

# 2024 Pennsylvania Maternal Mortality Review Annual Report

Deaths occurring in 2020

Pennsylvania  
Department of Health

April 2024



**pennsylvania**  
DEPARTMENT OF HEALTH

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We dedicate this report to the  
memory of those individuals  
who are no longer with us but  
never forgotten by their  
families and communities.



## **Acknowledgments**

The Department of Health expresses its gratitude to the members of the Pennsylvania and Philadelphia Maternal Mortality Review Committees for their diligent work to advance the systems of care and improve the health of pregnant and parenting people in Pennsylvania.

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### **Declaration**

The language contained in this document is intended to be universal and inclusive. We use terms such as “maternal health” throughout this report. To be as inclusive as possible, the terms “birthing people” and “pregnant/postpartum individuals” are also used. We would like to emphasize that not all individuals who are pregnant or postpartum identify as women. The terms used in this report are meant to include cisgender females, non-binary individuals, and transgender men.

The Pennsylvania Maternal Mortality Review Program, and the Pennsylvania and Philadelphia Maternal Mortality Review Committees, aim to avoid victim-blaming by ensuring that reviewers, staff, and others are aware that an individual is not to blame for their own death. There are many factors that influence the overall health of people including access to high quality, risk appropriate care, safe and supportive communities across the life span, and comprehensive education about health and pregnancy.

## Executive Summary

The death of pregnant and postpartum individuals is a serious public health concern in the nation and in Pennsylvania which was prioritized by the passage of the Maternal Mortality Review Act, Act 24 of 2018, that established the Pennsylvania Maternal Mortality Review Committee (PA MMRC).

In 2020, Pennsylvania residents experienced a pregnancy-associated mortality ratio of 83 deaths per 100,000 live births with large disparities identified. In total, 107 individuals lost their lives during pregnancy, delivery, or up to one year postpartum.

The data in this report is inclusive of all pregnancy-associated deaths in Pennsylvania, comprising all causes and manners of death, each contributing to devastating impacts on families, friends, and communities of the deceased individual. Philadelphia MMRC independently reviews pregnancy-associated deaths of Philadelphia County residents. Reviewed information is input into the CDC's Maternal Mortality Review Information Application (MMRIA) allowing data in the report to represent Pennsylvania as a whole. This report aims to highlight 2020 pregnancy-associated death demographics, pregnancy-relatedness (occurred due to physiological effects of pregnancy or pregnancy complications), leading causes of deaths in Pennsylvania, and recommendations for preventing future pregnancy-associated deaths.

In Pennsylvania in 2020, the leading cause of pregnancy-associated deaths were mental health conditions, primarily substance use—highlighting the need for increased access to behavioral health providers and resources, de-stigmatization of mental health conditions including substance use disorder, increased access to and education about naloxone use, and improved reimbursement for providers.

Understanding the factors that contribute to pregnancy-associated death is a first step in providing reasonable interventions for death prevention. Committee members identified opportunities for prevention with recommendations that address healthcare providers and systems, community-based organizations, insurance providers, local, state, and federal agencies, and other individuals involved in the care of the pregnant and postpartum individuals. The recommendations presented are to advocate for necessary improvements in the medical and social care for this population in Pennsylvania.

### Key Findings:

- Of the 107 identified cases of maternal deaths, 29% were deemed pregnancy-related and 48% were deemed pregnancy-associated but not related by Pennsylvania and Philadelphia MMRCs.
- Mental Health Conditions, which include substance use, was the leading cause of death for both pregnancy-related and pregnancy-associated but not related cases.
- Committee members determined that only 10.3% of cases had “complete” records while 43% of cases had only “somewhat complete” records for review.
- Approximately 41% of cases identified substance use disorder as a contributing factor in the death.

- There is a need for patients and their families/support people to be educated about the use of naloxone when prescribed opioid pain medications and/or when there is a history of substance use disorder.
- During pregnancy and postpartum, individuals should be screened for mental health conditions including substance use disorder, using validated tools. Individuals identified to have unmet needs should be connected to appropriate resources, as indicated, via warm hand offs.
- Behavioral healthcare providers should be more accessible and should be reimbursed at higher rates through public and private insurance agencies.

## Definitions

**Behavioral Health** refers to mental health and substance use disorders, life stressors and crises, and stress-related physical symptoms. Behavioral health care refers to the prevention, diagnosis, and treatment of those conditions to ensure the well-being of the body, mind, and spirit.

**Pregnancy-associated death** is the death of an individual while pregnant or up to one year from the end of a pregnancy regardless of the outcome, duration, or site of the pregnancy<sup>1</sup> and includes pregnancy-related and pregnancy-associated but not related cases.

**Pregnancy-related death** is the death of an individual while pregnant or within one year of the end of a pregnancy, regardless of the outcome, duration, or site of the pregnancy. These deaths result from complication(s) of pregnancy or the aggravation of an unrelated condition from the physiological changes of pregnancy. Pregnancy-related deaths may be caused by an existing health condition that worsens with pregnancy, a pregnancy complication, or intervention during the pregnancy. Deaths are pregnancy-related if the person's death would not have occurred at that time if the individual was not pregnant.

**Pregnancy-associated but not related death** is the death of an individual while pregnant or within one year of the end of pregnancy from any cause that is not related to pregnancy.<sup>2</sup> This can include a cause of death such as a car accident.

**Pregnancy-associated but unable to determine relatedness** is the death of an individual while pregnant or within one year of the end of pregnancy from any cause, where there is not enough evidence available on the case to determine if the death was pregnancy-related or pregnancy-associated but not related to the death. An example of a pregnancy-associated but unable to determine relatedness death would be a pregnancy-associated death from suicide where there were no records available to see if the death was related to or aggravated by pregnancy or its management.

**Pregnancy-associated mortality ratio (PAMR)** is the number of pregnancy-associated deaths per 100,000 live births. It is a ratio, rather than a rate, because the denominator contains only live births and not all pregnancies regardless of outcome, duration, or site.

**Preventability** means there is at least some chance of the death being prevented by one or more reasonable changes to the patient, family, provider, facility, system, and/or community factors.<sup>2</sup>

**Severe Maternal Morbidity** means unexpected outcomes of labor and delivery that result in significant short-term or long-term consequences to a pregnant or postpartum person's health.



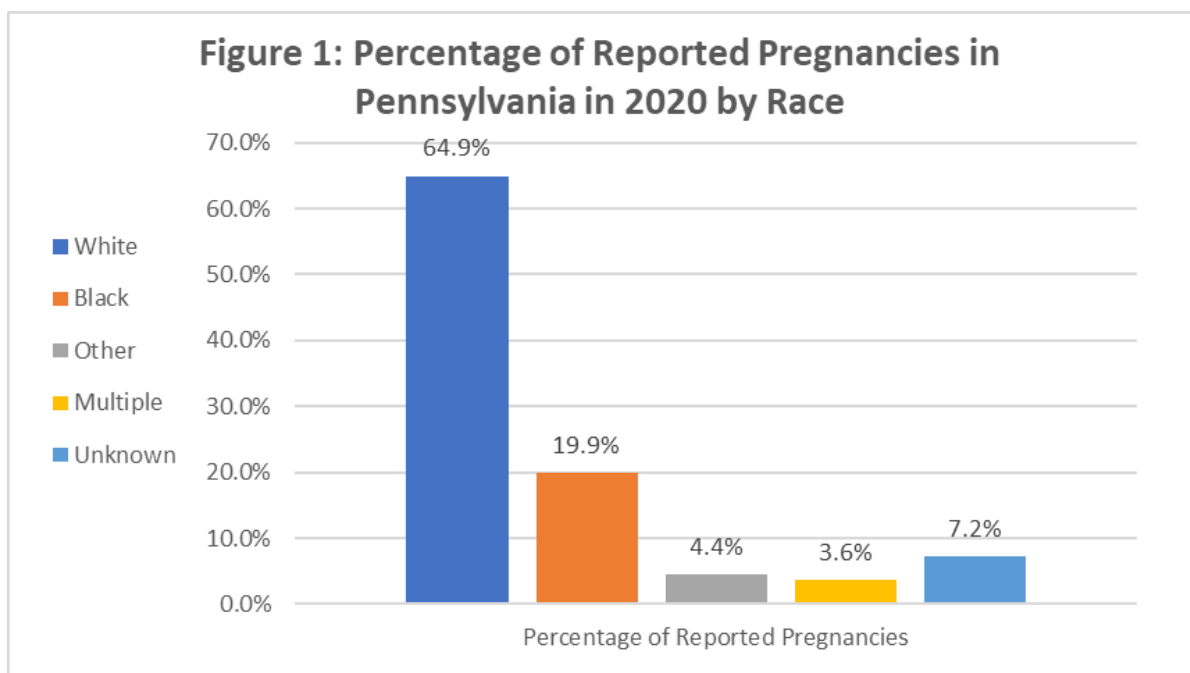
<b>Abbreviations Used Throughout This Report</b>	
ACOG	American College of Obstetricians and Gynecologists
AIM	Alliance for Innovation on Maternal Health
BHSR	Pennsylvania Bureau of Health Statistic Registries
CMS	Center for Medicare or Medicaid Services
DHS	Pennsylvania Department of Human Services
DOE	Pennsylvania Department of Education
DOH	Pennsylvania Department of Health
ERA	Epidemiology Research Associate
ERASE MM	Enhancing Reviews and Surveillance to Eliminate Maternal Mortality
IPV	Intimate Partner Violence
LARC	Long-acting reversible contraception
MAT	Medication-assisted Treatment
MCO	Managed Care Organizations
MMRA	Pennsylvania Maternal Mortality Review Act
MMRC	Maternal Mortality Review Committee
MMRIA	Maternal Mortality Review Information Application
MMRP	Pennsylvania Maternal Mortality Review Program
MOUD	Medications for Opioid Use Disorder
MRA	Medical Records Abstractor
PA PQC	Pennsylvania Perinatal Quality Collaborative
PAMR	Pregnancy-associated Mortality Ratio
PA-NEDSS	Pennsylvania National Electronic Disease Surveillance System
PDMP	Prescription Drug Monitoring Program
SMM	Severe Maternal Morbidity
SUD	Substance Use Disorder
VTE	Venous Thromboembolism
WIC	Pennsylvania Special Supplemental Nutrition Program for Women, Infants, and Children

## Pregnancy in Pennsylvania

According to the 2020 Census population estimates, Pennsylvania is currently the fifth most populous state.<sup>3</sup> In 2020, Pennsylvania's population was approximately 12.8 million people. Individuals of reproductive age (10-60) assigned female at birth, made up approximately 31% of the state's population.<sup>4</sup> There were 130,730 reported live births, 29,979 reported abortions, and 161,677 reported pregnancies in Pennsylvania for 2020.<sup>5</sup> Of these reported pregnancies, 107 resulted in a pregnancy-associated death.

Pennsylvania is racially and ethnically diverse, with white individuals accounting for approximately 69% of live births in 2020, Black or African American individuals accounting for 14% of live births, and non-Hispanic individuals of other races accounting for 9% of live births. In addition, Hispanic individuals accounted for 13% of live births during that time.<sup>6</sup>

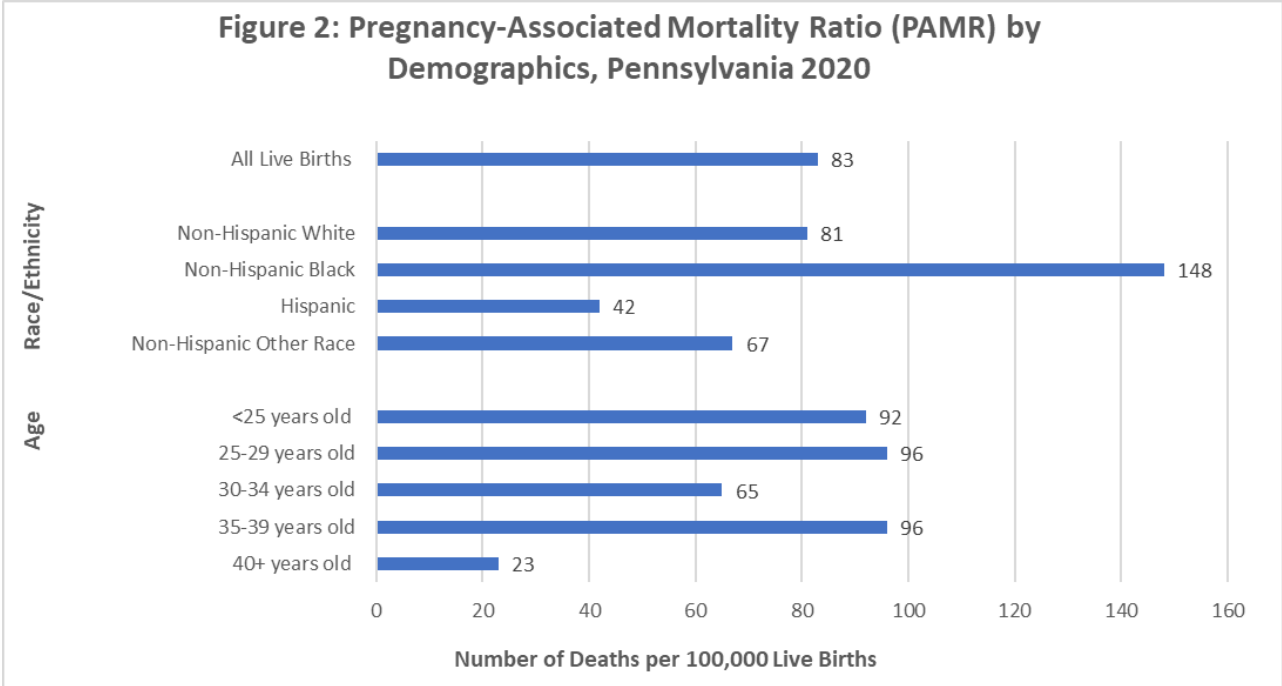
The figure below depicts reported pregnancies by race. Approximately 65% of reported pregnancies were from individuals who were white, about 20% were Black or African American, and 4.4% identified as another race (**Figure 1: Percentage of Reported Pregnancies in Pennsylvania in 2020 by Race**).



## Pregnancy-Associated Mortality Ratio

Pregnancy-associated mortality ratios (PAMR) estimate the number of pregnancy-associated deaths for every 100,000 live births. These ratios are often used as indicators to measure the health of the population at large since factors that affect the health of the entire population can also affect mortality among pregnant and postpartum individuals. Additionally, PAMRs depict how pregnancy-associated mortality affects different populations of individuals. In Pennsylvania, the PAMR was 83 deaths per 100,000 live births. Non-Hispanic Black or African American individuals had the highest PAMR (148 per 100,000 live births), which is much higher than the PAMR for non-Hispanic white individuals (81 per 100,000 live births),

highlighting the racial disparity. Individuals giving birth in the 25-29 and 35-39 age ranges had a PAMR of 96 deaths per 100,000 live births, which is higher than the other age categories (Figure 2: Pregnancy-Associated Mortality Ratio (PAMR) by Demographics, Pennsylvania 2020).



**Program Overview**

The death of a pregnant or postpartum person encompasses not only the loss of an individual, but also the loss of a family member, a friend, and a member of the community. These deaths are a direct reflection of the quality of the healthcare system and the quality of care that is offered to the general population. Research on circumstances surrounding pregnancy-associated death highlights problems in community resources, healthcare, and the standard of care provided to individuals. The goal of a MMRC is to close gaps in physical, mental, and social health before, during, and after pregnancy by identifying disparities and creating actionable recommendations from both clinical and nonclinical perspectives.

PA MMRC was established in 2018 by Act 24, the Maternal Mortality Review Act (MMRA), to review all pregnancy-associated deaths and create actionable recommendations to reduce preventable deaths in Pennsylvania. The MMRA was amended by Senate Bill 262 in July of 2023 to improve access to timely data by requiring that the PA MMRC publish an annual report as well as include information on Severe Maternal Morbidity (SMM). At this time, the SMM report will be included separately from this report to provide full focus on the severity of each issue.

PA MMRC reviews pregnancy-associated deaths for all counties, except Philadelphia. Philadelphia County accounts for 20% of all maternal deaths in Pennsylvania and has had an

active MMRC reviewing pregnancy-associated deaths in Philadelphia County since 2010. PA MMRC, along with Philadelphia MMRC, collaborate to understand the collective impact on the death of pregnant and postpartum people in the Commonwealth.

The Centers for Disease Control and Prevention (CDC) provides funding and technical assistance to the Department of Health (DOH) to support the activities related to the Pennsylvania Maternal Mortality Review Program (MMRP) and the PA MMRC. This funding is provided by the Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) grant which spans from September 2019 to September 2024. Additional funding for program activities is provided by the Title V Maternal and Child Health Services Block Grant

## Methods

### Case Identification Process

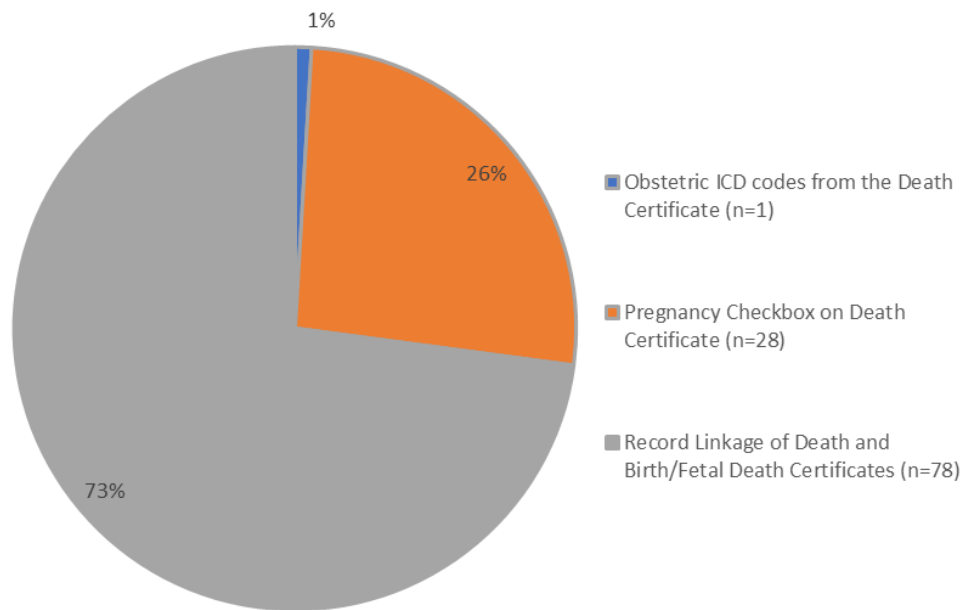
Pregnancy-associated deaths in Pennsylvania are identified through vital records data from the DOH, Bureau of Health Statistic and Registries (BHSR) through logic provided by the CDC. Using death certificate information, deaths of Pennsylvania residents assigned female at birth and of reproductive age (10-60 years) are identified. From this information, the identified deaths are verified as “true cases” by linking fetal deaths and/or births within 365 days prior to death. Finally, any death identified by the death certificate’s pregnancy checkbox are evaluated for individuals of reproductive age that were not linked by a fetal birth or death certificate. If a death certificate’s checkbox was marked “unknown if pregnant within the past year” further analyses and confirmations are performed by the Epidemiology Research Associate (ERA).

### Case Confirmation

In 2020, there were originally 124 cases identified by BHSR. After case identification and review of records, 17 cases were determined to be falsely identified as a pregnancy-associated death. False identification occurs when the pregnancy checkbox on a death certificate is erroneously checked. The misidentification of a pregnancy-associated case results in additional time and effort from BHSR and MMRP to review medical records and outreach to coroner or medical examiner offices or other verification methods. Considerations for how to reduce the identification of false cases will be pursued.

Across the Commonwealth, 107 pregnancy-associated death cases were confirmed for 2020. Of these, 78 were identified by linkage to a fetal birth or death certificate, 28 cases were confirmed by the pregnancy checkbox on the death certificate, and one case was confirmed by an obstetric ICD code on the death certificate (**Figure 3: Pregnancy-Associated Deaths by Identification Method in Pennsylvania 2020 (n=107)**).

**Figure 3: Pregnancy-Associated Deaths by Identification Method in Pennsylvania 2020 (n=107)**



### Case Abstraction Process

Medical Records Abstractors (MRA) are responsible for creating de-identified case summaries for each confirmed case of pregnancy-associated death to present to MMRC members. The team is responsible for collecting records including death certificates, fetal birth or death certificates, hospitalization and outpatient facility records, behavioral health treatment center records, social service notes, coroner and medical examiner reports, law enforcement documents, court documents, medical transportation records, obituaries, and media searches. The ERA and MRAs in the PA MMRP also utilize the PA National Electronic Disease Surveillance System (PA-NEDSS) to identify COVID-19 and Hepatitis C diagnoses and PA Prescription Drug Monitoring Program (PDMP) to identify prescriptions for Schedule II to V drugs. MRAs review all available records and create additional requests for information as new sources are identified. If records are not received at the initial request, a second request is made for information. While the response rate for receiving records has improved, there were still instances where records were not received.



ACCESS TO AVAILABLE RECORDS IS ESSENTIAL FOR CREATING A CASE SUMMARY THAT HIGHLIGHTS THE LIFE EVENTS AND CIRCUMSTANCES SURROUNDING EACH INDIVIDUAL'S PREGNANCY AND DEATH IN AN UNBIASED MANNER.

Access to available records is essential for creating a case summary that highlights the life events and circumstances surrounding each individual's pregnancy and death in an

unbiased manner. MRAs input available case data into the CDC's MMRIA. This system collects many variables as well as decision forms from committee review which can be used for analyses at a state and national level. Comprehensive review of all records, creation of a case summary, and entry of data into MMRIA takes an average of 10-20 hours per case. The time per case varies dependent upon completeness of records, complexity of an individual's medical and social histories, and experience of the assigned abstractor. This estimated time is independent of the time required to identify cases and to request necessary records.

### **MMRCs**

MMRCs are comprised of nonclinical and clinical professionals who represent many diverse interests related to the promotion of maternal health and prevention of pregnancy-associated deaths including maternal fetal medicine and obstetrics/gynecology, midwifery and registered nurses, psychiatry and addiction medicine, emergency medicine, family medicine, anesthesiology, community health, social work, violence prevention, health statistics, coroners and medical examiners, representatives from government agencies such as the DOH and the Department of Human Services (DHS) and other specialties as identified.

Case summaries are sent to MMRC members two weeks prior to the meeting date to give ample time to understand the case and develop recommendations before group discussion. On average, MMRC members review six to ten cases each month. Throughout the period of review for 2020 cases, 93 cases were reviewed by the MMRCs and 14 cases were reviewed internally by the co-chairs. Cases are internally reviewed when a case is determined to be accidental with no intent of harm (e.g., individual is a restrained passenger in a motor vehicle accident) or when records were unavailable or not received.

All cases are reviewed using the CDC's MMRIA Committee Decision Form to record key information on pregnancy-relatedness, completeness of records, circumstances surrounding death and manner of death. The committees made determinations on the following questions for each case:

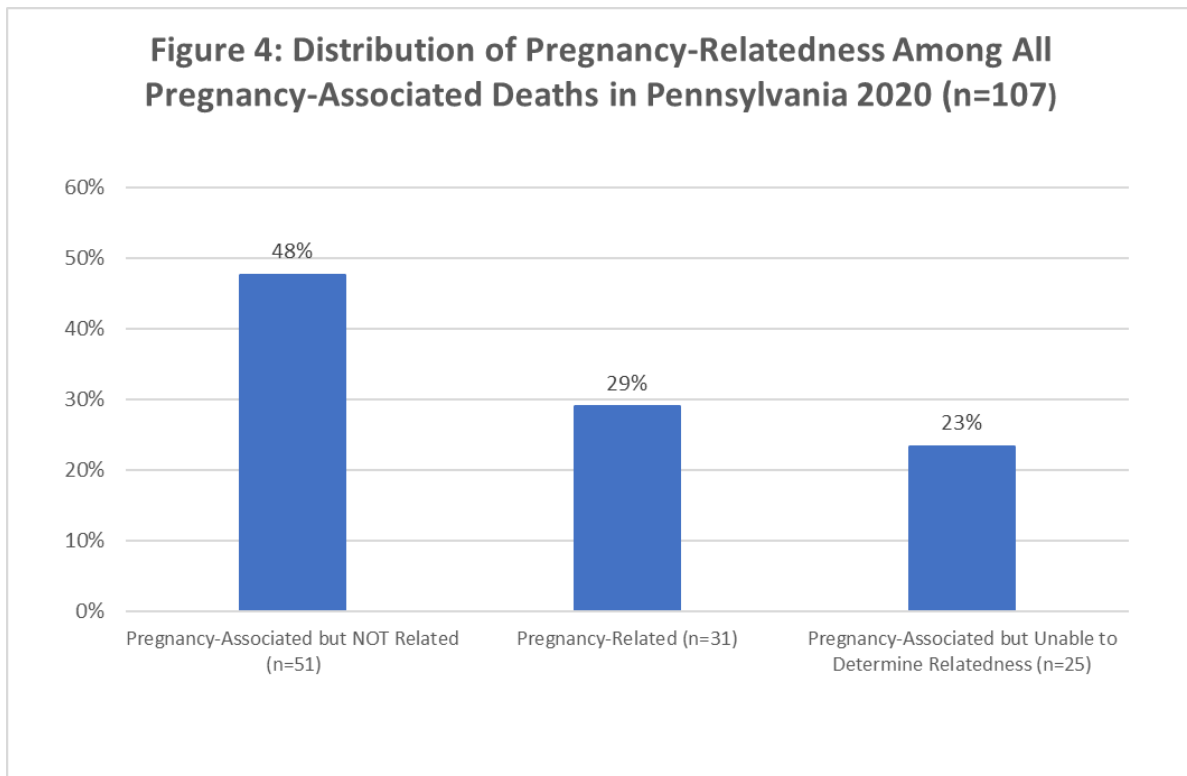
- Was the death pregnancy-related?
- What was the underlying cause of death?
- What factors contributed to the death?
- What recommendations may help prevent future deaths?

Once cases are reviewed, the Committee Decision Forms are entered into MMRIA. For the 2020 case year, the Pennsylvania and Philadelphia MMRCs provided a total of 457 recommendations for the 107 cases. Recommendations created by MMRCs are vital to highlight the identified needs of the pregnant and postpartum population.

## Findings

### Pregnancy-Related

Of the 107 cases reviewed, 29% were classified as pregnancy-related and 48% were classified as pregnancy-associated, but not related. The committees were unable to determine pregnancy-relatedness in 23% of the cases reviewed (**Figure 4: Distribution of Pregnancy-Relatedness Among All Pregnancy-Associated Deaths in Pennsylvania 2020 (n=107)**). Often the reason for the inability to determine pregnancy-relatedness was due to a lack of information. There is lack of information when records do not exist (i.e., the individual was not in treatment or under care of the provider), records were not received, or pertinent information was not documented in the received records.

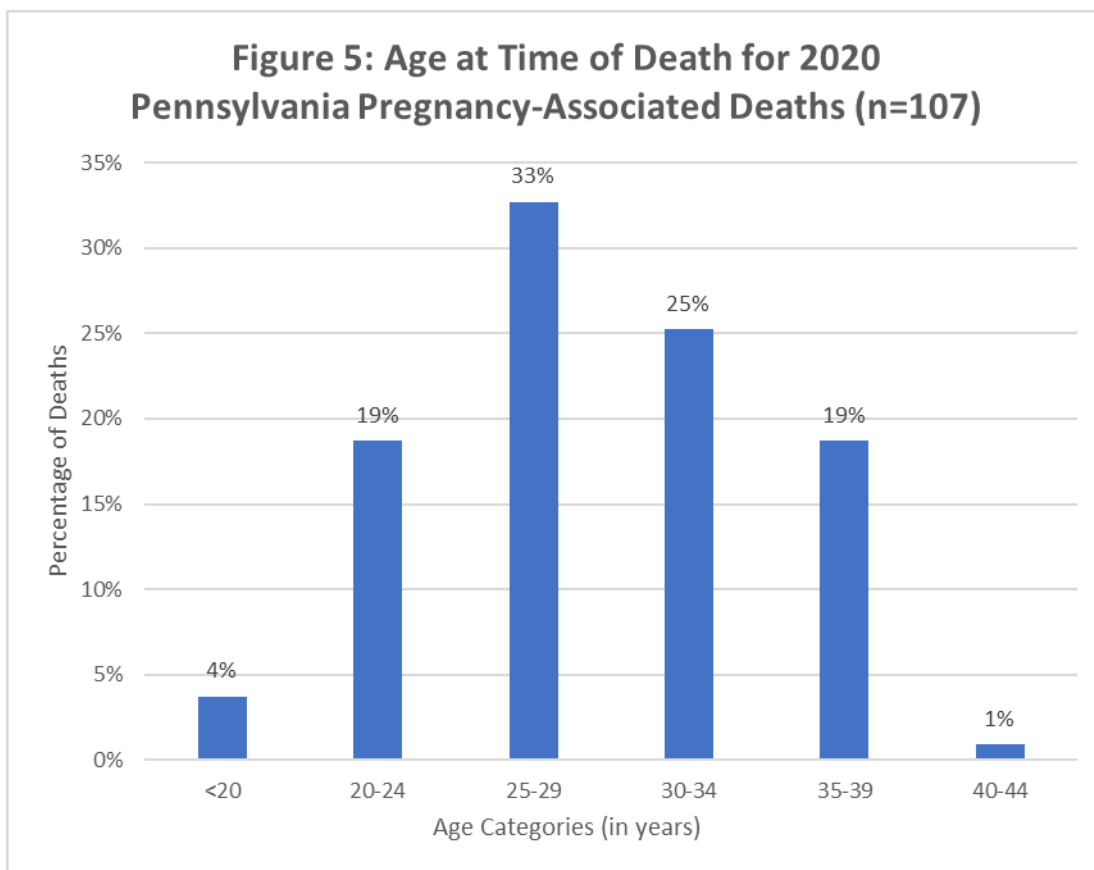


### Pregnancy-Associated Deaths

Pregnancy-associated death is the death of an individual while pregnant or up to one year from the end of a pregnancy regardless of the outcome, duration, or site of the pregnancy,<sup>1</sup> and includes both pregnancy-related and pregnancy-associated but not related cases. The leading cause of death among pregnancy-associated death was mental health conditions, making up 45% of cases. Within mental health conditions, overdose and substance use disorder are the primary causes of death. When combined with injury, which encompasses events like accidental deaths, suicides, and homicides, these two causes of death make up 74% of all pregnancy-associated deaths (**Table 1: Categories of Leading Causes of Death for 2020 Pregnancy-Associated Deaths in Pennsylvania (n=107)**).

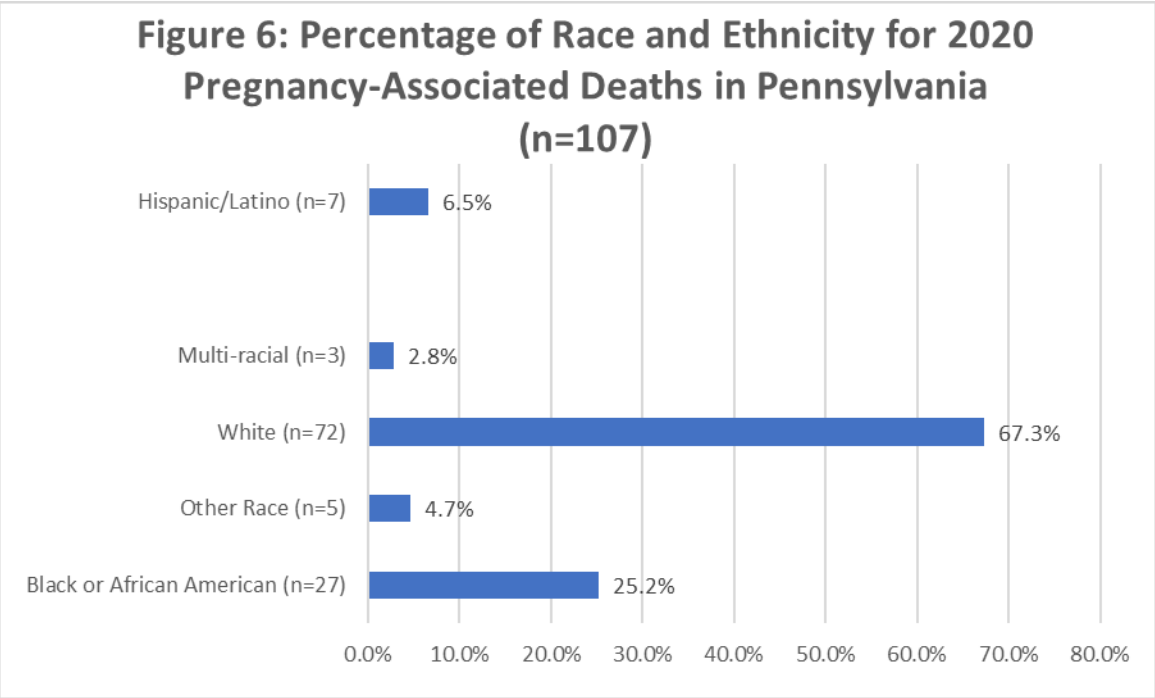
<b>Table 1: Categories of Leading Causes of Death for 2020 Pregnancy-Associated Deaths (n=107)</b>	
<b>Category</b>	<b>n(%)</b>
Mental health condition	48 (45%)
Injury	32 (29%)
Cardiac and coronary condition	7 (6%)
Embolism	5 (5%)
Pulmonary condition	4 (4%)
Hemorrhage	4 (4%)
Undetermined	3 (3%)
Metabolic/endocrine condition	1 (1%)
Cancer	1 (1%)
Cerebrovascular accident	1 (1%)
Infection	1 (1%)

When looking at age, the majority of cases occurred in individuals between the ages of 25 and 34 (58%), while only 1% of cases occurred in individuals between the ages of 40 and 44 (**Figure 5: Age at Time of Death for 2020 Pennsylvania Pregnancy-Associated Deaths (n=107)**).





In 2020, out of all pregnancy-associated deaths, 67.3% of individuals identified as white and 25.2% identified as Black or African American (**Figure 6: Percentage of Race and Ethnicity for 2020 Pregnancy-Associated Deaths in Pennsylvania (n=107)**). While Pennsylvania’s case percentages alone for 2020 do not identify large disparities between races, racial disparities in adverse maternal health outcomes persist in Pennsylvania as evidenced by the fact that non-Hispanic Black or African American individuals had a PAMR two times greater than the PAMR for non-Hispanic white individuals. Racial disparities in pregnancy-associated deaths may stem from the detrimental effects of institutional and interpersonal racism, implicit bias among providers, and social determinants of health.

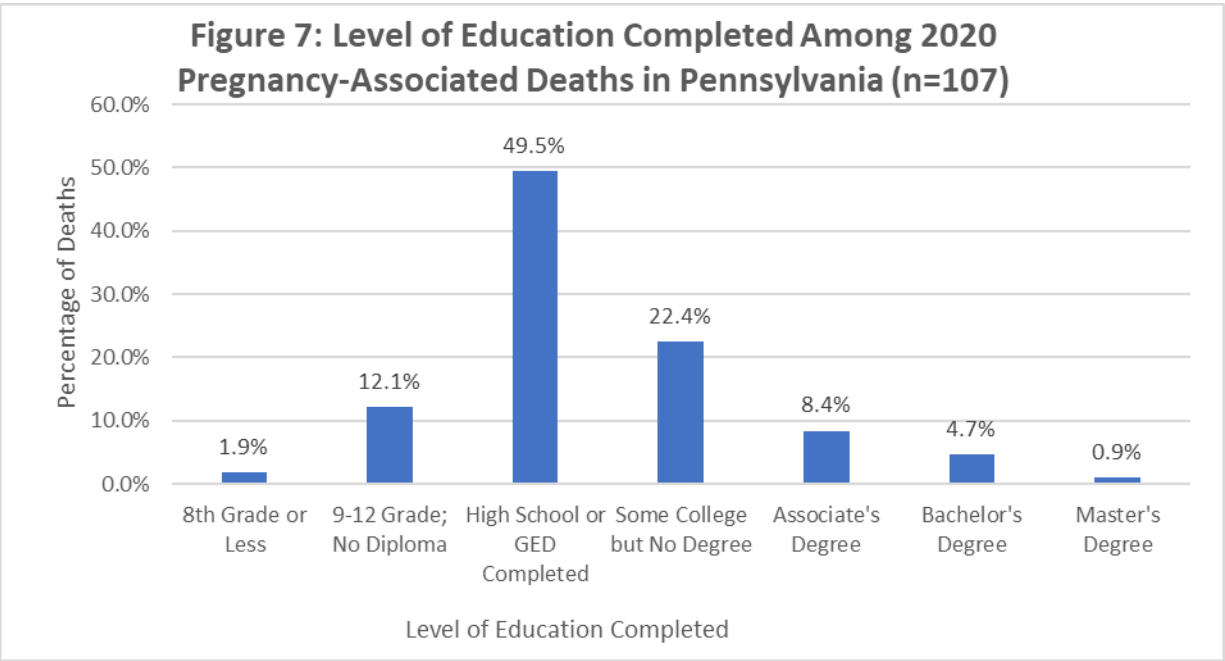


**RACIAL DISPARITIES IN ADVERSE MATERNAL HEALTH OUTCOMES PERSIST IN PENNSYLVANIA AS EVIDENCED BY THE FACT THAT NON-HISPANIC BLACK OR AFRICAN AMERICAN INDIVIDUALS HAD A PAMR TWO TIMES GREATER THAN THE PAMR FOR NON-HISPANIC WHITE INDIVIDUALS**

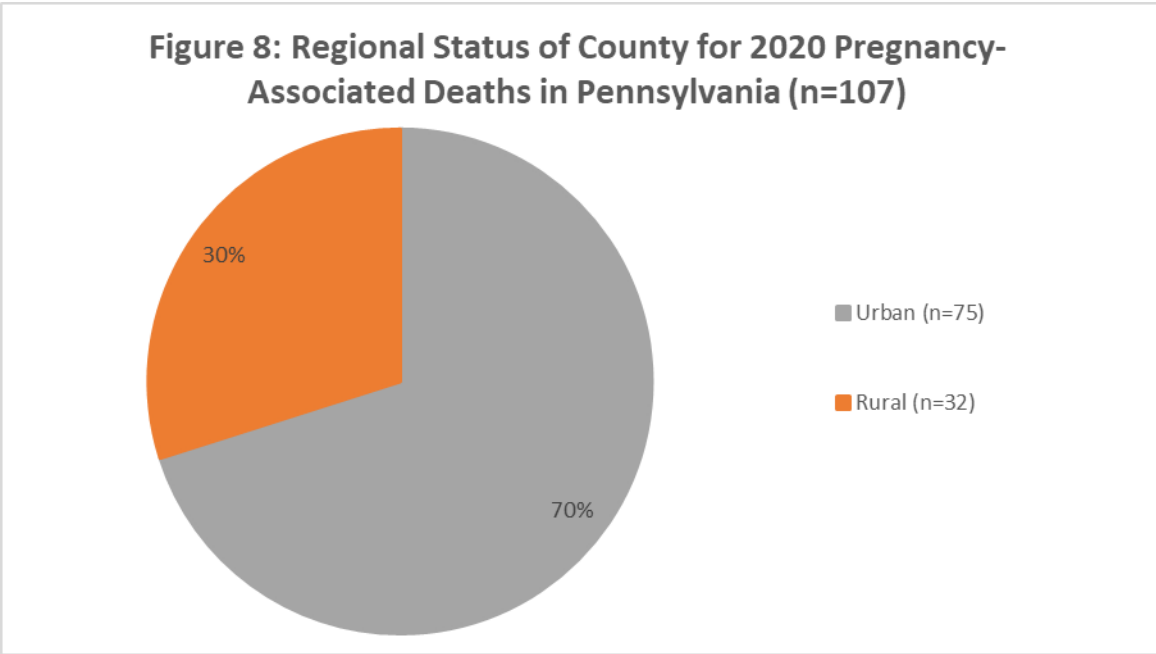
RACIAL DISPARITIES IN ADVERSE MATERNAL HEALTH OUTCOMES PERSIST IN PENNSYLVANIA AS EVIDENCED BY THE FACT THAT NON-HISPANIC BLACK OR AFRICAN AMERICAN INDIVIDUALS HAD A PAMR TWO TIMES GREATER THAN THE PAMR FOR NON-HISPANIC WHITE INDIVIDUALS

**Education and Regional Status**

For a better understanding of demographics among the cases in 2020, education and regional status were examined. Of the total pregnancy-associated deaths reviewed, 49.5% had completed high school or received a GED and 5.6% of individuals received a bachelor’s degree or higher (**Figure 7: Level of Education Completed Among 2020 Pregnancy-Associated Deaths in Pennsylvania (n=107)**).

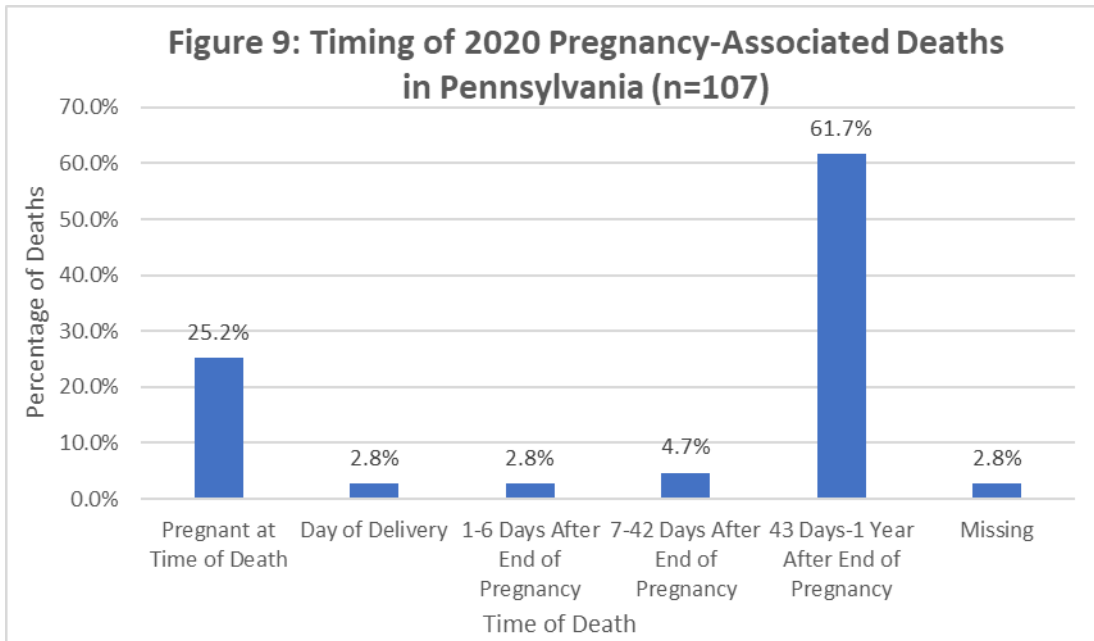


The definition of “urban” and “rural” from the Center for Rural Pennsylvania was used to determine the regional status of the county of residence for 2020 cases. Counties are determined to be urban or rural based on population density, calculated by dividing the total population of a county by the total number of square land miles of that county.<sup>8</sup> A county is considered rural if there are fewer than 291 people per square mile residing there. **(Figure 8: Regional Status of County for 2020 Pregnancy-Associated Deaths in Pennsylvania (n=107))**. Of the 107 deaths, 75 (70%) were considered to live in an urban county, while 32 (30%) resided in a rural county.



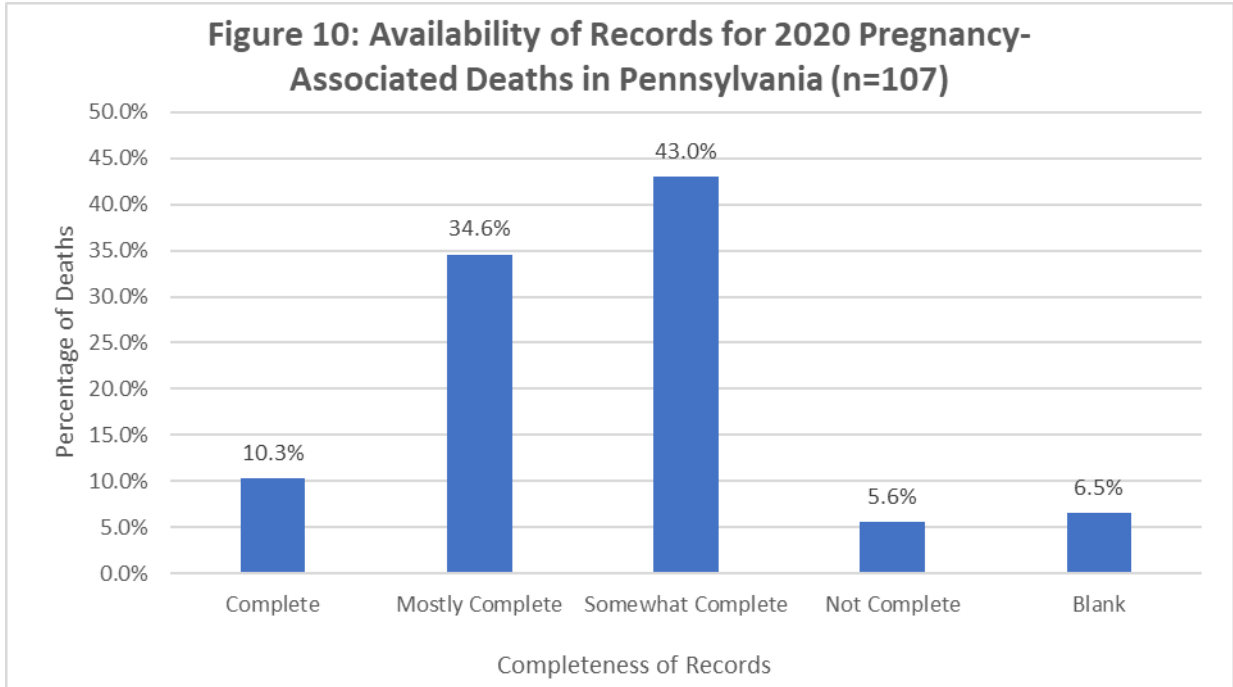
### Timing from Pregnancy to Death

In order to get a complete picture of all pregnancy-associated deaths in Pennsylvania, it is important to examine the timing of when deaths occurred in relation to the pregnancy. Case files identify if the individual was pregnant at time of death, or if the pregnancy ended in a live birth or other outcome. The following table shows the timing of death among all pregnancy-associated deaths. The majority of individuals in 2020 (61.7%) died 43 days to one year after the end of pregnancy. This timeline often involves cases of drug overdose, which contributed to mental health conditions being the leading cause of death for pregnancy-associated cases (Figure 9: Timing of 2020 Pregnancy-Associated Deaths in Pennsylvania (n=107)).



### Completeness of Records

When reviewing cases, it is crucial to have records as complete as possible in order to accurately create a summary of the circumstances. This summary enables committee members to get a clear picture of the individual’s medical history, police and court records, and records from the coroner. Of the 107 cases reviewed, the committees classified 10.3% as having complete records, 34.6% as having mostly complete records, and 43% as having somewhat complete records. There were 6.5% of cases where this question was left blank by the committee. While the majority of records were deemed to be mostly complete, additional pertinent information could have had a positive impact on the committee’s understanding of the case. A lack of available information inhibits the creation of a complete picture of the circumstances surrounding the pregnancy and death (Figure 10: Availability of Records for 2020 Pregnancy-Associated Deaths in Pennsylvania (n=107)).



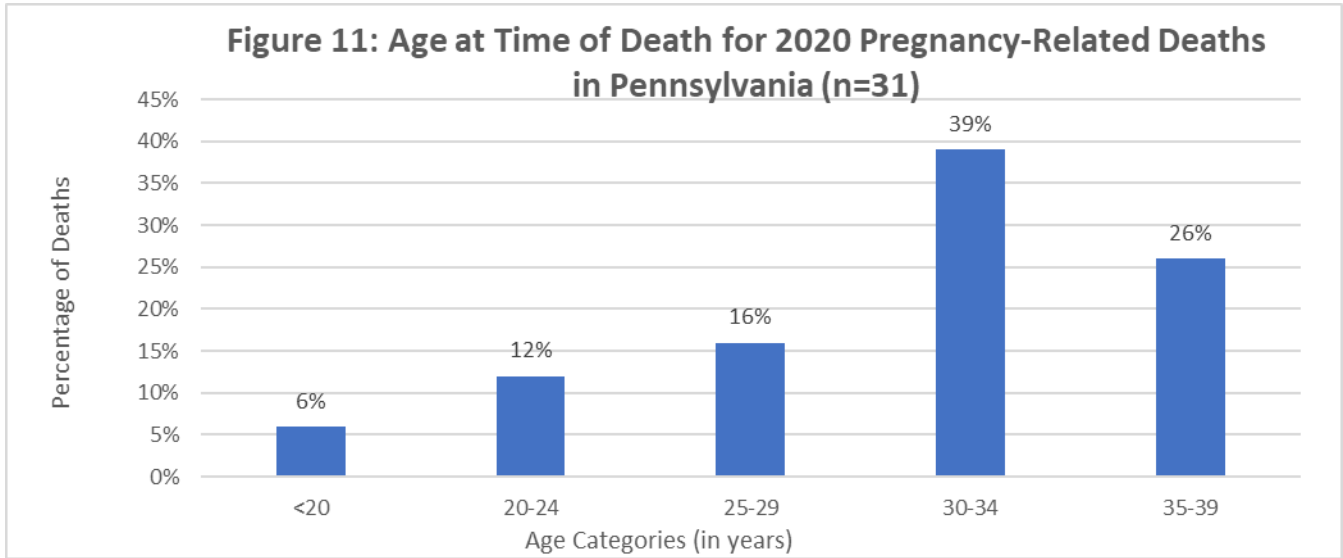
**Pregnancy-Related Deaths**

Pregnancy-related deaths are deaths of an individual while pregnant or within one year of the end of a pregnancy, regardless of the outcome of the pregnancy, duration, or site of the pregnancy. These deaths result from complications of pregnancy or the aggravation of an unrelated condition from the physiological changes of pregnancy. Mental health conditions, which include drug-related overdose deaths, were the leading cause of pregnancy-related deaths in 2020 demonstrating the need for more behavioral health care services for pregnant and postpartum individuals. Other top causes of pregnancy-related death were embolism and cardiac and coronary conditions, in total making up 74% of pregnancy-related deaths. **(Table 2: Categories of Leading Causes of Death for 2020 Pregnancy-related Deaths in Pennsylvania (n=31))**. When broken down by race, white individuals whose leading cause of death was mental health conditions made up about 35% of all pregnancy-related deaths. Black or African American individuals leading causes of death were mental health conditions and embolism making up nearly 20% of all pregnancy-related deaths **(Table 3: Leading Causes of Death for 2020 Pregnancy-Related Deaths in Pennsylvania by Race (n=31))**.

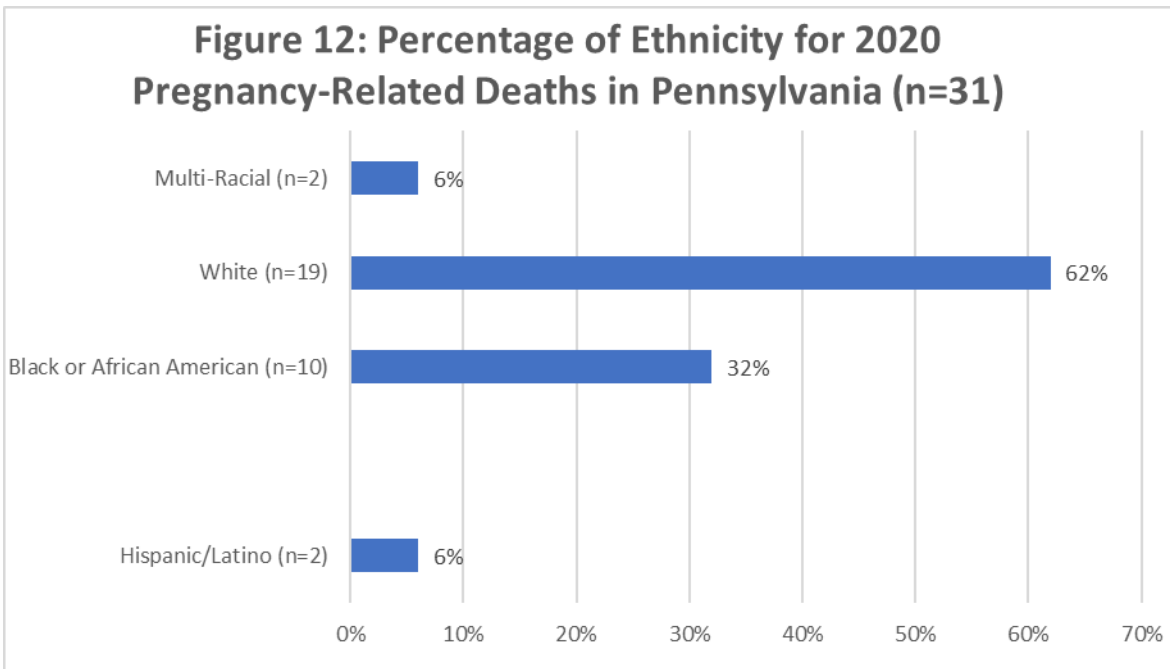
<b>Table 2: Categories of Leading Causes of Death for 2020 Pregnancy-Related Deaths in Pennsylvania (n=31)</b>	
<b>Category</b>	<b>n (%)</b>
Mental health conditions	14 (45%)
Embolism	5 (16%)
Cardiac and coronary conditions	4 (13%)
Hemorrhage	2 (7%)
Pulmonary conditions	2 (7%)
Cancer	1 (3%)
Cerebrovascular accidents	1 (3%)
Injury	1 (3%)
Undetermined	1 (3%)

<b>Table 3: Leading Causes of Death for 2020 Pregnancy-Related Deaths in Pennsylvania by Race (n=31)</b>			
<b>Category</b>	<b>Race</b>		
	<b>White n(%)</b>	<b>Black/African American n(%)</b>	<b>Multi-racial n(%)</b>
Mental health condition	11 (35.5%)	3 (9.7%)	0 (0%)
Embolism	2 (6.5%)	3 (9.7%)	0 (0%)
Cardiac and coronary condition	3 (9.7%)	0 (0%)	1 (3.2%)
Hemorrhage	1 (3.2%)	1 (3.2%)	0 (0%)
Pulmonary condition	1 (3.2%)	1 (3.2%)	0 (0%)
Cancer	0 (0%)	1 (3.2%)	0 (0%)
Cerebrovascular accident	0 (0%)	0 (0%)	1 (3.2%)
Injury	1 (3.2%)	0 (0%)	0 (0%)
Undetermined	0 (0%)	1 (3.2%)	0 (0%)
<b>Total</b>	<b>19 (61.3%)</b>	<b>10 (32.3%)</b>	<b>2 (6.4%)</b>

Cases of pregnancy-related death have also been separated by age group. Compared to pregnancy-associated cases (107), individuals whose death was determined to be pregnancy-related were slightly older, with 39% being between 30 and 34 years of age, and 26% being over 35 years old. **(Figure 11: Age at Time of Death for 2020 Pregnancy-Related Deaths in Pennsylvania (n=31)).**

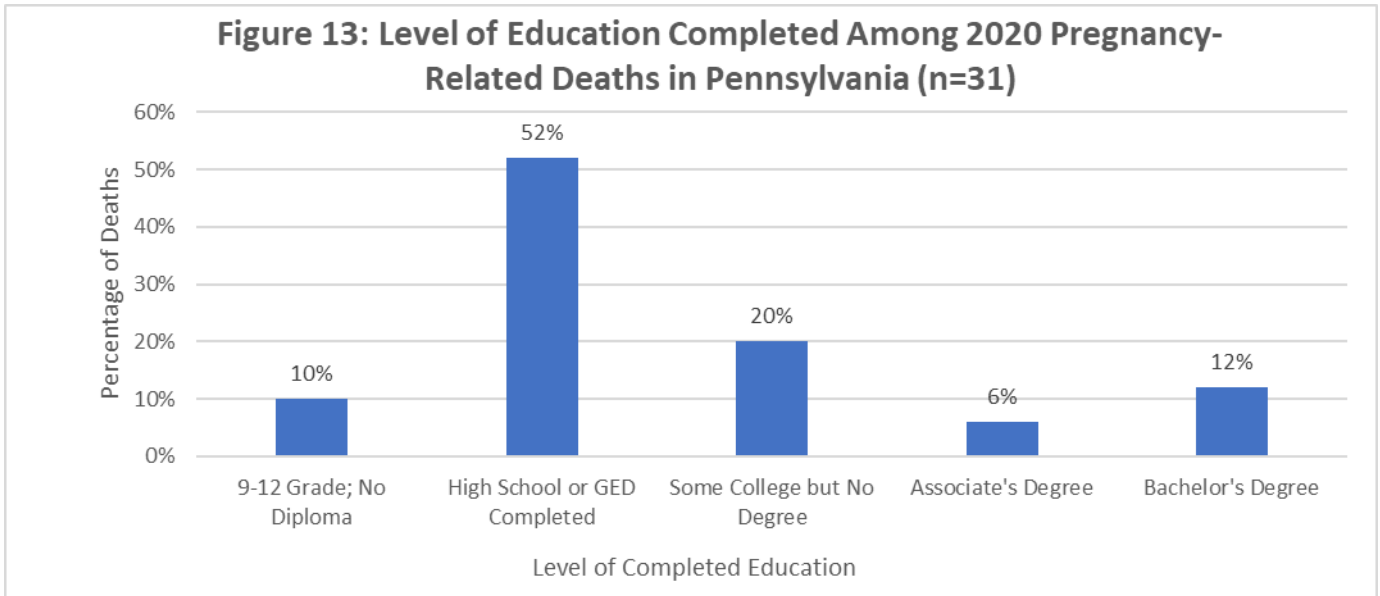


Of the 31 pregnancy-related deaths, 62% of individuals identified as white, 32% identified as Black or African American, and 6% identified as multiracial. **Figure 12: Percentage of Race for 2020 Pregnancy-Related Deaths in Pennsylvania (n=31)**. Six percent identified as Hispanic or Latino. This data further demonstrates that Black or African American individuals are more largely represented in instances of death that are pregnancy-related (32%) versus pregnancy-associated but not related (25.2%). These deaths exemplify the continued discrepancy in equitable care and medical treatment for pregnant and postpartum individuals.



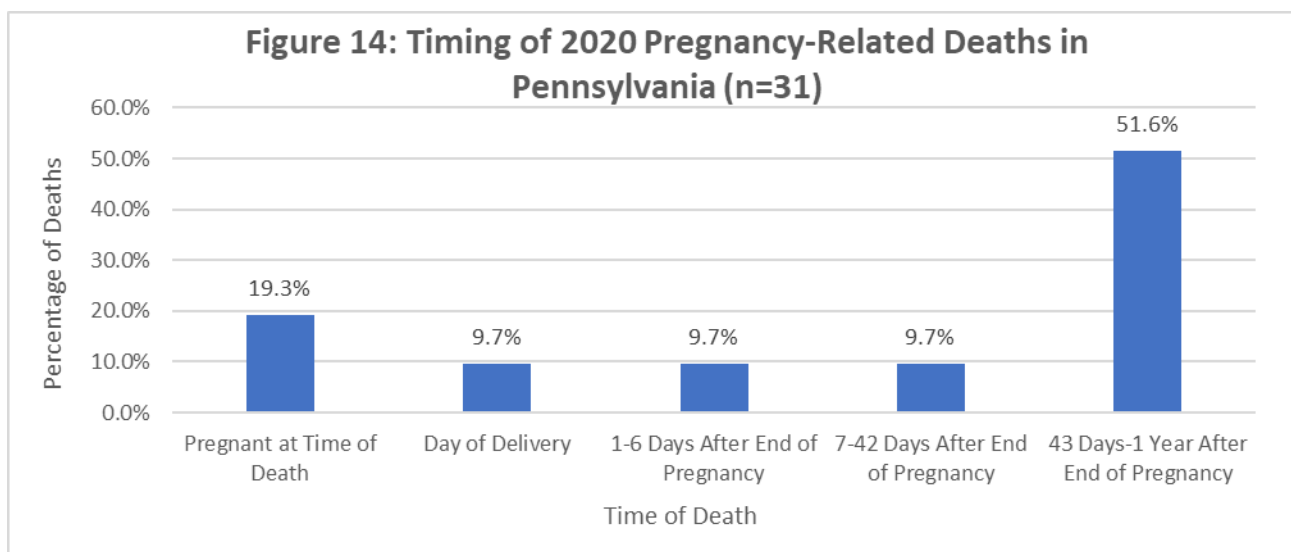
## Education

Similarly to the pregnancy-associated cases, about half of the pregnancy-related cases (52%) completed high school or received a GED. However, the percentage of cases who completed a bachelor's degree was higher than the pregnancy-associated cases at 12% (compared to 4.7%) (Figure 13: Level of Education Completed Among 2020 Pregnancy-Related Deaths in Pennsylvania (n=31)).



## Timing from Pregnancy to Death

The graph below shows the timing of death among all pregnancy-related deaths. About half of these cases (51.6%) died 43 days to one year after the end of pregnancy. Almost 30% of the pregnancy-related cases died from the day of delivery to 42 days after the end of pregnancy (29.1%) (Figure 14: Timing of 2020 Pregnancy-Related Deaths in Pennsylvania (n=107)).



## Contributing Factors

MMRCs look at contributing factors to see which, if any, may have played a part in each death. The committees classified 12.9% of pregnancy-related cases as having obesity, 9.7% as having experienced discrimination, 45.2% as having mental health conditions other than substance use disorder, and 38.7% as having substance use disorder as contributing factors in the death (**Table 4: Committee Decisions on Circumstances Surrounding Pregnancy-Related Deaths for 2020 Cases Reviewed by MMRC (n=31)**). Identifying discrimination in medical records can be challenging, therefore these percentages may not reflect the true amount of discrimination occurring.

<b>Factors</b>	<b>Yes n(%)</b>	<b>Probably n(%)</b>	<b>No n(%)</b>	<b>Unknown n(%)</b>
Did obesity contribute to the death?	4 (12.9%)	2 (6.5%)	22 (71%)	3 (9.7%)
Did discrimination contribute to the death?	3 (9.7%)	3 (9.7%)	11 (35.5%)	14 (45.2%)
Did mental health conditions contribute to the death?	14 (45.2%)	4 (12.9%)	7 (22.6%)	6 (19.4%)
Did substance use disorder contribute to the death?	12 (38.7%)	2 (6.5%)	14 (45.2%)	3 (9.7%)

**93.5% OF PREGNANCY-RELATED CASES WERE DETERMINED TO BE PREVENTABLE.**

or more reasonable changes to patient, family, provider, facility, system and/or community factors. Preventability does not indicate that an individual made a mistake to cause a death, but that improvements can be made within the scope of care to prevent similar deaths in the future. Of the 31 deaths that were pregnancy-related, the committees classified 93.5% as preventable (**Figure 15: Preventability of Pregnancy-Related Deaths for 2020**

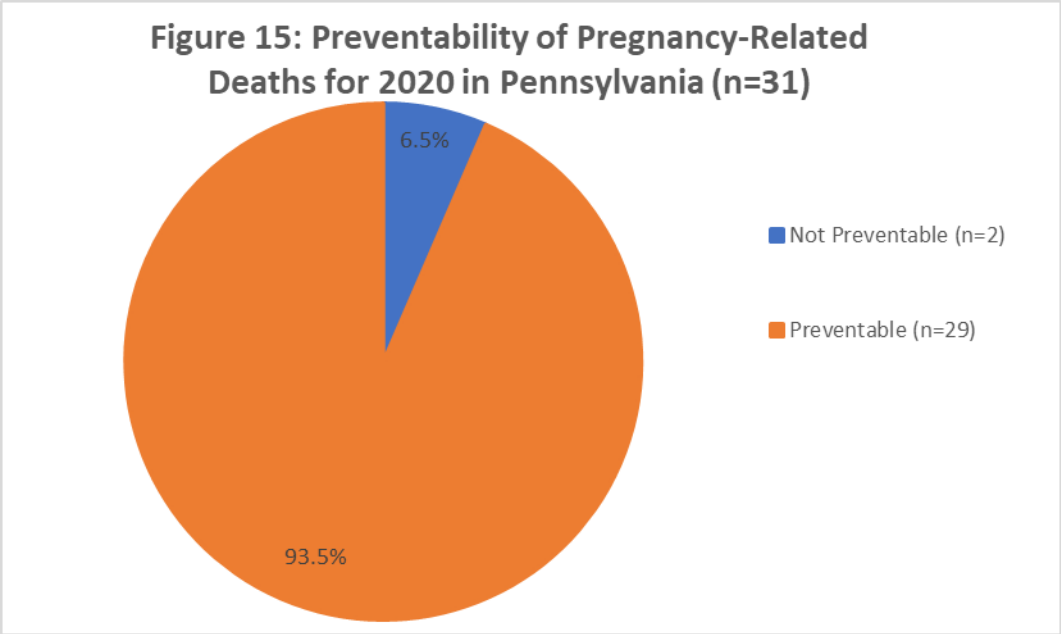
## Preventability

The committees also made a determination on the preventability of the death. Deaths were considered preventable if there was at least some chance of the death being averted by one

**PREVENTABILITY DOES NOT INDICATE THAT AN INDIVIDUAL MADE A MISTAKE TO CAUSE A DEATH, BUT THAT IMPROVEMENTS CAN BE MADE WITHIN THE SCOPE OF CARE TO PREVENT SIMILAR DEATHS.**



**MMRC Cases in Pennsylvania (n=31).** It is also important to note that the committees do not fully encompass every profession that should have a say in the preventability of every case however, committee members are experts in their fields and use that expertise when determining preventability.



**Chance to Alter Outcome**

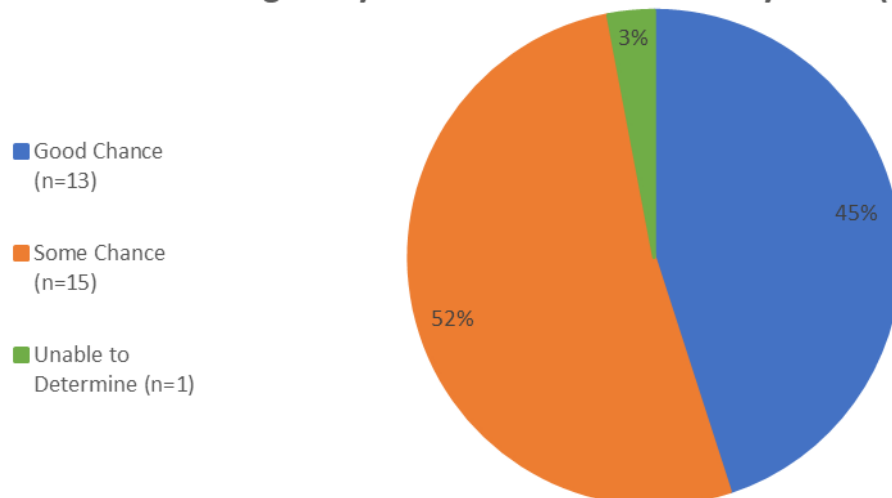
Among deaths classified as preventable, committees determined if there was a chance that the outcome could have been altered. Committee members chose between good chance,



97% OF THE CASES DETERMINED TO BE PREVENTABLE HAD A GOOD CHANCE OR SOME CHANCE OF ALTERING THE OUTCOME.

some chance, no chance, and unable to determine. Of the 29 pregnancy-related deaths determined to be preventable, the committees classified 45% as having a good chance, 52% as having some chance, and 3% as unable to determine (**Figure 16: Chance to Alter the Outcome of 2020 Preventable Pregnancy-Related Deaths in Pennsylvania (n=29)**).

**Figure 16: Chance to Alter the Outcome of 2020 Preventable Pregnancy-Related Deaths in Pennsylvania (n=29)**



## Recommendations

Members of the PA and Philadelphia MMRCs formulate actionable recommendations after review of each case. Recommendations aim to improve the overall health of an individual where opportunities of missed intervention were identified in case review.

After review of the 107 cases, the MMRCs contributed 457 recommendations for death prevention and health promotion. While each case is unique, there were instances of similar recommendations throughout the data set. The MMRP reviewed all recommendations and then categorized recommendations based on the three leading causes of death for pregnancy-related and pregnancy-associated but not related cases. From there, the MMRP and MMRC collaborated to prioritize and consolidate the recommendations. The most common recommendations for all deaths and those which should be prioritized for intervention, specifically in pregnancy-related deaths, are included in this report.

These recommendations are organized by the groups who interact with pregnant individuals (i.e., patient/family, provider, facility, system, and community) to prevent future pregnancy-associated deaths. Provided below are descriptions of these groups to better understand why recommendations were placed in each category.

### **Recommendations for both Pregnancy-Related and Pregnancy-Associated but Not Related**

These recommendations were created to highlight and prioritize intervention and education that is pertinent to all pregnant and postpartum individuals focusing on the significance of health promotion. The recommendations made for both pregnancy-related and pregnancy-associated deaths are outlined in yellow.

### **Recommendations for Pregnancy-Related Cases**

A significant objective of MMRCs is to create recommendations that will prevent future pregnancy-related deaths with appropriate medical intervention, and connection to medical and social resources. In the table below, pregnancy-related recommendations are outlined in green.

### **Recommendations for Pregnancy-Associated but Not Related Cases**

The PA MMRP and the PA and Philadelphia MMRCs care deeply about the health of all pregnant and postpartum people and strive to offer recommendations on how to improve health outcomes among that population. While recommendations for cases of pregnancy-associated death are not comprehensive of the population, pregnancy is a time that grants access to additional touch points and increased support services which enables the development of recommendations that may reduce death among this population. These recommendations are outlined in blue.

The MMRP recognizes that some recommendations provided by the MMRC for the 2020 cases have been enacted or are in the process of implementation including the following:

- I. Extension of Medicaid coverage up to 12 months postpartum.
- II. Legalization of fentanyl test strips.
- III. Implementation of the 988 Suicide and Crisis Lifeline.

- IV. Integration of referrals into electronic medical/health records.
- V. Creation of network of social support services and referral processes to such services.
- VI. Use of an online site to provide individuals with information on accessing pregnancy termination services in PA.

<p><b>Recommendations for pregnant and postpartum individuals and their families</b></p> <p>Per the CDC’s guidance, this is inclusive of an individual before, during or after pregnancy, and their family, internal or external to the household, with influence on the individual. Several opportunities have been identified where educational intervention can encourage pregnant individuals and their support people to be aware of warning signs and risk factors and seek care for their physical and behavioral health during pregnancy and the postpartum period.</p>
<p><b>Pregnancy-Related and Pregnancy-Associated but Not Related</b></p> <ul style="list-style-type: none"> <li>I. Education/counseling should be provided to patients/family/support people on the following topics: <ul style="list-style-type: none"> <li>a) Prescription opioid use and naloxone use.</li> <li>b) Risks/benefits of contraceptive use including long-acting, reversible contraception (LARC) and medical concerns for future pregnancies.</li> <li>c) Routine screening with the patient, and people identified as their support system, to destigmatize psychiatric and substance use disorders.</li> </ul> </li>   <li>II. Prior to discharge from an inpatient or outpatient facility, the healthcare team (physicians, advanced practice providers, nurses, social workers, and community health workers) should physically provide: <ul style="list-style-type: none"> <li>a) Pregnant and postpartum individuals with a history of substance use, their family members, and people identified as their support system with naloxone</li> <li>b) LARC or other contraceptive options if a postpartum individual expresses interest, including in a behavioral health setting.</li> </ul> </li> </ul>
<p><b>Pregnancy-Related</b></p> <ul style="list-style-type: none"> <li>I. Education/counseling should be provided to patients/family/support people on the following topics: <ul style="list-style-type: none"> <li>a) Identifying signs/symptoms of worsening mental health, anxiety, suicidality, and safety concerns after experiencing a traumatic event.</li> <li>b) Nutrition, exercise, and appropriate gestational weight gain.</li> <li>c) Effective tobacco cessation through motivational interviewing, medication, and support services.</li> </ul> </li> </ul>
<p><b>Pregnancy-Associated but Not Related</b></p> <ul style="list-style-type: none"> <li>I. Education/counseling should be provided to patients/family/support people on the following topics: <ul style="list-style-type: none"> <li>a) Sexual/reproductive health specifically in schools, behavioral health facilities, and facilities that disperse medication.</li> <li>b) Benefits and appropriate use of seat belts and car seats.</li> <li>c) Adverse childhood experiences/trauma, firearms, and behavioral health services for patients that are high risk for injury.</li> <li>d) Intersection of intimate partner violence (IPV) and pregnancy.</li> </ul> </li> </ul>

- e) Services and supports available to survivors of IPV and the providers with whom they work.
- f) Strategies for survivors of IPV to self-identify for the purpose of seeking available services and supports.
- g) Healthy communication, healthy relationships, and conflict resolution that would include behavioral health, self-worth, life choices, goal setting, and the resources that exist in the community (in school for grades K-12).

### **Recommendations for providers**

A provider is someone with training and expertise who provides care, treatment, and/or professional advice to an individual before, during, or after pregnancy. Several opportunities have been identified for healthcare providers to contribute to the prevention of pregnancy-associated deaths.

### **Pregnancy-Related and Pregnancy-Associated but Not Related**

Clear documentation of referrals, follow up appointments, screenings, and patient support needs should be indicated in all medical records (including but not limited to prenatal, delivery, postnatal, behavioral health, etc.), and these records should be confidential (i.e., not visible on the patient's portal).

### **Pregnancy-Related**

- I. All healthcare providers should routinely screen patients for:
  - a) Behavioral health conditions including depression, suicide risk, substance use disorder, and IPV during prenatal appointments, delivery, and at well child visits up to 6 months postpartum.
  - b) Last menstrual period, birth control status, and timing of pregnancy (if applicable) in people of childbearing age (10-60 years).
- II. Screenings should be reviewed while the patient is still present in the office or facility so appropriate referrals, follow-ups, and warm hand-offs can be made.
- III. Healthcare providers should follow best practices:
  - a) PDMP should be checked by all healthcare providers for confirmation of prescribed controlled substances at the time of a urine drug screen.
  - b) Pulmonary hypertension etiology should be determined by the pregnancy care team when caring for complex patients with a diagnosis of pulmonary hypertension. As necessary, these providers should consider referring patients to an appropriate specialist for management throughout the perinatal period.
  - c) Cardio-obstetric providers and other necessary specialists should be included as members of a pregnancy care team for individuals with cardiac conditions. These specialists should be available to participate in telehealth appointments and home-visiting programs to ensure ease of access to care.
  - d) A pregnancy test and ultrasound (if testing positive for pregnancy) should be ordered when treating patients with history of uterine malformation presenting with abdominal pain.
  - e) Postpartum individuals with anemia should be offered IV or oral iron prior to their discharge from the hospital.

- II. Healthcare providers should engage in conversations with pregnant and postpartum individuals to help them better understand their health.
  - a) When recent or unaddressed trauma is identified in a pregnant or postpartum individual, the patient should be engaged in a conversation with a healthcare practitioner trained in trauma-informed intervention.
  - b) When a urine drug screen has a positive result the healthcare team should engage the individual in a conversation about their understanding of the positive result and discuss referral to a case manager or community-based social service to develop a care plan immediately.
  - c) Written reports of OB ultrasounds should be provided to the patient and their obstetric provider by the practitioner who performs the ultrasound. The patient should be educated on the findings, risks, and appropriate follow-up.
  
- III. Healthcare providers should be following national guidelines/procedures:
  - a) National anticoagulation dosing guidelines from the American Society of Hematology for patients with history of or current venous thromboembolism throughout the perinatal period.
  - b) American College of Obstetricians and Gynecologists (ACOG) for management of hypertension in the antepartum, intrapartum, and postpartum periods and adjust medication for any patients who have elevated blood pressures.
  - c) ACOG Venous Thromboembolism (VTE) Prevention Maternal Safety Bundle should be implemented when a pregnant individual is identified to assess, limit the risk, and determine proper dosing for anti-coagulation.
  - d) The Alliance for Innovation on Maternal health (AIM) patient safety bundle on obstetric hemorrhage should be implemented in all units within the hospital and outpatient facilities.
  - e) Qualitative Blood Loss procedures should be implemented for all deliveries to adequately assess blood loss and to help drive necessary blood replacement and/or intervention.
  
- IV. A patient centered framework should be adopted to routinely assess pregnancy intention and goals, and personalized counseling and care should be offered based on the response.
  
- V. Providers should attempt to access a patient's significant past medical history in inpatient and outpatient settings to better understand, diagnose, and treat pregnant and postpartum individuals. Additionally, a pregnancy care provider should be consulted prior to patient discharge if the individual is currently pregnant or was pregnant within the past year.
  
- VI. Prenatal care visits should incorporate access to behavioral health providers, social workers, and other services to promote integrated healthcare and require collaboration among healthcare providers and community-based services in their surrounding communities.

- VII. Care teams should schedule all patients for a postpartum visit with a healthcare provider within 3 weeks of delivery and a comprehensive postpartum visit within 12 weeks of delivery prior to discharge from the delivery hospital.
- VIII. Care teams who identify a challenge or vulnerability in a pregnant patient's social determinants of health should provide a social work consultation and document subsequent supports and services in the patient record. Additionally, healthcare providers should increase their own awareness of community, county, state, and federal resources to address barriers to care (i.e., transportation, childcare, insurance) so they can refer patients experiencing these barriers to necessary resources.

**Pregnancy-Associated but Not Related**

- I. Providers should routinely screen for:
  - a) Sexual/reproductive health needs for all patients of reproductive age to prevent unintended pregnancy, specifically in schools and behavioral health settings.
  - b) IPV at the first prenatal visit, once per trimester, delivery, and at the postpartum checkup.
  - c) Adverse childhood experiences/trauma and the presence of firearms in the home with an integrated behavioral health screening for the significant other to complete.
  - d) Behavioral health including substance use disorder and the risk of overdose for all appointments.

The screenings should be reviewed while the patient is still within the office so appropriate referrals can be made.

- II. Prior to discharge, providers and healthcare teams should ensure:
  - a) The initial postpartum visit is scheduled for all patients.
  - b) Patients that are high risk for substance use disorder are given the option to begin MOUD/MAT in the hospital.
- III. Healthcare teams should follow-up with pregnant and postpartum individuals who miss scheduled outpatient appointments, such as obstetric and behavioral health appointments in a timely manner.

**Recommendations for healthcare facilities**

A facility is a physical location where care is provided and can include inpatient and outpatient centers, clinics, hospitals, and urgent care centers. Hospitals are where a majority of pregnant and postpartum individuals seek care.

**Pregnancy-Related and Pregnancy-Associated but Not Related**

Care teams should develop a multi-disciplinary care plan for all pregnant and postpartum individuals by connecting them with available and existing resources

including but not limited to social work/case management, community-based organizations including family social support programs, home-visiting services and community health workers, community doulas, WIC, Centers of Excellence, behavioral health centers, certified recovery/peer specialists, syringe service programs, and outpatient substance use services prior to discharge from the hospital. As appropriate, agencies such as the Office of Children, Youth, and Families should be included.

### **Pregnancy-Related**

Post-discharge transitional care facilities, including Skilled Nursing Facilities, should not refuse patient admission based on a history of substance use disorder.

### **Recommendations for systems**

Systems are the interacting entities that support services before, during, and after pregnancy including healthcare systems, payors, and public programs. Both private health insurances and Medicaid can implement practices that promote maternal health and provide access to resources with increased reimbursement to non-traditional and specialized healthcare providers. Healthcare systems can further aid in preventing pregnancy-associated deaths by ensuring that all healthcare providers are up to date on pertinent trainings, and appropriately treat and refer pregnant individuals to necessary social and community resources.

### **Pregnancy-Related and Pregnancy-Associated but Not Related**

Healthcare systems and other provider entities must coordinate to implement warm hand-offs between providers when sharing, making referrals, and/or transferring care of patients. Documentation of the direct communication must be made by both parties involved in the warm hand-off. If it involves transfer from one inpatient facility to another, transportation should be provided. These warm hand-offs are inclusive of inpatient and outpatient healthcare providers who care for pregnant/postpartum individuals but not limited to:

- a) requests for records, transfer of care.
- b) inpatient or outpatient behavioral health (including SUD) providers/facilities.
- c) pain management as clinically indicated.
- d) available community resources when patient is discharged.
- e) inpatient providers to PCP or specialist for all patients in the management or treatment of co-morbid conditions in pregnancy and/or chronic mental health conditions.
- f) OB providers/systems to appropriate community resources including home-visiting services.
- g) resources for IPV.



## **Pregnancy-Related**

- I. Healthcare systems should develop and implement annual education in the form of learning modules, seminars, webinars, and/or simulations with visual and clinical decision aids for all multi-disciplinary teams at every point of entry to facilities that interact with pregnant and postpartum individuals in the following topic areas:
  - a) trauma-informed care, recognition of past trauma, patient empowerment, and creating safe environments that prevent re-traumatization.
  - b) obstetric emergencies.
  - c) caring for patients with behavioral health conditions including substance use disorder and connecting individuals to appropriate resources with warm hand-offs.
  - d) diversity, equity, and inclusion and implicit bias, especially as related to mental health conditions including substance use disorder.
  
- II. Academic healthcare institutions (e.g., colleges, graduate schools, residency training programs) should dedicate special modules (minimum of 2-4 hours) to educate healthcare providers on trauma-informed care as well as how to talk to/interview/screen patients in a non-judgmental and open manner on an ongoing basis.
  
- III. Licensing organizations of professional healthcare and social service providers should require education on behavioral health including substance use disorder at an interval consistent with licensing as a condition of re-licensure.
  
- IV. There is a need to educate all providers on established system-wide protocols. Because protocols and procedures can vary from one system to another, healthcare systems should:
  - a) Create an obstetric rapid response/readiness protocol for treatment of patients who present hemodynamically unstable.
  - b) Implement a protocol for identifying and treating individuals who are identified with substance use disorder and are decompensating or unstable.
  - c) Offer telemedicine and virtual visits to all pregnant and postpartum individuals, including those with co-existing conditions (i.e., high-risk cardiac patients), for ease of access throughout the perinatal period.
  - d) Support providers in scheduling individualized postpartum care that is appropriately timed based on medical need and evaluation of social determinants of health.
  - e) Systems should establish a six-month postpartum visit for all individuals which includes a screening for depression and substance use disorder, discussions about weight management and contraception counseling, and provide a medical follow-up of any complications in pregnancy (e.g., diabetes and hypertension).
  
- V. Medicaid should have policies in place to ensure Managed Care Organizations (MCO) connect with pregnant and postpartum individuals.

- VI. Medicaid coverage should be expanded to include increased coverage/reimbursement of peer support services for those with substance use disorder and other behavioral health conditions, pregnancy termination services, psychiatric and psychological services for pregnant/postpartum individuals, community health workers, and home visiting programs.
- VII. The financial assistance of private and public insurers is essential in providing necessary resources to pregnant/postpartum individuals and their families. Recognizing the significance of Medicaid support to pregnant and postpartum individuals, the PA MMRC recommends that:
  - a) Insurers should cover immediate postpartum LARC and other contraceptive options that are initiated in hospitals.
  - b) Medicaid MCOs should reimburse for home-visiting and community health workers to link pregnant individuals (members) to community resources, family support programs, and medical care by connecting with individuals while planning a pregnancy, during pregnancy, after delivery and every 90 days thereafter for the first year after the end of pregnancy.
  - c) DHS should promote a public education campaign which educates pregnant individuals and families about home visiting and other supportive services available.
  - d) Medicaid MCOs and private insurers should increase reimbursement for behavioral healthcare providers (i.e., psychiatry/psychology, social workers, and Certified Peer/Recovery Specialists) for pregnant and postpartum individuals.
- VIII. Government agencies can engage communities through collaborative efforts with hospitals and healthcare systems to promote education on pregnancy-related topics along with access to web-based resources and learning opportunities.
  - a) State and local governments, communities, healthcare systems, and healthcare providers should support universal easy access to affordable and effective contraception options.

**Pregnancy-Associated but Not Related**

- I. Healthcare systems should develop and implement annual education in the form of learning modules and/or simulations in the following topic areas:
  - a) behavioral health including substance use disorder in OBGYN and MFM residency programs.
  - b) involvement with policy development and review of policies regarding Plans of Safe Care notifications to community-based resources (medication-assisted treatment, housing, nutrition, and IPV programs).
  - c) Trauma-informed care developed in conjunction with the PA PQC for renewal of Continuing Medical Education requirements for licenses.
- II. Treatment organizations and professional organizations should create a model training module for residency programs to be able to use and adapt for behavioral health including substance use disorder.

- III. Social Workers should be consulted for admission of pregnant and postpartum individuals to assess social supports, housing/financial security, and documented barriers providing access to community services (medical care, WIC, food access, job training, childcare/family training and support). Documented barriers are including but not limited to transportation, across state-line referrals, and childcare.
- IV. Healthcare systems should establish/revise policies and procedures in the following areas:
  - a) Privacy laws should remove communication barriers between physical health and behavioral health systems to create a holistic approach to the care of pregnant and postpartum individuals and assist with integration of the health systems.
  - b) Child welfare offices and recovery residences should permit infant contact, including supervised visitation without a court petition, to postpartum individuals with behavioral health conditions including substance use disorder.
  - c) Healthcare systems should establish a universal patient self-identification tool including a QR code that can be scanned, printed materials and/or in a patient-designated bathroom, that can discretely and immediately connect patients experiencing IPV to resources.
  - d) Law enforcement personnel, coroners, medical examiners etc., should investigate apparent suicide deaths, especially those involving firearms or hangings, of pregnant and postpartum individuals who have disclosed a history of IPV.
  - e) Career development organizations should be equipped to work with and ensure their services are available to pregnant and postpartum individuals.
- V. DOH, DHS, and Department of Education (DOE) should make funding available to:
  - a) School districts and local communities to provide sexual and reproductive health education within a school setting and/or establish school-based health resource centers.
  - b) Hire social workers, doulas, case managers, and peer supporters with knowledge of behavioral health (including SUD) to be linked with each hospital who are familiar with the hospital and local resources (community, religious, and other support services) and able to assist with closing the loop on referrals that are made.
  - c) Incentivize healthcare professionals (e.g., physicians, advanced practitioners, nurses, counselors, and social workers) to specialize in behavioral health including SUD to increase care options and decrease time to initiation of care.
  - d) Hire behavioral health navigators (including SUD) to track adherence with MOUD and enable supporting treatments up to and including inpatient admission.
  - e) Behavioral health including SUD programs should develop capacity and expertise to care for pregnant and postpartum individuals seeking MOUD.

- VI. Insurers should provide incentives to hospital systems for developing sustainable and meaningful collaborations/relationships with community-based organizations that provide resources for behavioral health including substance use disorder and IPV for pregnant and postpartum individuals.

### **Recommendations for the community**

A community is inclusive of a group with a shared sense of place or identity ranging from physical neighborhoods to communities based on common interests and shared circumstances. Communities can provide trusted education and resources to pregnant individuals and their families in a culturally sensitive manner.

### **Pregnancy-Related**

- I. The Pennsylvania Perinatal Quality Collaborative (PA PQC) or another state-associated entity should develop and offer free continuing education credits on pregnancy-associated deaths and severe maternal morbidity in Pennsylvania including causes, signs, need for immediate care, and listening to pregnant and postpartum individuals. This CME course should be offered to all licensed healthcare providers in Pennsylvania.
- II. A pregnancy support program should be developed and provided to pregnant and postpartum individuals who are incarcerated with services continued upon release into the community.
- III. Healthcare professionals and community members should advocate to government policy makers and schools of higher education on the need for more schools of medicine to meet the healthcare needs of society by enhancing the knowledge of and broadening the pool of healthcare professionals.
- IV. Recognizing the unmet need for behavioral health care providers:
  - a) The Center for Medicare or Medicaid Services (CMS) (or other pertinent state agencies) should incentivize medical students and other allied health students to enter into psychiatry and other behavioral health fields by increasing reimbursement for services rendered.
  - b) The Commonwealth should provide school loan forgiveness for behavioral health and substance use providers to incentivize individuals to enter the field.
  - c) The Commonwealth and healthcare systems should incentivize students in all behavioral health and substance use services with enhanced salary support.
- V. DHS, Office of Children, Youth, and Families (OCYF) should develop, disseminate, and provide technical assistance to hospital providers on standardized protocols for:
  - a) When to consult OCYF for referrals and how to inform patients that OCYF will be contacted.
  - b) Policies and principles around the implementation of Plans of Safe Care.

### **Pregnancy-Associated but Not Related**

- I. DHS should promote the National Domestic Violence Hotline to the public through social, broadcast, and print media to increase awareness of available IPV services, supports, and programs in Pennsylvania.

## Limitations

### **Timeliness of Case Review**

Pennsylvania is considered a high-burden state with many pregnancy-associated deaths reported annually. Because of the time required to identify cases, request necessary medical and social history records, fully abstract cases, and review cases, there is a significant delay for reporting final data and recommendations.

### **Pregnancy-Associated Mortality Ratio**

The pregnancy-associated mortality ratio is calculated based on reported live births. This is not inclusive of pregnancies that did not result in a live birth (i.e., terminated pregnancies, ectopic pregnancies, still births).

### **Receiving Records**

While Act 24 granted PA MMRC authority to review several sources of information, there is no requirement that mandates a timeframe for entities to provide records nor is there recourse for nonadherence to record requests. Further complicating matters is the lack of understanding of which health records, physical and behavioral, are permitted to be shared while abiding by Pennsylvania's record sharing regulations. Missing or incomplete medical and social records cause incomplete case summaries, often lacking necessary data for the complete review of a case and determination of pregnancy-relatedness, preventability, and the presence of discrimination. The missing information also impacts the formulation of recommendations.

### **Autopsy Requirements**

It is not required for autopsies to be performed on individuals pregnant at the time of death or within one year of death. In 2020, at least 30% of cases did not have an autopsy. Autopsies can be important in determining the cause of death, determining pregnancy-relatedness, and creating recommendations to prevent future deaths.

### **Consideration of Pregnancy Termination**

PA MMRP has no way to match death certificate data to pregnancy termination data to determine if any of those individuals died within 365 days of being pregnant. Cases may be identified through the pregnancy checkbox on the death certificate if the death certifier was aware of the pregnancy.

## **Future Planning for PA MMRC**

The MMRP is working to improve the timeliness of future case review by adhering to a strict allotted review time per case during the monthly meeting. By creating a firm review schedule, the MMRC can review more cases and have focused discussion.

To streamline receiving records, the MMRP is working to strengthen relationships with partners who provide records, form new connections, and elaborate on the significance of having access to complete records in preventing the death of pregnant and postpartum people.

The MMRP has worked tirelessly to create detailed outlines of role descriptions, contacts for communication, and explanations of program processes to ease in the onboarding of new team members. These efforts will continue to ensure consistent procedures are in place and allow the program to run efficiently.

In 2023, the Shapiro Administration recognized the Commonwealth's need to address the death of pregnant and postpartum people and subsequently dedicated \$2.3 million of the state budget for work to improve maternal health. With these funds, program capacity for maternal health initiatives will increase allowing for more specialized roles, communication with external partners, and implementation of the MMRC's recommendations.

## **Closing Statement**

The PA and Philadelphia MMRCs and MMRP have dedicated significant time and effort to reviewing and analyzing pregnancy-associated deaths as well as identifying opportunities for intervention to create necessary changes in the prevention of these deaths. The data and recommendations from the review and analyses of 2020 case review can and should be used to inform federal, state, and local governments, community-based organizations, healthcare systems and providers, and pregnant individuals and their support systems. With continued passion and commitment from the PA and Philadelphia MMRCs, the MMRP looks forward to continued collaboration to ensure the efforts of the committees to address disparities in all forms of care, prevent future pregnancy-associated deaths, and promote improved health of all pregnant and postpartum individuals.

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