



West Virginia Fatality and Mortality Review Team Annual Report 2023

Child Fatality Review Panel CY 2019
Domestic Violence Fatality Review Panel CY 2018
Infant and Maternal Mortality Review Panel
Maternal Deaths CY 2020 & Infant Deaths CY 2018-2020
Unintentional Pharmaceutical Drug Overdose Review Panel CY 2019-2021

December 31, 2023

West Virginia Fatality and Mortality Review Team
Annual Report 2023



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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 include the Chief Medical Examiner (chairperson), Commissioner of DHHR's 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 Commission 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. It also includes 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 calendar year 2018, which may differ from information reported by the West Virginia Health Statistics Center and the DVFRP for calendar year 2017. The IMMRP data reporting includes maternal deaths for 2020 and infant deaths for 2018-2020. 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 West Virginia CFRP (WVCFRP) is responsible for reviewing the facts and circumstances surrounding deaths of all children, under the age of 18, who were residents of West Virginia at the time of their death.

The WVCFRP 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 WVCFRP 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. The WVCFRP anticipates that the recommendations will be used to make needed changes in actions and policies to protect children, while holding perpetrators, where appropriate, responsible for their actions, and reducing the overall number of child fatalities that occur in the state.

WVCFRP Membership

According to statute, the WVCFRP operates under the auspices of DHHR's Office of the Chief Medical Examiner (OCME), with the state Chief Medical Examiner acting as the chair of the team and the coordinator of the WVCFRP housed within that office as well. Other mandated members of the panel include:

- Two prosecuting attorneys or their designees;
- The 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 by DHHR 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;
- The Director of DHHR's Office of Maternal, Child, and Family Health (OMCFH) or his or her designee;
- The Director of the Division of Children's Mental Health Services of DHHR's Bureau for Behavioral Health or his or her designee;
- The Director of the Office of Social Services in DHHR's Bureau for Children and Families or his or her designee;
- The Superintendent of the West Virginia Department of Education or his or her designee;
- The Director of West Virginia Division of Juvenile Services or his or her designee; and
- The President of the West Virginia Association of School Nurses or his or her designee.

Types of Deaths Reviewed

The WVCFRP reviews all preventable death cases of any person under the age of 18. Many cases the panel reviews fit into the categories of accident, homicide, suicide, or could not be determined. The deaths that are 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 DHHR's Bureau for Public Health (BPH) and the OCME to determine if they meet the definition of a preventable child fatality. The OCME investigators, forensic pathologists, and the WVCFRP 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 is overlooked. In an attempt to combat this issue, a list of all child fatalities is obtained from DHHR's West Virginia Health Statistics Center and serves as a way to identify any child deaths that may have been missed initially.

The WVCFRP Coordinator maintains a running list of all identified child fatalities to be reviewed by the WVCFRP. The panel only reviews closed cases and does not attempt to reopen the investigation of those deaths. The WVCFRP'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 currently reviewed three 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 Fatality and Mortality Review Team statute.

Prior to case review by the WVCFRP, 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 WVCFRP 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, the WVCFRP 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 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

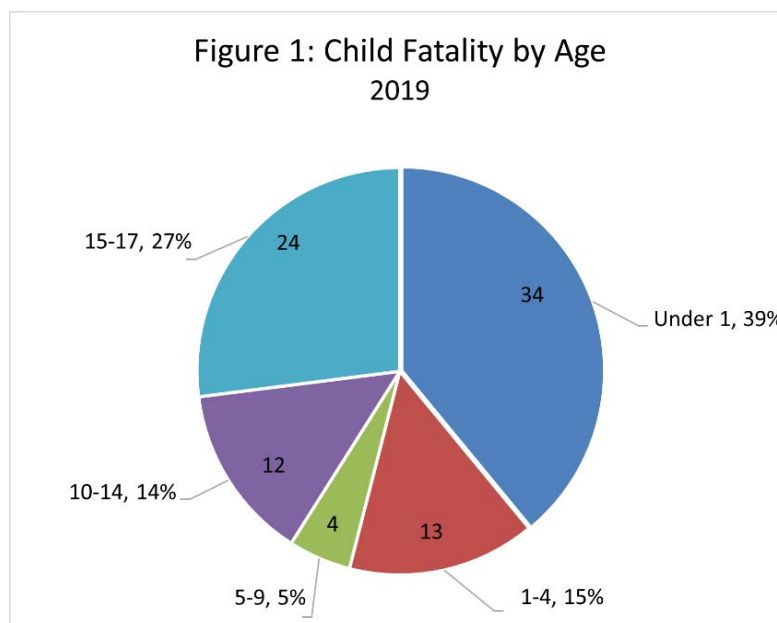
recommendations made throughout the year are assembled and presented as wide-ranging proposals for systemic improvements as opposed to case specific recommendations. The panel believes that these recommendations can be used to improve system responses across an array of agencies and service providers to drastically reduce or eliminate preventable child deaths in West Virginia.

Findings

This report depicts the findings of the WVCFRP for calendar year 2019, preventable deaths among West Virginia children from birth through 17 years of age, who were residents of the state at the time of their demise. In 2019, the WVCFRP reviewed 87 recorded preventable deaths. The information housed within this report provides insight into reasons for child deaths and offers recommendations as to the preventative measures that can be taken to reduce this number in the future.

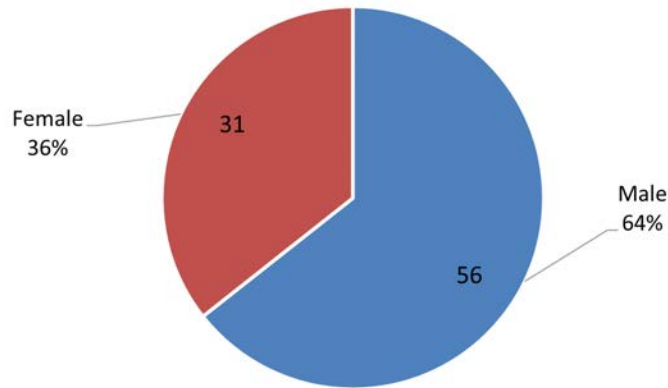
Demographics

Figure 1 illustrates the distribution of child deaths by age with the percentages for each group. In 2019, infants under one year of age were the most reviewed demographic. Of the 87 preventable deaths reviewed by the WVCFRP, 34 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 13 total deaths. Children aged five to nine accounted for four deaths. There were 12 deaths in adolescents aged 10 to 14. Teens aged 15 to 17 accounted for 24 deaths.



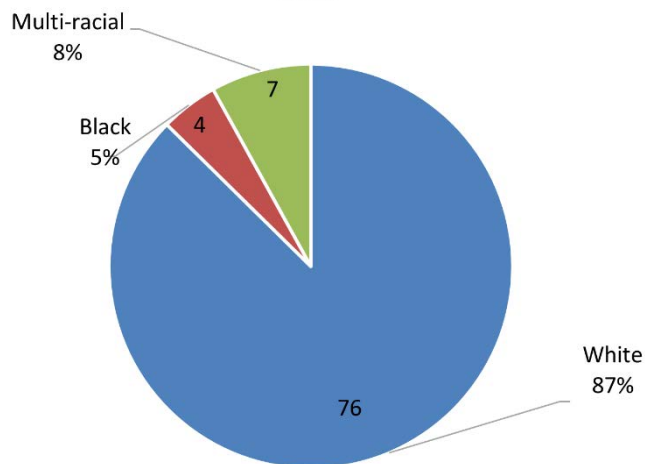
In Figure 2, the child deaths are separated by sex. There were 56 male child deaths and 31 female child deaths that occurred during 2019. This difference between male and female mortality is said to occur from birth and continue throughout life. Research shows the human male is more vulnerable than the 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 [1].

Figure 2: Child Fatality by Sex
2019



The distribution of child deaths in West Virginia during 2019, as related to race is shown in Figure 3. The data shows that 76 of the 87 deaths were Caucasian children. This is followed by four Black child deaths, and seven deaths of children identified as having two or more races.

Figure 3: Deaths by Race
2019



Manner of Death

The data is broken down into five manner of death types: natural, accident, suicide, homicide, and undetermined. In 2019, there were two natural deaths found to be preventable. The remaining manners of death that were reviewed resulted 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 which were ruled undetermined could have a natural, accidental, or intentional cause, as undetermined manner generally arises when there are one or more competing manner possibilities that cannot be definitively separated by the medicolegal death investigation.

Almost half of the preventable deaths, 38 of 87, were undetermined in children from birth to age 17, as shown in Figure 4. This was followed by 29 of 87 accidental deaths. Suicides accounted for 11 of 87, and homicide deaths decreased in 2019 to two of 87.

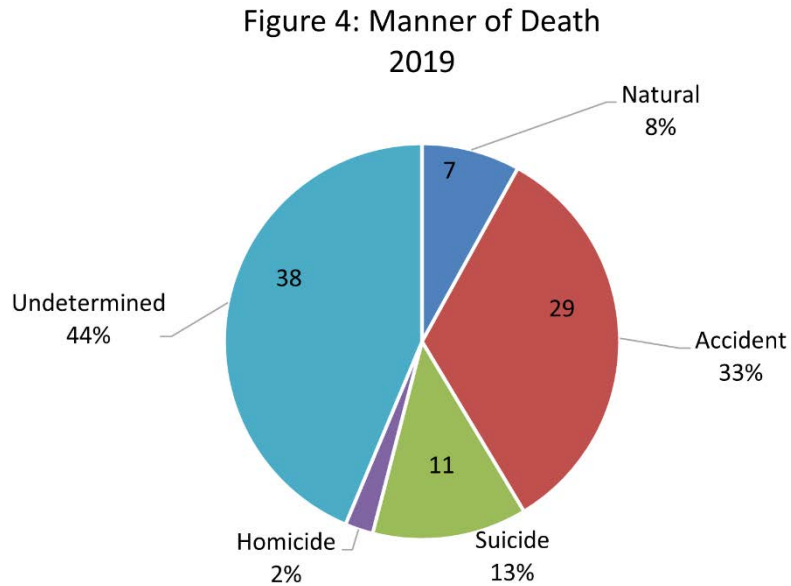


Figure 5 shows the manner of death by age group. Infants under the age one comprised 27 of the 38 undetermined deaths. Deaths in children between the ages of one and 17 were most often accidental.

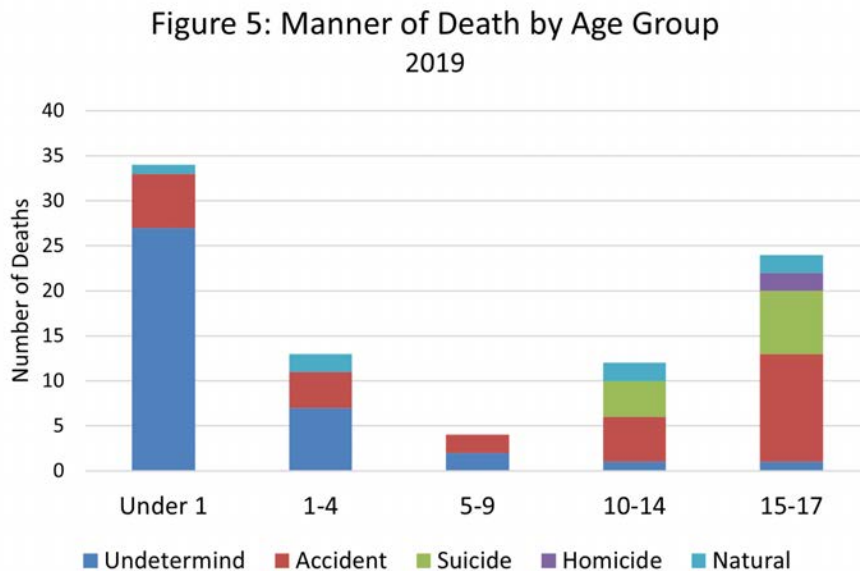
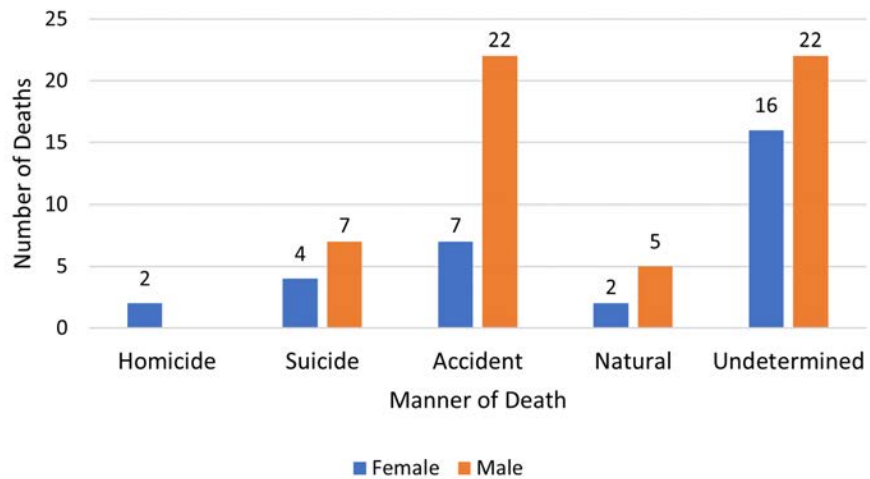


Figure 6 arranges 2019, deaths by manner of death and sex of the child. More male children died overall than female children. The data shows that while two females were victims of homicides, the number of homicides has decreased overall. Males completed suicide slightly

more than females. It also shows that more male children died as a result of undetermined deaths when compared to female children.

Figure 6: Deaths by Manner and Sex
2019



Cause of Death

The top three causes of death overall were unknown (could not be determined), followed by motor vehicle (accident), and suicide with a weapon. Unknown deaths accounted for 38 of the 87 total child deaths, which is 44% overall. Motor vehicle accidents were responsible for 14 of the 87 deaths, or 16%. Suicide by weapon was responsible for 9.2%, or eight of the 87 deaths, respectively. Table 1 shows a detailed list of all preventable causes of death by manner for all age groups that occurred in 2019.

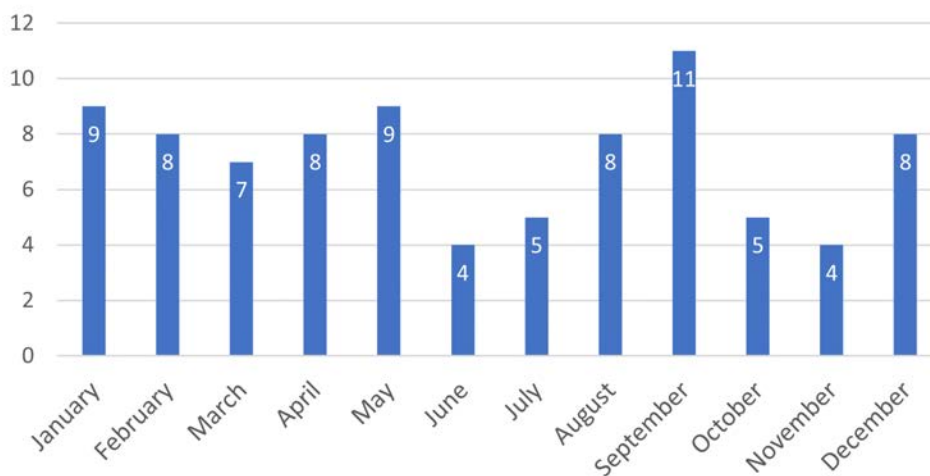
| Manner | Cause | Under 1 | 1-4 | 5-9 | 10-14 | 15-17 |
|-----------|---------------|---------|-----|-----|-------|-------|
| Accident: | Motor Vehicle | 0 | 1 | 1 | 4 | 8 |
| | Fire | 0 | 0 | 1 | 1 | 0 |
| | Drowning | 1 | 2 | 0 | 0 | 2 |
| | Asphyxia | 4 | 0 | 0 | 0 | 0 |
| | Weapon | 0 | 1 | 0 | 0 | 0 |
| | Fall | 0 | 0 | 0 | 0 | 1 |
| | Poisoning | 0 | 0 | 0 | 0 | 1 |
| | Undetermined | 1 | 0 | 0 | 0 | 0 |
| Suicide: | Asphyxia | 0 | 0 | 0 | 2 | 0 |
| | Weapon | 0 | 0 | 0 | 2 | 6 |
| | Poisoning | 0 | 0 | 0 | 0 | 1 |
| Homicide: | Weapon | 0 | 0 | 0 | 0 | 1 |
| | Unknown | 0 | 0 | 0 | 0 | 1 |

| | | | | | | |
|---------------|--|----|---|---|---|---|
| Undetermined: | | 27 | 7 | 2 | 0 | 1 |
| Natural: | | 1 | 2 | 0 | 2 | 2 |

Distribution of Deaths for Various Categories

Figure 7 shows all preventable deaths that occurred for each month in 2019. The winter season has generally seen lower numbers of deaths in recent years. January – February 2019 saw higher numbers than usual. Also of note, September saw a spike in deaths compared to the summer months prior.

Figure 7: Child Deaths by Month
2019



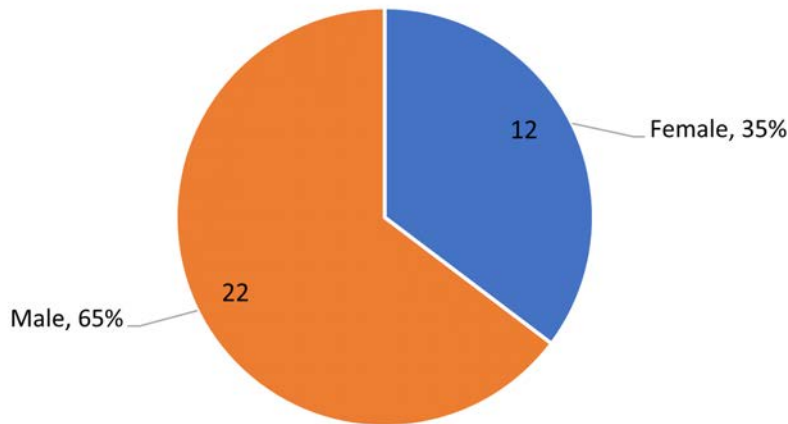
Infant Deaths

An infant death is the death of a child any time after their birth but prior to reaching their first birthday. In 2019, there were 34 preventable infant deaths reviewed by the WVCFRP. The age category with the most preventable deaths in 2019 was infants. Infant mortality is characteristically used as an indicator of the overall health of a society [3].

Demographics

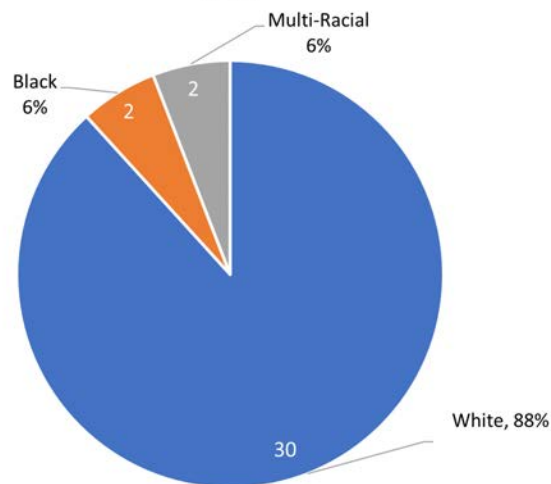
Figure 8 shows the infant deaths in West Virginia divided into the category of sex. It shows that 22 male infants and 12 female infants died from a preventable cause in 2019.

Figure 8: Infant Deaths by Sex
2019



Infant deaths by race are shown in Figure 9. This figure shows that most of the deaths (30) occurred in Caucasian infants. There were two Black infant deaths, which was a slight decrease from 2018, when there were three deaths. Two deaths were multi-racial infants, which stayed the same from 2018.

Figure 9: Infant Deaths by Race
2019

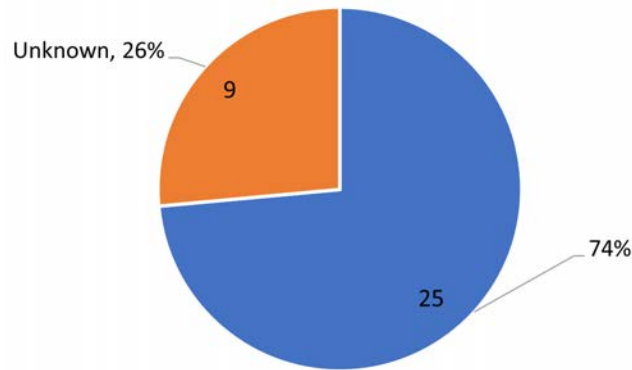


The poverty status¹ of infants who died of preventable causes in West Virginia in 2019, provides a figure that indicates a possible correlation. Figure 10 shows preventable deaths by poverty status of the parents at the time of the infant's death. Twenty-five of 34 infants were considered to be in poverty. This accounts for 76% 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

¹ The poverty status is determined by family receiving Medicaid at time of infant's death.

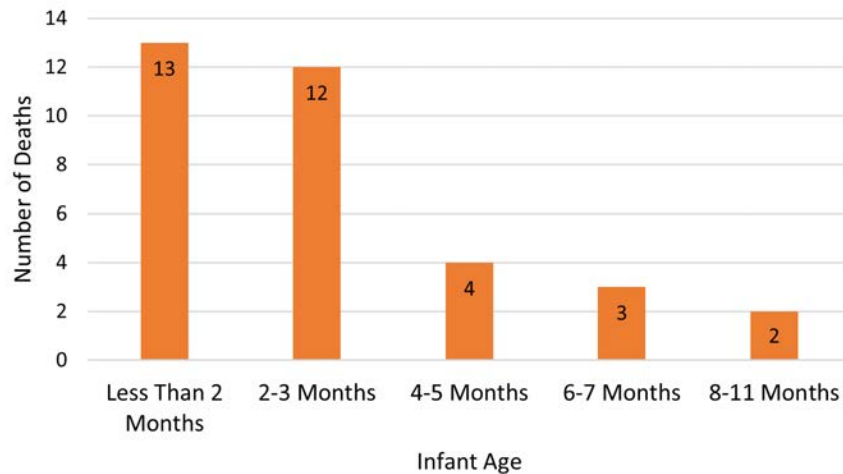
cause. According to He *et al.*[4], the high infant mortality rate in the United States has some association with disparities in socioeconomic status. A family’s financial situation can affect factors such as nutrition, food security, education, and health care [4].

Figure 10: Preventable Infant Deaths by Poverty Status
2019



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

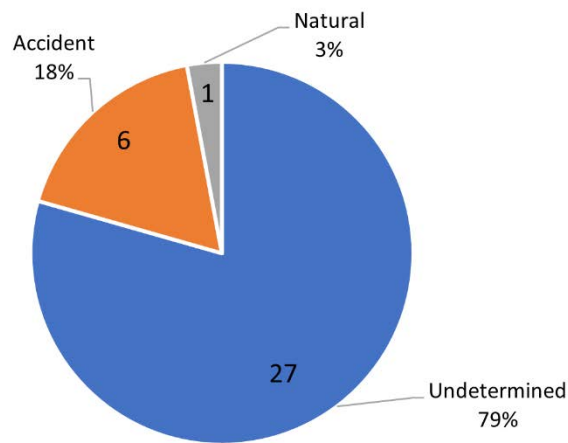
Figure 11: Infant Deaths by Age in Months
2019



Manner of Death in Infants

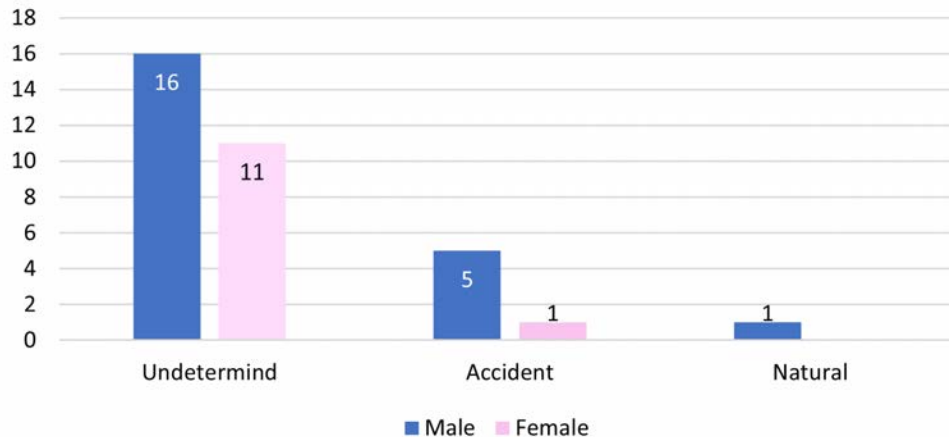
The data on preventable death for infants is divided into three manner of death categories: accident, natural, and undetermined. Figure 12 shows there were 27 deaths deemed undetermined, six accidents, and one natural.

Figure 12: Manner of Death in Infants
2019



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. One male infant also died from natural causes.

Figure 13: Infant Manner of Death by Sex
2019



Causes of Death in Infants

The leading cause of death in West Virginia infants in 2019, was unknown (undetermined). Most of those deaths were attributed to an unsafe sleep environment. Historically, 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 20 sleep-related deaths that occurred in 2019, 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 17 of 20 sleep-related deaths was undetermined. The remaining three deaths were ruled as accidents due to asphyxia.

The 20 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 information². 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 16 cases in which infants were 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 backs. Unsafe sleep position refers to any infant who 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
2019

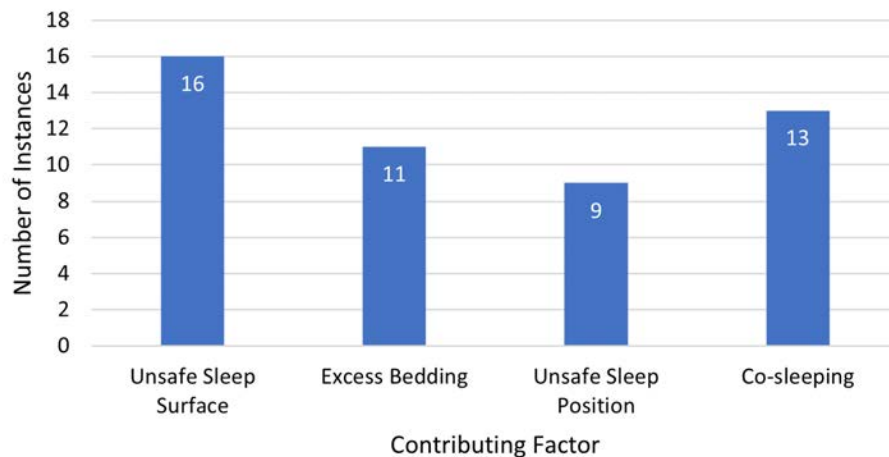


Figure 15 shows whether a crib or port-a-crib was in the home for infant use. The data shows that 21 of 34 had a crib in the home for infant use. Only three of 34 infants were known to not have a crib available. There were 10 infants for which it was unknown if a crib was available. In many instances a crib was available and regularly used; however, the infant death occurred on an unsafe surface. This is an important factor to consider since 13 of the 20 sleep-related deaths involved co-sleeping.

² Information as found by investigators during unexpected infant death investigation.

Figure 15: Availability of a Crib in Home
2019

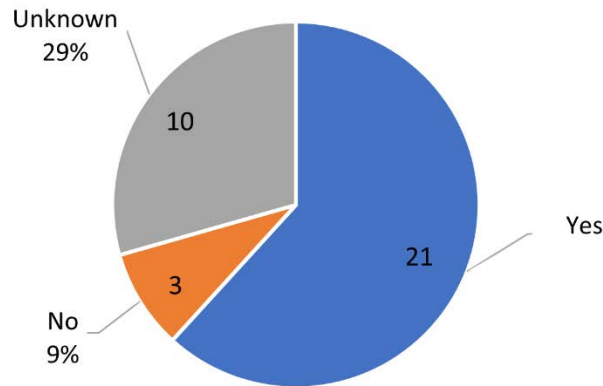
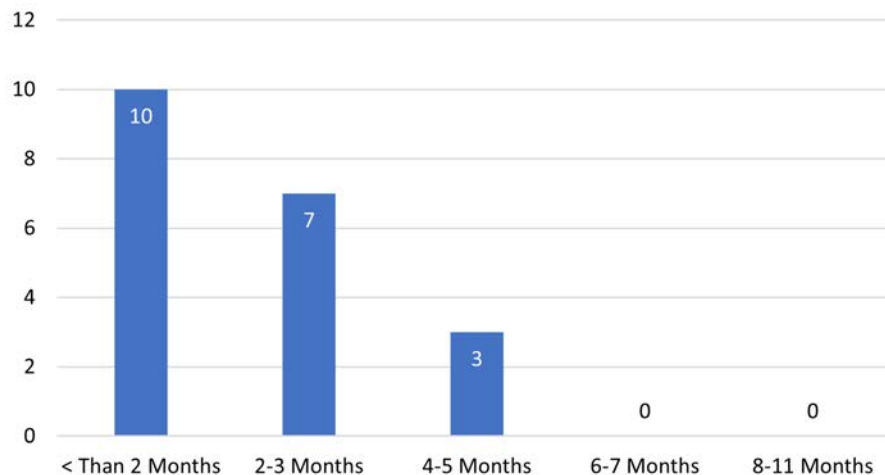


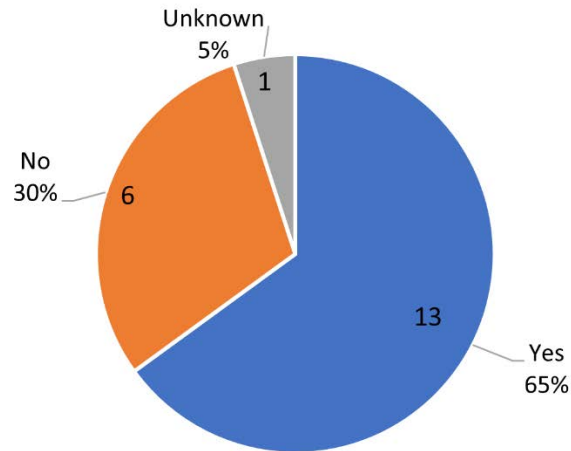
Figure 16 shows the unsafe sleeping deaths by age in months. According to the numbers for 2019, infants ranging in age from birth to five-months old were the most likely to die from unsafe sleep practices with a peak during the two-to-three-month period. This number drastically reduced to zero deaths in the next age category of six- to seven-months old and continued through the eight- to 11-months old range.

Figure 16: Sleep-Related Deaths by Age
2019



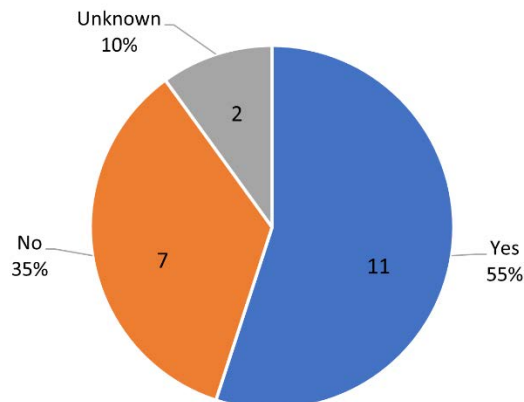
Twenty of the 55 West Virginia counties had an infant death in 2019. As seen in Figure 17, most infant deaths occurred in Kanawha County where there were six deaths in 2019 (a decrease from 2018), followed by Cabell County with four deaths. Of note, this map shows the county in which the infant died. Some infants may have resided in a different county than the one in which they died, as pronouncement of death may occur at a hospital outside of the county of residence.

Figure 18: Smoke Exposure in Utero for Sleep-Related Deaths
2019



Eleven of the sleep-related infant deaths were reported to have second-hand smoke exposure. Second-hand smoke is another contributing factor to SUID⁴. According to the CDC, second-hand 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: Second-Hand Smoke Exposure for
Sleep-Related Deaths 2019



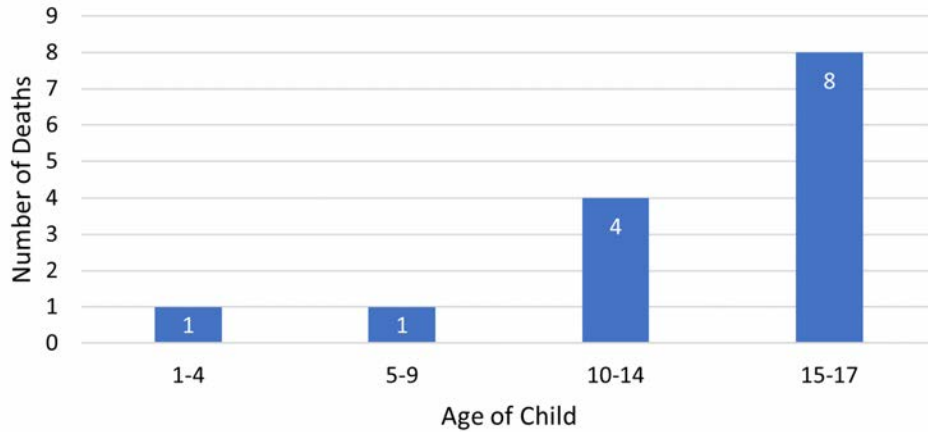
Motor Vehicle Deaths

In 2019, a total of 14 children aged one to 17 died in West Virginia as a result of a motor vehicle accident as either the driver, passenger, on a bicycle, or as a pedestrian. This is a decrease from 18 deaths in 2018. According to the West Virginia Division of Motor Vehicles 2019 Annual Report, there was a statewide decrease in car crashes from the previous year and a decrease in fatalities. There were increases, however, in ATV accidents and fatalities as well as pedestrian fatalities [12].

⁴ Information as found by investigators during unexpected infant death investigation

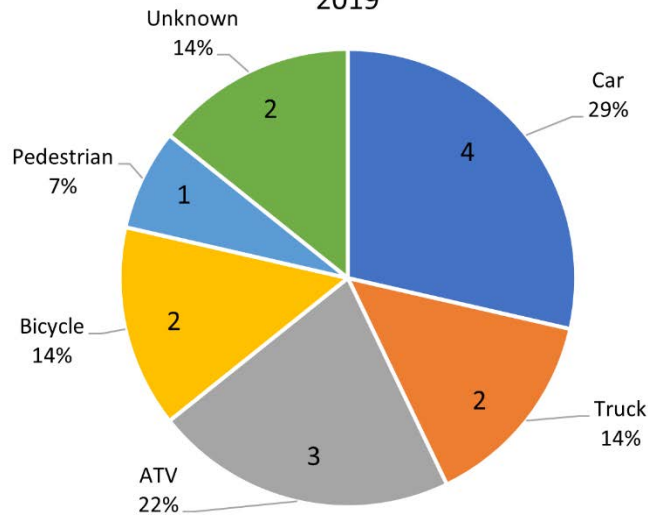
Figure 21 shows the deaths by age categories. The data shows that most of the motor vehicle accident deaths that were reviewed occurred in teens aged 15-17. This was followed by four children in the 10 to 14 age range, and one each in the 1-4 and 5-9 age groups, respectively. The data follows the statistics 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].

Figure 20: Motor Vehicle Deaths by Age
2019



There were a variety of vehicles involved in motor vehicle accidents in 2019. Data regarding vehicle type can be seen on the graph below. Motor vehicle accidents accounted for 14 childhood deaths in West Virginia in 2019, which is a decrease from 2018, when there were 18 childhood deaths from motor vehicle accidents. Cars are still the primary vehicle type in accidents involving children, but a rise in ATV accidents has been seen since 2017.

Figure 21: Motor Vehicle Deaths by Type of Vehicle
2019



Drowning Deaths

During 2019, there were five child drowning deaths in West Virginia. The accidents occurred in swimming pools, freshwater areas, and one incident in a bathtub. The death in a bathtub occurred while children were left in a bathroom without adult supervision.

Fire Deaths

In 2019, there were six children who died in house fires in West Virginia. All incidents occurred in single family homes. The children consisted of two male and four female children. Four of the six child deaths occurred with at least one working smoke alarm in the house.

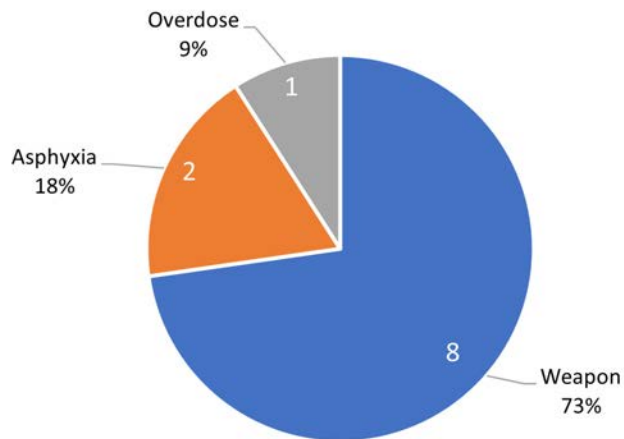
Suicide Deaths

In 2019, 11 children died by suicide, a decrease from 12 in the previous year. The suicide deaths of children reviewed comprised of children ranging in age from 13 to 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 disability. According to the YRBSS Annual Report for 2019⁵, 14.5% of national respondent youths and 18.4% of West Virginian youths had seriously considered suicide, with 8.9% 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 [9,13]. Overall, females are three times more likely than males to attempt suicide; however, males are four times more likely to die by suicide [9]. Per the YRBSS report, 8.3% female and 10.3% male West Virginians reported a suicide attempt [13]. In 2019, seven males and four females died by suicide. Of the 11 deaths, four children left a suicide note.

Figure 22 shows the suicide deaths by cause. There were eight suicides deaths by using a weapon, two died 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].

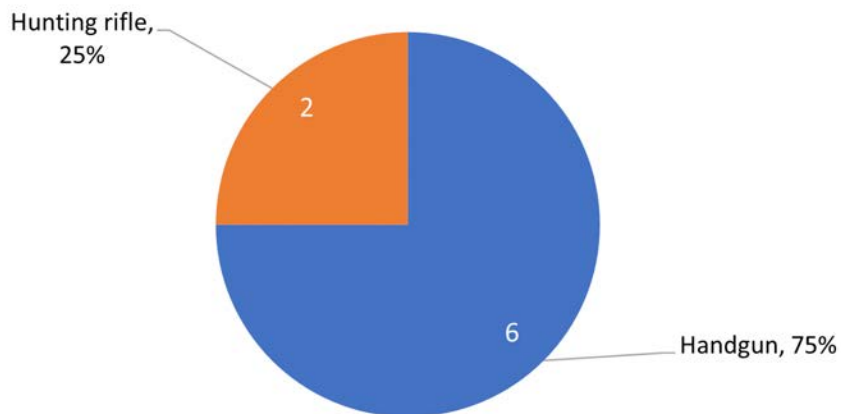
⁵ YRBSS data is self-reported and may not be reflective of actual suicidal thoughts and attempts.

Figure 22: Child Suicide Deaths by Cause
2019



The weapon deaths that occurred all used a firearm and those can be broken out by type. Figure 23 shows six handguns and two hunting rifles were used to complete suicides.

Figure 23: Type of Firearm Used in Suicide
2019



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. Warning signs that the child showed that could have possibly been used as points of intervention include a child talking about suicide, prior suicidal threats or attempts, or a history of self-harm.

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 in their effect on the child's despair. Those factors include, but are not limited to, arguments with parents/caregivers, bullying as a victim, and a break-up with a significant other.

CPS involvement was also examined. Three of the children who died by suicide had a family history of abuse or neglect reported to CPS. Mental health was another factor that was considered. There were three children who had a history of mental illness and were receiving treatment at their time of death.

Homicide Deaths

Homicide is among the top causes of death for young people in America [11]. Homicide accounted for two childhood deaths in West Virginia in 2019, which was a significant decrease from previous years. The homicide deaths of children reviewed ranged from 15 to 17 years old. Looking at the sex and race of the homicide victims, both victims were female, while one child was Caucasian, and the other child was multi-racial.

Across all ages, most homicides are committed by an unknown offender with 28% being carried out by a family member [11]. One of the homicides was committed by a mother's boyfriend. The other homicide was committed by an acquaintance.

WVCFRP Recommendations Based on 2019 Data Review

**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 second-hand 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 children 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 to them even if they only plan to co-sleep one time. Expand the information provided as part of training by Birth to Three 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 Caucasian counterparts. Develop targeted prevention campaigns in African American communities.
5. Expand the program reach of Mountain State Healthy Families to cover all of West Virginia.
6. Recommend a ban on the sale of bumper pads in the state.
7. Recommend enactment of legislation to increase the penalty 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.

9. Recommend all child death cases/investigations need to have a report completed by law enforcement.

Substance Use

1. Recommend changing the current 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 use. 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. Ensure full utilization and expansion of the Handle with Care Program.
6. Recommend increasing drug treatment facilities for youth. Additionally, provide a program to work with families while the child is in treatment, so the child is not returning to a dysfunctional family. Ensure appropriate therapy is provided.
7. Recommend implementation of expanded education on disposal of medications found in homes.
8. Recommend when a child's cause of death is related to drug intoxication, that all children in the home should then be tested for safety/health measures.

Automobile Safety

1. Recommend increasing safe driving education within school systems for children to 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 more relatable for teens.
3. Recommend increasing car seat education programs to ensure 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 expansion of the Don't Drink and Drive Campaign to Driving Under the Influence, which would also include substance use.
6. Recommend increasing awareness for parents about downloading applications to their child's phone to prevent texting while driving.

ATV/Motorcycle Safety

1. Recommend an amendment of the current legislation to add side-by-sides to the current ATV legislation.
2. Recommend increased dissemination of information on the importance of wearing a helmet. Include information on how to check for proper helmet size for a child.
3. Recommend a required license for an ATV, a required operator's course, and make stricter age restrictions. Hold parents responsible for children operating ATV/UTVs.

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.
4. Recommend fire safety measures in rental properties.

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 in or 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 creation of fact sheets about 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. Ensure 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 West Virginia Children's Crisis and Referral Line.
11. Recommend mental health diagnoses included on the death certificate in suicide cases where a known mental health diagnosis exists. The panel believes it is vital to show the link between mental health and suicide.
12. Recommend more funding for suicide prevention.
13. 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 legislation 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.
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 providers information to ensure that if there is a pregnancy in someone known to be a child abuse offender, all are notified to notify CPS upon the child's birth.
4. Recommend that an incident report be filed by law enforcement when attending a child death scene.
5. Recommend a statute that home-schooled 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 ensure that mothers with Type 1 diabetes are aware of the dangers of breastfeeding and hypoglycemia.
11. Recommend medication monitoring mandates for licensed drivers suffering from seizure disorder.
12. Recommend more follow up for monitoring licenses when medical conditions are noted for a licensed driver.
13. Recommend bicycle safety campaigns that would include the correct size of bicycles and helmet/body protection.

14. Recommend school counselors and/or other school personnel attend and participate in the CFRP meetings.
15. Recommend toxicology to be performed on all child deaths, including suicides.

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DOMESTIC VIOLENCE FATALITY REVIEW PANEL

Overview

The West Virginia DVFRP (WVDVFRP) is responsible for reviewing facts and circumstances surrounding all deaths that occurred in West Virginia of victims or suspected victims of domestic violence (DV), including suicides, for those 18 years of age or older. The WVDVFRP 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, and include recommendations for their reduction. The fundamental objective of the WVDVFRP is to prevent future homicides and suicides by providing necessary tools to families, individuals, and appropriate agencies. The WVDVFRP anticipates recommendations being utilized to make necessary changes to protect the victims and hold perpetrators accountable for their crimes to reduce the number of domestic violence related deaths occurring in the state.

WVDVFRP Membership

According to statute, the WVDVFRP operates under the auspices of the DHHR's Office of the Chief Medical Examiner (OCME), with the State Chief Medical Examiner acting as the chair of the panel. The coordinator is housed within the OCME 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 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 Bureau for 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;
- One physician, resident or nurse practitioner specializing in the practice of family medicine or emergency medicine;
- Commissioner of the State Division of Corrections or his/her designee; and
- Director of DHHR's Office of Epidemiology and Prevention Services or his/her designee.

Types of Deaths Reviewed

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

- Homicide committed by a 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 history.
- Homicide of a 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.
- Suicide committed by a perpetrator following an act of domestic violence, sexual violence, or stalking.

Case Review Process

Initial screening of all fatalities are completed by the West Virginia Department of Health and Human Resources (DHHR), Bureau for Public Health (BPH), and the Office of Chief Medical Examiner (OCME) to determine if they meet the definition of domestic violence. The OCME investigators, pathologists, and the WVDVFRP 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 occasionally 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 WVDVFRP Coordinator maintains a running list of all identified domestic violence fatalities, which is reviewed by the entire WVDVFRP. 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 of a crime related to a death, or there is a determination of no further legal action. For these reasons 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 Fatality and Mortality Review Panel statutes.

Prior to case review by the WVDVFRP, 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.

The WVDVFRP 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 violence 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 of 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 WVDVFRP 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.

Findings

During the 2018 calendar year, there were 270 possible domestic violence cases identified for panel review. The panel completed a review of 188 of those cases. In total, 147 cases were determined to be domestic violence-related fatalities, with 123 being ruled out either prior to (82) or during (41) panel review.

The National Coalition Against Domestic Violence (NCADV) defines domestic violence as the willful intimidation, physical assault, battery, sexual assault, and/or other abusive behavior as part of a systematic pattern of power and control perpetuated by one intimate partner against another [7]. This violence could include behaviors such as stalking, intimidation, threats, physical violence, sexual violence, emotional abuse, psychological abuse, or economic deprivation [7]. The DVFRP does not limit the definition of domestic violence to intimate partners only. The definition includes family members as well as roommates sharing a dwelling.

Demographics

In 2018, most of the domestic violence deaths reviewed by the panel were males. Figure 1 shows the percentage of deaths that were male compared to the percentage of deaths that were female. The study found 104 of the 147 deaths reviewed were males, while 43 of the 147 deaths reviewed were females. Data for West Virginia differs from what is generally seen

nationally, as current data show a higher rate of female fatalities. Nationally, the NCADV shows that on average, one in three women and one in four men have been abused by an intimate partner [7]. Additionally, one in five homicides are committed by an intimate partner. In females specifically, more than 50% of victims are murdered by a male intimate partner [3]. A portion of male deaths were suicides by a perpetrator. A study of males in a court-ordered domestic violence perpetrator intervention program reported that 22% of participants had experienced suicidal thoughts within the two weeks prior to entering the perpetrator intervention program [13]. Data on perpetrators who died by suicide is scarce, but this provides some logic as to why the state data differs from national data.

Domestic Violence Fatalities by Sex
2018

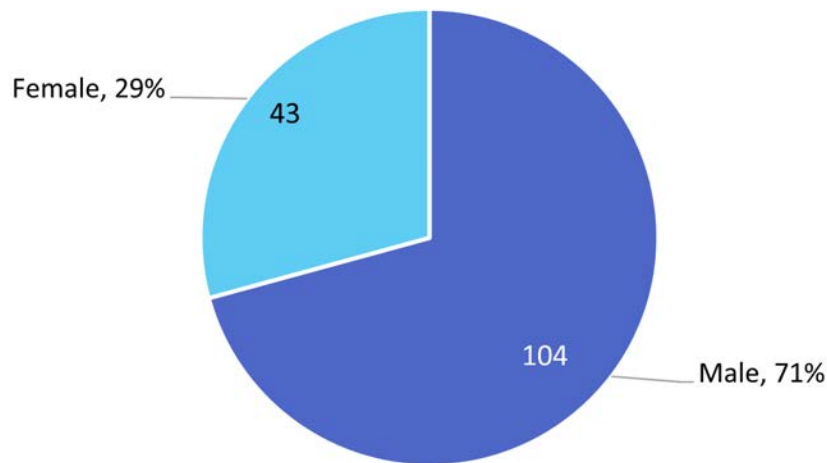
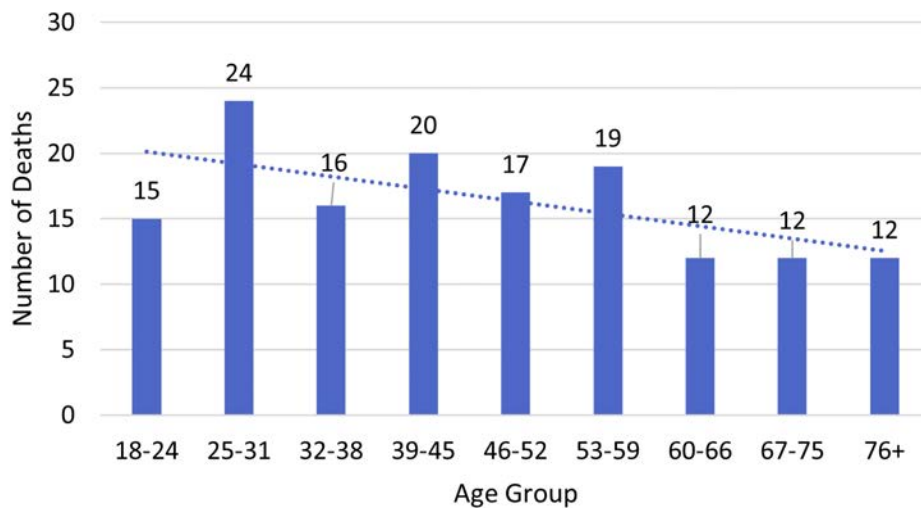


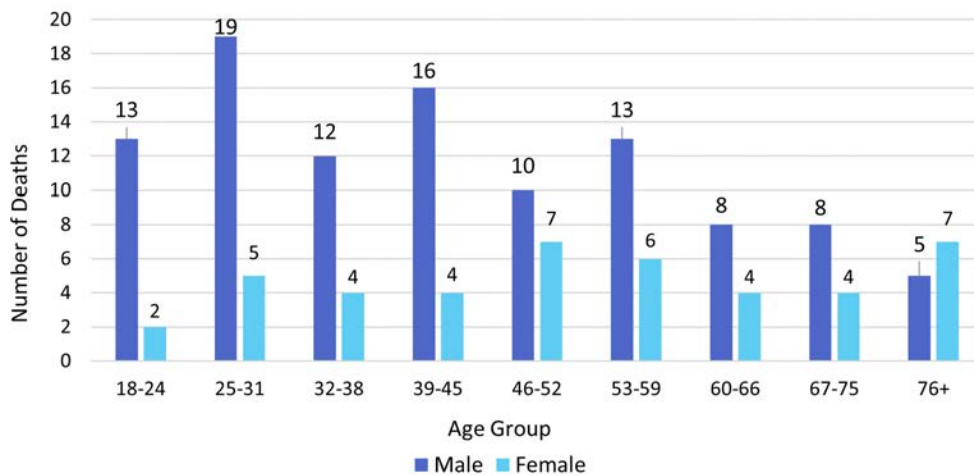
Figure 2 displays the trends for DV fatalities by age. Age groups used were six-year increments. The ages of domestic violence victims in West Virginia ranged from 19 to 90 years old. The peak age range for domestic violence fatalities was between 25 and 31. In 2017, the peak age range was 32 to 38 years of age. In 2018, the 32- to 38-year-old age group number of deaths decreased significantly.

Figure 2: Domestic Violence Fatalities by Age
2018



To further examine the trends, Figure 3 compares the fatalities by age as well as sex. As age increased, the differences between the two sexes generally decreased.

Figure 3: Domestic Violence Fatalities by Age and Sex
2018



When looking at deaths by race, almost all the decedents were Caucasians. In Figure 4, 94% or 138 of the reviewed decedents were Caucasian. One individual was multi-racial. Eight decedents or 5% were Black. Although West Virginia’s population is 92.3% white [12], minority races are at a higher risk of domestic violence [8]. In the Black community, 45.1% of women and 40.1% of men report experiencing either physical or sexual violence or stalking by an intimate partner [8].

Figure 4: Deaths by Race
2018

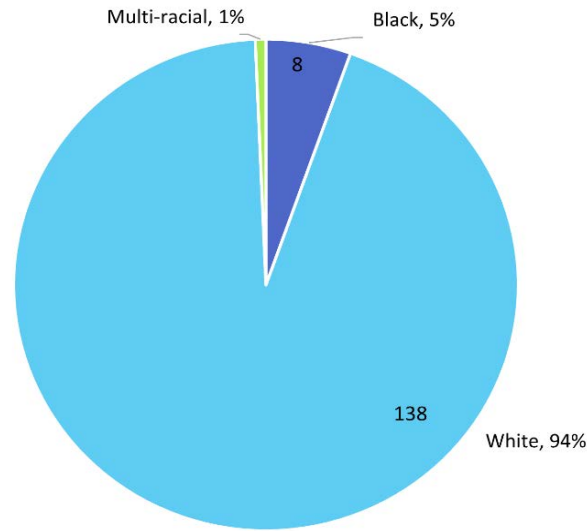


Figure 5 shows domestic violence deaths by both race and sex. Caucasian male deaths accounted for 65%, or 96 deaths, followed by Caucasian females accounting for 29%, or 42 reviewed deaths. African American males accounted for 5%, or seven deaths. One African-American female and one multi-racial male together make up 1%. Per the National Coalition Against Domestic Violence, 51.3% of Black women who die due to homicide are killed in relation to intimate partner violence [8]. According to the Blackburn Center, domestic violence is the leading health issue facing Black women today [11].

Figure 5: DV Deaths by Race and Sex
2018

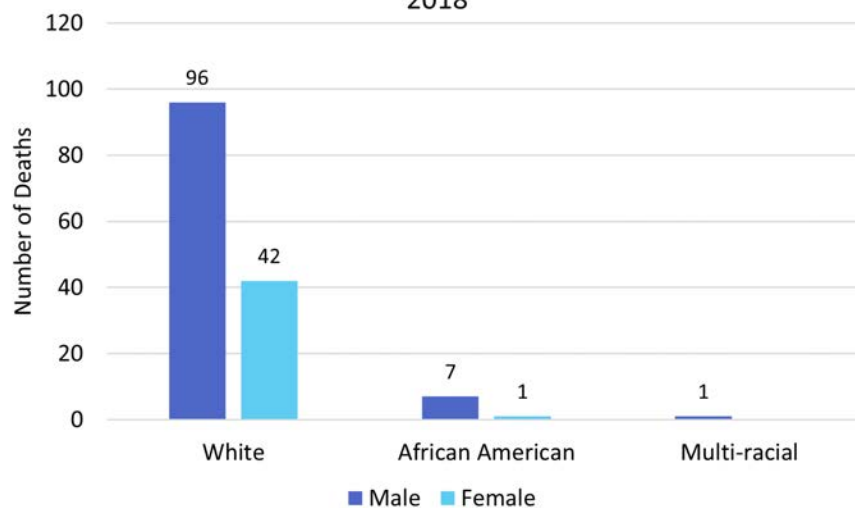
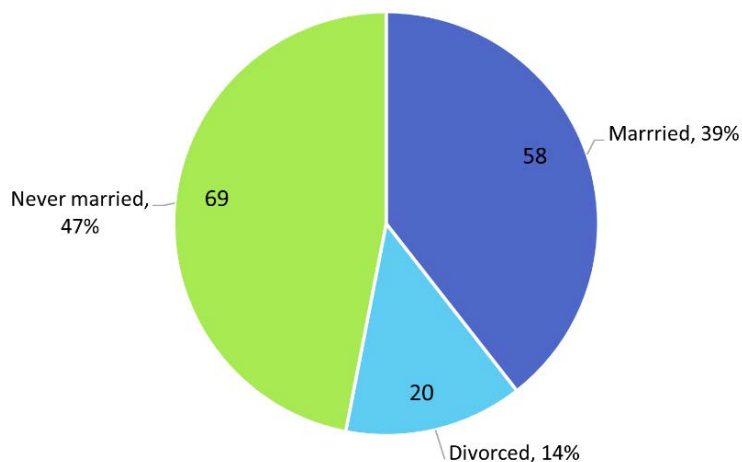


Figure 6 shows deaths distributed by relationship status. The largest group represented is “never married,” 69, which can include individuals that are single or in a relationship accounting for 47% of domestic violence-related deaths. There were 58 decedents who were married at the time of their death. 20 divorced or separated individuals accounted for just under 14% of deaths.

National data state that women are most vulnerable to violence when separated from their intimate partner or during divorce [2]. Divorced or separated men are more than eight times more likely to die by suicide than their female counterparts. Some contributing factors are custody arrangements, betrayal or jealousy as their spouse moves on, poor mental health, substance abuse, and many others [6].

Figure 6: Relationship Status of Decedent
2018



Manner of Death

Manner of death is broken into five categories: natural, suicide, homicide, accident, and undetermined. Figure 7 shows that most of the domestic violence deaths that were reviewed in West Virginia in 2018, were suicides. Suicides accounted for 83 of the 147 reviewed deaths, or 56%. The link between domestic violence and suicide is often overlooked. However, there is some indication that those who have experienced DV are at a higher risk of suicide than those who have not. The Substance Abuse and Mental Health Services Administration (SAMHSA) reported that between 2017 and 2019, 5.6% of all West Virginia adults had experienced serious thoughts of suicide [10]. This was followed by homicides at 27% with 39 deaths reviewed falling within that category. Nine deaths (6%) were determined to be natural. Nine deaths were ruled accidents (6%) and finally, seven deaths (5%) were ruled undetermined.

Figure 7: Manner of Death
2018

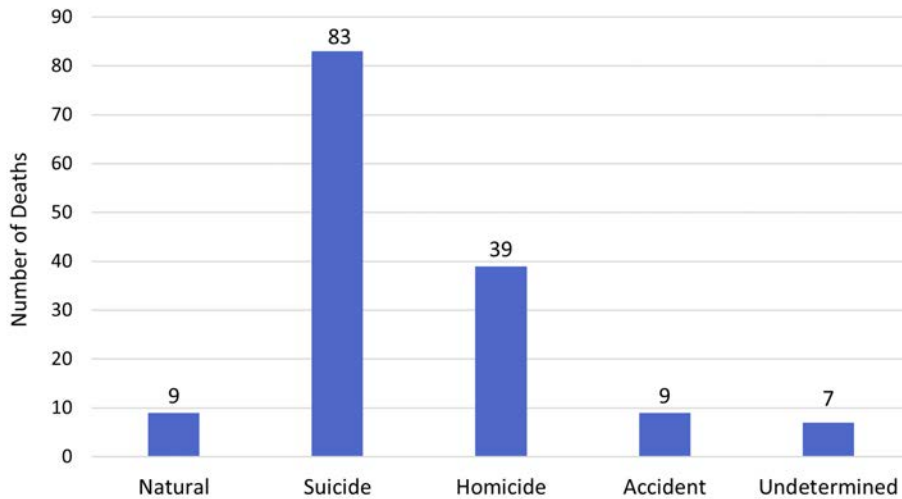
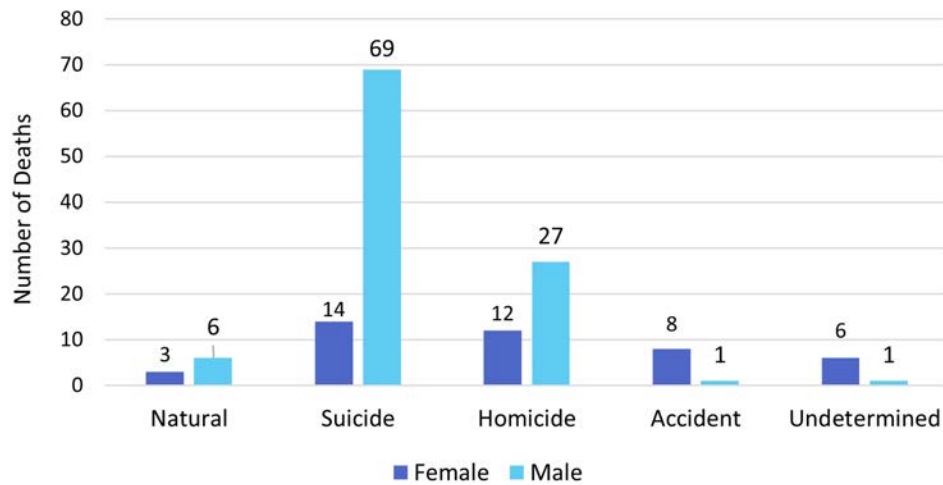


Figure 8 compares the manner of death and sex. The data shows that males are most likely to die by suicide when related to domestic violence deaths. Male suicides were almost five times as likely as female suicides, and accounted for 47% or 69 reviewed deaths. It is important to recall that in several of these suicides, the male decedent was a perpetrator of domestic violence. While this may not be a victim in the traditional sense, the death was still attributed to DV. Female suicides accounted for 10% or 14 of the deaths reviewed, which is a significant decrease from 2017. According to the Emerge Center Against Domestic Abuse, female survivors of domestic abuse are seven times more likely to contemplate suicide than women who have not experienced domestic violence [4]. Male homicides accounted for 18.0% or 27 deaths and female homicides accounted for 8% or 12 deaths. This is inconsistent with national data for domestic violence. One explanation for this is the lack of data regarding male perpetrators who die by suicide, as mentioned above. In 2010, 37% of female homicides nationally were committed by an intimate partner compared to only 3% of male homicides [1]. There were nine deaths ruled natural, three females and six males. Nine deaths were accidents, eight females and one male. Finally, seven deaths were undetermined, six females and one male.

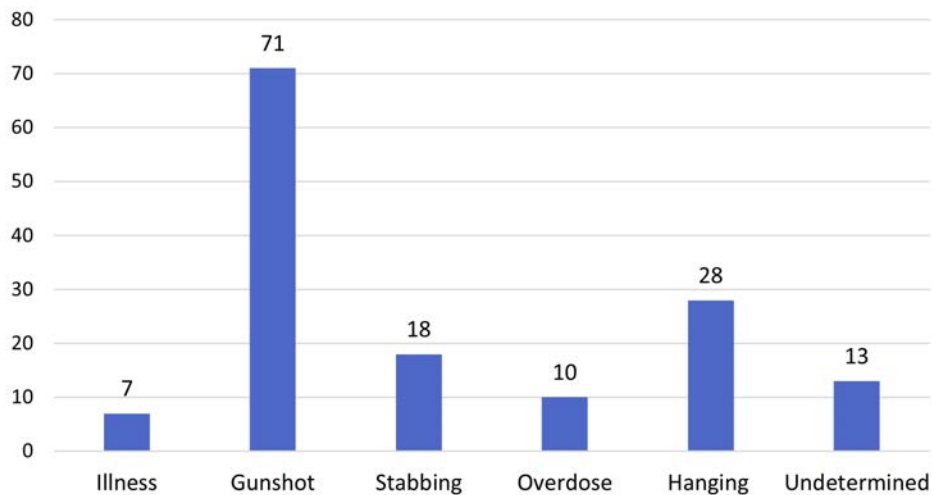
Figure 8: Manner of Death by Sex
2018



Cause of Death

Domestic violence related deaths were broken into seven categories for cause of death, as seen in Figure 9, based on frequency. The most prevalent cause of death was gunshot wounds, which accounted for 71 deaths or 48% of all reviewed deaths.

Figure 9: Cause of Death
2018



Distribution of Deaths for Various Categories

Figure 10 is a heatmap showing the occurrences of domestic violence fatalities across the state. Most deaths occurred in Kanawha County with 20 reported deaths, followed by Cabell County with 11 reported deaths.. There were 14 counties that did not have any domestic violence-related deaths. These numbers are raw numbers for the reported deaths per county and did not consider the population size of each county.

Figure 10: Domestic Violence Fatalities by County
2018

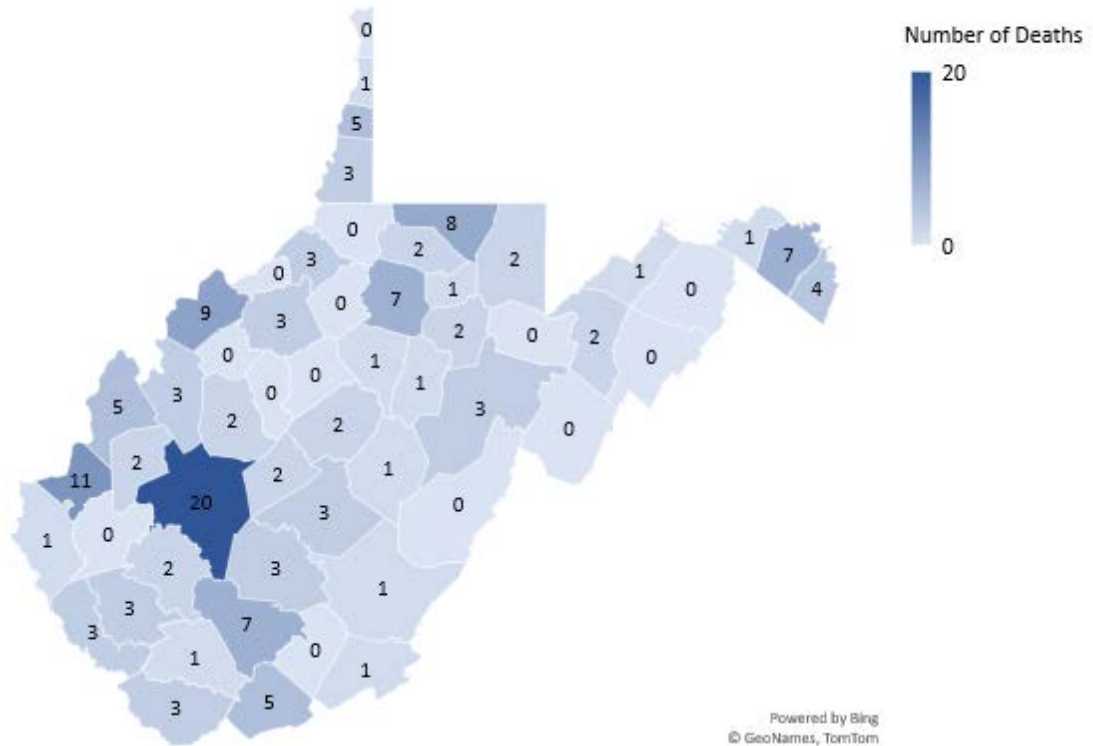
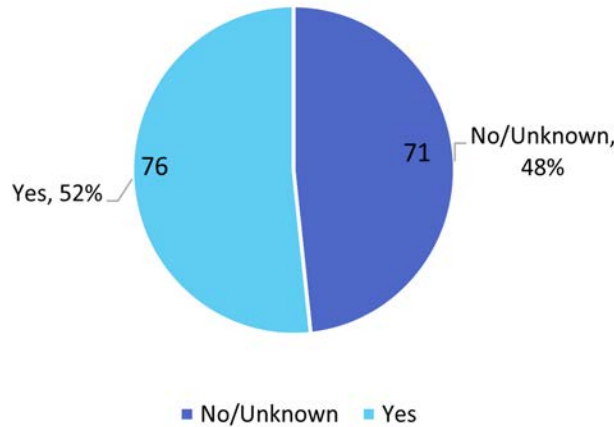


Figure 11 shows the number of domestic violence deaths for which there was a known domestic violence history. Of the deaths in 2018, 76 individuals or 52% had a history of domestic violence. This has increased from 2017. This includes history either as the perpetrator or victim. West Virginia state law prohibits anyone convicted of a domestic violence related assault or battery of possessing firearms [W. Va. Code 61-7-7]. This is important considering that the majority of deaths involve a firearm.

Figure 11: History of DV
2018



Child present at scene

Five of the 147 deaths reviewed had at least one child present. This does not necessarily mean that the child witnessed the death, but that they were present when the death occurred. This is a major issue, as research has shown that children who experience childhood trauma, including domestic violence, are at a greater risk of tobacco use, substance use, obesity, cancer, heart disease, depression, and unintended pregnancy [5]. Further, children who are exposed to domestic violence, either as a witness or victim, are at a higher risk of being in an abusive situation in adulthood [9]. It is reported that in homes where domestic violence occurs, children witness it between 80 to 90% of the time. An estimated 30 to 60% of children are also victims of abuse [9].

Data Limitations

Domestic violence fatalities reviewed by the DVFRP were determined to meet the definition of domestic violence set forth in the West Virginia State Code. Some fatalities reviewed may have had elements of domestic violence identified in the victims' lives but were not found to be domestic violence-related deaths. This accounts for the discrepancy between the 188 cases reviewed and the 147 cases determined to be domestic violence-related deaths as a result of the review. The DVFRP does not represent that all domestic violence related fatalities that occurred in the reporting year have been identified.

2018 West Virginia DVFRP Recommendation

**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 WVDVFRP recommends a centralized coordinator that would work to ensure that law enforcement response is consistent and conducted in accordance with West Virginia laws. This includes one office to be established to coordinate the training response statewide. This office 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 Domestic Violence Fatality Review Panel 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 WVDVFRP recommends a change in the West Virginia Code to allow the panel to review domestic violence deaths in more detail. The panel would like to interview family members of the victims or perpetrators to gain pertinent information that is not always gathered from other sources.
3. The WVDVFRP 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.
4. The WVDVFRP recommends that it be granted access to the Domestic Violence Offender Registry as it would help the panel gather more information on victims and perpetrators.
5. The WVDVFRP recommends an updated awareness campaign for domestic violence, which would include exploitation of the elderly.
6. The WVDVFRP recommends the implementation of Dangerousness Lethality Assessment Guide or **D-LAG** training for the regional jails to recognize highly dangerous potentially lethal behaviors of domestic violence offenders. The panel believes that this would allow intervention to be made at that point that could potentially save a life.
7. The WVDVFRP recommends more treatment for mental health and domestic violence for incarcerated persons.
8. The WVDVFRP recommends increasing training for law enforcement to increase awareness of domestic violence and elder abuse. The panel believes that law enforcement generally sees domestic violence as being between intimate partners but that is only a portion of domestic violence cases.
9. The WVDVFRP recommends implementing a policy that allows ALL law enforcement agencies, especially the West Virginia State Police, authority to serve mental hygiene orders. At the time of this report, only county law enforcement agencies are authorized.
10. The WVDVFRP recommends easy access to records such as prior history of involuntary commitments so law enforcement will know if an applicant is prohibited from having a firearm.
11. The WVDVFRP recommends continuation and expansion of the Kanawha County Magistrate Court Pilot Project, which allows one judge to handle 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. This would also allow the judge to impose more stringent sentences on repeat offenders.
12. The WVDVFRP recommends that prosecuting attorneys include no access to firearms as a standard condition of bond for domestic violence-related offenses. The panel believes that limited access to firearms for offenders could potentially reduce the number of firearm-related domestic violence deaths.
13. The WVDVFRP 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. The panel believes that there are a limited number of these types of services currently available in the state.
14. The WVDVFRP recommends that a change be made to current Adult Protective Services (APS) policies to include contacting law enforcement when there is a reasonable suspicion of abuse, neglect, or exploitation, even in cases that are not substantiated during their assessment.
15. The WVDVFRP recommends that social workers at hospitals report to DHHR's Adult Protective Services (APS), any abuse or neglect of the elderly that is suspicious, and that APS investigate immediately, preferably before release from the hospital.

16. The WVDVFRP recommends expansion of the West Virginia Court Pilot Program which allows petitioners to attend court proceedings virtually from the safety of a domestic violence advocacy site.
17. The WVDVFRP recommends a database to track active Domestic Violence Petitions (DVP), with the possibility of connecting DVPs to driver's licenses or license plates. An additional recommendation would seek to attach any history of mental hygiene to a driver's license.
18. The WVDVFRP recommends screenings for youth mental health services as an early intervention.
19. The WVDVFRP recommends more education to spread awareness of the seriousness of suicide threats and possible warning signs.

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INFANT AND MATERNAL MORTALITY REVIEW PANEL

Overview

The West Virginia Legislature has enacted legislation requiring the study of the causes of infant and maternal deaths. Comprehensive studies indicate that infant and maternal mortalities are more complex than they initially appear on death certificates and require extensive studies to enable the development of strategies to reduce infant and maternal deaths in the future.

The Infant and Maternal Mortality Review Panel (IMMRP) is housed within DHHR's Bureau for Public Health's Office of Maternal, Child and Family Health. The review process is a method of understanding the diverse factors that contribute to preventable deaths and identifying and implementing interventions to address these factors. 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 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 Fatality and Mortality Review Team concerning its activities and describing the burden of infant and maternal mortalities within West Virginia. The report includes statistics describing the number of infant and maternal deaths; identifiable trends in infant and maternal deaths in the state including possible causes, if any; and recommendations to reduce the number of preventable infant and maternal deaths 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 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 identify deaths more accurately 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.

Maternal Review Process

OMCFH receives a list of maternal deaths from the West Virginia Health Statistics Center (HSC). HSC identifies maternal deaths by linking death certificates for women aged 10-50 years with birth certificates and fetal death certificates or by pregnancy indication on the death certificate.

Additional maternal deaths are identified by ICD 10 diagnostic codes A34-Obstetrical tetanus or 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 HSC reports, but they are included in the case reviews only when additional information is available due to the difficulty in obtaining records across jurisdictions.

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's conclusion. Hospital records at the time of death and autopsy reports are included when applicable. Information is entered into the 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. Once record abstraction and data entry are completed, a de-identified case summary document can be exported for each case that provides all information obtained during the abstraction process. These documents provide a complete picture of the pregnancy and death obtained from the records.

The case summary documents are sent to all members prior to the meeting. 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 the IMMRP's discussion during quarterly review meetings.

All data included in this report came from the MMRIA and was analyzed by the OMCFH Division of Epidemiologic Evaluation and Population-based Surveillance (DEEPS) using Microsoft Excel and SAS 9.4.

Infant Review Process

OMCFH receives a list of infant deaths from the HSC. HSC identifies infant deaths by linking birth and death certificates for infants in the first year of life.

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 HSC reports but are only included in case reviews when additional information is available due to the difficulty of obtaining records from other jurisdictions.

Once cases are identified, medical records are obtained from all health care facilities providing care before, during, and after pregnancy conclusion. Hospital records at the time of death and autopsy reports are included when applicable. Due to perinatal influences of the mother's health and maternal risk factors, maternal medical information obtained during pregnancy is also reviewed. Information is entered into the Fetal Infant Mortality Review (FIMR) System. FIMR is a standardized data collection tool to assist in understanding the causes of infant mortality and eliminating preventable deaths. Once record abstraction and data entry are completed, a de-identified case summary document can be exported for each case that provides all information obtained during the abstraction process. These documents provide a complete picture of the pregnancy and death obtained from the records for each infant death.

The case summary documents are sent to all members prior to the meeting. The IMMRP reviews all infant deaths to determine if they are preventable. Opportunities for prevention and

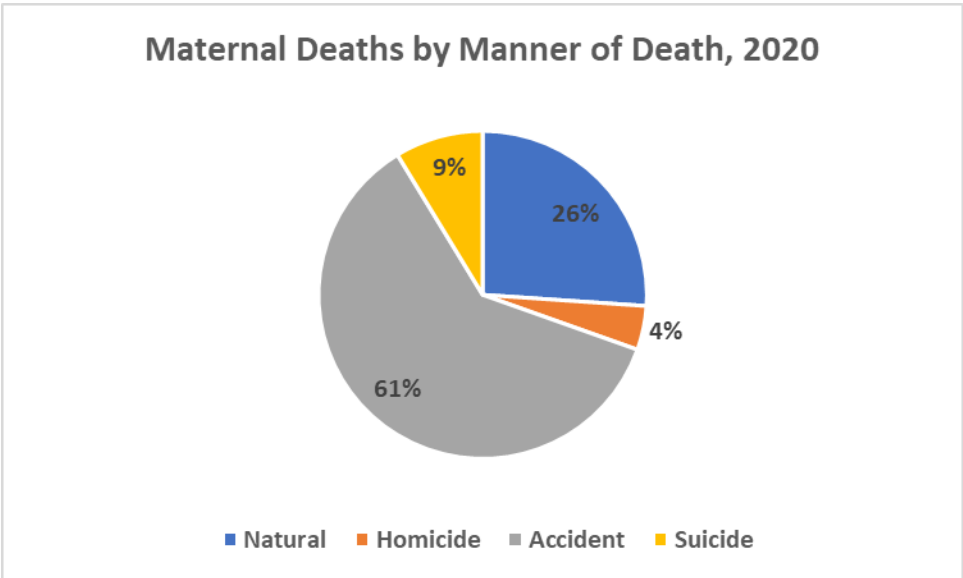
recommendations are determined through the IMMRP's discussion during quarterly review meetings.

All data included in this report came from the FIMR System and was analyzed by the OMCFH In 2019, 25 Microsoft Access, Microsoft Excel, and SAS 9.4. Using data from FIMR, OMCFH defines FIMR defines Sudden Unexpected Infant Death (SUID) classification by using the cause of death categories within the data system 1) unable to determine if medical or injury cause of death, 2) external cause of injury, and 3) medical conditions.

Maternal Deaths 2020

Manner of Death

In 2020, there were 23 pregnancy-associated maternal deaths. The manner of death was listed as: 14 (61%) accidental, six (26%) natural, one homicide (4%), and two (9%) suicides.



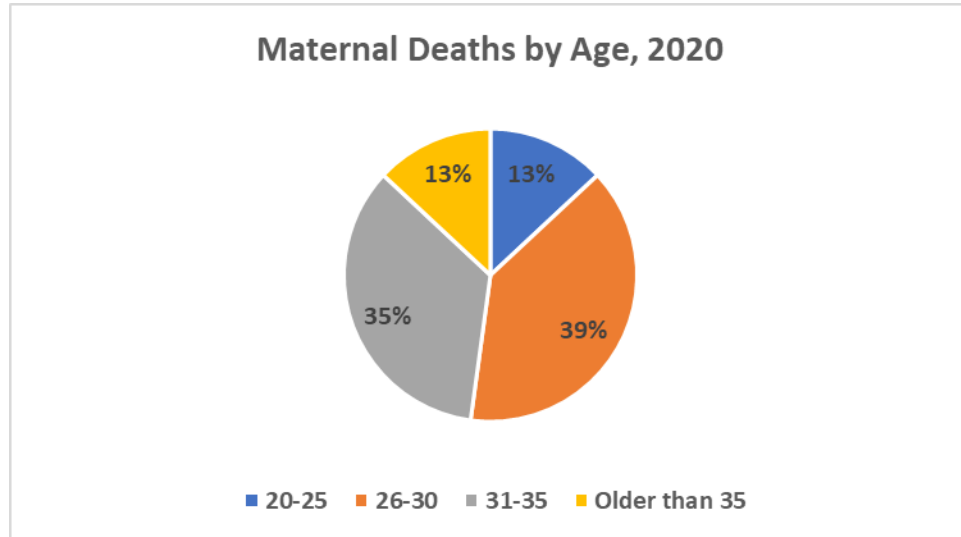
Cause of Death

Drug use was the cause of 11 (48%) maternal deaths, but drug use was noted in 14 of the 23 deaths. The three remaining accidental deaths include two (9%) blunt force injuries and one (4%) nontraumatic intracerebral hemorrhage. Six deaths were attributed to natural causes with one caused by sepsis (4%), two (9%) caused by septic shock, one (4%) caused by myocardial

infarction, one (4%) by liver cirrhosis, and one (4%) caused by hypovolemic shock. Three deaths were from gunshot wounds, one (4%) homicide by multiple gunshot wounds and two (9%) suicides were gunshot wounds to the head.

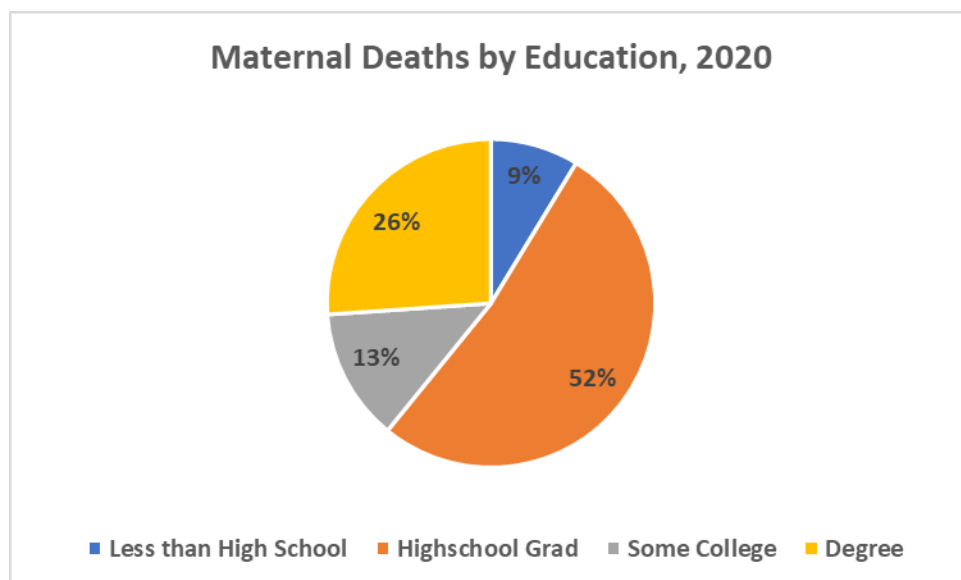
Maternal Age

Of the 23 pregnancy-associated maternal deaths, three (13%) decedents were 20-25 years of age, nine (39%) decedents were 26-30 years of age, eight (35%) decedents were 31-35 years of age, and three (13%) decedents were older than 35 years of age.



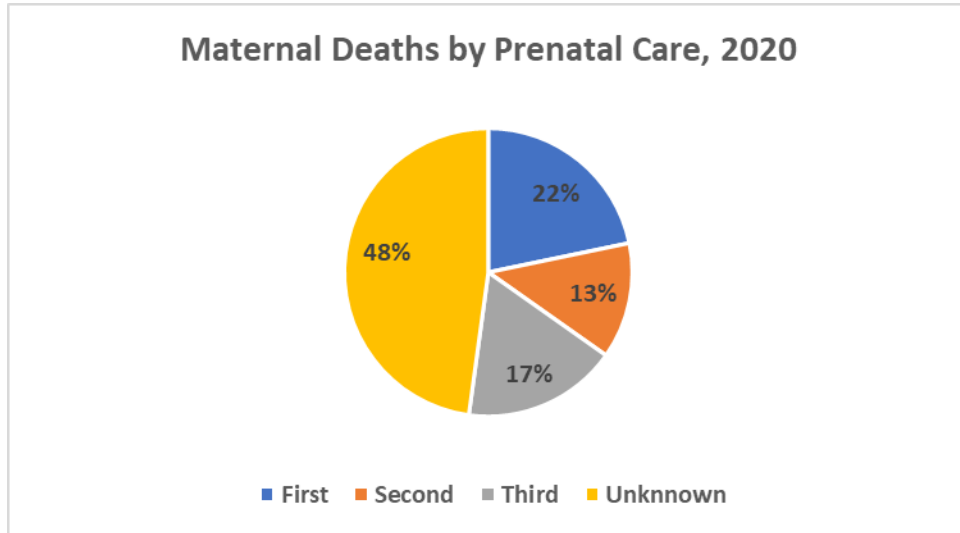
Maternal Education

Of the pregnancy-associated maternal deaths that occurred in 2020, two (9%) decedents had less than a high-school education, 12 (52%) decedents had at least a 12th grade education, three (13%) decedents had some college, and six (26%) decedents had a college degree.



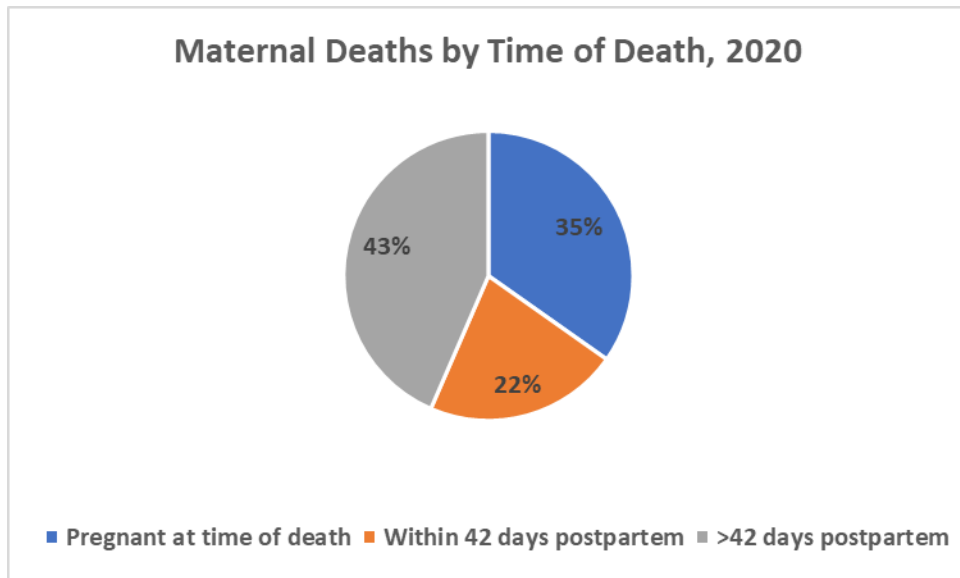
Maternal Prenatal Care

Five (22%) decedents began prenatal care in the first trimester, three (13%) decedents began in the second trimester, four (17%) decedents began in the third trimester, and 11 (48%) decedents had an unknown start of prenatal care.



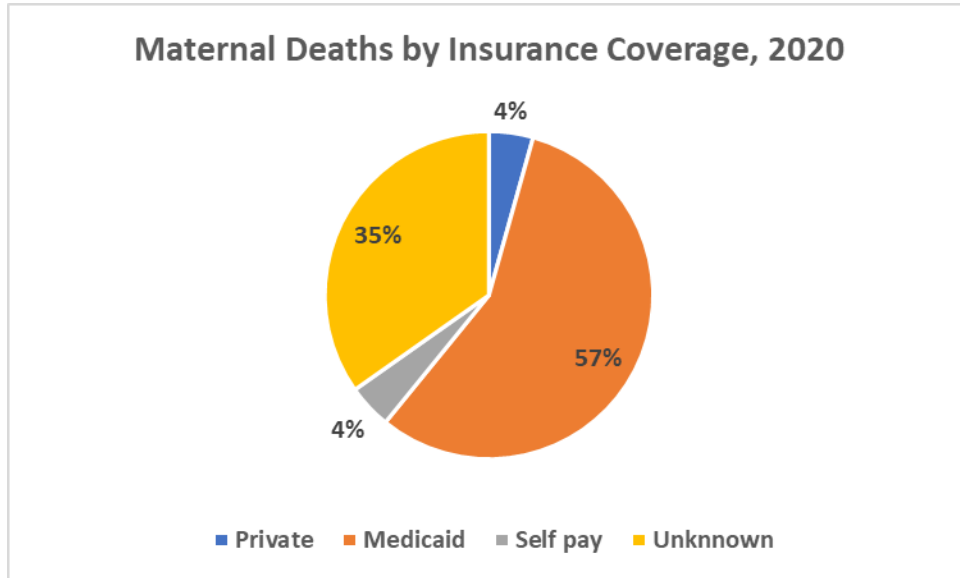
Time of Death

Eight (35%) deaths occurred concurrently with fetal demise; five (22%) deaths occurred less than 42 days postpartum; and 10 (43%) deaths occurred greater than 42 days postpartum.



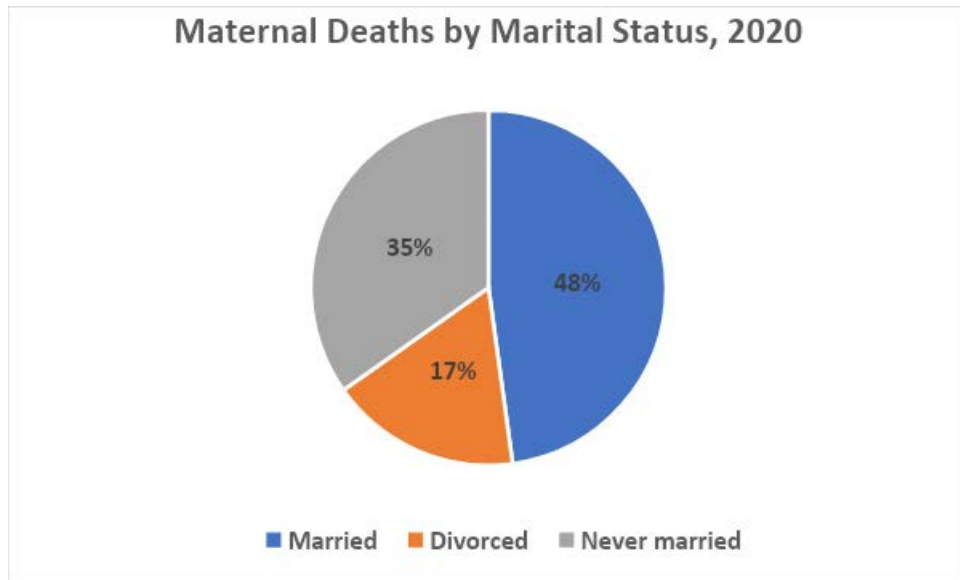
Maternal Insurance Coverage

In 2020, Medicaid was the primary insurance coverage for 13 (57%) of the 23 pregnancy-associated maternal decedents; private insurance was the primary insurance coverage for one (4%); one maternal decedent was self-pay; and the coverage was unknown for eight (35%) of the pregnancy-associated maternal decedents.



Maternal Marital Status

Eight (35%) of the 23 maternal decedents were women who had never been married, 11 (48%) were married, and four (17%) were divorced.



Maternal Death Rate

The rate of pregnancy-associated maternal mortality in 2020 was 132 per 100,000 (calculated as 23 maternal deaths divided by 17,327 residence births – 2020 HSC data).

Maternal Deaths 2020

Recommendations to Date: Maternal Deaths

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

Mental Health

1. Recommend health care practitioners provide referrals for women with documented mental health conditions and follow-up to verify she is seeking treatment.
2. Recommend hospitals flag charts of patients with a high risk of suicide and establish additional protocols for contacting these patients if they miss appointments.
3. Recommend health care practitioners provide referrals and follow-up for women identified to be at a high risk for suicide.

Substance Use Disorder

1. Recommend health care practitioners offer long-acting reversible contraception (LARC) to high-risk women with SUD history.
2. Recommend referrals for women with history of substance use disorder (SUD) so they are monitored closely during pregnancy and care is continued postpartum.
3. Recommend creating alternative forms of education to women prenatally and postpartum that aligns with education level, especially related to postpartum depression, SUD, etc.
4. Recommend Birthing Centers develop policies to include naloxone as part of standard postpartum discharge orders for those with documented substance use disorders and include education for indications of use and proper administration.
5. Recommend practitioners extend pregnancy-related care up to 1 year postpartum and have services to be covered by insurance provider.
6. Recommend health care providers refer high risk pregnant and postpartum women with a history of SUD to Community Health Workers (CHW)/doulas to assist in care.
7. Recommend Medicaid provide coverage for CHW and/or doulas to assist in postpartum care.
8. Recommend policies that ensure decedents enrolled in drug programs will be referred for autopsy.
9. Recommend new linking methods that reduce stigma for families recently reunified with their children to community resources to provide support as they rebuild their family unit.

Incarcerations

1. Recommend development of policies to enhance continuity of care for incarcerated women; instill more intensive jail and post-jail monitoring.
2. Recommend improved diversion programs that enhance SUD treatment and reduce carceral approaches to non-violent drug-related offenses.

Domestic Violence

1. Recommend health care practitioners assess more aggressively for domestic violence at each encounter (prenatal visits, ER visit, Labor & Delivery, Postpartum, etc.)
2. Recommend health care facilities develop policies to ensure referral to social work if domestic violence or social issues are recognized.

Trauma

1. Recommend development of education curriculum across the state for Emergency Room providers/trauma centers on care of pregnant trauma cases.

Firearms/Lethal Means

1. Recommend developing/distributing safety planning education for families on access to lethal means and firearm safety, particularly in cases where pregnant and parenting people are at high risk of suicide.

Recommendation for Improvement of Review Process

1. Recommend study to identify if hospitals have policies for referring decedents to the Office of the Chief Medical Examiner for full autopsy and what criteria are included in existing policies.
2. Recommend the Office of Maternal, Child and Family Health research additional mechanisms to obtain out of state medical records to improve health care and death review processes.
3. Recommend re-evaluation of the Infant and Maternal Mortality Panel membership using previous years of MMRIA data to ensure all areas of expertise are included for future reviews.
4. Recommend developing subcommittees to foster more timely reviews and recommendations.

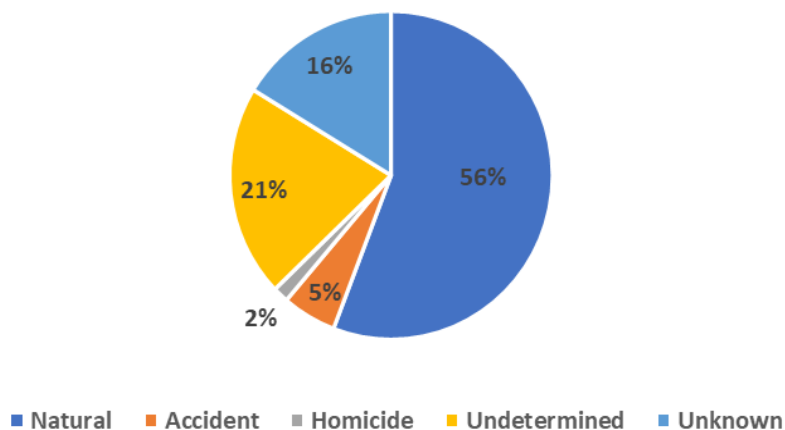
Infant Deaths 2018

Manner of Death

For calendar year 2018, 129 infant deaths were reviewed by the IMMRP. The manner of death was listed as: 72 (56%) natural; 27 (21%) undetermined; two (2%) homicide; seven (5%) accidental; and for the remaining 21 (16%) deaths, a manner of death could not be established due to limited information.

The infant mortality rate for West Virginia in 2018, was 7.1 infant deaths per 1,000 live births (calculated as 129 infant deaths divided by 18,243 resident births - 2018 West Virginia HSC data). In 2018, the CDC reported the U.S. infant mortality rate as 5.7 infant deaths per 1,000 live births.

Infant Deaths by Manner of Death, 2018



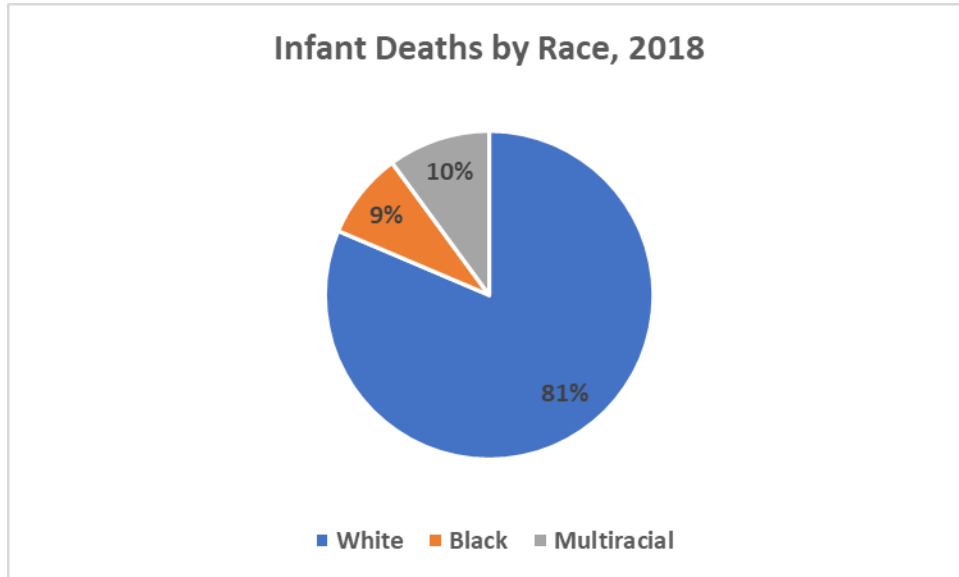
Cause of Death

Of the 129 infant deaths, 10 (8%) deaths were from an external cause of injury; 77 (60%) deaths were from a medical condition; for 36 (28%) decedents, a determination could not be made as to whether the cause of death was injury or medical; and for six (5%) of decedents, the cause of death was unknown. Of the 10 deaths from an external cause of injury, one (10%) was due to drowning; three (30%) were due to asphyxia; one (10%) was due to bodily force or weapon; four (40%) were due to poisoning, overdose, or acute intoxication; and one (10%) was undetermined. Of the 77 deaths from a medical condition, 17 (22%) deaths were due to prematurity, 19 (25%) deaths were due to congenital anomalies, and 41 (53%) deaths were due to other medical conditions.

Using data from FIMR, OMCFH defines Sudden Unexpected Infant Death (SUID) using three cause of death categories: 1) unable to distinguish between medical or injury cause of death; 2) external cause of injury; and 3) medical conditions. For undetermined-if injury/medical causes of death, those classified as undetermined or unknown were used; for external cause of injury deaths, those classified as asphyxia, undetermined, or unknown were used; and for medical conditions those classified as Sudden Infant Death (SIDS), undermined medical cause or unknown were used. In 2018, 49 (38%) or more than a third of the infant deaths were due to SUID.

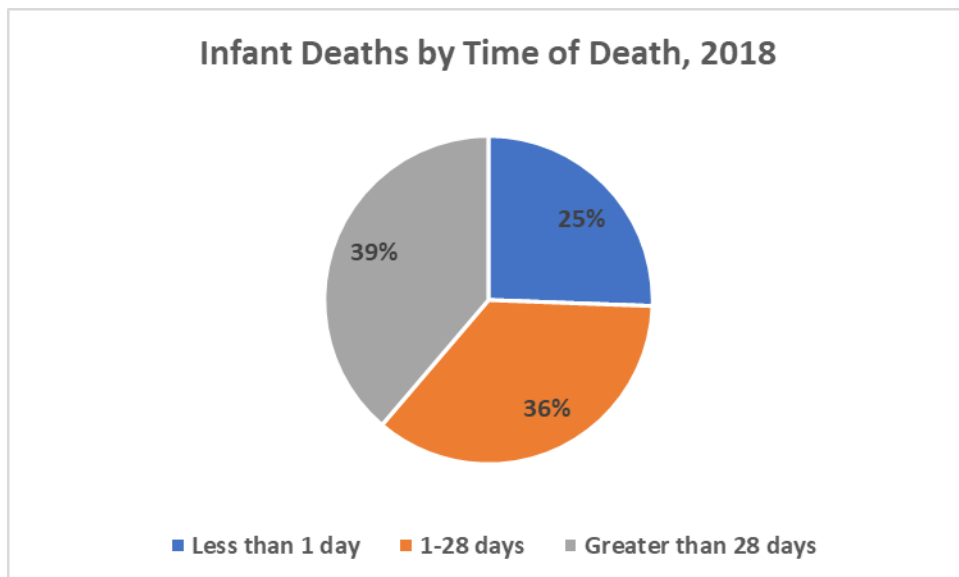
Infant Race

In 2018, 105 (81%) of the 129 infant decedents were white, 11 (9%) were black, and 13 (10%) were multiracial.



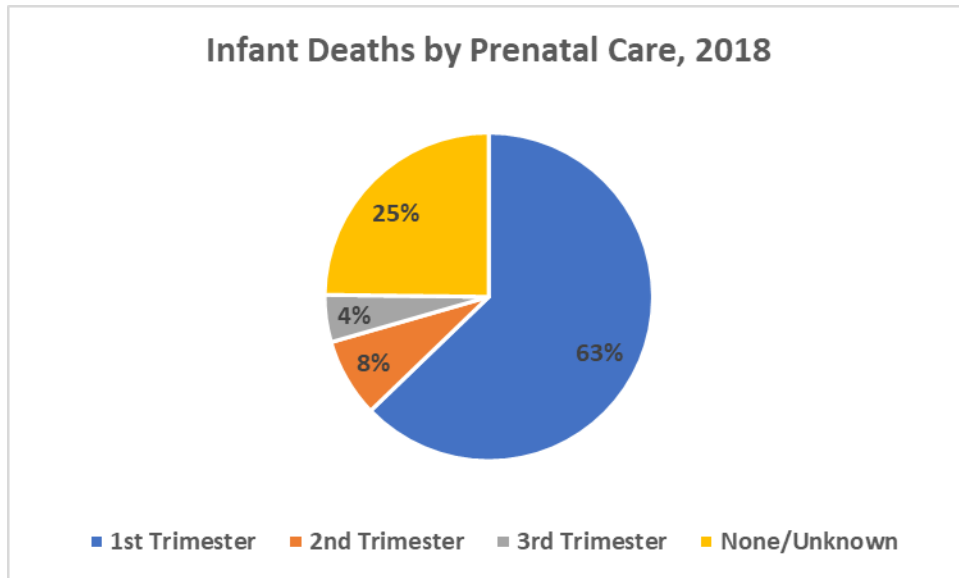
Infant Age at Time of Death

In 2018, 33 (26%) of the 129 decedents were less than one day old, 46 (36%) were 1-28 days old, and 50 (39%) were older than 28 days. d.



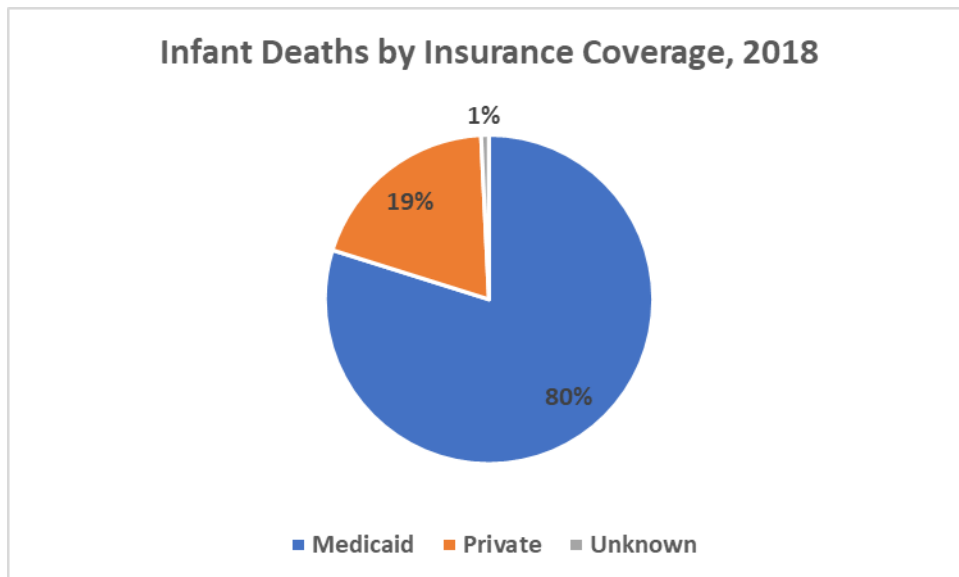
Maternal Prenatal Care

Eighty-one (63%) of the 129 infant decedents began receiving prenatal care in the first trimester, 10 (8%) began prenatal care during the second trimester, six (5%) began prenatal care in the third trimester, and 32 (25%) had none/unknown prenatal care.



Insurance Coverage

In 2018, Medicaid was the primary medical coverage for the birth of 103 (80%) of the 129 infants who died, while 25 (19%) were covered by private insurance, and 1(1%) were none/unknown.



Preventability

Of the 41 preventable infant deaths in 2018, the race of 34 (83%) were white, four (10%) were black, and three (7%) were multiracial. Thirty (73%) of the preventable deaths were sleep related. Six (15%) had an open CPS file at the time of death. Thirty-three (80%) births were insured through Medicaid, six (15%) were insured privately, and the insurance status of two (5%) was unknown.

| Could the death have been prevented? 2018 FIMR | | | | |
|---|---------------------------------|--------------------------|--------------------------------|--------------|
| Manner | No, Probably Not | Yes, probably | Could Not Determine | Total |
| Natural | 59 | 6 | 7 | 72 |
| Accident | 1 | 6 | 0 | 7 |
| Suicide | 0 | 0 | 0 | 0 |
| Homicide | 0 | 2 | 0 | 2 |
| Undetermined | 1 | 25 | 1 | 27 |
| Pending | 0 | 0 | 0 | 0 |
| Unknown | 12 | 2 | 7 | 21 |
| Total | 73 | 41 | 15 | 129 |

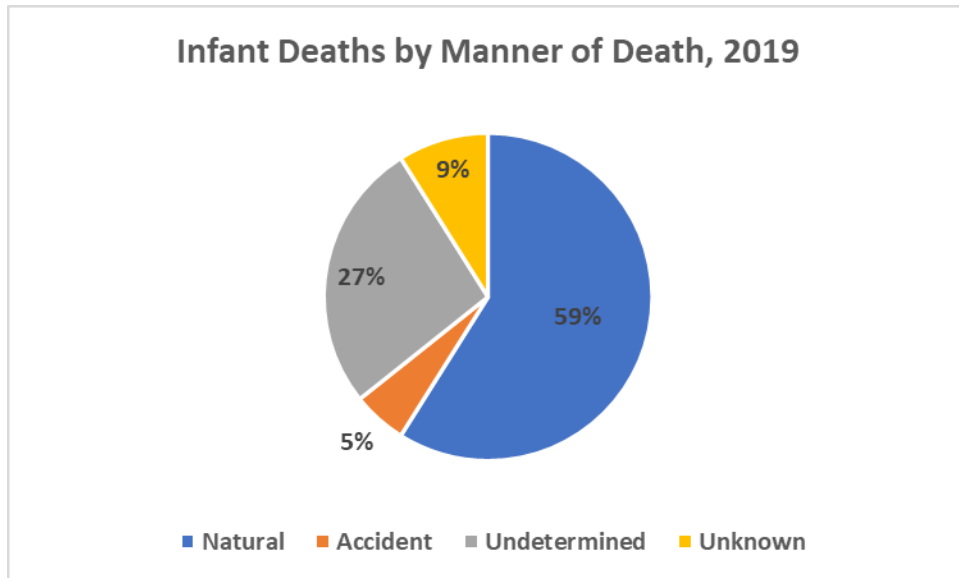
Of the 41 preventable infant deaths in 2018, the race of 34 (83%) were white, four (10%) were black, and three (7%) were multiracial. Thirty (73%) of the preventable deaths were sleep related. Six (15%) had an open CPS file at the time of death. Thirty-three (80%) births were insured through Medicaid, six (15%) were insured privately, and the insurance status of two (5%) was unknown.

Infant Deaths 2019

Manner of Death

For calendar year 2019, 112 infant deaths were reviewed by the IMMRP. The manner of death was listed as 66 (59%) natural, 30 (27%) undetermined, 10 (9%) unknown, and six (5%) accidental.

The infant mortality rate for West Virginia in 2019 was 6.2 infant deaths per 1,000 live births (calculated as 112 infant deaths by 18,090 resident births - 2019 HSC data). In 2019, the CDC reported the U.S. infant mortality rate as 5.6 infant deaths per 1,000 live births.



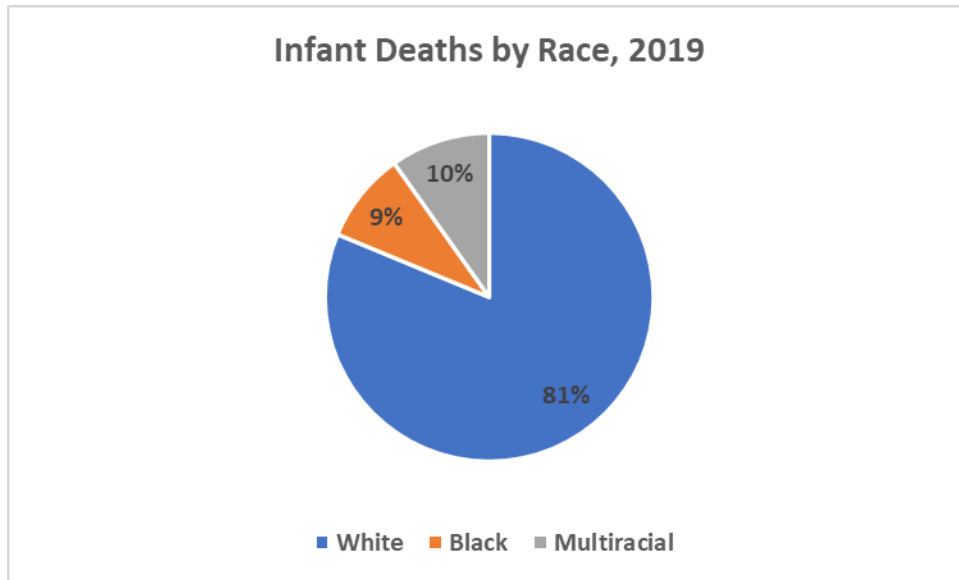
Cause of Death

Of the 112 infant deaths, 10 (9%) deaths were from an external cause of injury; 85 (76%) deaths were from a medical condition; seven (6%) for 36 (28%) of the decedents a determination could not be made as to whether the cause of death was injury or medical; and for 10 (9%) of the decedents, the cause was unknown. Of the 10 deaths from external cause of injury, six (60%) were due to asphyxia, one (10%) was due to bodily force or weapon, one (10%) was due to fire, burn or electrocution, one (10%) was an unknown cause, and one (10%) was undetermined. Of the 85 deaths from a medical condition, 14 (17%) deaths were due to prematurity, 34 (40%) deaths were due to congenital anomalies, and 37 (43%) deaths were due to other medical conditions.

In 2019, 25 (22%) or almost one fourth of the infant deaths were due to SUID.

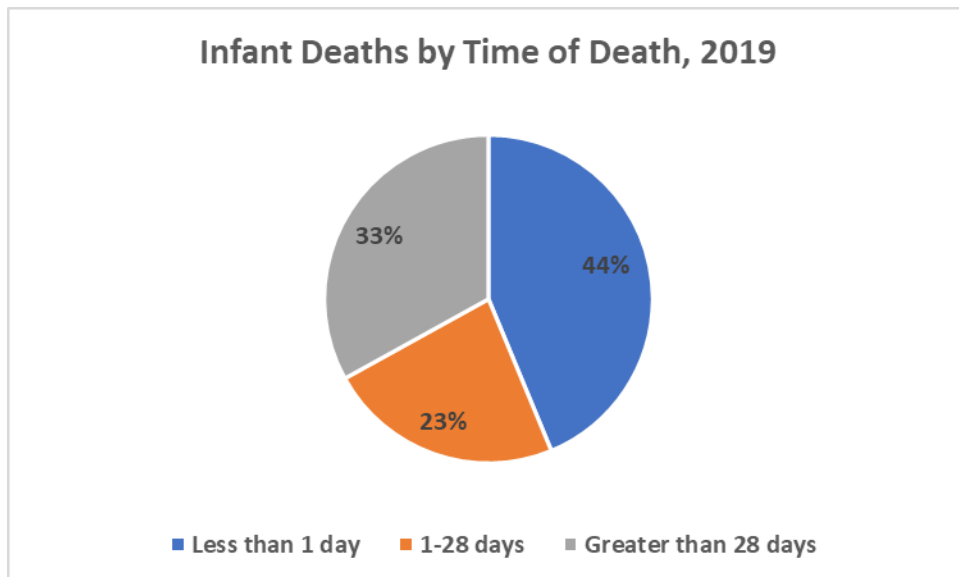
Infant Race

Ninety-one (81%) of the 112 decedents were white, 10 (9%) were black, and 11 (10%) were multiracial.



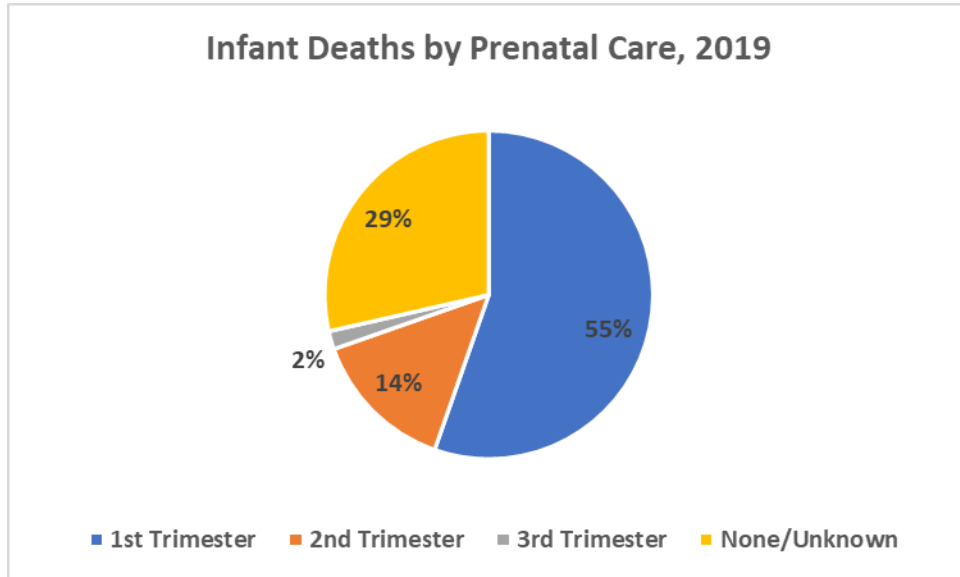
Infant Age at Time of Death

Forty-nine (44%) of the 112 decedents were less than one day old, 26 (23%) were 1-28 days old, and 37 (33%) were more than 28 days old..



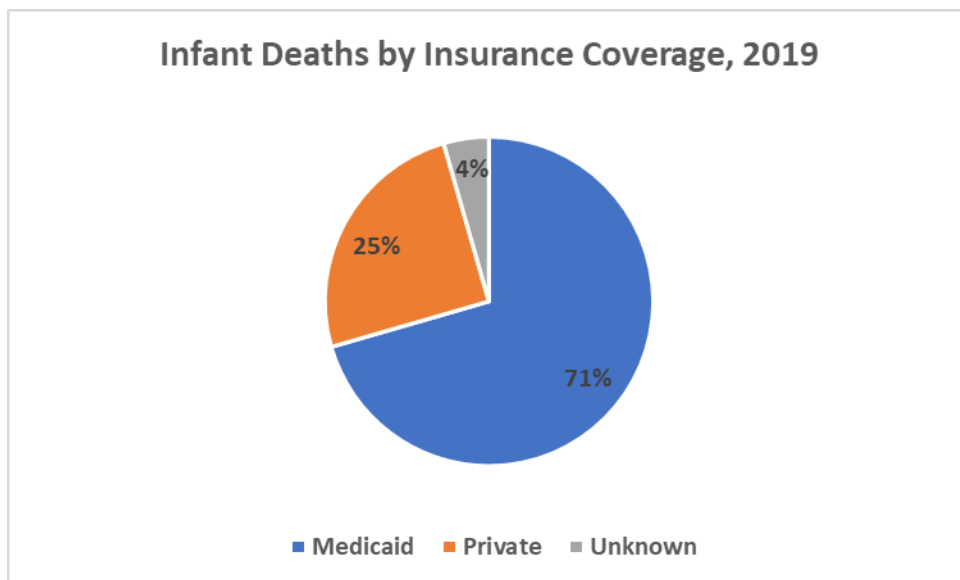
Maternal Prenatal Care

Sixty-two (55%) of the 112 infant decedents began receiving prenatal care in the first trimester, 16 (14%) began prenatal care during the second trimester, two (2%) began prenatal care in the third trimester, 31 (28%) had no prenatal care, and for one (1%) it was unknown if they had prenatal care.



Insurance Coverage

In 2019, Medicaid was the primary medical coverage for the birth of 79 (71%) of the 112 infants who died, while 28 (25%) were covered by private insurance, and five (4%) were covered by either no or unknown insurance.



Preventability

After in-depth panel discussions, it was determined that 19 (17%) of the 112 infant deaths in 2019 were probably preventable, 56 (50%) were probably not preventable, and the preventability of 37 (33%) deaths could not be determined or was unknown.

| Could the death have been prevented? 2019 FIMR | | | | | |
|---|-------------------------|----------------------|----------------------------|----------------|--------------|
| Manner | No, Probably Not | Yes, probably | Could Not Determine | Unknown | Total |
| Natural | 48 | 1 | 16 | 1 | 66 |
| Accident | 0 | 6 | 0 | 0 | 6 |
| Suicide | 0 | 0 | 0 | 0 | 0 |
| Homicide | 0 | 0 | 0 | 0 | 0 |
| Undetermined | 1 | 12 | 17 | 0 | 30 |
| Pending | 0 | 0 | 0 | 0 | 0 |
| Unknown | 7 | 0 | 3 | 0 | 10 |
| Total | 56 | 19 | 36 | 1 | 112 |

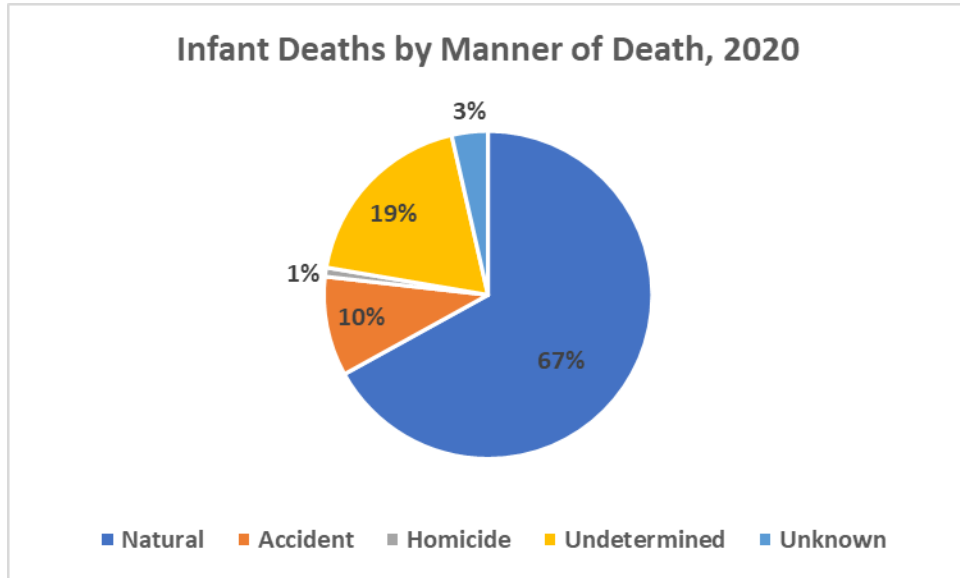
Of the 19 preventable infant deaths in 2019, the races of 17 (90%) were white and two (10%) were multiracial. Of the 19 preventable infant deaths, 13 (68%) were sleep related, two (10%) had an open CPS file at the time of death, and 17 (89%) births were insured through Medicaid and two (11%) were insured privately.

Infant Deaths 2020

Manner of Death

For calendar year 2020, 112 infant deaths were reviewed by the IMMRP. The manner of death was listed as 75 (67%) natural, 21 (19%) undetermined, one (1%) homicide, four (3%) unknown, and 11 (10%) accidental.

The infant mortality rate for West Virginia in 2020, was 6.5 infant deaths per 1,000 live births (calculated as 112 infant deaths divided by 17,327 resident births - 2020 DHHR HSC data). In 2020, the CDC reported the U.S. infant mortality rate as 5.4 infant deaths per 1,000 live births.



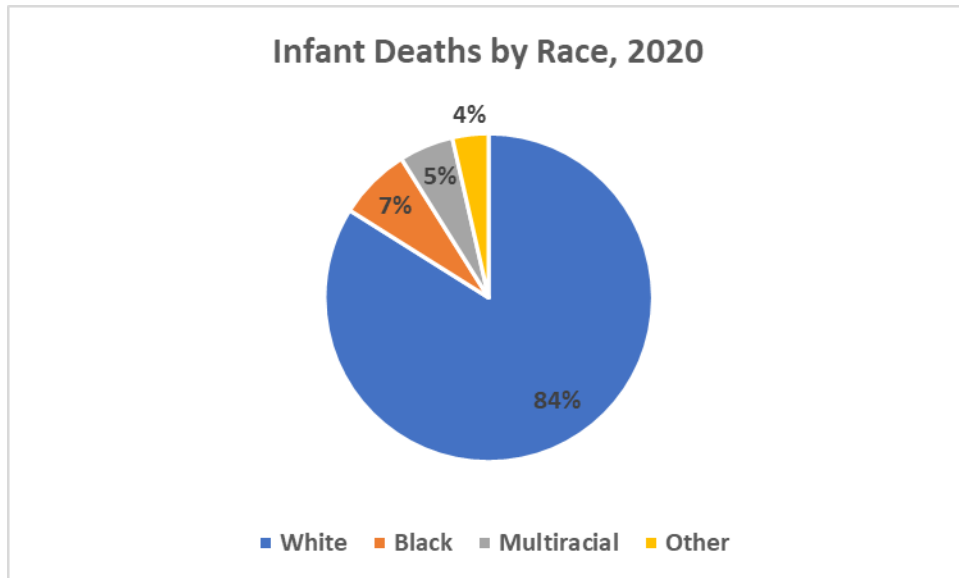
Cause of Death

Of the 112 infant deaths, 12 (11%) deaths were from an external cause of injury; 79 (70%) deaths were from a medical condition; for 17 (15%) decedents, a determination could not be made as to whether the cause of death was injury or medical; and for four (4%) decedents, the cause of death was unknown. Of the 12 deaths from external cause of injury, seven (58%) were due to asphyxia, one (8%) was due to bodily force or weapon, two (17%) were due to poisoning, overdose, or acute intoxication, one (8%) was due to drowning, and one (8%) was unknown. Of the 79 deaths from a medical condition, 18 (23%) deaths were due to prematurity, 21 (26%) deaths were due to congenital anomalies, and 40 (51%) deaths were due to other medical conditions.

In 2020, 27 (24%) or almost one fourth of the infant deaths were due to SUID.

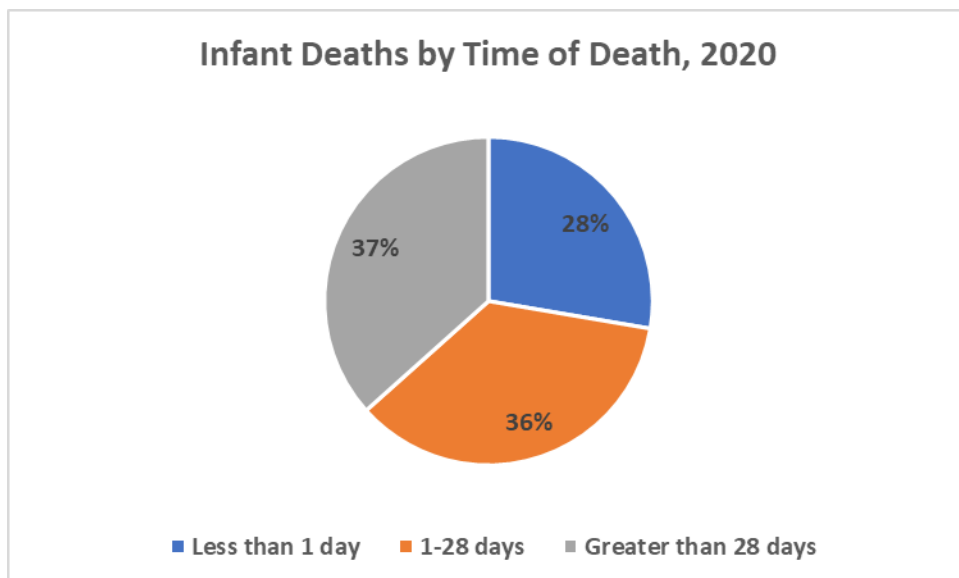
Infant Race

Ninety-four (84%) of the 112 decedents were white, eight (7%) were black, six (5%) were multiracial, and four (4%) reported other races.



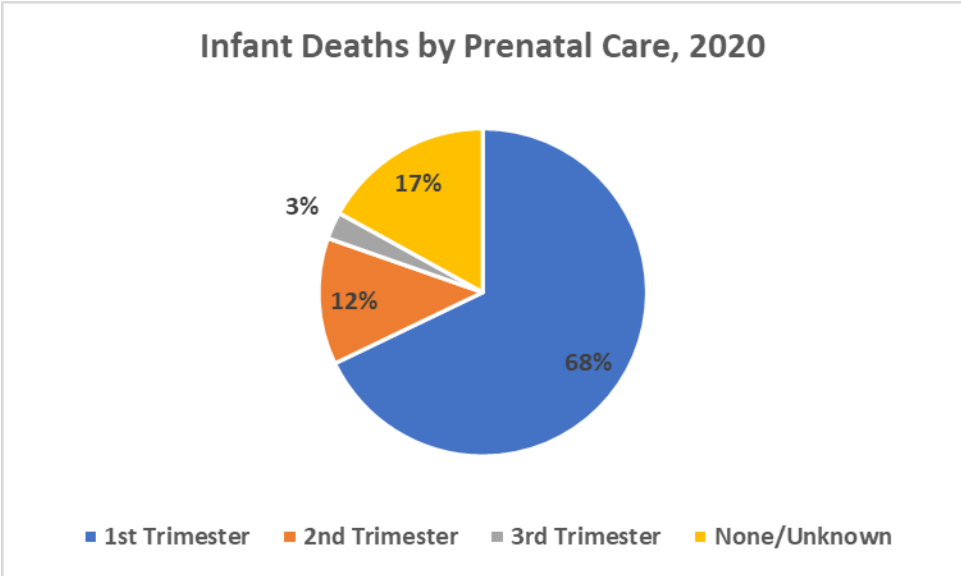
Infant Age at Time of Death

Thirty-one (28%) of the 112 decedents were less than one day old, 40 (36%) were 1-28 days old, and 41 (37%) were greater than 28 days old.



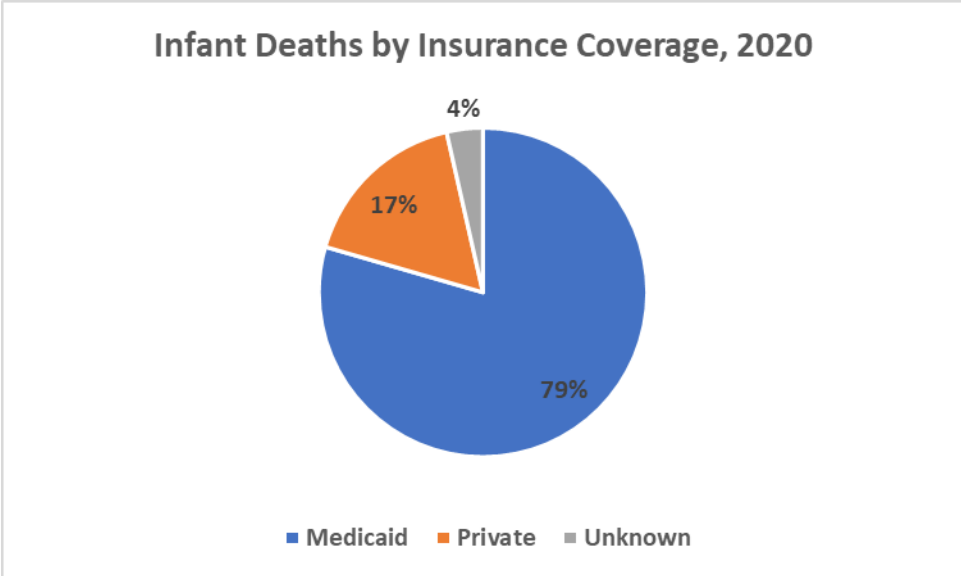
Maternal Prenatal Care

Seventy-six (68%) of the 112 infant decedents began receiving prenatal care in the first trimester, 14 (12%) began prenatal care during the second trimester, three (3%) began prenatal care in the third trimester, and 19 (17%) had none/unknown prenatal care.



Insurance Coverage

Medicaid was the primary medical coverage for the birth of 89 (79%) of the 112 infants who died, while 19 (17%) were covered by private insurance, and four (4%) were covered by either no or unknown insurance.



Preventability

After in-depth panel discussions, it was determined that 29 (26%) of the 112 infant deaths in 2020 were probably preventable, 62 (55%) were probably not preventable, and the preventability of 21 (19%) deaths could not be determined.

| Could the death have been prevented? FIMR 2020 | | | | |
|---|---------------------------------|--------------------------|--------------------------------|--------------|
| Manner | No, Probably Not | Yes, probably | Could Not Determine | Total |
| Natural | 59 | 2 | 14 | 75 |
| Accident | 1 | 10 | 0 | 11 |
| Suicide | 0 | 0 | 0 | 0 |
| Homicide | 0 | 1 | 0 | 1 |
| Undetermined | 0 | 16 | 5 | 21 |
| Pending | 0 | 0 | 0 | 0 |
| Unknown | 2 | 0 | 2 | 4 |
| Total | 62 | 29 | 21 | 112 |

Of the 29 preventable infant deaths in 2020, the race of 25 (86%) were white, two (7%) were black, and two (7%) were multiracial. 23 (79%) of the preventable deaths were sleep related, three (10%) had an open CPS file at the time of death, and 27 (93%) births were insured through Medicaid, and one (3%) was insured privately.

Recommendations: Infant Deaths

After review of cases, the following recommendations are noted:

Improved IMMRP Processes

1. Improve access to out-of-state records
2. Update privacy protection policies to current standards
3. Develop subcommittees for detailed reviews to identify emerging issues

Improved Safe Sleep Education

1. Re-evaluate safe sleep education materials and redesign messaging
2. Develop safe sleep education for caretakers other than the mother
3. Increase availability of safe sleep materials to parents during prenatal and family planning care visits
4. Develop mass media messaging for safe sleep

Improved Social Work

1. Increase access to perinatal social work services
2. Update policies pertaining to substance use in pregnancy to support mothers with substance use disorders and ensure the safety of their infants

Improved Care and Access to Care

1. Improve access to quality prenatal, intrapartum, and postpartum care through increased availability of credentialed midwifery and doula services
2. Improve access to Midwife professionals for low-risk pregnancies and births
3. Expand access to family planning
4. Link patients to transportation.

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.

UPDORP is currently using data reported in the *Review of Overdose Fatalities: An Analysis of West Virginia SUDORS and CSMP Data, 2021-2022 Interim Report*.

The following report contains analyses of drug overdose fatalities that occurred in West Virginia in the second half of 2021 and the first half of 2022, 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 662 overdose deaths from January 1 to June 30, 2022, which represents a 14.2% decline in overdose deaths when compared to the first six months of 2021.
- The age of overdose deaths increased in the first half of 2022, with smaller percentages of overdose deaths in the under 25 and 25-34 age categories and larger percentages in the 45-54 and 55+ age categories compared to prior years.
- Data from the first half of 2022 had larger percentages of unknown values for race, marital status, and education than in prior full years.
- Marijuana reached the top five substance class contributing to death in the first half of 2022, replacing antidepressants.

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, which are 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 the West Virginia Health Statistics Center 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.

The total decedents in SUDORS differ from those provided by the CSMP because only the latter includes suicides and homicides. Also, CSMP is 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 DHHR's 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

There were 681 overdose deaths in the second half of 2021, and 662 overdose deaths in the first half of 2022 (Table 1). West Virginia residents constituted 93.2% and 93.5% of decedents in halves of 2021 and 2022, respectively. In each half-year, males outnumbered females by more than a 2:1 ratio.

The mean age of decedents was 43 years, and more than three quarters of decedents were 25-54 years old in each half-year.

Most decedents were non-Hispanic, white in each half-year. Non-Hispanic blacks comprised 6.0% and 5.1% of decedents, 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 from 15.4% in the second half of 2021 to 13.1% in the first half of 2022. For comparison, around 50% of the adult population in West Virginia is married.

Most decedents were high school graduates with no college, at 57.3% and 53.8% in the second half of 2021 and the first half of 2022, respectively. Between 20.1% and 24.5% did not complete high school, while 10.7% to 12.8% had some college or an associate degree. The percentage of decedents with a bachelor's or higher degree was 3.2% to 4.1%.

Table 1. Demographic characteristics of overdose decedents.

| | 2021 – Second Half | | 2022 - First Half | |
|---|-----------------------|--------|-------------------|--------|
| | n | (%) | n | (%) |
| Total overdose decedents | 681 | | 662 | |
| State of Residence | | | | |
| West Virginia | 635 | (93.2) | 619 | (93.5) |
| Other State or Unknown | 46 | (6.8) | 43 | (6.5) |
| Sex | | | | |
| Male | 484 | (71.1) | 474 | (71.6) |
| Female | 197 | (28.9) | 188 | (28.4) |
| Age | | | | |
| missing | 1 | (0.1) | 1 | (0.2) |
| Under 25 | 28 | (4.1) | 19 | (2.9) |
| 25-34 | 134 | (19.7) | 136 | (20.5) |
| 35-44 | 216 | (31.7) | 210 | (31.7) |
| 45-54 | 169 | (24.8) | 169 | (25.5) |
| 55+ | 133 | (19.5) | 127 | (19.2) |
| Race | | | | |
| White, non-Hispanic | 620 | (91.0) | 587 | (88.7) |
| Black, non-Hispanic | 41 | (6.0) | 34 | (5.1) |
| Other or multi-race | 10 | (1.5) | 1 | (0.2) |
| Unknown or missing | 10 | (1.5) | 40 | (6.0) |
| Marital Status | | | | |
| Never married | 284 | (41.7) | 277 | (41.8) |
| Married, civil union, or domestic partnership | 105 | (15.4) | 87 | (13.1) |
| Divorced, widowed, married but separated | 266 | (39.1) | 236 | (35.6) |
| Unknown or not specified | 26 | (3.8) | 62 | (9.4) |
| Education | | | | |
| Did not complete high school | 167 | (24.5) | 133 | (20.1) |
| High school graduate or GED | 390 | (57.3) | 356 | (53.8) |
| Some college or associate's | 73 | (10.7) | 85 | (12.8) |
| Bachelor's degree or higher | 28 | (4.1) | 21 | (3.2) |
| Unknown | 23 | (3.4) | 67 | (10.1) |

Source: SUDORS

Naloxone Administration

A total of 227 and 243 doses of naloxone were administered in attempts to save overdose decedents in the second half of 2021, and the first half of 2022, respectively (Table 2). Because some decedents received more than one dose of naloxone from different administrators, the number of decedents who received naloxone was less than the number of naloxone doses. EMS and bystanders administered more than half of these doses of naloxone, but a large percentage of doses were from unknown administrators.

Table 2. Naloxone doses administered by administrator.

| | 2021– Second Half | | 2022 – First Half | |
|-------------------------------|-------------------|--------|-------------------|--------|
| | n | (%) | n | (%) |
| Total (of known doses) | 227 | | 243 | |
| Bystander | 41 | (18.1) | 40 | (16.5) |
| EMS | 100 | (44.1) | 85 | (35.0) |
| Hospital | 13 | (5.9) | 6 | (2.5) |
| Law enforcement | 2 | (0.9) | 1 | (0.4) |
| Other | 1 | (0.5) | 1 | (0.4) |
| Unknown | 93 | (42.1) | 123 | (50.6) |

Source: SUDORS

Previous Overdose

More than 21% of decedents had a nonfatal overdose prior to the fatal incident (Table 3), suggesting an opportunity for intervention for about one in five fatal overdose deaths. The window for intervention following a nonfatal overdose is wide; however, with the majority having a previous overdose more than 1 year ago.

Table 3. Timing of previous overdose (OD)

| | 2021 – Second Half | | 2022 – First ^t Half | |
|-------------------------|--------------------|--------|--------------------------------|--------|
| | n | (%) | n | (%) |
| No previous OD reported | 537 | (78.9) | 517 | (78.9) |
| Previous OD, anytime | 144 | (21.1) | 145 | (21.9) |
| Previous OD: | | | | |
| Within last month | 14 | (2.1) | 20 | (3.0) |
| 1 month to 1 year ago | 45 | (6.6) | 37 | (5.6) |
| More than 1 year ago | 79 | (11.6) | 85 | (12.8) |
| Timing unknown | 6 | (0.9) | 3 | (0.5) |

Source: SUDORS

Emergency Department Care

In each half-year, more than 25% 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, the majority (more than 89%) died as ED/outpatients or hospital/inpatients (Table 4b).

Table 4a. Decedents seen in ED following fatal overdose incidents.

| | 2021- Second Half | | 2022 – First Half | |
|---------|-------------------|--------|-------------------|--------|
| | n | (%) | n | (%) |
| Yes | 172 | (25.3) | 166 | (25.1) |
| No | 502 | (73.7) | 494 | (74.6) |
| Unknown | 7 | (1.0) | 2 | (0.3) |

Source: SUDORS

Table 4b. Death location after decedents seen in ED.

| | 2021 – Second Half | | 2022 – First Half | |
|--------------------|--------------------|--------|-------------------|--------|
| | n | (%) | n | (%) |
| ED / Outpatient | 98 | (57.0) | 103 | (62.0) |
| Hospital inpatient | 56 | (32.6) | 45 | (27.1) |
| Dead on arrival | 7 | (4.1) | 9 | (5.4) |
| Hospice facility | 0 | (0.0) | 1 | (0.6) |
| Other or Unknown | 11 | (6.4) | 8 | (4.8) |

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 half-year, opiates were the most common substance class that contributed to the cause of death (Table 5a), with amphetamine as the second most common. Other significant substance classes commonly contributing to the cause of death include benzodiazepines, antidepressants, cocaine, and marijuana. For substance names, the most common drugs contributing to cause of death were fentanyl and 4-ANPP, followed by norfentanyl, methamphetamine, and amphetamine (Table 5b).

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

| 2021 – Second Half | 2022 – First Half |
|-----------------------|----------------------------------|
| Opiate (1852) | Opiate (1849) |
| Amphetamine (722) | Amphetamine (667) Cocaine () |
| Antidepressant (199) | Benzodiazepines (159) |
| Benzodiazepines (199) | Cocaine (153) |
| Cocaine (150) | Marijuana (147) |

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.

| 2021 – Second Half | 2022 – First Half |
|---|---|
| Fentanyl (534) | Fentanyl (480) |
| Despropionyl Fentanyl ² (474) (4-ANPP) | Despropionyl Fentanyl ² (461) (4-ANPP) |
| Norfentanyl ¹ (438) | Norfentanyl ¹ (446) |
| Methamphetamine (365) | Amphetamine (335) |
| Amphetamine (356) | Methamphetamine (332) |

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 includes history of prescriptions for addiction treatment medications starting in 2020. In the second half of 2021, there were four decedents with buprenorphine prescriptions, one of which was specified for medication-assisted treatment (MAT) use (Table 6). Comparatively, 56 decedents had buprenorphine listed as a cause of death, with only one of them having a prescription for buprenorphine. During the first half of 2022, nine prescriptions were identified, with three of them specified for MAT use. Of the 45 decedents with buprenorphine listed as contributing to the cause of death, only five of them

have a prescription of buprenorphine. Methadone and Naltrexone listed as cause of death and prescriptions followed similar patterns to buprenorphine.

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

| | 2021 – Second Half | 2022 – First Half |
|----------------------------|---------------------------|--------------------------|
| | n | n |
| Buprenorphine | | |
| Buprenorphine Prescription | 4 | 9 |
| Buprenorphine Rx for MAT | 1 | 3 |
| Buprenorphine COD | 56 | 45 |
| Buprenorphine COD with Rx | 1 | 5 |
| Methadone | | |
| Methadone Prescription | 0 | 1 |
| Methadone Rx for MAT | 0 | 0 |
| Methadone COD | 14 | 12 |
| Methadone COD with Rx | 0 | 1 |
| Naltrexone | | |
| Naltrexone Prescription | 2 | 1 |
| Naltrexone COD | 7 | 0 |
| Naltrexone COD with Rx | 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 second half of 2021 and first¹ half of 2022 combined, only a small proportion of decedents had prescriptions for the substances listed as cause of death: 5.9% had a buprenorphine prescription, 3.8% had a methadone prescription, and only 2.6% had a morphine prescription (Table 7).

Table 7. Substances found in toxicology (as cause of death) with corresponding prescription, 2021 second Half to 2022 first Half.

| | Decedents with substance as COD | Decedents with Rx of substance | Percentage (%) of decedents with Rx of substance |
|---------------|--|---------------------------------------|---|
| Buprenorphine | 101 | 6 | 5.9 |
| Methadone | 26 | 1 | 3.8 |
| Morphine | 77 | 2 | 2.6 |

Source: SUDORS

Toxicology reports in SUDORS showed that the substance class of opiate was found in more than 86% of decedents, and amphetamine was found in more than 57% of decedents. Benzodiazepines and antidepressants also were present in about 20% of overdose decedents (Table 8).

Table 8. Common SUDORS prescription classes

| | 2021 – Second Half | | 2022 – First Half | |
|------------------------------|---------------------------|--------|--------------------------|--------|
| | n | (%) | n | (%) |
| Opiate | 588 | (86.3) | 5 7 2 | (86.4) |
| Benzodiazepines | 140 | (20.6) | 1 2 1 | (18.3) |
| Stimulants (Amphetamines) | 392 | (57.6) | 3 8 5 | (58.2) |
| Antidepressants | 138 | (20.3) | 1 2 6 | (19.0) |

Source: SUDORS

Note: The numbers of decedents with the substance class were counted from all 42 substance classes listed in the toxicology report, regardless of whether it's considered cause of death. The toxicology report does NOT list substances in any specific order or relationship, and many decedents have multiple substance classes 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, 269 decedents or 37% of the total number of overdose deaths in the last six months of 2021, had a controlled substance in their system at time of death without a prescription (Table 9). That number decreased to 176 (27.5%) in the first six months of 2022.

Decedents who filled a controlled substance prescription within 30 days of death numbered 116 during the last six months in 2021, and 93 in the first six months of 2022, between 16.0% and 22.9% of total decedents (Table 9).

Between 10% and 11% of decedents during this time had no prescription history in the CSMP (Table 9).

Table 9. Controlled substance prescriptions and toxicology

| | 2021 - Second Half | | 2022 - First Half | |
|---|--------------------|--------|-------------------|--------|
| | n | (%) | n | (%) |
| Total decedents | 727 | | 641 | |
| Decedents with a controlled substance in their system at the time of death with no prescription | 269 | (37.0) | 176 | (27.5) |
| Decedents who filled a controlled substance prescription within 30 days of death | 116 | (16.0) | 93 | (22.9) |
| Decedents without a controlled substance monitoring program history | 78 | (10.7) | 65 | (10.1) |

Source: CSMP

CSMP data indicate that the percentage of decedents with an opioid or a benzodiazepine in toxicology reports without a prescription decreased during the second half of 2021 and the first half of 2022 (13.8% to 12.2% and 13.8% to 12.8% respectively; Table 10). Decedents without a buprenorphine prescription but toxicology presence decreased during this time (6.3% to 4.7%). While the percentage of decedents with a buprenorphine prescription increased during this time, the percentage with buprenorphine in toxicology decreased through June 30, 2022.

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

| | 2021 – Second Half | | 2022 – First Half | |
|--|--------------------|--------|-------------------|--------|
| | n | % | n | % |
| Total decedents | 727 | | 641 | |
| Any controlled substance Rx during year prior | 259 | (35.6) | 232 | (36.2) |
| Opioid¹ diversion | | | | |
| Opioid Rx during year prior | 115 | (15.8) | 101 | (15.8) |
| Opioid in toxicology results | 119 | (16.4) | 93 | (22.9) |
| No active opioid Rx at death but had in toxicology | 100 | (13.8) | 78 | (12.2) |

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

| | 2021 – Second Half | | 2022 – First Half | |
|--|--------------------|--------|-------------------|--------|
| | n | % | n | % |
| Benzodiazepine diversion | | | | |
| Benzodiazepine Rx during year prior | 93 | (12.8) | 77 | (12.0) |
| Benzodiazepine in toxicology results | 127 | (17.5) | 109 | (17.0) |
| No active benzodiazepine Rx at death but had in toxicology | 100 | (13.8) | 82 | (12.8) |
| Buprenorphine diversion | | | | |
| Buprenorphine Rx during year prior | 117 | (16.1) | 118 | (18.4) |
| Buprenorphine in toxicology results | 61 | (8.4) | 46 | (7.2) |
| No active buprenorphine Rx at death but had in toxicology | 46 | (6.3) | 30 | (4.7) |

Source: CSMP

Buprenorphine was the most common controlled substance prescribed within 365 days of death during the second half of 2021 and the first half of 2022 (38.0% and 44.8% respectively), and increased in nominal counts as well (Table 11). The next most common substances were gabapentin, benzodiazepines, and opioids.

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

| | 2021 – Second Half | | 2022 – First Half | |
|-----------------------------|--------------------|--------|-------------------|--------|
| | n | (%) | n | (%) |
| Buprenorphine | 1542 | (38.0) | 1642 | (44.8) |
| Gabapentin | 987 | (24.3) | 680 | (18.5) |
| Benzodiazepines | 724 | (17.9) | 643 | (17.5) |
| Opioids | 561 | (13.8) | 472 | (12.9) |
| Nonbenzodiazepine hypnotics | 111 | (2.7) | 112 | (3.1) |
| Opioid antagonists | 78 | (1.9) | 66 | (1.8) |
| Stimulants | 41 | (1.0) | 53 | (1.4) |
| Muscle relaxants | 11 | (0.3) | 0 | (0.0) |

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 toward individuals who survive an overdose, identified through emergency medical services (EMS) or hospitals. Only a modest percentage of overdose deaths survived a prior overdose, but those who do survive 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 a modest percentage 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.