and breast), one caused by seizure disorder, and one caused by severe metabolic acidosis/hyperkalemia.

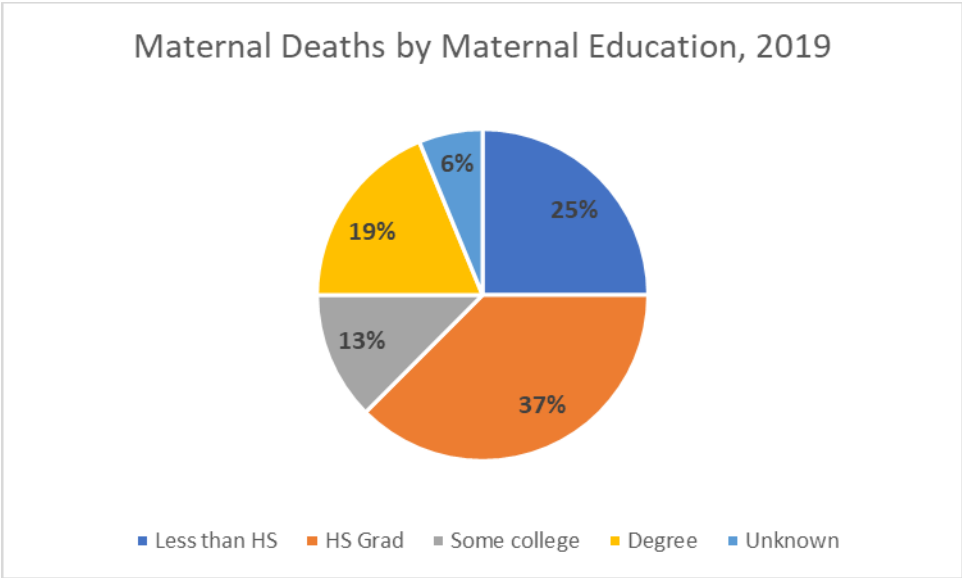
Maternal Age

In 2019, of the 16 pregnancy-associated maternal deaths, five were 20-25 years of age, five were 26-30 years of age, four were 31-35 years of age, and two were older than 35 years of age.



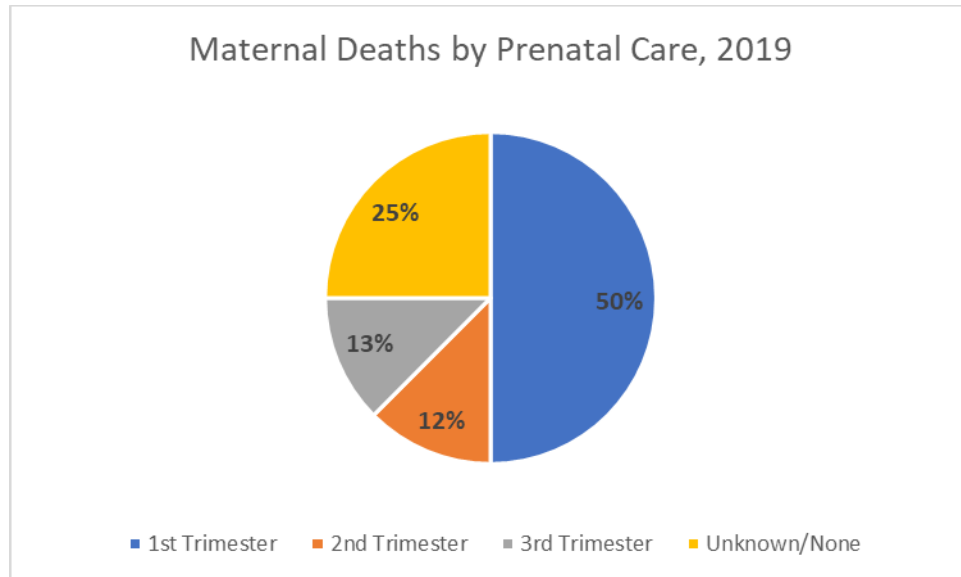
Maternal Education

In 2019, of the 16 pregnancy-associated maternal deaths, four had less than a high-school education, six had at least a 12th grade education, two had some college, three had a college degree, and for one education was unknown.



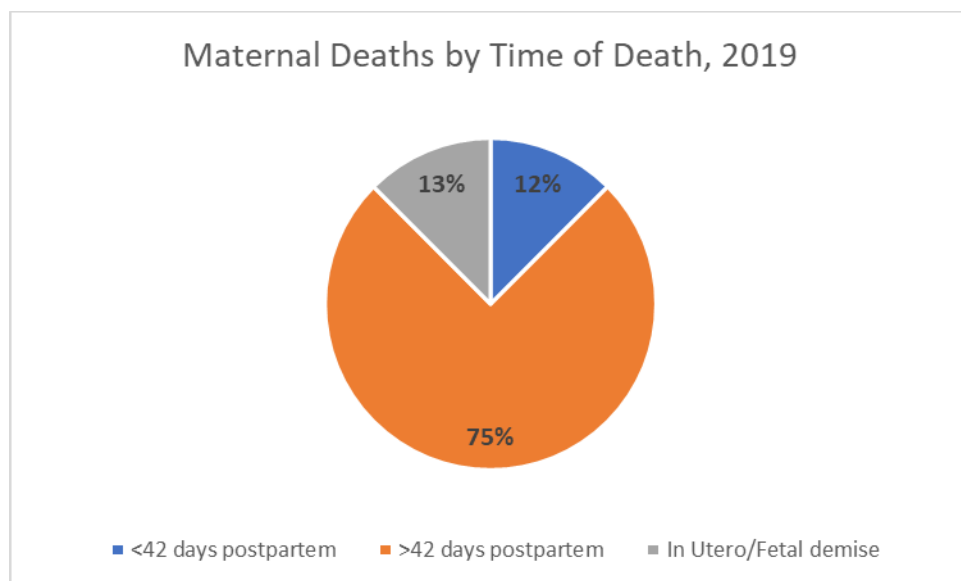
Maternal Prenatal Care

In 2019, of the 16 pregnancy-associated maternal deaths, eight began prenatal care in the first trimester, two began in the second trimester, two began in the third trimester, two had no prenatal care, and two had unknown prenatal care.



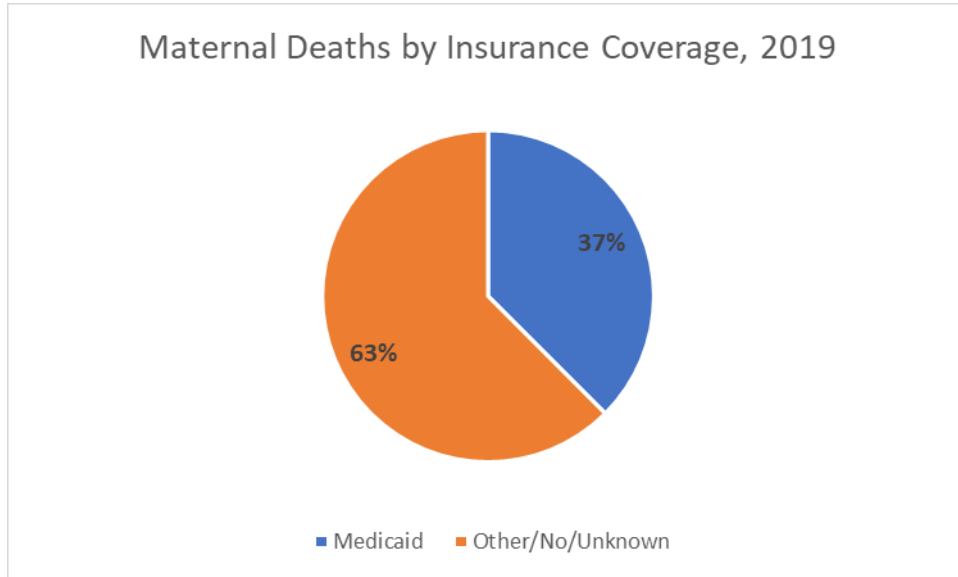
Time of Death

In 2019, of the 16 pregnancy-associated deaths, two deaths occurred with fetal demise; two deaths, of which one was pregnancy-related, occurred less than 42 days postpartum; and twelve deaths occurred greater than 42 days postpartum.



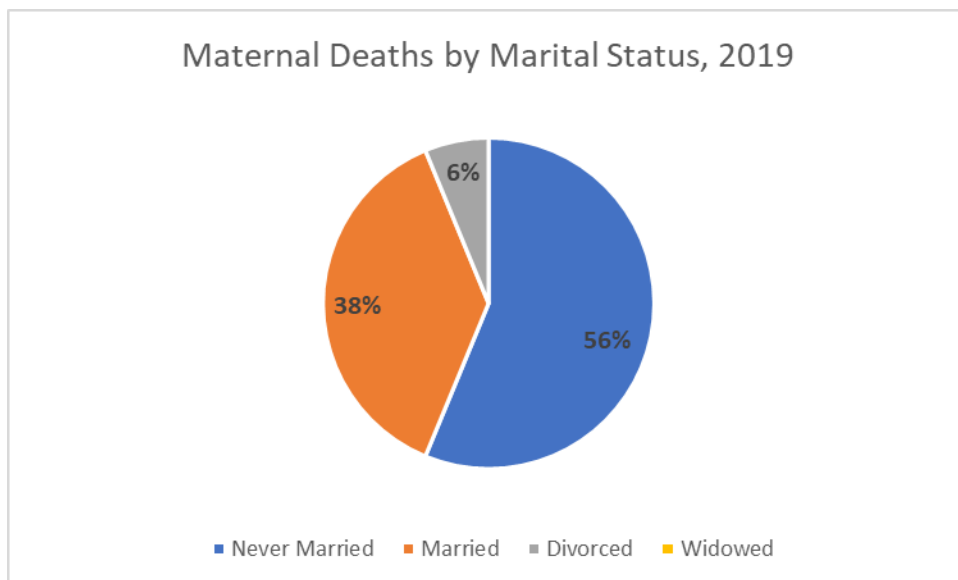
Maternal Insurance Coverage

In 2019, Medicaid was the primary insurance coverage for six of the 16 pregnancy-associated maternal deaths; ten deaths were either covered by other insurance or had no/unknown insurance coverage.



Maternal Marital Status

In 2019, nine of the 16 maternal deaths were women who had never been married, six were married, and one was divorced.

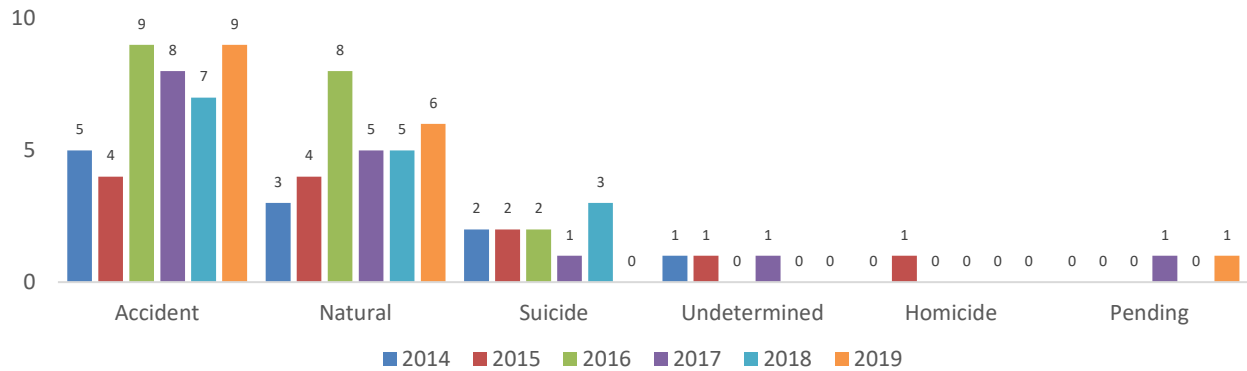


Compiled Maternal Deaths 2014-2019

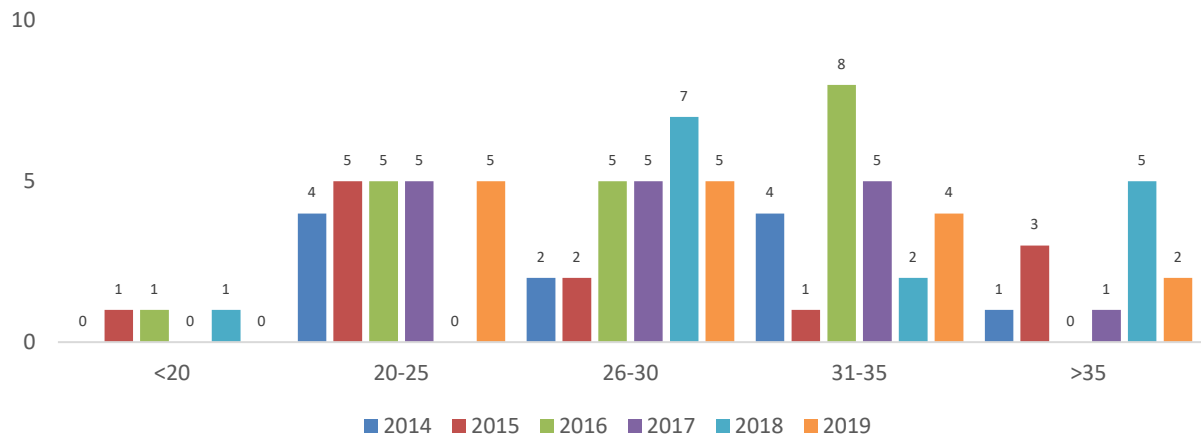
The state pregnancy-related maternal mortality rate for 2014-2019 was 14.0 per 100,000 (calculated as 16 maternal deaths divided by 114,159 residence births – DHHR Health Statistics Center data). The 2019 estimated U.S. pregnancy-related maternal mortality rate was 20.1 maternal deaths per 100,000 births.

WV Maternal Deaths 2014-2019				
Year	All Deaths	Resident Births	Pregnancy-Related Deaths	Pregnancy-Related Rate
2014	11	20,303	3	14.8
2015	12	19,778	3	15.2
2016	19	19,070	2	10.5
2017	16	18,679	4	21.4
2018	15	18,243	3	16.4
2019	16	18,090	1	5.5
Total	89	114,159	16	14.0

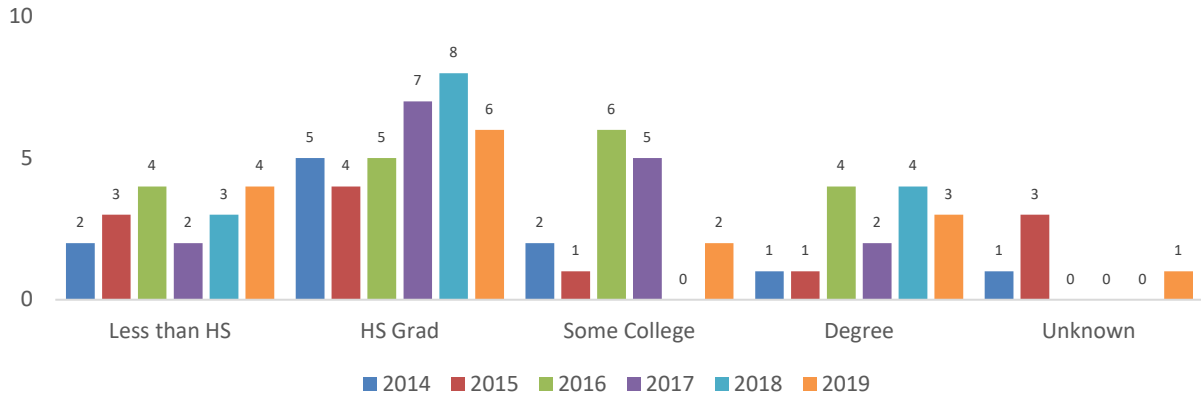
Maternal Deaths by Manner of Death



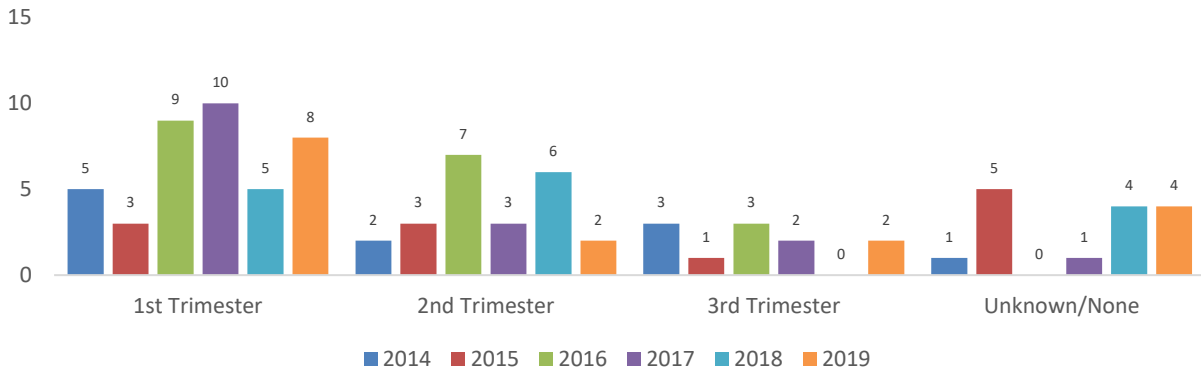
Maternal Deaths by Maternal Age



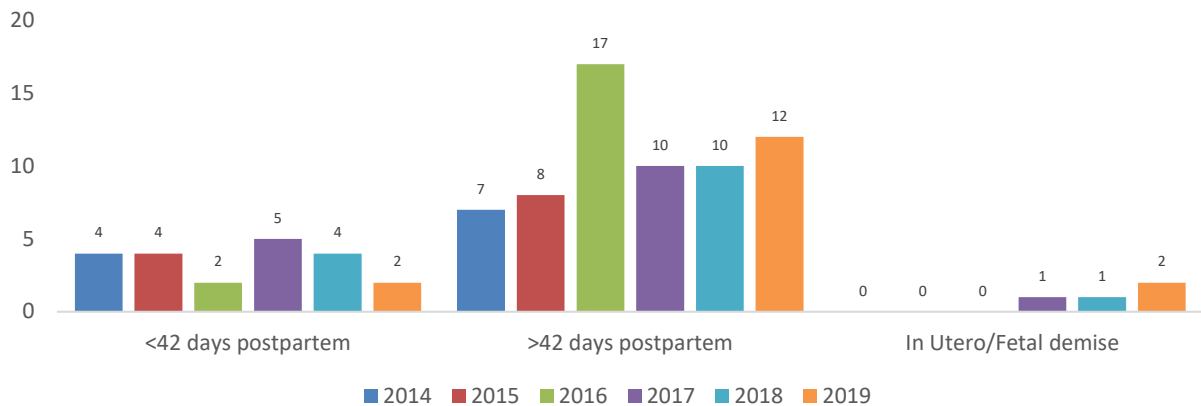
Maternal Deaths by Maternal Education

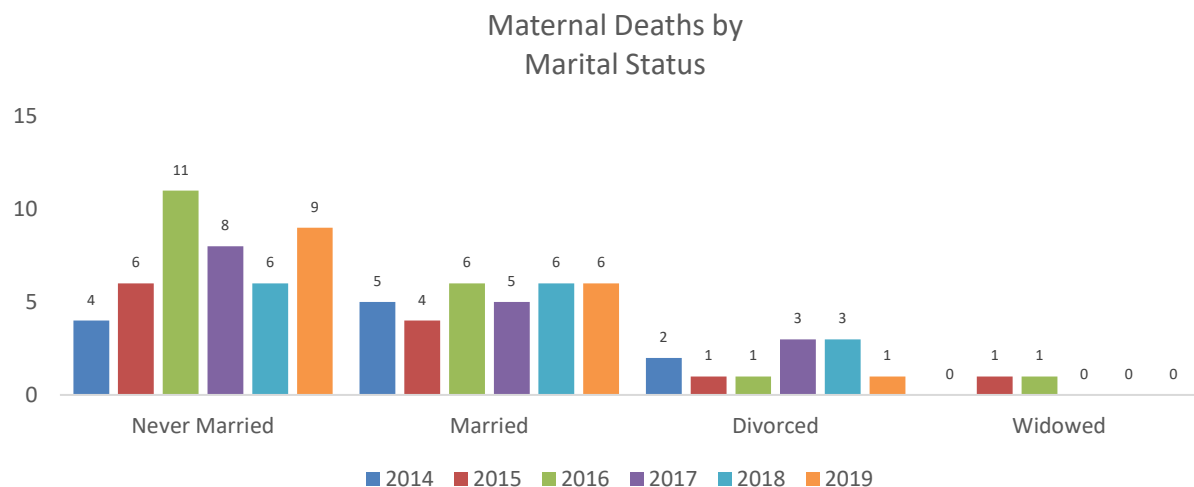
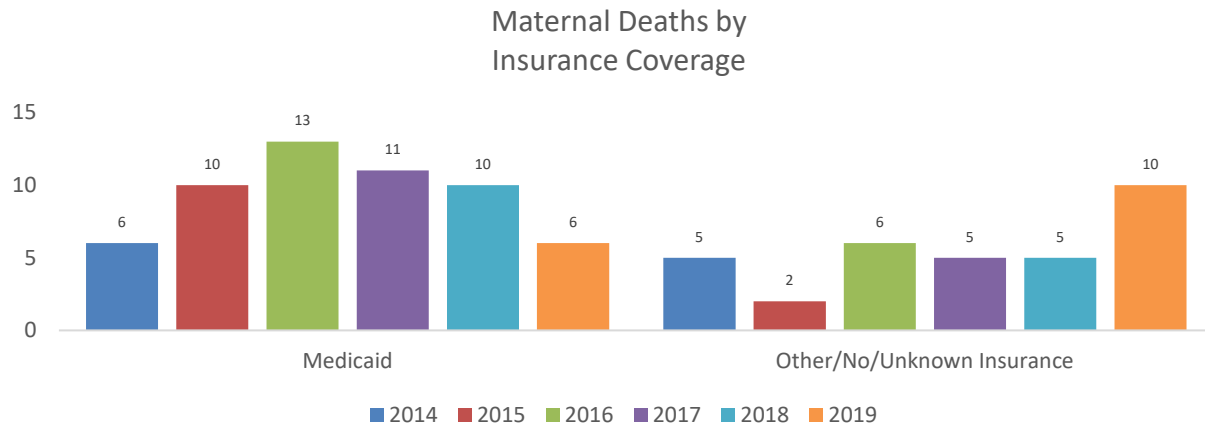


Maternal Deaths by Prenatal Care



Maternal Deaths by Time of Death





Recommendations to Date: Maternal Deaths

Note: Due to the retrospective nature of the IMMRP, some of the recommendations listed may already be in the implementation process at time of report dissemination.

After review of cases, the following recommendations have been made by the IMMRP:

- Education to be provided on the use of vacuum delivery.
- All Maternal Mortality cases be referred to DHHR's Office of the Chief Medical Examiner (OCME) for determination regarding the need for an autopsy.
- Promote screening for postpartum depression prior to maternal discharge from hospital.
- Posters to promote screening and help for postpartum depression.
- Identify and/or promote drug treatment programs in jails; promote seamless referral system for continued treatment for continued treatment post-incarceration.
- Assess if West Virginia prisons provide substance use disorder (SUD) treatment on site.
- Identify and promote available drug treatment/mental health services.
- Review hospitals' criteria for admission of individuals with suicidal ideations (direct admits).
- Additional law enforcement investigation of maternal deaths due to suspected overdoses.

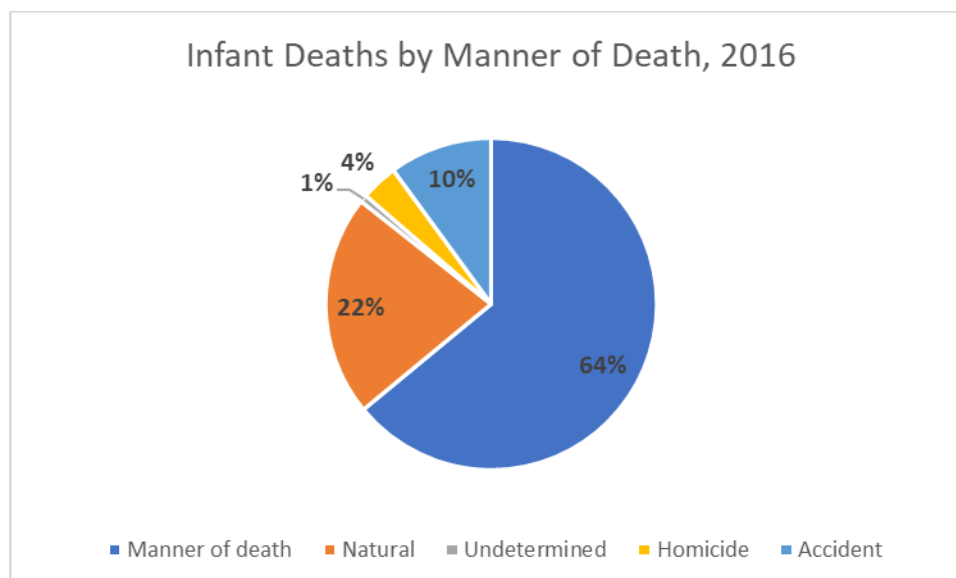
- Narcan be added to the Medicaid Pharmacy Formulary for pregnant women and during postpartum for up to one year after the delivery period.
- Developing a tool to educate on sex during pregnancy.
- Consider offering long-acting reversible contraception (LARC) at all medication-assisted treatment (MAT) offices for easy accessibility to decrease pregnancy in unstable patients. Improve the system to help postpartum mothers get LARC with minimal barriers.
- Provide options for infant and maternal cases to be received in hard copy or electronic versions.
- DHHR's State Health Officer and Commissioner for the Bureau for Public Health to recommend the IMMRP laws be modified to permit cases be identifiable and additional details be shared with IMMRP members.
- IMMRP members receive cases in advance of meeting to have adequate time to review cases and be able to indicate specific cases they would like to discuss by sending an email.
- Obtain out-of-state records for infants who are delivered or expired out of state and mothers who expired out-of-state.
- Request the Governor advocate with out-of-state governmental entities to commit to improved inter-jurisdictional data sharing.

Infant Deaths 2016

Manner of Death

For calendar year 2016, 139 infant deaths were reviewed by the IMMRP. The manner of death was listed as 89 (64%) natural, 30 (22%) undetermined, one (<1%) homicide, five (4%) accident, and 14 (10%) unknown.

The infant mortality rate for West Virginia in 2016 was 7.28 infant deaths per 1,000 live births (calculated as 139 infant deaths divided by 19,070 resident births - 2016 DHHR Health Statistics Center data). In 2016, the CDC reported the U.S. infant mortality rate as 5.87 infant deaths per 1,000 live births.



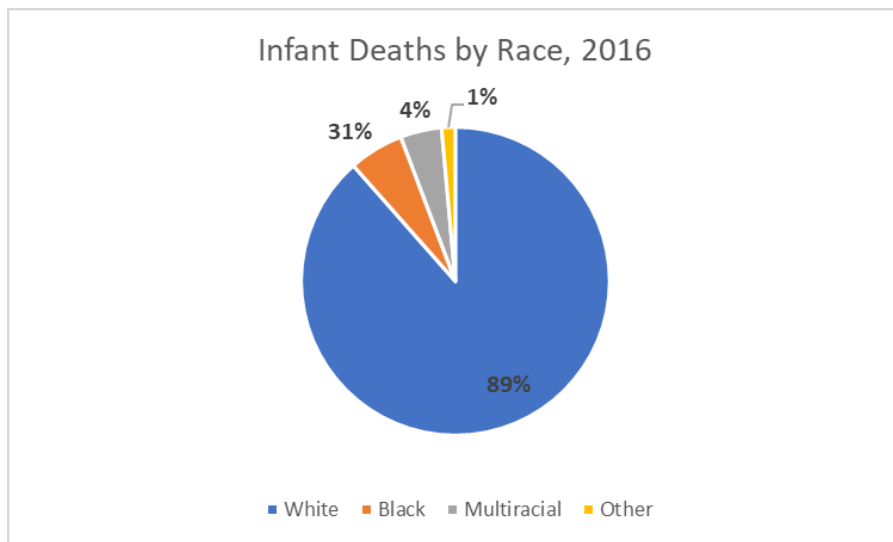
Cause of Death

In 2016, of the 139 infant deaths, 25 deaths were due to prematurity, 30 deaths were due to birth defects, 34 deaths were medical related, 30 deaths were due to Sudden Unexplained Infant Deaths (SUID), 14 were due to unknown causes, five were due to accidents, and one was due to homicide.

In 2017, of the 133 infant deaths, 24 deaths were due to prematurity, 32 deaths were due to birth defects, 33 deaths were medical related, 36 deaths were due to Sudden Unexplained Infant Deaths (SUID), five were due to accidents, and three were due to homicide.

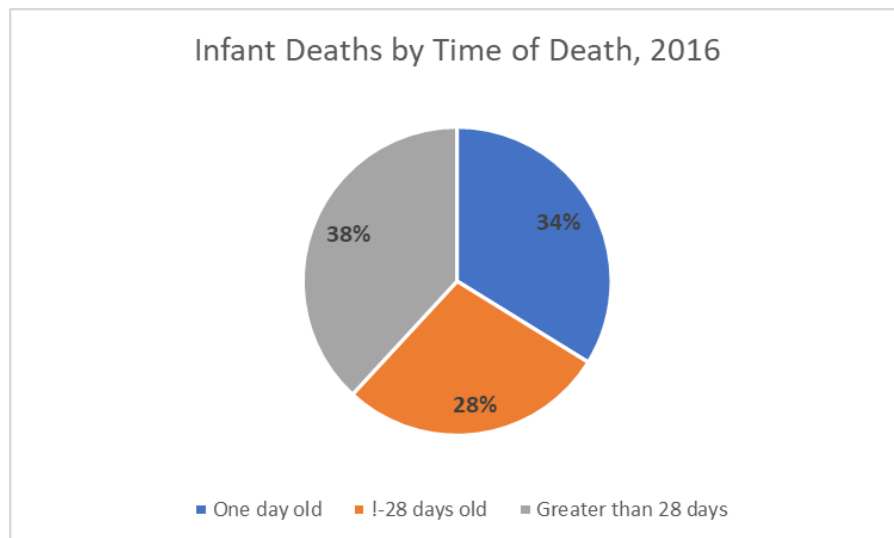
Infant Race

In 2016, 123 of the 139 deaths were white, eight were black, six were multiracial, and two were of other race.



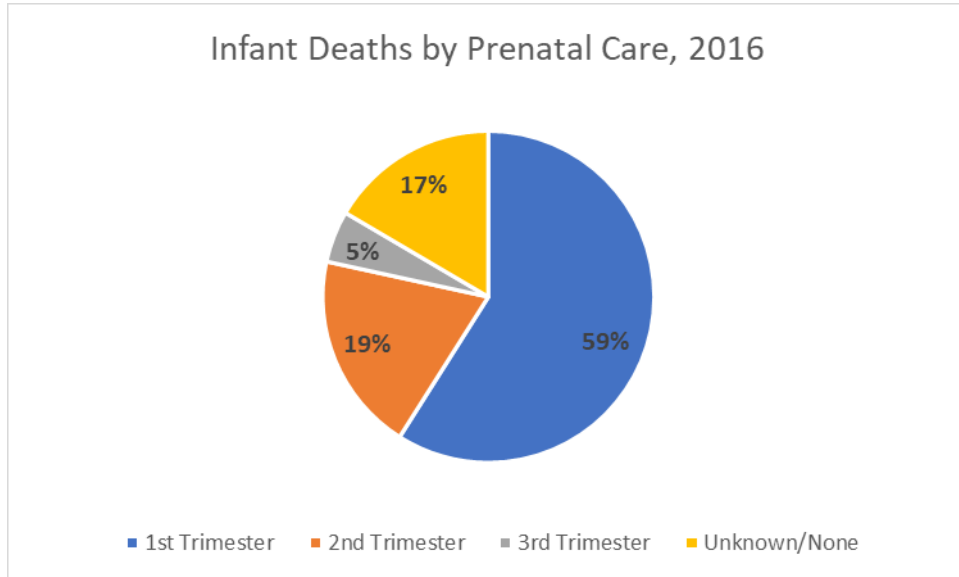
Infant Age at Time of Death

In 2016, 47 of the 139 deaths were less than one day old, 39 were 1-28 days old, and 53 were greater than 28 days old.



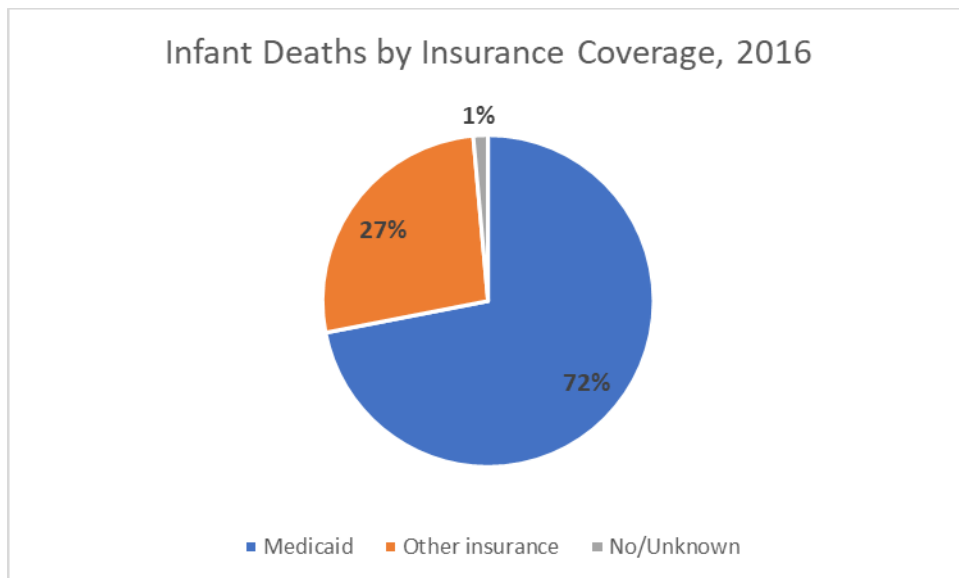
Maternal Prenatal Care

In 2016, 82 of the 139 infant deaths began prenatal care in the first trimester, 27 began prenatal care during the second trimester, seven began prenatal care in the third trimester, 12 had no prenatal care, and the remaining 11 had unknown prenatal care.



Insurance Coverage

In 2016, Medicaid was the primary medical coverage in 100 of the 139 infant deaths, while 37 were covered by other insurance, and two deaths had no/unknown insurance coverage.



Preventability

After in-depth panel discussions, it was determined that 40 (29%) of the 139 infant deaths in 2016 were probably preventable, 86 (62%) were probably not preventable, and the preventability of 13 (9%) deaths could not be determined.

Could the Death Have Been Prevented? 2016 FIMR					
Manner	No, Probably Not	Yes, Probably	Could Not Determine	Unknown	Total
Natural	77	8	4	0	89
Accident	2	3	0	0	5
Suicide	0	0	0	0	0
Homicide	0	1	0	0	1
Undetermined	0	27	3	0	30
Pending	0	0	0	0	0
Unknown	7	1	6	0	14
Total	86	40	13	0	139

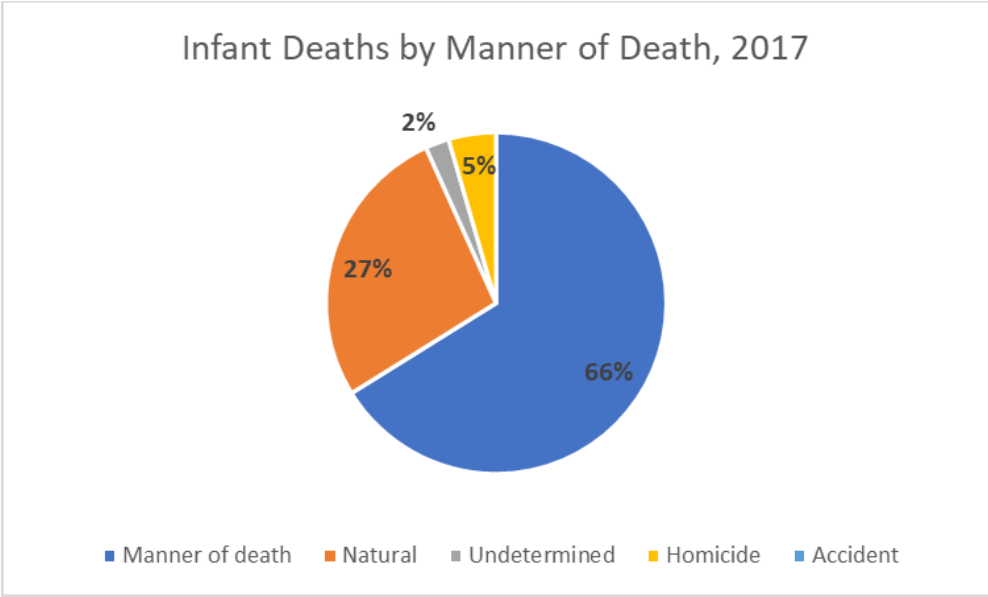
Of the 40 preventable infant deaths in 2016, the race of 38 (95%) were white and the race of two (5%) were black. Twenty (50%) of the deaths were sleep related. Five (12%) had an open CPS file at the time of death. Thirty-one (78%) were insured through Medicaid, four (10%) were insured privately, four (10%) were insured through other means, and the insurance status of one (2%) was unknown.

Infant Deaths 2017

Manner of Death

For calendar year 2017, 133 infant deaths were reviewed by the IMMRP. The manner of death was listed as 88 (66%) natural, 36 (27%) undetermined, three (2%) homicide, and six (5%) accident.

The infant mortality rate for West Virginia in 2017 was 7.12 infant deaths per 1,000 live births (calculated as 133 infant deaths divided by 18,679 resident births - 2017 DHHR Health Statistics Center data). In 2017, the CDC reported the U.S. infant mortality rate as 5.79 infant deaths per 1,000 live births.

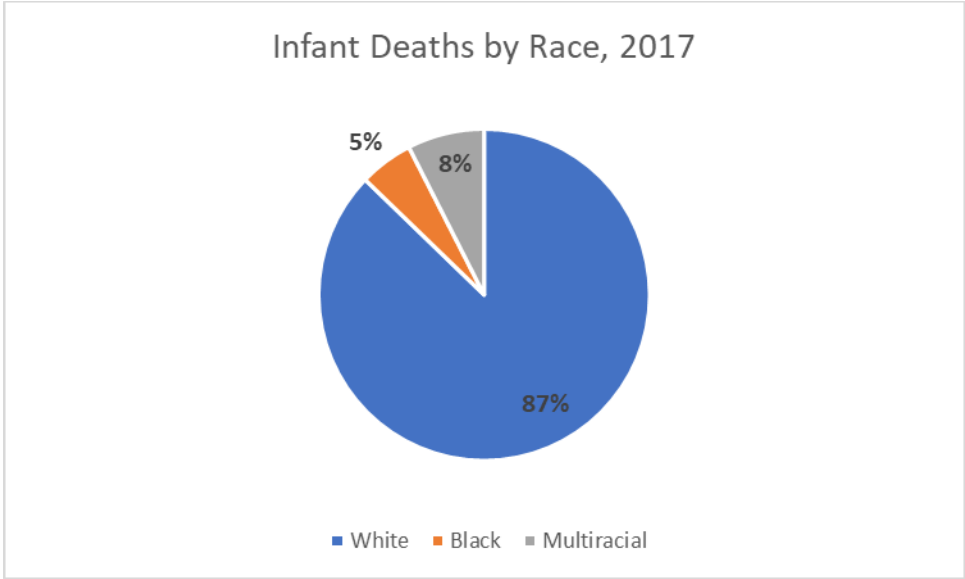


Cause of Death

In 2017, of the 133 infant deaths, 24 deaths were due to prematurity, 32 deaths were due to birth defects, 33 deaths were medical related, 36 deaths were due to SUID, five were due to accidents, and three were due to homicide.

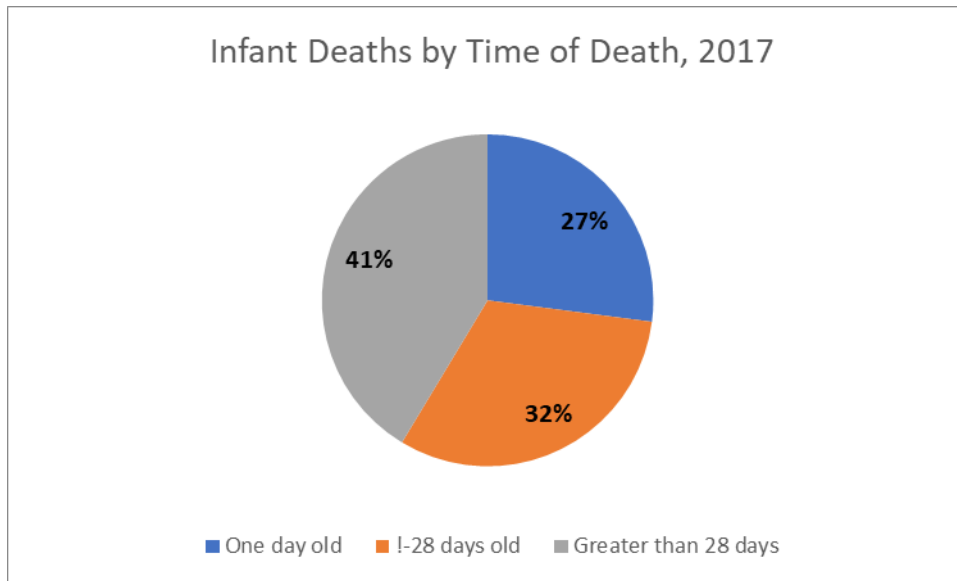
Infant Race

In 2017, 116 of the 133 deaths were white, seven were black, and ten were multiracial.



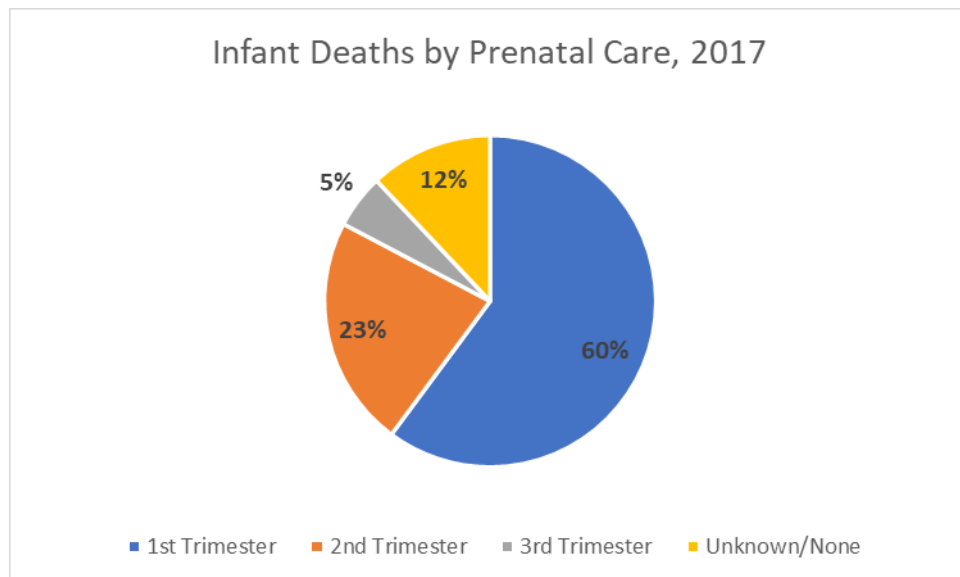
Infant Age at Time of Death

In 2017, 36 of the 133 deaths were less than one day old, 42 were 1-28 days old, and 55 were greater than 28 days old.



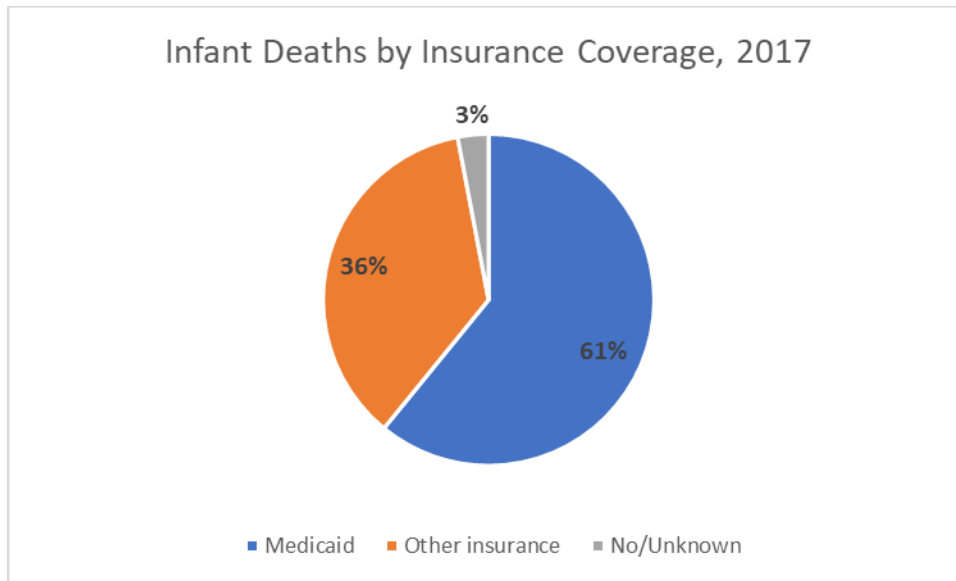
Maternal Prenatal Care

In 2017, 80 of the 133 infant deaths began prenatal care in the first trimester, 30 began prenatal care during the second trimester, seven began prenatal care in the third trimester, eight had no prenatal care, and the remaining eight had unknown prenatal care.



Insurance Coverage

In 2017, Medicaid was the primary medical coverage in 81 of the 133 infant deaths, while 48 were covered by other insurance, and four deaths had no/unknown insurance coverage.



Preventability

After in-depth panel discussions, it was determined that 42 (32%) of the 133 infant deaths in 2017 were probably preventable, 68 (51%) were probably not preventable, and the preventability of 23 (17%) deaths could not be determined.

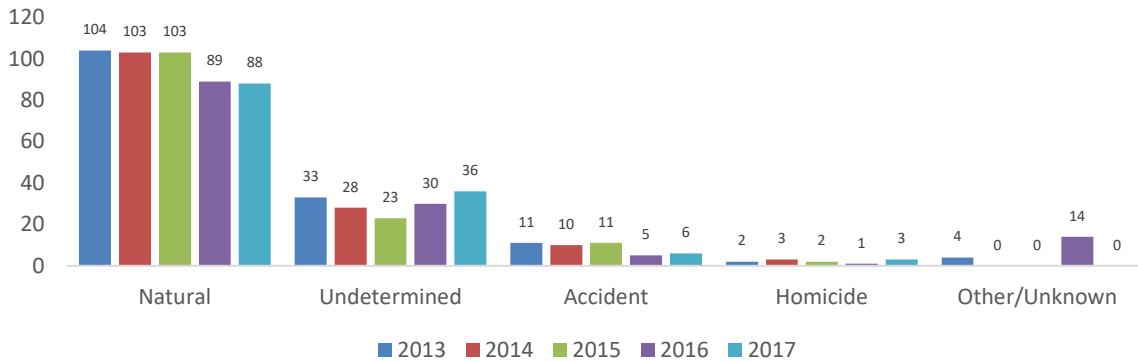
Could the Death Have Been Prevented? 2017 FIMR					
Manner	No, Probably Not	Yes, Probably	Could Not Determine	Unknown	Total
Natural	67	2	19	0	88
Accident	0	5	1	0	6
Suicide	0	0	0	0	0
Homicide	0	3	0	0	3
Undetermined	1	32	3	0	36
Pending	0	0	0	0	0
Unknown	0	0		0	0
Total	68	42	23	0	133

Of the 42 preventable infant deaths in 2017, the race of 31 (74%) were white, the race of six (14%) were black and five (12%) were multi-race. Thirty-eight (90%) of the deaths were sleep-related. Nine (21%) had an open CPS file at the time of death. Thirty-seven (88%) were insured

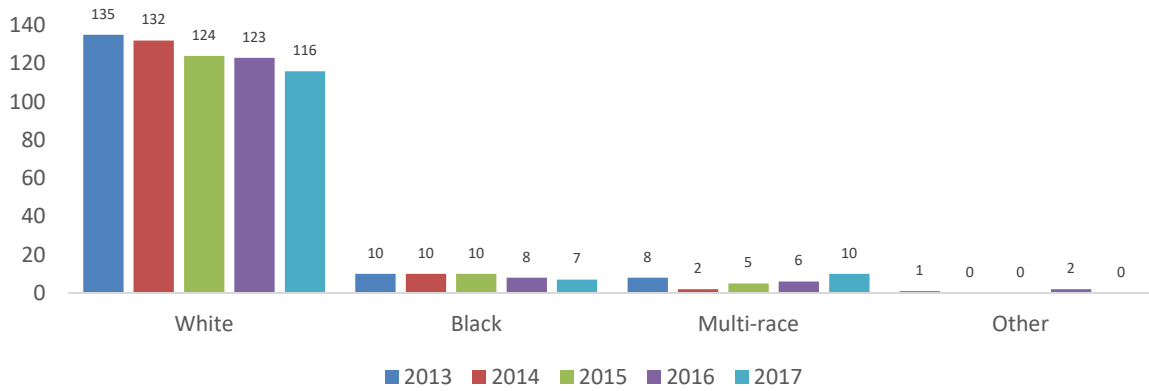
through Medicaid, four (10%) were insured privately and the insurance status of one (2%) was unknown.

Compiled Infant Deaths 2013-2017

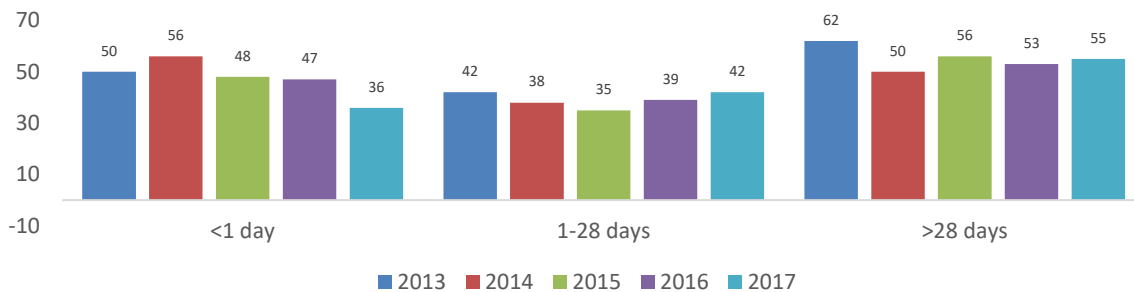
Infant Deaths by Manner of Death



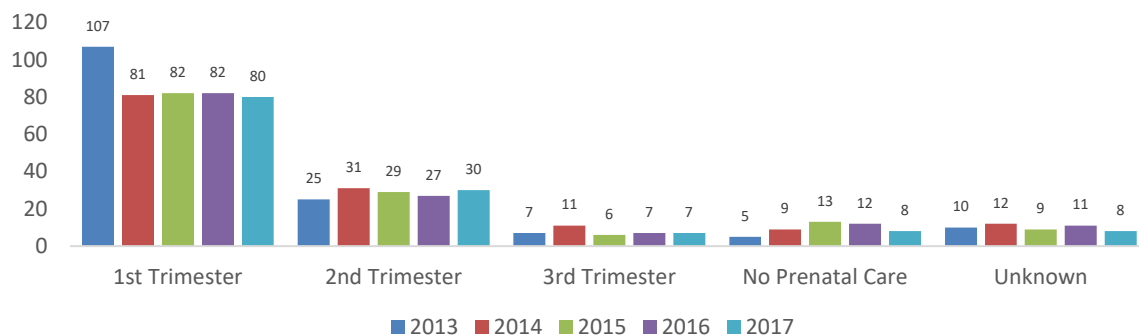
Infant Deaths by Race



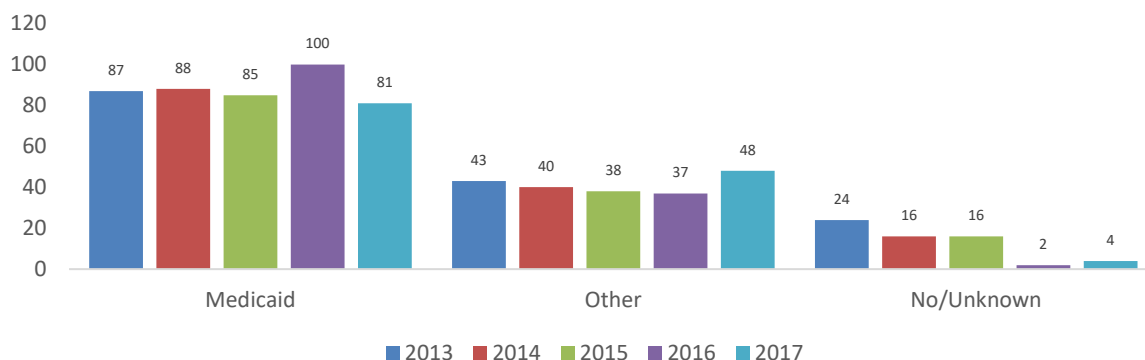
Infant Deaths by Age (in days)



Infant Deaths
by Prenatal Care



Infant Deaths
by Insurance Coverage



Recommendations to Date: Infant Deaths

Note: Due to the retrospective nature of the IMMRP, some of the recommendations listed may already be in the implementation process at time of report dissemination.

After review of cases, the following recommendations were noted:

- Consult with CPS about changing protocols to keep cases involving mothers that use drugs open and follow-up after the infant is taken home.
- Facilities keep cord tissue for one week after delivery at all West Virginia birthing facilities.
- Drug screening of all infants born in West Virginia.
- All pulse oximetry results will be added to the Birth Score.
- Notify physicians and/or hospitals of infants and mothers who experienced a poor outcome due to medical practice issues or provide education and training to hospital staff.
- Extend invitations to representatives from Level I and Level II birthing hospitals to join the IMMRP.
- Infants with a failed Critical Congenital Heart Disease (CCHD) not be discharged without an echocardiogram or transferred to another hospital that can perform an echocardiogram.

- Policy be developed to refer all preterm labor cases to facilities equipped to handle premature infants.
- Maternal mortality cases be able to request CPS information.
- Educate homeless shelters regarding safe sleeping environments for infants.
- Promotion of safe sleep messaging particularly with fathers and other infant caregivers. Review with pediatricians and obstetrics safe sleep messaging with new/expectant parents.
- Additional training on APGAR scoring and timing of death.
- Public service announcement regarding safe sleep guidelines.
- Training Level I and Level II hospitals on when to call a higher level bedside neonatal intensive care unit (NICU) support and developing a NICU telehealth program for smaller community hospitals.
- CPS safety plans with safe sleep, in-home teaching.
- Infant is rooming in with mother at facility after delivery, stress safe sleep guidelines, train staff to recognize impaired caretakers to ascertain who may be committing criminal activity on hospital property and empower staff to call security.
- Early intervention in the home for support and education, quick follow-up for concerns of neglect.
- CPS or other early intervention home visit within a week of delivery and close follow-up to assure safety.
- Training for Level I hospital staff, pediatricians, and emergency department on APGARs, intubation, when to call for appropriate transfer to higher level of care for mother or for NICU team to be present for impending birth.
- Follow protocol when suspicious deaths are referred to the DHHR's OCME so the scene can be visited, and the family interviewed in a timely manner.
- Creating a subcommittee regarding sleep related deaths.
- Proposed Physician Consultant to review infant cases to promote identification of trends and possible interventions to reduce infant mortalities and assist DHHR's Office of Maternal, Child and Family Health.
- Information that mothers receive is explained at the mother's level of understanding, this includes verbal, written, and video.
- Provide options for infant and maternal cases to be received in hard copy or electronic versions.
- DHHR's State Health Officer and Commissioner of the Bureau for Public Health to recommend the IMMRP law be modified to permit cases be identifiable and additional details be shared with IMMRP members.
- IMMRP members receive cases in advance of meeting to have adequate time to review cases and be able to indicate specific cases they would like to discuss by sending an email.
- Obtain out-of-state records for infants who are delivered or expired out-of-state and mothers who expired out of state.
- Request the Governor to advocate with out-of-state governmental entities to commit to improved inter-jurisdictional data sharing.

UNINTENTIONAL PHARMACEUTICAL DRUG OVERDOSE FATALITY REVIEW PANEL

Overview

The Unintentional Pharmaceutical Drug Overdose Fatality Review Panel (UPDORP) is responsible for reviewing and analyzing all deaths occurring within the State of West Virginia where the cause of death was determined to be due to unintentional pharmaceutical drug overdose, specifically excluding the death of persons suffering from a mortal disease or instances where the manner of the overdose death was suicide.

The UPDORP is required to ascertain and document trends, patterns and risk factors related to unintentional pharmaceutical drug overdose fatalities in the state which includes patterns related to the sale and distribution of pharmaceutical prescriptions by those otherwise licensed to provide said prescription. The fundamental objective of the UPDORP is to develop and implement standards for the uniform and consistent reporting of unintentional pharmaceutical drug overdose deaths by law enforcement or other emergency service responders and provide statistical information and analysis regarding the cause of unintentional pharmaceutical drug overdose fatalities.

Membership

According to legislative rule, UPDORP operates under the auspices of DHHR's Office of the Chief Medical Examiner (OCME), with the Chief Medical Examiner (or designee) acting as the chair of the panel responsible for calling and coordinating all meetings. Other mandated members of the panel include:

- Director of the West Virginia Board of Pharmacy (or designee);
- Commissioner of DHHR's Bureau for Public Health (or designee);
- Director of DHHR's Division of Vital Statistics (or designee);
- Superintendent of the West Virginia State Police (or designee);
- One physician nominated by the West Virginia State Medical Association;
- One registered nurse nominated by the West Virginia Nurses Association;
- One doctor of osteopathy nominated by the West Virginia Society of Osteopathic Medicine;
- One licensed physician or doctor of osteopathy who practices pain management as a principal part of his or her practice;
- One doctor of pharmacy with a background in prescription drug abuse and diversion selected by the West Virginia Pharmacists Association;
- One licensed counselor selected by the West Virginia Association of Alcoholism and Drug Abuse Counselors;
- One representative of the United States Drug Enforcement Administration;
- One prosecuting attorney selected by the West Virginia Prosecuting Attorneys Institute;
- A person who is considered an expert in bioethics training;
- One licensed dentist recommended by the West Virginia Dental Association; and
- Any additional persons the chairperson of the panel determines is needed in the review and consideration of a particular case.

Even though the DVFRP, CFRP and IMMRRP have continued to operate within the scope of the law, UPDORP was formed in September 2022. UPDORP is using data reported in the *Review of Overdose Fatalities: An Analysis of West Virginia SUDORS and CSMP Data, 2019-2021 Interim Report*.

The following report contains analyses of drug overdose fatalities that occurred in West Virginia in 2019, 2020, and the first half of 2021, as compiled in the State Unintentional Drug Overdose Reporting System (SUDORS) and supplemented with prescription history and toxicology data from the West Virginia Controlled Substance Monitoring Program (CSMP).

Key Findings

- There were 844 overdose deaths in 2019 and 1,298 overdose deaths in 2020, an increase of 53.8%. In the first half of 2021, there were 768 overdose deaths, representing an annualized increase of 18.3% over the prior year.
- Overdose deaths among males outnumber females by a ratio of 2:1 in each year.
- The percentage of decedents who were unmarried increased each year from 78.5% in 2019 to 81.8% in the first half of 2021, a much larger share than is unmarried in the general population.
- The percentage of overdose deaths who had survived a prior overdose was 16.5% in 2019 and 25.3% in 2020, suggesting an opportunity for intervention exists for some individuals who survive an overdose.
- Opioids were the most common substance class listed as a cause of death, with other common causes of death including amphetamines, benzodiazepines, antidepressants, cocaine, and alcohol. (Multiple substances were listed as a cause of death for many decedents.)
- Naloxone was administered to 22.5% of decedents in 2019, 39.2% in 2020, and 35.8% in 2021, suggesting greater availability of the emergency treatment. Emergency medical services (EMS) administered 40-50% of naloxone doses in each year, but the largest increase in naloxone administrator type was unknown.
- 25% to 50% of decedents had a controlled substance in their blood toxicology at time of death with no corresponding prescription, possibly indicating diversion.

West Virginia SUDORS and CSMP

West Virginia SUDORS data consist of de-identified accidental and undetermined manner drug overdose deaths confirmed by DHHR's OCME, updated, and distributed semi-annually by the CDC. Drug overdose deaths where the manner of death is suicide or homicide are not included in SUDORS. For nearly all decedents, core demographic variables are available, including age, sex, race, marital status, education level, and state of residence. Additional variables are available for some or most decedents, drawn from death scene investigations including bystander reports, autopsy, toxicology reports, and prescription history. Cause of death codes (ICD-10) and cause of death statements are derived from DHHR's Health Statistics Center's (HSC) Vital Statistics System death database.

Because prescription history variables have low completeness in West Virginia SUDORS, this report was supplemented with analyses of data from the CSMP. Specifically, the CSMP provided tabulations of decedents with historical or current prescriptions for buprenorphine or opiates as well as their blood toxicology results.

Counts of total decedents in SUDORS differ from those provided by the CSMP because only the latter include suicides and homicides. Also, CSMP are linked to HSC death records and updated

monthly while SUDORS records are fixed when submitted semi-annually to the CDC. One important source of discrepancy between SUDORS and HSC decedent counts is that SUDORS does not include West Virginia resident deaths that occur outside the state. For these reasons, population rates should not be calculated from SUDORS data and comparisons of overdose death counts derived from HSC data, such as those in the West Virginia Office of Drug Control Policy (ODCP) public dashboard are subject to these important limitations.

In this report, tables in Part I contain only SUDORS data; tables in Part II contain CSMP data and are labeled as such.

Part I: West Virginia SUDORS Data

Demographic Characteristics of Overdose Decedents

In 2019, a total of 844 overdose deaths were reported (Table 1). In 2020, there were 1,298 overdose deaths, an increase of 53.8%. For the first half of 2021, there were 768 overdose deaths, representing an annualized increase of 18.3% over the prior year. West Virginia residents constituted 95%, 93.9%, 93.5% of decedents respectively, with Ohio being the second most common state of residence in all three years. In each year, males outnumbered females by more than 2:1.

The mean age of decedents was 42 years, and more than three quarters of decedents were 25-54 years old in each year.

Most decedents were non-Hispanic, white in each year. Non-Hispanic blacks comprised 5.9%, 5.7%, and 7.0% of decedents in 2019, 2020, and the first half of 2021, respectively. Decedents of Hispanic ethnicity, as well as Asian or Pacific Islanders, American Indians, Alaskan Natives, and decedents of multiple races were pooled in Table 1 due to small numbers.

The percentage of decedents who were married, in a civil union, or in a domestic partnership declined each year from 19.1% in 2019 to 15.6% in the first half of 2021. For comparison, around 50% of the adult population in West Virginia is married.

Most decedents were high school graduates with no college, at 56.75%, 57.47%, and 58.6% in 2019, 2020, and the first half of 2021, respectively. Between 19.8% and 21.9% did not complete high school, while 12.9% to 15.1% had some college or an associate degree. The percentage of decedents with a bachelor's or higher degree was 4.2% to 6.1%.

Table 1. Demographic characteristics of overdose decedents by year, 2019 – June 30, 2021

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
Total overdose decedents	844		1298		768	
State of Residence						
West Virginia	802	(95.0)	1219	(93.9)	718	(93.5)
Other State	42	(5.0)	79	(6.1)	50	(6.5)
Sex						
Male	570	(67.5)	928	(71.5)	548	(71.4)
Female	274	(32.5)	370	(28.5)	220	(28.6)
Age						
Under 24	52	(6.1)	49	(3.7)	45	(5.9)
25-34	197	(23.3)	321	(24.7)	174	(22.7)
35-44	242	(28.7)	393	(30.3)	252	(32.8)
45-54	199	(23.6)	306	(23.6)	158	(20.6)
55+	154	(18.3)	229	(17.6)	139	(18.1)
Race						
White, non-Hispanic	764	(90.5)	1170	(90.1)	683	(88.9)
Black, non-Hispanic	50	(5.9)	74	(5.7)	54	(7.0)
Other or multi-race	11	(1.3)	19	(1.5)	6	(0.8)
Unknown or missing	19	(2.3)	35	(2.7)	25	(3.3)
Marital Status						
Never married	349	(41.4)	554	(42.7)	309	(40.2)
Married, civil union, or domestic partnership	161	(19.1)	231	(17.8)	120	(15.6)
Divorced, widowed, married but separated	315	(37.4)	494	(38.1)	320	(41.6)
Unknown or not specified	19	(2.3)	19	(1.5)	19	(2.5)
Education						
Did not complete high school	167	(19.8)	276	(21.3)	168	(21.9)
High school graduate or GED	479	(56.8)	746	(57.5)	450	(58.6)
Some college or associate's	127	(15.1)	192	(14.8)	99	(12.9)
Bachelor's degree or higher	52	(6.1)	62	(4.8)	32	(4.2)
Unknown	19	(2.3)	22	(1.7)	19	(2.5)

Source: SUDORS

Naloxone Administration

In 2019, 190 individuals received one or more doses of naloxone during the fatal overdose incident, representing 22.5% of fatal overdoses (Table 2). The number and percentage increased to 509 and 39.2% in 2020. In the first half of 2021, 275 individuals received naloxone during a fatal overdose incident, or 35.8% of overdose deaths in that period. In each year, naloxone was mostly administered by EMS personnel.

Table 2. Naloxone doses administered by administrator

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
Total (of known doses)	190		509		275	
Bystander	39	(20.5)	75	(14.7)	39	(14.2)
EMS	79	(41.6)	254	(49.9)	114	(41.5)
Hospital	11	(5.8)	23	(4.5)	8	(2.9)
Law enforcement	11	(5.8)	10	(2.0)	6	(2.2)
Other	4	(2.1)	6	(1.2)	0	(0.0)
Unknown	46	(24.2)	141	(27.7)	108	(39.3)

Source: SUDORS

Previous Overdose

Between 16.5% and 25.3% of decedents had a nonfatal overdose prior to the fatal incident (Table 3), suggesting an opportunity for intervention in up to a quarter of fatal overdose deaths. The window for intervention following a nonfatal overdose is wide, however. Among overdose deaths in the first half of 2021, a similar number of decedents had a previous overdose within a year prior as had a previous overdose more than one year prior.

Table 3. Timing of previous overdose (OD)

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
No previous OD reported	705	(83.5)	969	(74.7)	607	(79.0)
Previous OD, anytime	139	(16.5)	329	(25.3)	161	(21.0)
Previous OD:						
Within last month	36	(4.3)	47	(3.6)	23	(3.0)
1 month to 1 year ago	55	(6.5)	129	(9.9)	53	(6.9)
More than 1 year ago	20	(2.4)	120	(9.2)	79	(10.3)
Timing unknown	28	(3.3)	33	(2.5)	6	(0.8)

Source: SUDORS

Emergency Department Care

In each year, between 28.4% to 30.2% of decedents were seen in an emergency department (ED) following the fatal overdose incident. (Table 4a). Of those decedents seen in the ED following the incident, 144 died in the ED in 2019 (60% of those seen in the ED), 246 died in the ED in 2020 (62.8% of those seen in the ED), and 122 died in the ED in the first half of 2021 (60.4% of those seen in the ED). There were 70 decedents admitted who later died in the hospital in 2019, 110 in 2020, and 64 in the first half of 2021 (Table 4b).

Table 4a. Decedents seen in ED following fatal incident

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
Yes	240	(28.4)	392	(30.2)	202	(26.3)
No	599	(71.0)	898	(69.2)	562	(73.2)
Unknown	5	(0.6)	8	(0.6)	4	(0.5)

Source: SUDORS

Table 4b. Death location of decedents seen in ED following the fatal incident

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
ED / Outpatient	144	(60.0)	246	(62.8)	122	(60.4)
Hospital inpatient	70	(29.2)	110	(28.1)	64	(31.7)
Dead on arrival	1	(0.4)	12	(3.1)	5	(2.5)
Hospice facility	4	(1.7)	4	(1.0)	1	(0.5)
Decedent's home	9	(3.8)	2	(0.5)	0	(0.0)
Other	12	(5.0)	18	(4.6)	10	(5.0)

Source: SUDORS

Substances Contributing to Cause of Death

Toxicology results were used to identify substances contributing to cause of death. For many decedents, more than one substance contributed to the cause of death.

In each year, opioids were the most common substance class that contributed to the cause of death (Table 5a), with amphetamine the second most common. Benzodiazepines were the third most common substance class in 2019 and 2020, dropping to fourth in 2021, replaced by antidepressants. Other substance classes commonly contributing to the cause of death include cocaine and alcohol. When filtered by only opioids, the most common drugs contributing to cause of death were fentanyl for 2019 and 2020 and norfentanyl for 2021 (Table 5b). Other common contributing substances were methamphetamine, amphetamine, and 4-ANPP, a fentanyl metabolite.

Table 5a. Top 5 substance classes contributing to cause of death

2019	2020	2021 (through June 30)
Opioids (1024)	Opioids (1641)	Opioids (943)
Amphetamines (446)	Amphetamines (537)	Amphetamines (435)
Benzodiazepines (131)	Benzodiazepines (156)	Antidepressants (97)
Cocaine (126)	Antidepressants (104)	Benzodiazepines (81)
Alcohol (71)	Cocaine (99)	Cocaine (72)

Source: SUDORS

Note: Substances contributing to the cause of death exceed the number of decedents as many individuals had multiple substances involved in the death.

Table 5b. Top 5 drugs or metabolites contributing to cause of death

2019	2020	2021 (through June 30)
Fentanyl (300)	Fentanyl (401)	Norfentanyl ¹ (338)
Norfentanyl ¹ (173)	Despropionyl Fentanyl ² (370) (4-ANPP)	Despropionyl Fentanyl ² (234) (4-ANPP)
Amphetamine (120) & Methamphetamine (120)	Norfentanyl ¹ (341)	Methamphetamine (185)
Heroin (78)	Methamphetamine (204)	Fentanyl (176)
Morphine (77)	Amphetamine (149)	Amphetamine (114)

Source: SUDORS

Note: Substances contributing to the cause of death exceed the number of decedents as many individuals had multiple substances involved in the death.

1. Norfentanyl is a fentanyl metabolite with a rapid onset and short duration of action. Historically it has been used to treat breakthrough pain and is commonly used as a pre-op pain reliever (<https://premierbiotech.com/innovation/facing-fentanyl-p2/>).
2. Despropionyl fentanyl (4-ANPP) is a fentanyl metabolite used for the manufacture of fentanyl and related opioids (<https://www.overdosepreventionstrategies.org/glossary/4-anpp/>).

Addiction Treatment Medication

The West Virginia SUDORS dataset did not include history of prescriptions for addiction treatment medications until 2020. In 2020, there were 30 decedents with buprenorphine prescriptions, 16 of which were specified for medication-assisted treatment (MAT) use (Table 6). Comparatively, 108 decedents had buprenorphine listed as a cause of death, regardless of having a prescription or not. During the first half of 2021, 14 prescriptions were identified, all of which specified for MAT use, and 49 decedents with buprenorphine listed as contributing to the cause of death. Methadone prescriptions followed similar patterns to buprenorphine. There were eight methadone prescriptions identified in 2020, six of which specified for MAT use, and 37 decedents with methadone listed as contributing to the cause of death. During 2021, one methadone prescription

was found, not specified for MAT use, and 13 decedents with methadone listed as contributing to the cause of death.

Table 6. Overdose deaths reported in SUDORS with association of addiction treatment medications

	2019	2020	2021 (through June 30)
	n	n	n
Buprenorphine			
Buprenorphine Prescription	0	30	14
Buprenorphine Rx for MAT	0	16	14
Buprenorphine COD without Rx	0	11	6
Buprenorphine COD	75	108	49
Methadone			
Methadone Prescription	0	8	1
Methadone Rx for MAT	0	6	0
Methadone COD	12	37	13
Naltrexone			
Naltrexone Prescription	0	4	1
Naltrexone COD	0	1	0

Source: SUDORS

Note: It is unclear whether prescriptions were given at any time or active at time of death.

According to SUDORS data for 2019 to June 30, 2021, combined, only a small proportion of decedents had prescriptions for the substances found in their toxicology: 17.6% had a buprenorphine prescription, 14.8% had a methadone prescription, and only 1.9% had a morphine prescription (Table 7). (This analysis, comparing prescription history with toxicology is expanded in Part II of this report using CSMP data, which has greater completeness for prescription history variables.)

Table 7. Substances found in toxicology with corresponding prescription, 2019 – June 30, 2021

	Decedents with substance found in toxicology	Decedents with Rx of substance	Percentage (%) of decedents with Rx of substance
Buprenorphine	238	42	(17.6)
Methadone	61	9	(14.8)
Morphine	527	10	(1.9)

Source: SUDORS

In all three years, the most common substance categories reported in decedent's toxicology reports were opiates (50.1%, 45.2%, 42.4% respectively), followed by stimulants (21.2%, 14.4%, 19.2% respectively; Table 8). Benzodiazepines decreased from 6.5% in 2019 to 4.4% in 2021, while stimulants also decreased (21.2% in 2019 to 19.2% in 2021). Antidepressants increased substantially, comprising only 1.1% in 2019 and rising to 5.8% in 2021.

Table 8. Common SUDORS prescription classes

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
Opiates	1159	(50.1)	1096	(45.2)	958	(42.4)
Benzodiazepines	150	(6.5)	117	(4.8)	99	(4.4)
Stimulants (Amphetamines)	490	(21.2)	349	(14.4)	435	(19.2)
Antidepressants	25	(1.1)	96	(4.0)	131	(5.8)
Other	513	(21.1)	863	(31.6)	638	(28.2)

Source: SUDORS

Note: The numbers of the prescription class breakdown are taken from the first three substances listed from the toxicology report. The toxicology report does NOT list substances in any effective order or relationship, and many decedents will have more than three substances listed on the toxicology report.

Part II: West Virginia CSMP

Evidence of Diversion

Decedents with certain controlled substances in their blood toxicology at time of death *without* a prescription for the controlled substance may indicate diversion. The relevant substances include all Schedule II, III, IV, and V controlled substances, along with opioid antagonists. Although classified as a Schedule II opioid, the presence of fentanyl and fentanyl analogs in toxicology reporting is assumed to be illicit and not prescribed.

According to CSMP data, 473 decedents or 53.5% of the total number of overdose deaths in 2019 had a controlled substance in their system at time of death without a prescription (Table 9). That

number decreased to 352 (26.3%) in 2020 and increased to 562 (37.3%) in the first six months of 2021.

Decedents who filled a controlled substance prescription within 30 days of death numbered 221 in 2019, 322 in 2020, and 318 in 2021, between 21.1% and 25.0% of total decedents (Table 9).

Between 12.7% and 14.9% of decedents had no prescription history in the CSMP (Table 9).

Table 9. Controlled substance prescriptions and toxicology

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
Total decedents	884		1338		1505	
Decedents with a controlled substance in their system at the time of death with no prescription	473	(53.5)	352	(26.3)	562	(37.3)
Decedents who filled a controlled substance prescription within 30 days of death	221	(25.0)	322	(24.1)	318	(21.1)
Decedents without a controlled substance monitoring program history	132	(14.9)	158	(11.8)	191	(12.7)

Source: CSMP

CSMP data indicate that the percentage of decedents with opioid and benzodiazepine in toxicology reports without a prescription decreased from 2019 to 2021 (11.1% to 4.7% and 5.0% to 4.4% respectively; Table 10). Decedents without a buprenorphine prescription but toxicology presence decreased in 2020 (1.6% from 2.7% in 2019) but increased slightly in the first six months of 2021 to 1.8%. While the percentage of decedents with a buprenorphine prescription increased from 2019 to 2021, the percentage with buprenorphine in toxicology decreased through June 30, 2021.

Table 10. Discordant prescription history and toxicology: evidence for diversion

	2019		2020		2021 (through June 30)	
	n	%	n	%	n	%
Total decedents	884		1338		1505	
Any controlled substance Rx during year prior	452	(51.1)	618	(46.2)	659	(43.8)
Opioid¹ diversion						
Opioid Rx during year prior	244	(27.6)	262	(19.6)	256	(17.0)
Opioid in toxicology results	264	(29.9)	412	(30.8)	327	(21.7)
No active opioid Rx at death but had in toxicology	98	(11.1)	113	(8.4)	71	(4.7)

	2019		2020		2021 (through June 30)	
	n	%	n	%	n	%
Benzodiazepine diversion						
Benzodiazepine Rx during year prior	153	(17.3)	211	(15.8)	188	(12.5)
Benzodiazepine in toxicology results	144	(16.3)	309	(23.1)	270	(17.9)
No active benzodiazepine Rx at death but had in toxicology	44	(5.0)	84	(6.3)	66	(4.4)
Buprenorphine diversion						
Buprenorphine Rx during year prior	103	(11.7)	184	(13.8)	234	(15.5)
Buprenorphine in toxicology results	77	(8.7)	108	(8.1)	107	(7.1)
No active buprenorphine Rx at death but had in toxicology	24	(2.7)	21	(1.6)	27	(1.8)

Source: CSMP

1 – Opioid in toxicology does not include fentanyl and fentanyl metabolites here.

Buprenorphine was the most common controlled substance prescribed within 365 days of death during all three years (28.2%, 36.2%, 38.7% respectively) and increased in nominal counts as well (Table 11). The next most common substances were opioids, gabapentin, and benzodiazepines.

Table 11. Controlled substance prescriptions within 365 days of decedents death

	2019		2020		2021 (through June 30)	
	n	(%)	n	(%)	n	(%)
Buprenorphine	1536	(28.2)	2651	(36.3)	3086	(38.7)
Opioids	1274	(23.4)	1418	(19.4)	1277	(16.0)
Gabapentin	1212	(22.3)	1432	(19.6)	1909	(24.0)
Benzodiazepines	1050	(19.3)	1351	(18.5)	1148	(14.4)
Nonbenzodiazepine hypnotics	172	(3.2)	239	(3.3)	243	(3.0)
Stimulants	114	(2.1)	128	(1.8)	138	(1.7)
Muscle relaxant	56	(1.0)	0	(0.0)	4	(0.0)
Opiate antagonists	27	(0.5)	84	(1.2)	164	(2.1)

Source: CSMP

Recommendations

1. Reduce availability of drugs.
Options for reducing supply include increased interdiction locally, stiffer penalties for dealing and possession, and disrupting supply routes across the national border and between states. Evidence supporting this approach comes from Asian countries that have controlled drug-use epidemics such as Thailand, Singapore, and China.
2. Target treatment interventions at individuals who survive an overdose.
One potential avenue for reducing death among persons using drugs is to target treatment interventions at individuals who survive an overdose, identified through EMS or hospitals. Only a modest percentage (15-25%) of overdose deaths survived a prior overdose but those who have are at high risk of a fatal overdose and may be motivated to stop using drugs, especially if treatment is available.
3. Develop strategies to prevent diversion.
Strategies to prevent diversion, which may or may not include tighter restrictions on prescriptions, could be effective as 25%-50% of decedents had a controlled substance in their blood toxicology at time of death with no corresponding prescription.

Note: The Review of Overdose Fatalities Interim Report focuses on bad outcomes, i.e., where an individual dies from overdose. Analyses of factors associated with successfully ending drug use may paint a different picture.