Maternal Mental Health- and Substance Use-Related Deaths in Arizona

March 2022

ARIZONA DEPARTMENT OF HEALTH SERVICES

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Dedication

Dedicated to all the women who were lost to maternal mental health conditions and substance use disorder during pregnancy, delivery, or postpartum; whose stories inspire us to continue fighting for the health of all mothers in Arizona.

Acknowledgements

The Arizona Department of Health Services (ADHS) would like to acknowledge Dr. Robert Johnson, MD, who is a founding member and first Chair of the Arizona Maternal Mortality Review Committee (MMRC) as well as Dr. Kendra Gray and Dr. Andrew Rubenstein, the current Co-Chairs of the Arizona MMRC; their time and commitment to this committee has supported ADHS in initiating the Maternal Mortality Review Program (MMRP) and conducting ongoing reviews of maternal mortalities in Arizona.

ADHS would also like to acknowledge the 35 members of the Arizona MMRC who completed the 99 case reviews included in this report. Despite evolving guidelines and processes, the focus and dedication of the MMRC has resulted in thorough case reviews and well-crafted recommendations to prevent future maternal mortalities and severe maternal morbidities in Arizona. A full list of MMRC members can be found in **Appendix A.**

Lastly, the MMRC acknowledges the twenty-two Native Nations who have stewarded this Land since time immemorial, and recognizes their People, culture, and history.

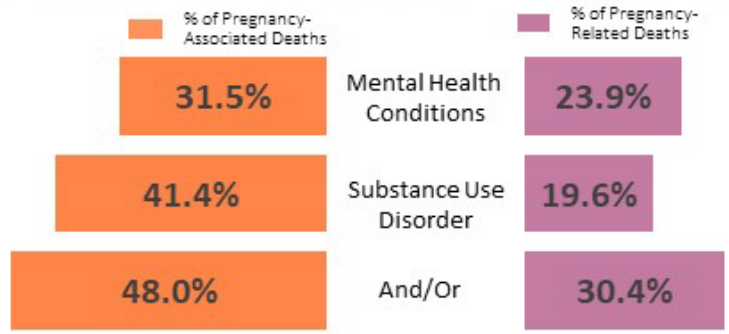
Maternal Mortality Related to Mental Health and Substance Use Disorder in Arizona, 2016-2018

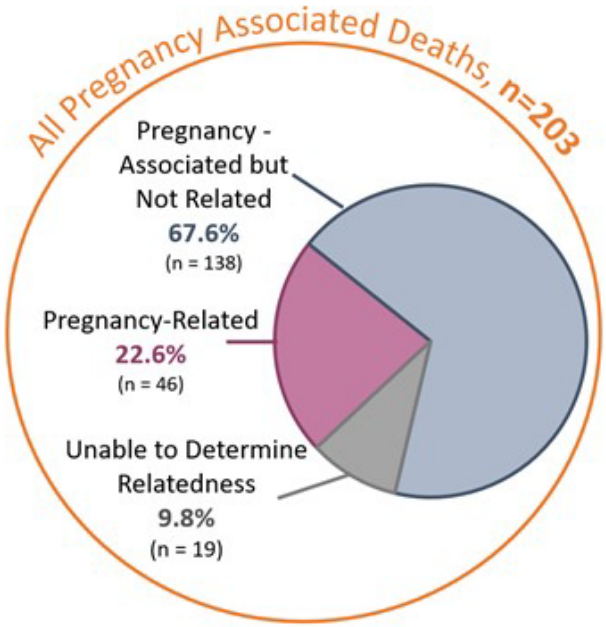
ARIZONA DEPARTMENT OF HEALTH SERVICES

MMRC Reviewed Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days

Maternal mortality is the death of a woman while pregnant or within 1 year of the end of a pregnancy – regardless of the outcome, duration, or site of the pregnancy. The Arizona Maternal Mortality Review Committee reviews every maternal death occurring in Arizona to determine pregnancy-relatedness and causes of death, as well as opportunities to prevent these deaths in the future. Below is an overview of Arizona's 2016-2017 maternal mortality outcomes, which are detailed in the most recent Maternal Mortality and Severe Maternal Morbidity Report in Arizona (published 12/2020).

Almost Half of all Pregnancy-Associated Deaths in Arizona Were Related to Mental Health Conditions or Substance Use Disorder

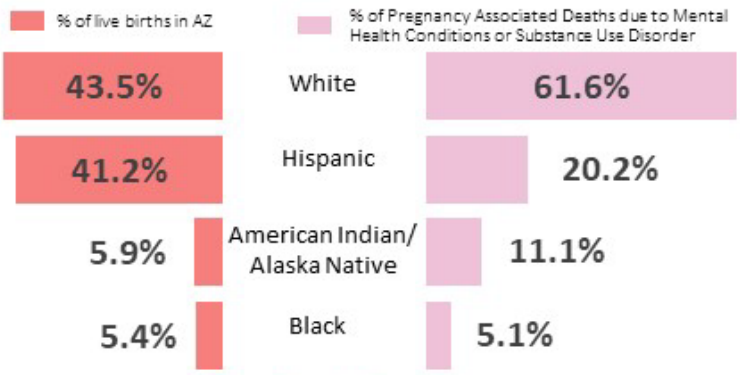




98% of Pregnancy-Associated deaths related to Mental Health Conditions and or Substance Use Disorder were **preventable**.

Almost Two Thirds of Pregnancy Associated Deaths Related to Mental Health Conditions or Substance Use Disorder Occurred between 42 and 365 Days Postpartum

American Indian/Alaska Native Women Experience the Greatest Disparity in Pregnancy Associated Deaths Related to Mental Health Conditions or Substance Use Disorder



Mortality Ratio, 2016-2018

(deaths per 100,000 live births)

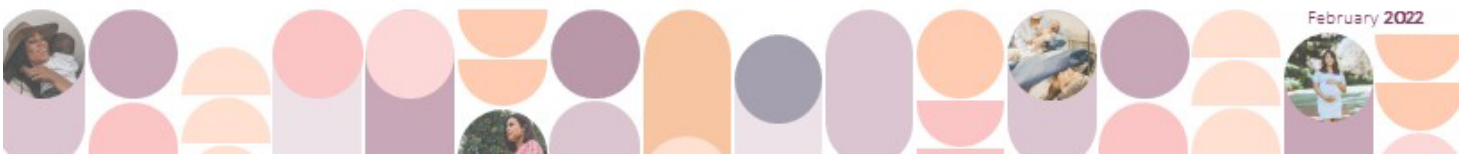
Pregnancy-Associated Mortality Ratio	**80.5**
Pregnancy-Related Mortality Ratio	**18.2**

Definitions

Pregnancy-Associated: *The death of a woman during pregnancy or within one year of the end of pregnancy, regardless of the cause.*

Pregnancy-Related: *The death of a woman during pregnancy or within one year of the end of pregnancy, from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy.*

Preventability: *A death is considered preventable if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, community, provider, facility, and/or systems factors.*



February 2022

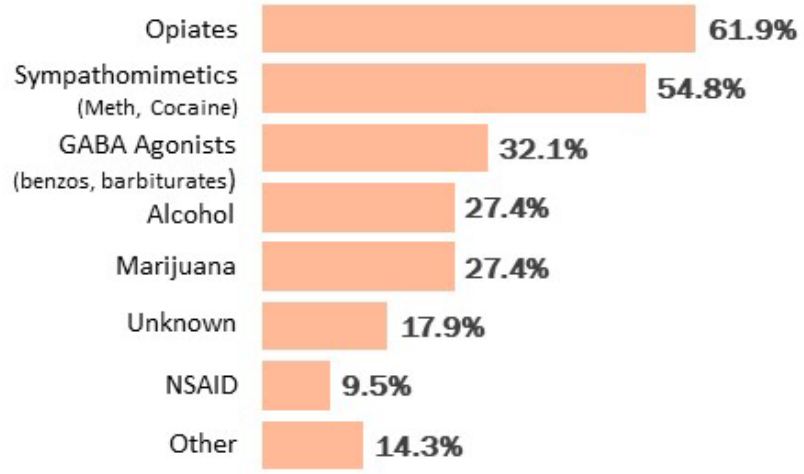
Two Page Summary

Maternal Mortality Related to Mental Health and Substance Use Disorder in Arizona, 2016-2018

ARIZONA DEPARTMENT OF HEALTH SERVICES

MMRC Reviewed Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days

Almost Two Thirds of Pregnancy Associated Deaths Related to Mental Health Conditions or Substance Use Disorder Involved Opiates



Almost 70% of decedents used substances from two or more categories, and **over 20%** of decedents had used substances from four or more categories.

Recommendations to Reduce Maternal Mortality Related to Mental Health Conditions and/or Substance Use Disorder

1. Arizona should expand AHCCCS coverage to 1 year postpartum.
2. Arizona should establish a fully funded Perinatal Psychiatric Access Program that would provide consultation services and training to front line providers for assessment and treatment of maternal mental health and substance use disorders.
3. Arizona should expand loan reimbursement and incentives (e.g., free certifications) for the range of behavioral health providers (prescribers and non-prescribers), particularly incentivizing service in rural areas.
4. Payers should ensure collaborative care codes allow behavioral health medical practitioners and perinatal mental health providers to be reimbursed regardless of where and when care is delivered (e.g., eliminate the same-day limitation for psychiatric reimbursement).
5. Payers should recognize perinatal behavioral health specialists as a contracted medical specialty with health plans.
6. Payers should establish quality metrics to improve accountability and utilization of case management, care navigation, social work, peer support, and doula services to ensure continuity of care for high-risk patients.
7. First responders and law enforcement agencies should dispatch behavioral health providers on all calls involving domestic violence, substance use, mental health challenges, or social/economic instabilities and require all first responders and law enforcement staff are trained in a trauma-informed approach.
8. All agencies and organizations impacting maternal and infant health should adopt outreach and education practices to reduce stigma of maternal mental health and substance use disorder to increase help-seeking behaviors, including universal screening and referral practices.

For questions or additional information, email maternalhealth@azdhs.gov or visit http://azdhs.gov/maternalhealth

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Intended Audience

This is a topical report on the analysis of the incidence and causes of maternal mental health- and substance use-related deaths in Arizona. This report is intended for an audience including policymakers, implementers of maternal health programs, healthcare providers, community service providers, academia, researchers, and other stakeholders involved in training health professionals and the planning and management of quality maternal health services. While publicly available, the intended audience of this report is not the general public, and extra care in the use or interpretation of this report should be taken by those with limited background or subject-matter expertise in the areas of maternal health and complications of labor and delivery.

How to Use This Report

This report describes the prevalence and incidence of maternal mental health- and substance use-related deaths in Arizona, including a variety of risk factors contributing to these deaths among women

and birthing people in Arizona. The key findings presented in this report should assist in the identification of future areas for intervention and guide effective and evidence-based efforts towards the reduction of adverse maternal health outcomes.

Disclaimers

Sex and Gender Referencing

Though the majority of this report describes individuals experiencing a maternal mortality or severe maternal morbidity as "women", this term is intended to be inclusive of all birthing individuals in Arizona regardless of their gender identity.

Use of Term: Maternal Mortality

The use of the term "Maternal Mortality" in this report may differ than its use by other organizations, such as the World Health Organization, but is used interchangeably with "Pregnancy-Associated Deaths". These definitions are described in the section: **Common Definitions and Terms Used in This Report**.

Definition of Race

Racial and ethnic designations used in this topical report are based on Arizona Department of Health Services' Office of Vital Records certificate information. Race/ethnicity for maternal deaths was based on race and ethnicity identified in the maternal death certificates, where women who identified as both Hispanic and any other race were identified as Hispanic. For maternal death cases that were not Hispanic, yet had multiple races identified, race was selected based on the race identified with the highest proportion of pregnancy-associated deaths in previous reports (i.e. American Indian or Alaska Native, Black or African American, Asian or Pacific Islander respectively). For data indicators in this report that include live births, race/ethnicity of the mother was indicated based on maternal race/ethnicity reports in the live birth certificates.

Data Suppression

ADHS follows specific guidelines related to suppressing numbers less than six to protect confidentiality of rare cases and to eliminate bias or room for error in reporting numbers or ratios. Therefore, findings in this report with less than six cases are suppressed.

Previous ADHS Reports on Maternal Mortality

The findings in this report related to maternal mortality were derived from the Review to Action methods, which the Arizona Department of Health Services adopted in 2018. These methods differ from the methods used to review and report on maternal mortality in Arizona between 2012-2015. For this reason, maternal mortality findings between 2016-2018 should not be compared to findings reported in Arizona's report on 2012-2015 maternal mortality. The report published in December 2020, Maternal Mortality and Morbidity in Arizona, is considered baseline data for reporting.

Arizona Health Status and Vital Statistics Annual Reports

The Bureau of Public Health Statistics (BPHS) in Arizona Department of Health Services publishes the Arizona Health Status and Vital Statistics Annual Report, which includes maternal and infant health outcomes. Data in this topical report may differ from previously published data based on additional descriptive context and data obtained during the maternal mortality review process. Population-level data for births of all Arizona residents can be found in the Arizona Health Status and Vital Statistics Annual Report.

Publication Information

This publication can be made available in alternative formats. Contact the Maternal Mortality Review Program by emailing maternalhealth@azdhs.gov or calling 480-404-1157.

Permission to quote from or reproduce materials from this publication is granted when acknowledgment is made. This publication was supported by a Cooperative Agreement Number: 5 NU58DP006678 funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

Common Definitions for Terms Used in this Report

The following are definitions for common terminology found in this report.

- **Behavioral Health:** Behavioral health is how behaviors, such as eating, exercising, drinking, and sleeping habits, affect a person's overall health and wellbeing.[1]
- **Behavioral Health Provider or Behavioral Health Medical Practitioner:** A behavioral health provider is a trained professional, such as a psychiatrist, psychologist, physician's assistant, nurse practitioner or counselor, who treats patients struggling with mental health conditions and substance use disorders. Note that there are varying levels of behavioral health providers, only some of which can prescribe medications to treat behavioral health conditions.[2]
- **Injury**: In this topical report, injury was identified as a physical harm that caused the death. This indicator included harm that was self-inflicted or otherwise, did not include intoxication, poisoning, nor overdose, and did include any of the following: hanging/strangulation/suffocation, gunshot wound(s) and/or a motor vehicle accident. Differentiation between intentional and unintentional injury can be viewed under manner of death, which differentiates between accidents, suicides, and homicides.
- **Intoxication**: Describes the cause of death (most often either immediate or underlying) that involved alcohol or substance misuse that ultimately led to poisoning or overdose.
- **Manner of Death:** The determination of how the injury or disease leads to death. There are five manners of death (natural, accident, suicide, homicide, and undetermined).
- **Maternal Mental Health:** Maternal mental health is the mental health of a woman during pregnancy and up to one year postpartum.[3]
- **Maternal Mortality (MM):** The death of a woman while pregnant or within 1 year of the end of a pregnancy – regardless of the outcome, duration, or site of the pregnancy – from any cause related to or aggravated by the pregnancy or its management. The Arizona MMRP reviews, and reports on all maternal mortalities occurring in Arizona regardless of the manner of death.[4]
- **Mental Health:** Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to contribute to his or her community.[5]
- **Mental Health Condition:** Mental health conditions involve changes in emotion, thinking or behavior (or a combination of these). They are associated with distress and/or problems functioning in social, work or family activities.[6]
- **Natural Death:** A death occurring in the course of nature and from natural causes, such as age or disease.

- **Overdose:** An excessive or dangerous dose of a drug or substance that may result in serious, harmful symptoms or death. In this report, we include both accidental overdoses (described as accidents) and intentional overdoses (described as suicide).
- **Poisoning:** Manner of fatal injury due to swallowing, inhaling, touching, or injecting one or various substances.
- **Pregnancy-Associated:** The death of a woman during pregnancy or within one year of the end of pregnancy, regardless of the cause. All deaths that have a temporal relationship to pregnancy are included.[7]
- **Pregnancy-Associated but not Related**: A death during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy.
- **Pregnancy-Associated Mortality Ratio (PAMR):** An estimate of the number of pregnancy-associated deaths for every 100,000 live births.
- **Pregnancy-Related:** The death of a woman during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy. In addition to having a temporal relationship to pregnancy, these deaths are causally related to pregnancy or its management.[8]
- **Pregnancy-Related Mortality Ratio (PRMR):** An estimate of the number of pregnancy-related deaths for every 100,000 live births. This ratio is often used as an indicator to measure the nation's health.
- **Preventability:** A death is considered preventable if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, community, provider, facility, and/or systems factors.[9]
- **Resident:** Arizona residency was determined by the county of residence as listed on the death certificate. This is not an indication of citizenship or legal residence in Arizona.
- **Substance Use Disorder:** Substance use disorders occur when the recurrent use of alcohol and/or drugs causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home.[10]
- **Unable to Determine Relatedness to Pregnancy:** A death during pregnancy or within one year of the end of pregnancy from a cause that cannot be determined if it is related to the pregnancy.
- **Underlying Cause of Death:** The disease or injury that initiated the chain of events leading to death or the circumstances of the accident or violence which produced the fatal injury. In addition to the listed causes of death from the death certificate, the MMRC assigns an underlying cause of death code for Pregnancy-Related cases.

Executive Summary

The perinatal period is a significant biological, social, and psychological change that can be a difficult time for many women. As a result, pregnant and postpartum women are often at a higher risk of developing or exacerbating mental health conditions or substance use disorders.[11] [12] Mental health conditions and substance use disorders have been associated with adverse maternal, infant, and child outcomes, as well as changes in care-seeking behaviors and coping mechanisms. Unfortunately, access to mental health and substance use treatment is limited due to a variety of factors, including lack of providers trained in identifying and treating these conditions and limited mechanisms to pay for this care.[13] [14] Women with mental health conditions and substance use disorders during and after pregnancy often face significant stigma, which further discourages them from seeking help.

National rates of maternal mortality have steadily increased over the last decade, particularly those related to mental health and substance use. In Arizona, approximately 30-40 women die within 365 days of pregnancy each year from a mental health- or substance use-related cause, though approximately 20,000 women in Arizona would experience a maternal mental health condition. The estimated cost of untreated perinatal mental health conditions was $14.2 billion in 2019 alone.[15] Using these cost estimates, the cost to Arizona for untreated maternal mental health conditions would be $375 million per year. This indicates a need for national, state, and local efforts to improve health outcomes for women before, during, and after pregnancy.[16] [17] [18] [19]

Section 2 of this report summarizes maternal mortalities related to mental health and substance use occurring in Arizona between 2016-2018. Data included in this report were derived using the Review to Action guidelines, which are detailed in full in a previous report, Maternal Mortality and Morbidity Arizona. Key findings from this report are included below. Following ADHS standards, any counts or rates based on fewer than 6 observations have been suppressed.

Maternal Mortality Findings, 2016-2018

- **Pregnancy-Relatedness:** There were 203 deaths between January 1, 2016 and December 31, 2018, of which the MMRC determined that 22.6% (n=46) were Pregnancy-Related deaths, with the remaining being either Pregnancy-Associated but not Related (67.6%, n=138) or Unable to Determine Relatedness to Pregnancy (9.8%, n=19).
- **Mortality Ratio:** The 2016-2018 Pregnancy-Associated Mortality Ratio was 80.5 deaths per 100,000 live births in Arizona for women ages 15-49. The Pregnancy-Related Mortality Ratio was 18.2 deaths per 100,000 live births in Arizona for women ages 15-49.

- **Conditions Surrounding Death:** Almost half (48.8%) of all Pregnancy-Associated deaths and 30.4% of Pregnancy-Related deaths were related to mental health conditions or substance use disorders.
- **Preventability:** The MMRC determined that 98% of Pregnancy-Associated deaths related to mental health conditions or substance use disorder were preventable.
- **Timing of Death:** The majority (59.6%) of Pregnancy-Associated deaths related to mental health conditions or substance use disorders occurred between 43 and 365 days postpartum.
- **Manner of Death:** Intoxication, poisoning, or overdose accounted for the majority of Pregnancy-Associated deaths related to mental health conditions and substance use disorder (37.4%), followed by suicide (20.2%), natural causes (20.2%), motor vehicle accidents (12.1%), and homicide (6.1%)
- **Underlying Cause of Deaths:** Among Pregnancy-Associated deaths related to mental health conditions and substance use disorder, the leading underlying cause of death was Injury (27.3%), followed by Substance Use (25.3%), Natural Causes (24.2%), Intoxication (22.2%), and Mental Health (22.2%). Among the Injuries, 37% of these deaths were due to suicide and 22% of these deaths were due to homicide.
- **Maternal Race and Ethnicity:** The majority of mental health- and substance use-related Pregnancy-Associated deaths were among White, Non-Hispanic women (61.6%), followed by Hispanic (20.2%), American Indian/Alaska Native (11.1%) women, and Black/African American (5.1%). Asian deaths are suppressed due to figures less than six (6). The biggest disparity when comparing to proportion of deaths to live births was among American Indian/Alaska Native women.
- **Maternal Age:** Almost half (49.5%) of all Pregnancy-Associated deaths related to mental health conditions and substance use disorders were among women aged 20-29 years old and 42.4% of deaths were among women 30-39 years old.
- **Maternal Education:** Over half of all Pregnancy-Associated deaths related to mental health conditions and substance use disorder were among women with a high school diploma or GED (35.4%) or less than a high school education (30.3%).
- **Maternal Residence:** While the majority of Pregnancy-Associated deaths due to mental health conditions or substance use disorder occurred in the Central Region of Arizona (Maricopa, Pinal, and Gila Counties) (58.9%), deaths that occurred in the Western, Northern, and Southeastern regions of Arizona were over represented when comparing percent of deaths (41.1%) to live births (30%) during the same time periods.
- **Substances Used:** Among the 84 deaths with substance use data, 61.9% had used Opiates (e.g., Heroine, Fentanyl, Methadone), 54.8% had used Sympathomimetics (e.g., Methamphetamine, Cocaine), 32.1% had used GABA Agonists (e.g., Barbiturates, Alprazolam), 27.4% had used Alcohol, and 27.4% had used Marijuana.

- **Polysubstance Use:** Almost 70% of women used at least one known substance from multiple drug classes (**Appendix B**) at death and/or at some point in their life-course. Over 20% of decedents had used at least one type of drug from 4 or more different drug classes before or at the time of death.

Recommendations to Prevent Maternal Mental Health- and Substance Use-Related Deaths in Arizona

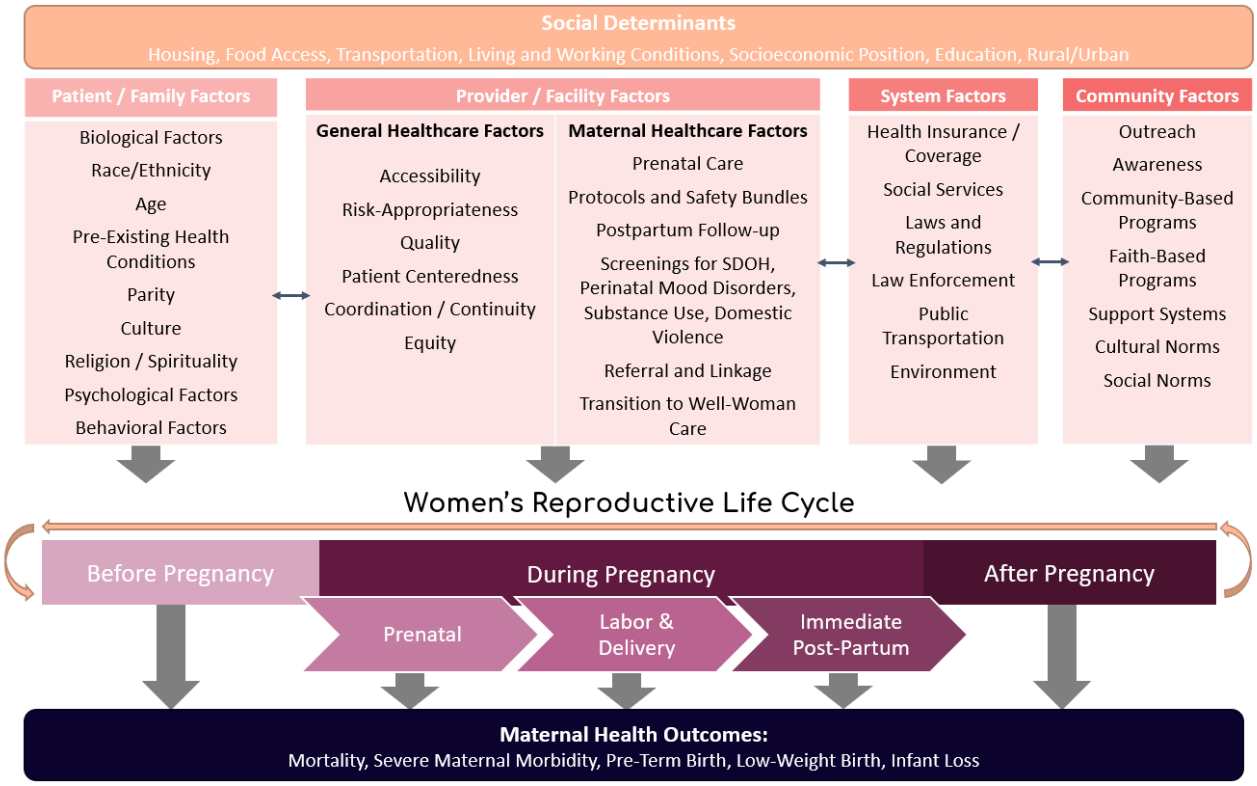
There is an urgent need to identify, understand, and address the factors that contribute to mental health- and substance use-related maternal deaths in Arizona. The Arizona Maternal Mortality Review Committee (**Appendix A**) and the Arizona Maternal Mental Health Task Force (**Appendix B**) have identified the following recommendations to improve outcomes for mothers and families in our state. A more detailed list of these recommendations addressing maternal mental health and substance use disorder can be found in **Section 3**. Recommendations include:

- Arizona should expand AHCCCS coverage to 1 year postpartum.
- Arizona should establish a fully funded Perinatal Psychiatric Access Program that would provide consultation services and training to front line providers for assessment and treatment of maternal mental health and substance use disorders.
- Arizona should expand loan reimbursement and incentives (e.g., free certifications) for the range of behavioral health providers (prescribers and non-prescribers), particularly incentivizing service in rural areas.
- Payers should ensure collaborative care codes allow behavioral health medical practitioners and perinatal mental health providers to be reimbursed regardless of where and when care is delivered (e.g., eliminate the same-day limitation for psychiatric reimbursement).
- Payers should recognize perinatal behavioral health specialists as a contracted medical specialty with health plans.
- Payers should establish quality metrics to improve accountability and utilization of case management, care navigation, social work, peer support, and doula services to ensure continuity of care for high-risk patients.
- First responders and law enforcement agencies should dispatch behavioral health providers on all calls involving domestic violence, substance use, mental health challenges, or social/economic instabilities and require all first responders and law enforcement staff are trained in a trauma-informed approach.
- All agencies and organizations impacting maternal and infant health should adopt outreach and education practices to reduce stigma of maternal mental health and substance use disorder to increase help-seeking behaviors, including universal screening and referral practices.

Section 1: Overview of Maternal Mental Health and Substance Use

Each year in Arizona, approximately 70 women die during or within 365 days after pregnancy, of which 15-20 deaths are pregnancy-related cases (i.e., would not have died if she had not been pregnant). National rates of maternal mortality have steadily increased over the last decade, particularly those related to mental health and substance use, indicating a need for national, state, and local efforts to improve health outcomes for pregnant and postpartum women.[20] [21] [22] [23] Worsening maternal health outcomes in the US can be attributed to a range of factors that influence women's health before, during, and after pregnancy, many of which are described in **Figure 1**. This report will specifically focus on the risks, experiences, and outcomes associated with mental health and substance use disorders.

Figure 1. Diagram of Factors that Affect Maternal Mortality and Morbidity



Adapted From: Manyazewal, T. Using the World Health Organization health system building blocks through survey of healthcare professionals to determine the performance of public healthcare facilities.[24]| Solar, O, Irwin, A. A Conceptual Framework for Action on the Social Determinants of Health.[25] | Centers for Medicare and Medicaid Services. Improving Access to Maternal Health Care in Rural Communities Issue Brief.[26]

Prevalence and Cost of Maternal Mental Health Conditions and Perinatal Substance Use Disorders

One in five women experience a maternal mental health condition, making mental health conditions one of the leading perinatal complications and causes of maternal mortality in the United States, yet only about 25% of these women seek care.[27] [28] Maternal mental health conditions include Depressive Disorders.Anxiety Disorders, Obsessive compulsive disorder (OCD), Post-Traumatic Stress Disorder (PTSD), Bipolar Disorders, and postpartum psychosis.[29] [30] According to Postpartum Support International (2021):

- 10% of women during pregnancy and 15% postpartum experience depression,
- 6% of women during pregnancy and 10% postpartum experience anxiety,
- 3-5% of women experience postpartum OCD, and
- 1-2 women per 1,000 deliveries experience postpartum psychosis.[31]

Unlike the "baby blues," which usually self-resolve by two weeks postpartum, maternal mental health conditions often require treatment. Additionally, higher rates of maternal mental health conditions are associated with belonging to a racial or ethnic minority group, indicating the need for broader access to maternal mental health treatment in all communities.[32] [33]

Pregnancy-associated deaths due to overdose more than doubled in the United States between 2007-2016.[34] In a study using 2019 data from the Pregnancy Risk Assessment Monitoring System (PRAMS), 6.6% of respondents reported using a prescribed opioid during pregnancy, with one in five of these women reporting misuse and three in five reporting that they had been counseled on the risks of opioid use during pregnancy by their provider.[35] Furthermore, rates of maternal opioid use disorder at delivery increased over four times between 1999 and 2014.[36] Other substances beyond opioids are also contributing to the increase in perinatal substance use in the United States. Inpatient treatment of pregnant women for methamphetamine abuse increased three times between 1996 and 2006.[37] One study also showed that marijuana use doubled among pregnant women between 2010 and 2017.[38]

According to a Mathematica study, estimated cost of untreated perinatal mental health conditions in the United States was $14.2 billion in 2019 alone ($32,000 per mother/infant dyad). [39] There were approximately 78,000 births in Arizona in 2019, of which, almost 15,600 would likely experience a maternal mental health condition within a year of pregnancy, and 15,000 of which would be untreated.[40] [41] [42] Using these cost estimates, the cost to Arizona for untreated maternal mental health conditions would be $375 million per year. Perinatal access programs intended to broaden access to critical maternal mental health care typically cost less than $1 million annually, indicating the need for proactive programming and resources to improve screening and treatment.

Experiences and Risks Associated with Mental Health and Substance Use Disorders during the Perinatal Period

A variety of factors have been associated with maternal mental health and substance use disorders. These factors include childhood experiences, maternal experiences, levels of support, exposure to violence (sexual or

otherwise), birth outcomes, and family and personal medical history. Although maternal mental health conditions and substance use disorders are manageable with the right care, many women are left untreated, leading to adverse outcomes for mothers, infants, and their families. Other experiences and outcomes associated with maternal mental health and substance use disorders are outlined in the table below (**Figure 2**).

Figure 2. Experiences and Outcomes Associated with Maternal Mental Health and Substance Use Disorders

Experiences associated with MH or SUD Include, but are not limited to:	**Outcomes of Untreated MH or SUD** Include, but are not limited to:
❖ Trauma, abuse, or adverse experiences during early childhood, adolescence, or adulthood ❖ Incidence of Severe Maternal Morbidity ❖ Cesarean section, unplanned birth experience, or traumatic birth experience ❖ Increased pain after birth ❖ Lack of social support in the home before, during, or after pregnancy ❖ Domestic or sexual violence before, during, or after pregnancy ❖ Child separation ❖ Stillbirth ❖ Infant death ❖ Miscarriage ❖ Unplanned pregnancy ❖ Family or personal history of mental health conditions ❖ Recent major life events, such as death of a loved one, divorce, or losing a job ❖ Relationship discord during pregnancy ❖ Financial strain or unemployment [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55]	Among women: ❖ Increased risk for adverse obstetrical outcomes (e.g., preterm birth, low birthweight, miscarriage) ❖ Increased rates of gestational hypertension and preeclampsia ❖ Exacerbation or onset of mental health condition ❖ Loss of sleep ❖ Substance use ❖ Inability to manage own or child's health or nutrition ❖ Challenges with breastfeeding or bonding with infant ❖ Possible suicide or attempted suicide ❖ Accidental or purposeful overdose Among infants (order based on timeline of presentation): ❖ Neonatal abstinence syndrome (NAS) or withdrawal ❖ Preterm birth and/or low birth weight ❖ Lower rates of breastfeeding ❖ Limited maternal-infant bonding ❖ Delays in early childhood development ❖ Increased rates of mental health conditions ❖ Unsafe infant sleep, car seat, and other home practices Among families: ❖ Increased rates of paternal postpartum depression ❖ Decreased ability to support relationship partner ❖ Relationship discord during pregnancy[56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70]

Access to Mental Health and Substance Use Disorder Treatment

Unfortunately, women who experience many of these risk factors are also less likely to be screened for or seek care for the conditions they are experiencing, particularly among racial or ethnic minority groups and those of lower socioeconomic status.[71] [72] Research shows that more than 75% of women with maternal mental health conditions go untreated and only 10% of individuals with substance use disorder receive treatment or services, though this number decreases with the use of evidence-based interventions.[73] [74] [75] Therefore, it is critical to use a life-course approach when addressing maternal mental health and substance use to examine historical and current patient experiences and barriers to care that could impact their outcomes.[76]

The perinatal period provides a critical opportunity to support women experiencing maternal mental health conditions and substance use disorders, yet access to these critical services is often limited due to a variety of factors, including those outlined in **Figure 3**.

Figure 3. Barriers to Improving Access for Maternal Mental Health Services

Provider pipeline: There is a lack of trained and skilled providers, particularly behavioral health medical practitioners/prescribers and therapists/counselors, who are able to diagnose and treat mental health and substance use conditions, leading to Mental Health Professional Shortage Areas in all 15 counties in Arizona.[77] This becomes exacerbated as even fewer have subspecialty training to work with this population.

Provider training: Many providers who care for women before, during, and after pregnancy lack the training or workflow processes to know when and how to assess and refer for a mental health condition or substance use disorder, ultimately limiting the number of women who are diagnosed and linked to treatment.[78] Providers who are informed of or make a diagnosis are often not trained in perinatal psychopharmacology (ability to prescribe behavioral health medications) or in providing non-judgmental, culturally appropriate care, resulting in patients not feeling supported and subsequently avoiding care.[79] [80]

Access to universal screening and higher level treatment: Even when a diagnosis of a mental health or substance use disorder is identified, referral and linkage to the appropriate level of behavioral healthcare is often limited by the shortage of highly skilled behavioral health medical practitioners, available outpatient appointments, and/or open inpatient beds (particularly those that accept mothers and infants/children).[81] Access to higher-level behavioral treatment is even more limited in Arizona's rural and indigenous communities, which greatly limits referral options to telehealth or situations where the patient must travel to seek care.[82] [83]

Payment for services: Unfortunately, each of these barriers is exacerbated by challenges in paying for behavioral health services. Providers experience numerous delays and challenges in being reimbursed for behavioral health services, limiting behavioral health provider networks available to some of the most vulnerable populations.[84] This leaves many patients who are uninsured or underinsured often being required to pay for services out of pocket.

Inadequate education and awareness efforts: Patients report not knowing the symptoms of maternal mental health conditions and how they can be distinguished from significant but less serious prenatal and postpartum mood changes, which can be a barrier to them seeking care.[85] [86] A lack of understanding about maternal mental health was also identified as contributing to why family members and friends often do not aid patients in need of care.[87]

Stigma and cultural appropriateness: Patients with mental health conditions and substance use disorders often face significant stigma. The stigma is even greater for mothers, as these conditions contribute to ideas of being weak and a "bad mom".[88] [89] The fear of being judged as an unfit mother causes women to avoid discussing their experiences with others, including medical professionals, leading to underdiagnosis and undertreatment.[90] [91] This is further exacerbated by the fear of being separated from their children by departments of child safety. Different cultures have different norms about discussing mental health, many of which are not conducive to asking for support and treatment, leaving many women to cope alone, undiagnosed and untreated.[92]

Section 2: Maternal Mental Health- and Substance Use-Related Deaths

Overview of Maternal Mortality

Figure 4. Pregnancy Associated vs Pregnancy-Related Deaths

Source: Review to Action. Pregnancy-Associated Deaths.

Figure 4 demonstrates that while all deaths (shown as leaves on the tree) of women within 1 year are considered Pregnancy-Associated, only a smaller portion are directly related to that pregnancy.[93] These two categories of maternal mortality include:

- **Pregnancy-Related:** The death of a woman during pregnancy or within one year of the end of pregnancy, from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy.
- **Pregnancy-Associated but Not Related:** A death during or within one year of pregnancy, from a cause that is not related to pregnancy.[94]

Causes of pregnancy-associated deaths extend beyond natural causes of death (e.g., hypertensive disorders, infections, cardiac conditions). Conditions related to mental health (e.g., suicide), drug use (e.g., overdose), domestic violence (e.g., homicide), and other causes of death can also be related to and/or aggravated by pregnancy and can result in a pregnancy-related death. To this end, thorough and standardized case reviews conducted by the Arizona MMRC are essential to determining the pregnancy-relatedness of deaths occurring among Arizona women within 365 days of a pregnancy.

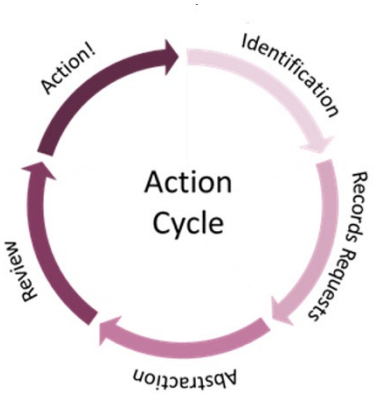
Overview of the ADHS Maternal Mortality Review Program

The data included in this report are derived from the Arizona Maternal Mortality Review Committee (MMRC) which was established as a subcommittee to the Arizona Child Fatality Review Program in April 2011 by A.R.S. § 36-3501. Since its establishment in July 2011, the subcommittee convened by the Arizona Maternal Mortality Review Program (MMRP) has been reviewing all identified pregnancy-associated deaths in the state. A full list of MMRC members can be found in **Appendix A**. For additional details related to this program, please see the previous report, Maternal Mortality and Morbidity in Arizona.

Methodology for Reviewing Maternal Mortalities

To maintain consistency in MM reviews, the Arizona MMRP applies the same methodologies to each review from identification to the dissemination of findings, as demonstrated in **Figure 5.** This process is derived from Review to Action which is used by CDC and other ERASE MM funded states. As shown, the Review to Action methodology is considered to be cyclical in that as the number of cases reviewed using this protocol increases, the consistency, and reliability of the data and recommendations being put forth increases as well. Ultimately, this process leads to a comprehensive snapshot of the risks and barriers women face that sometimes result in maternal mortality, and areas of opportunity to improve those outcomes. For a full description of the Review to Action guidelines, please see the previous report, Maternal Mortality and Morbidity in Arizona.

Figure 5. Review to Action Cycle



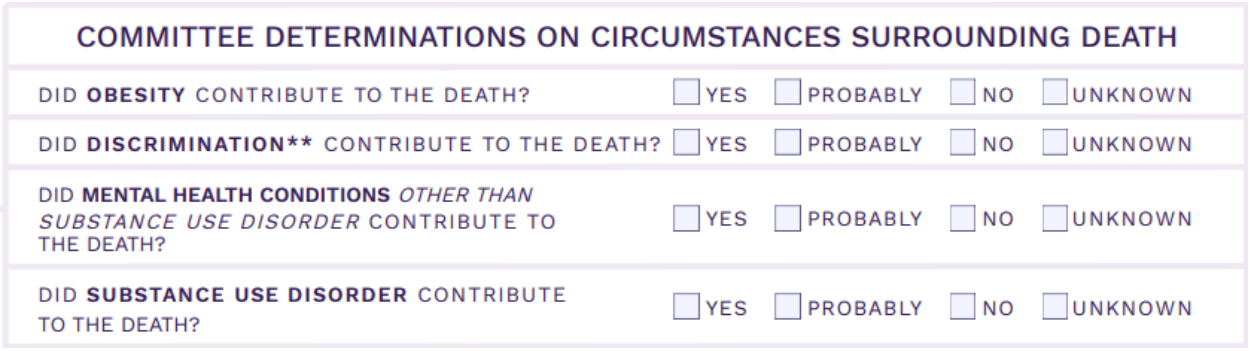
Source: Adapted from Berg, C.J. (2012). From identification and review to action—maternal mortality review in the United States. Seminars in Perinatology, 36(1), 7-13.

Identification of Mental Health- and Substance Use-Related Deaths

Much of the value that the Review to Action process brings to maternal mortality reviews is the ability to dive deeper into the context and circumstances leading to maternal deaths through in-depth review of medical records, social information, and other personal context for each decedent. When available, this information allows MMRCs to identify experiences occurring early in the decedents' lives that may or may not impact health outcomes and/or risk behaviors later on. As described in the overview, mental health and substance use disorders can stem from a variety of factors occurring across the life course, requiring careful consideration from MMRC members during case reviews.

To indicate that a maternal death was mental health- or substance use-related, the MMRC Committee Decisions form includes specific checkboxes to determine whether mental health conditions and/or substance use disorder contribute to the death (shown in **Figure 6**). The MMRC discusses these questions to determine if these circumstances did contribute to the death (response = yes), likely contributed to the death (response = probably), did not contribute to the death (response = no), or cannot be determined if it contributed to the death (response = unknown).

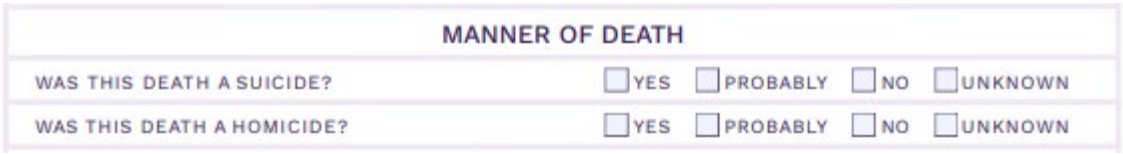
Figure 6. Excerpt from the Committee Determinations Form on Circumstances Surrounding Death



It is often difficult to determine whether mental health or substance use directly contributed to the death given the information available in case records and frequent inability to identify providers where patients received care. It is also difficult to determine whether these deaths were pregnancy related, meaning they would not have occurred if she had not been pregnant. To aid MMRCs in making these determinations, a recent publication from the Utah Maternal Mortality Review Committee defined several criteria for mental health-related (including drug-related and suicide) deaths to be considered pregnancy-related.[95] These criteria were only used for a portion of 2018 deaths as they were published in late 2020.

Lastly, manner of death is reported as listed on the death certificate, which indicates whether this death was a natural death, accident, suicide, homicide, or undetermined. Because the maternal mortality review process allows for deeper exploration of causes and contributing factors to the death, the MMRC is able to independently determine intentionality for the deaths they reviewed in another question on the Committee Decisions form. In some cases, the MMRC will determine that a death that was listed as an accident (or other cause) on the death certificate was, or was likely, a suicide or homicide (shown in **Figure 7**).

Figure 7. Excerpt from the Committee Determinations Form on Manner of Death



Findings for Maternal Mental Health- and Substance Use-Related Deaths in Arizona, 2016-2018

The findings described in this section are derived from several sources, including death certificate data and committee decisions made during maternal mortality reviews. It is important to note that ADHS follows specific guidelines related to suppressing numbers less than six to protect confidentiality of rare cases and to eliminate bias or room for error in reporting numbers or rates. For this reason, the analyses below primarily report on Pregnancy-Associated deaths (all deaths reviewed). All analyses were also conducted for Pregnancy-Related deaths, and where possible, results for Pregnancy-Related deaths are included when reported numbers are larger than six. All summary findings were presented as percent proportions with no statistical tests conducted to assess significant differences for the presented distributions. It is also important to note

that recommendations from maternal mortality reviews are not suppressed, and therefore, recommendations from all cases, including those associated with suppressed findings in this section, are included in **Section 3**.

Pregnancy-Associated and Pregnancy-Related Mortality Ratios

There were 203 deaths between January 1, 2016 and December 31, 2018 that were identified as Pregnancy-Associated deaths, or deaths in Arizona of women ages 15-49 with a pregnancy within the previous 365 days, regardless of the outcome of the pregnancy or the woman's residency in Arizona. The Arizona MMRC reviewed these 203 Pregnancy-Associated deaths in order to make determinations about the deaths' relatedness of pregnancy, the preventability of the death, and identify contributing factors and circumstances of the death (including mental health and substance use disorder).

Of the 203 Pregnancy-Associated deaths reviewed, the MMRC determined that 22.6% (n=46) were Pregnancy-Related deaths, or "a death during pregnancy or within one year of the end of pregnancy from a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy" (definition from the Review to Action guidelines), as seen in **Figure 8**. The majority of reviewed deaths (67.6%, n=138) were determined to be Pregnancy-Associated but not Related to pregnancy, or "A death during or within one year of pregnancy, from a cause that is not related to pregnancy". The remaining 9.8% (n=19) were deaths where the MMRC was unable to determine the relatedness of pregnancy to death.[96]

Figure 8.
Pregnancy-Relatedness among 2016-2018 Arizona MMRC Reviewed Deaths
2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days

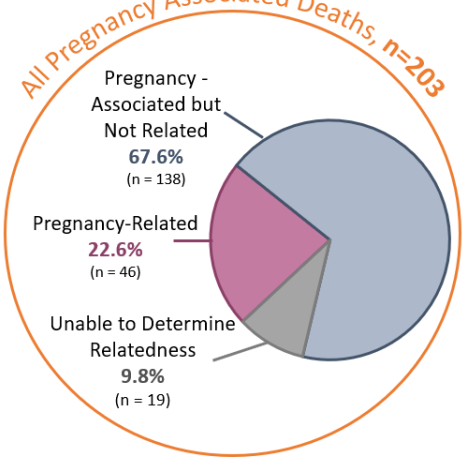


Figure 9.
Pregnancy-Associated and Pregnancy-Related Mortality Ratios (per 100,000 live births)
2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365

Pregnancy-Associated Mortality Ratio	80.5
Pregnancy-Related Mortality Ratio	18.2

Following the determination of the relatedness of deaths to pregnancy, Mortality Ratios could be calculated using the number of Pregnancy-Associated deaths (all reviewed deaths regardless of relatedness to pregnancy) or the number of Pregnancy-Related deaths (the subset of reviewed deaths determined to be related to pregnancy). The 2016-2018 Pregnancy-Associated Mortality Ratio was 80.5 deaths per 100,000 live births in Arizona to women ages 15-49. The Pregnancy-Related Mortality Ratio was 18.2 deaths per 100,000 live births in Arizona to women ages 15-49. Both Mortality Ratios can be seen in **Figure 9**.

Pregnancy-Relatedness among Mental Health- and Substance Use-Related Deaths

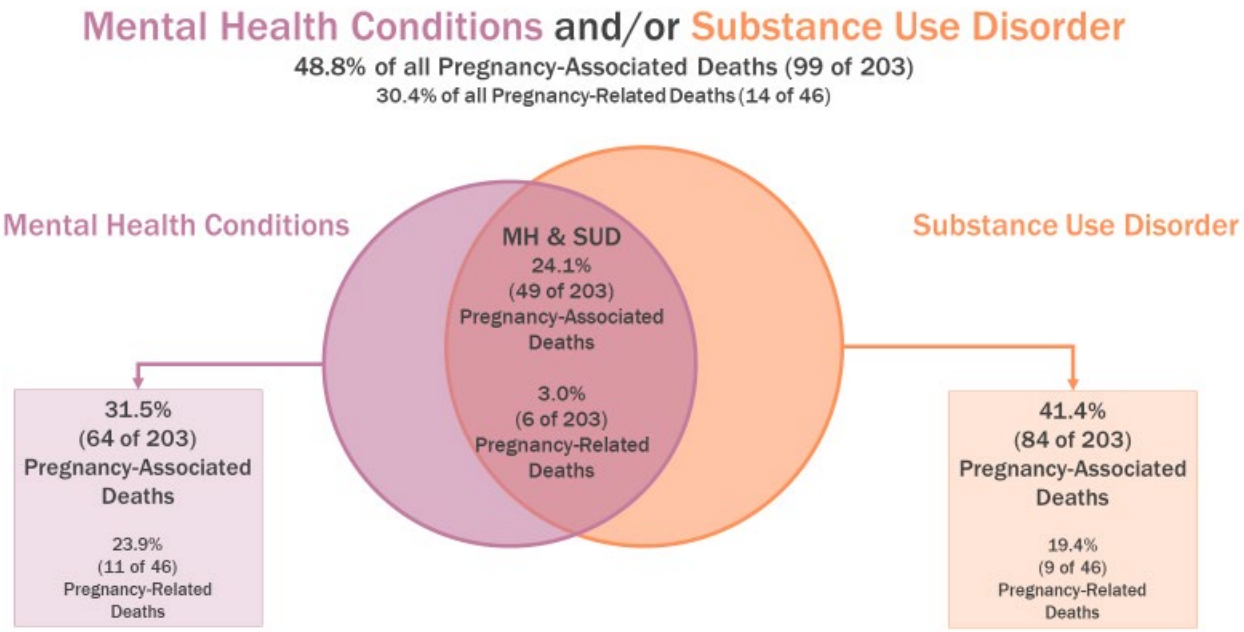
Among the 203 Pregnancy-Associated deaths between 2016-2018, the MMRC determined that mental health conditions contributed to 64 of these deaths (31.5% of Pregnancy-Associated deaths), of which, the committee determined that 11 deaths related to mental health were Pregnancy-Related (23.9% of all Pregnancy-Related Deaths). The MMRC also determined that substance use disorder contributed to 84 out of

the 203 Pregnancy-Associated deaths (41.4% of Pregnancy-Associated deaths), of which, 9 deaths were determined to be Pregnancy-Related (19.6% of Pregnancy-Related deaths). There were 99 Pregnancy-Associated deaths that the MMRC determined either or both mental health conditions and substance use disorder contributed to the death (48.8% of Pregnancy-Associated deaths), of which, 14 deaths were determined to be Pregnancy-Related (30.4% of Pregnancy-Related deaths). Hereafter all Pregnancy-Associated deaths related to mental health and substance use disorder will be referred to as "maternal MH/SUD-related deaths".

Figure 10.

Almost Half of All Pregnancy-Associated Deaths in Arizona Were Related to Mental Health Conditions or Substance Use Disorders

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days



Preventability

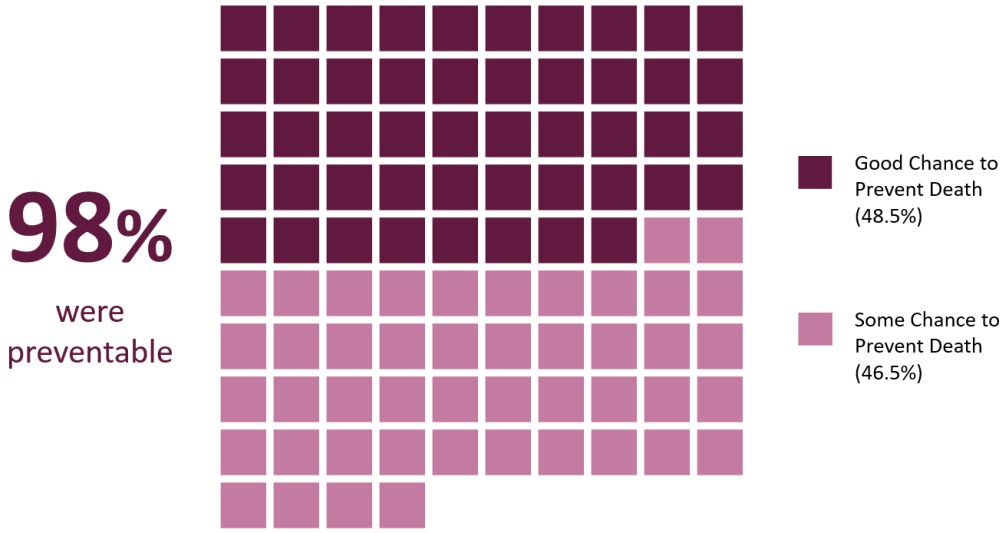
During the MMRC review process, a death is considered preventable "if the committee determines that there was at least some chance of the death being averted by one or more reasonable changes to patient, family, provider, facility, system and/or community factors".[97] If a death is determined to be preventable, the MMRC then also assesses the extent to which the outcome of the death could be altered.

Among the 99 maternal MH/SUD-related deaths, 97 deaths (98%) were determined to be preventable. Of these, 48 deaths (48.5%) were determined to have a good chance of preventing the death, and 46 deaths (46.5%) were determined to have some chance to prevent the death. These findings can be seen in **Figure 11**.

Figure 11.

Almost All Pregnancy Associated Deaths Related to Mental Health Conditions or Substance Use Disorder Were Preventable

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days



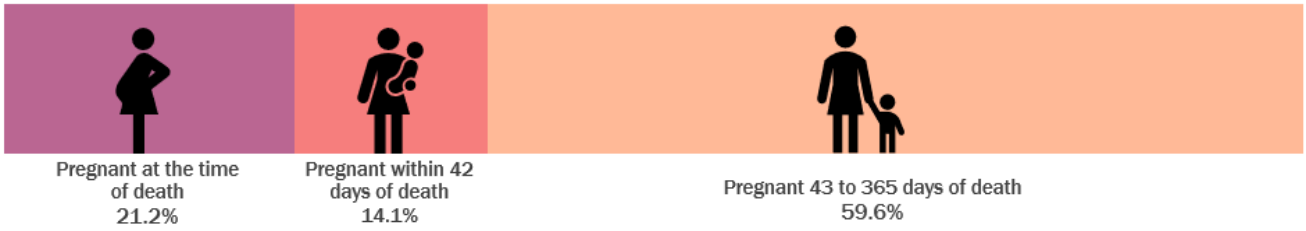
Timing of Death

The timing of death in relation to the woman's pregnancy among maternal MH/SUD-related deaths is shown in **Figure 12**. The majority (59.6%) of maternal MH/SUD-related deaths occurred during the postpartum period. Around one fifth (21.2%) of women died while pregnant and 14.1% of women died within 42 days of death. The remaining 5.1% were among deaths where pregnancy status was unknown.

Figure 12.

Three Out of Five Pregnancy Associated Deaths Related to Mental Health Conditions or Substance Use Disorder Occurred Between 43 and 365 Days Postpartum

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days



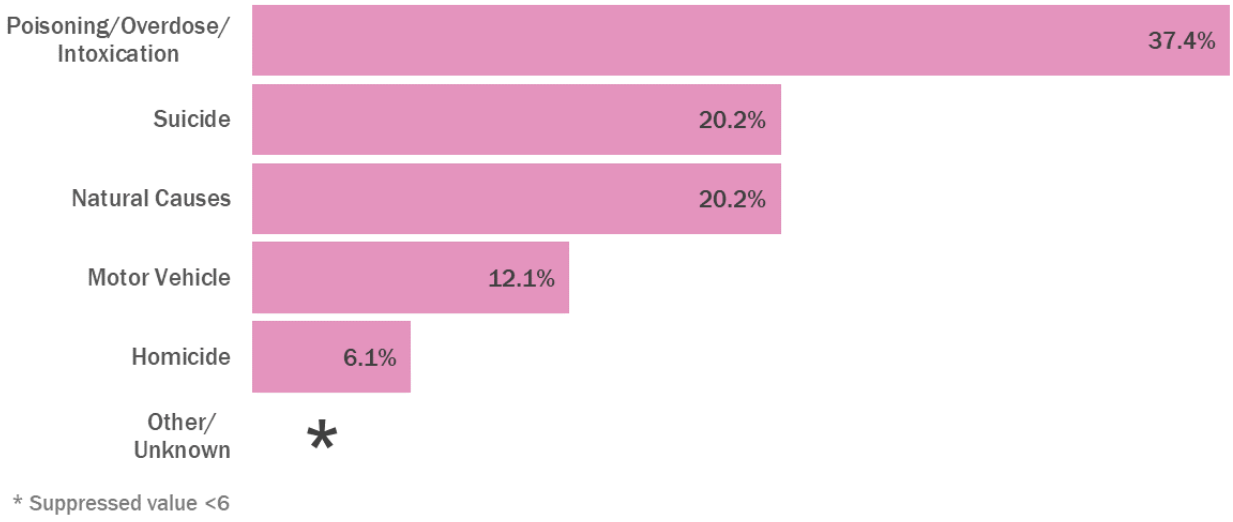
Manner of Death

Figure 13 lists the distribution of all maternal MH/SUD-related deaths according to manner of death. The leading manner of death was poisoning/overdose/intoxication (37.4%), followed by suicide (20.2%), natural causes (20.2%), motor vehicle accidents (12.1%), homicide (6.1%), and other/unknown (7%). Forty percent (40%) of the natural causes of death were due to cardiovascular concerns (e.g., cardiac arrest, hypertensive cardiovascular disease), followed by neurologic (e.g., brain death), pulmonary (e.g., pulmonary thromboembolism), and other causes of natural deaths. As described previously, the MMRC uses the context available within the case narratives to determine if the manner of death listed on the death certificate is accurate. Therefore, **Figure 13** includes deaths that the MMRC determined to be "yes" or "probably" for both Suicide and Homicide deaths to account for probable intentionality, which is slightly higher than figures reported on the death certificates for this sample.

Figure 13.

Over One Third of Pregnancy-Associated Deaths Related to Mental Health Conditions or Substance Use Disorder Were Due to Poisoning, Overdose, or Intoxication

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days



Underlying Cause of Death

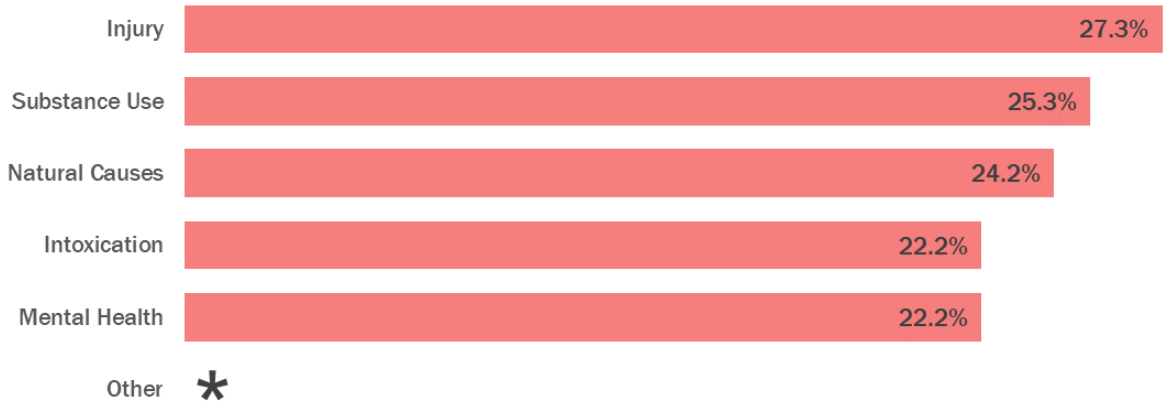
For all Pregnancy-Associated deaths, the MMRC assigns an underlying cause of death, or the disease or injury that initiated the chain of events leading to death or the circumstances of the accident or violence which produced the fatal injury. During the review process, the MMRC often assigns more than one underlying cause of death, which resulted in the leading causes as shown in **Figure 14** to add up to more than 100%. Among maternal MH/SUD-related deaths, the leading underlying cause of death was injury (27.3%), followed by substance use (25.3%), natural causes (24.2%), intoxication (22.2%), and mental health (22.2%). Among the injuries, 37% of these deaths were due to suicide and 22% of these deaths were due to homicide. The distinction between underlying causes of death due to substance use and intoxication is that substance use

describes death where the history of substance use initiated the chain of events leading to the immediate cause of death (e.g., motor vehicle accident, cardiac arrest), whereas intoxication describes the underlying cause of death that led to overdose. Among the natural causes/health conditions pulmonary conditions (e.g., asthma) accounted for 25% of deaths, followed by cardiovascular conditions, infection, neurologic conditions, chronic health conditions, liver/gastrointestinal conditions, and hemorrhage.

Figure 14.

Substance Use-Related Underlying Causes of Deaths Were the Most Commonly Reported Among Pregnancy-Associated Deaths Related to Mental Health Conditions or Substance Use Disorders

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days



Maternal Race and Ethnicity

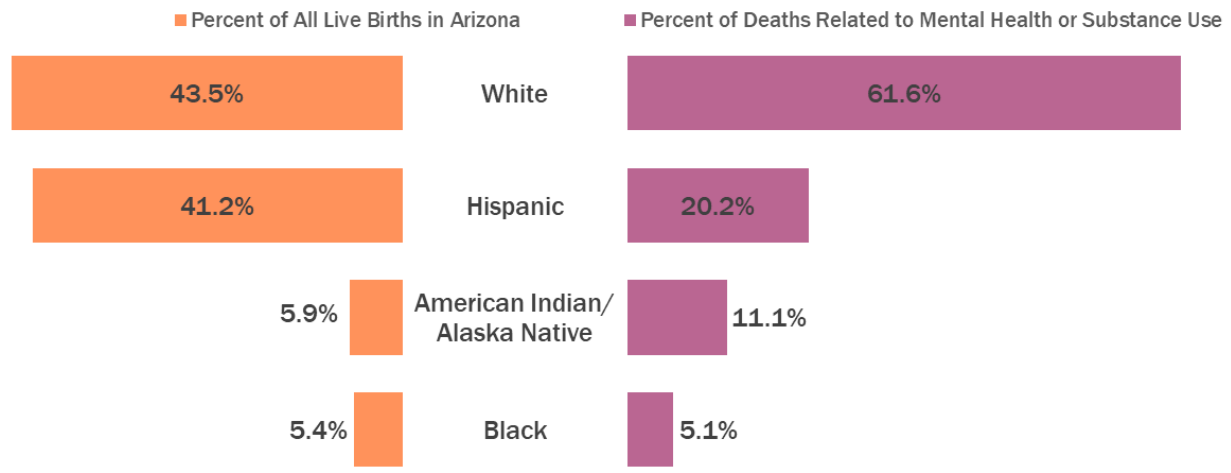
The distribution of maternal MH/SUD-related deaths by the woman's race and ethnicity can be seen in **Figure 15**. A comparison distribution of all live births in Arizona to women ages 15-49 by race and ethnicity is also included as a way to highlight potential over- or underrepresentation of certain groups among these reviewed deaths, although no assessment of statistical significance has been done for these distributions.

The majority of maternal MH/SUD-related deaths were among White, Non-Hispanic women (61.6%), followed by Hispanic (20.2%), and American Indian/Alaska Native (11.1%) women. Asian deaths are suppressed due to figures less than six (6). When comparing the distribution of maternal MH/SUD-related deaths to distribution of live births in Arizona, American Indian/Alaska Native women experienced the greatest disparity. While American Indian/Alaska Native women account for 5.9% of live births in Arizona, they account for 11.1% of the maternal MH/SUD-related deaths, which is almost twice the distribution of deaths compared to births. White, non-Hispanic women are also overrepresented in maternal MH/SUD-related deaths, making up 43.5% of live births in Arizona and 61.6% of deaths.

Figure 15.

Over Half of Pregnancy-Associated Deaths Related to Mental Health Conditions or Substance Use Disorders Were Among White Women

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days



* Suppressed value <6
**Asian American deaths suppressed due to values <6

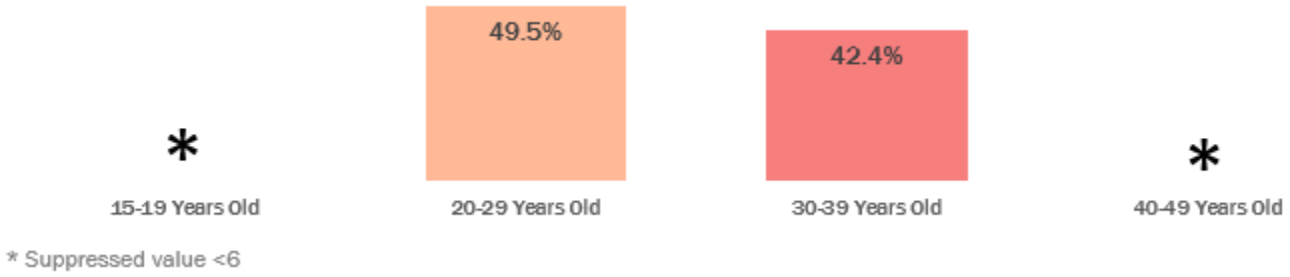
Maternal Age

A distribution of age among maternal MH/SUD-related deaths can be seen in **Figure 16**. Almost half (49.5%) of all maternal MH/SUD-related deaths were among women aged 20-29 years old and 42.4% of deaths were among women 30-39 years old. Deaths to women between 15-29 and 40-49 years old were suppressed due to low numbers.

Figure 16.

Half of Pregnancy-Associated Deaths Related to Mental Health Conditions or Substance Use Disorders Were Among Women 20-29 Years Old

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days

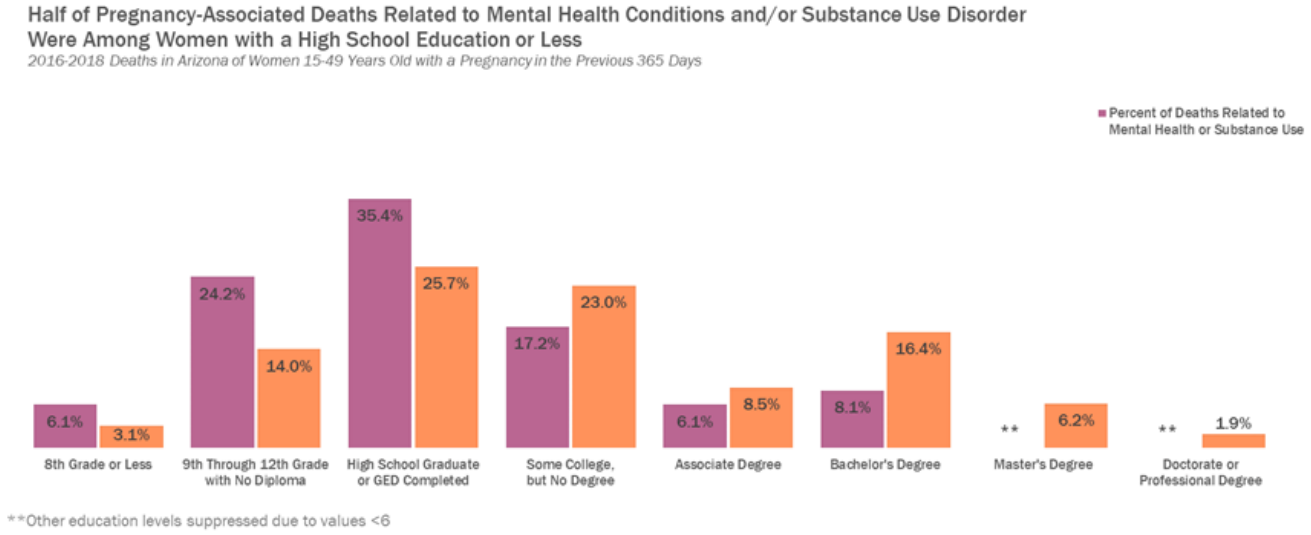


* Suppressed value <6

Maternal Education

The distribution of maternal MH/SUD-related deaths by the woman's education level can be seen in **Figure 17**. Women with a high school diploma or completed GED comprised around one third (35.4%) of all maternal MH/SUD-related deaths. Women with a 9th through 12th grade education with no diploma made up 24.2% of these deaths, while women with some college but no degree made up 17.2% women with a Bachelor's degree made up 8.1%. Women with an 8th grade education or less and women with an Associate's degree each made up 6.1% of maternal MH/SUD-related deaths. It is important to note that the distribution of deaths by maternal education level, like those for race and ethnicity or maternal age, are not adjusted for any possible confounding factors as no statistical analysis was performed; as a result, the differences observed by maternal education may be also be capturing differences by maternal age, as women with more advanced degrees tend to be older than those with some college or less.

Figure 17.



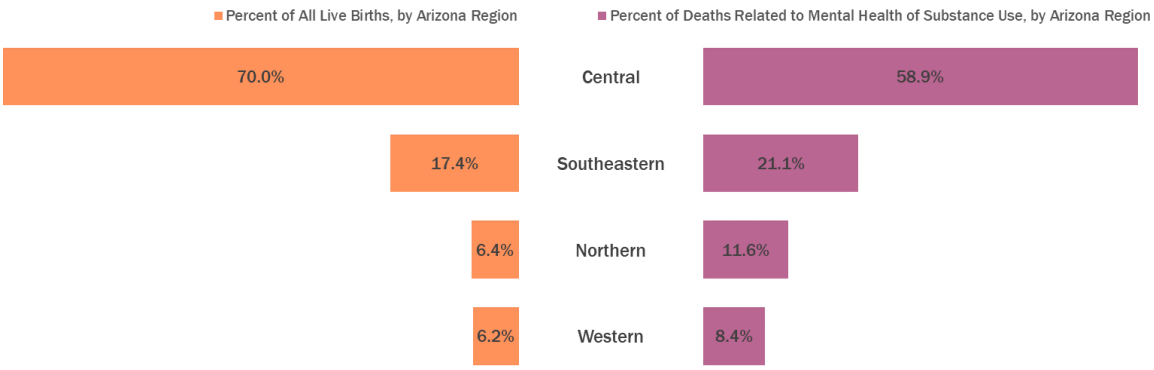
Maternal Residence

The distribution of maternal MH/SUD-related deaths according to maternal residency is shown in **Figure 18**. Maternal residency for all live births in Arizona among women ages 15-49 is also included as a way to compare distribution of the specified residency groups, however no statistical tests to assess significant differences were conducted. The regional categories capture the 15 Arizona counties (Central region includes Gila, Maricopa, and Pinal counties; Southeastern region includes Cochise, Graham, Greenlee, Pima, and Santa Cruz counties; Northern region includes Apache, Coconino, Navajo, and Yavapai counties; the Western region includes La Paz, Mohave, and Yuma counties). Among all Arizona live births, 70.0% occurred in the Central region of Arizona, yet of the 99 assessed Pregnancy-Associated deaths, 58.9% were identified to have a Central region Arizona residency during the same time frame. This resulted in a higher remaining percent proportion of maternal deaths occurring in the remaining regions in comparison to the percent proportion of live births in the corresponding regions. The remaining 30% of live births have a documented maternal residency of Southeastern, Northern, or Western regions as opposed to 41.1% of maternal deaths in the three listed regions.

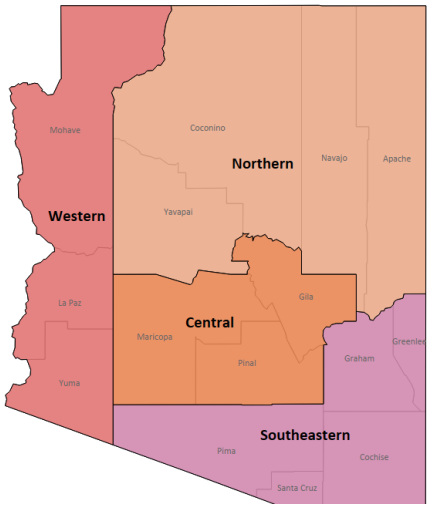
Figure 18.

Live Births and Pregnancy-Associated Deaths by Maternal Residence

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days, n=99



Arizona Regions	
Central	**Western**
Gila	La Paz
Maricopa	Mohave
Pinal	Yuma
Northern	**Southeastern**
Apache	Cochise
Coconino	Graham
Navajo	Greenlee
Yavapai	Pima
	Santa Cruz



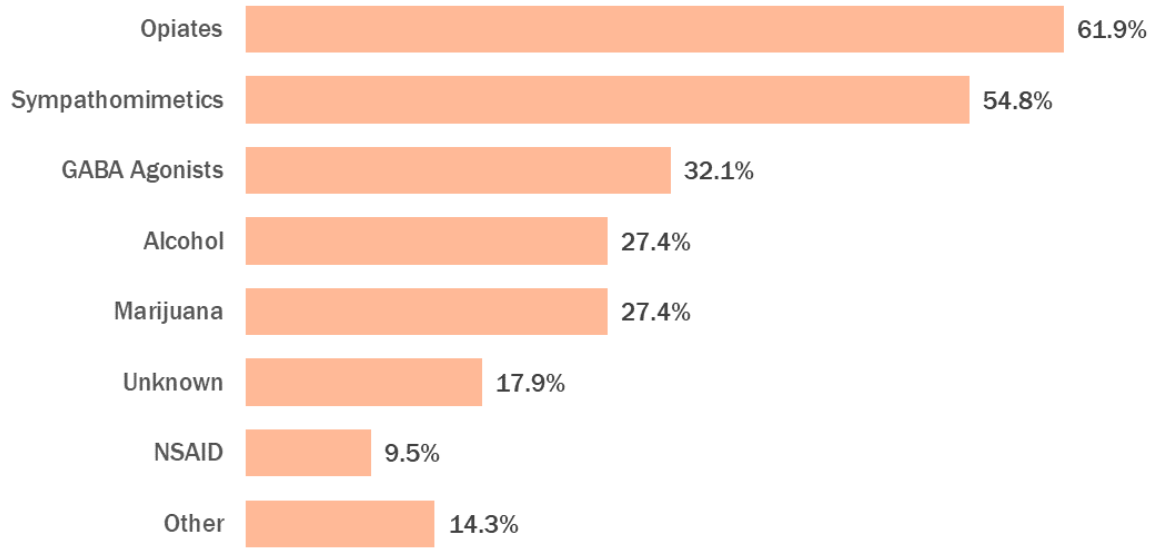
Substances Used

Among the 99 maternal MH/SUD-related deaths, data related to substances used prior to or at the time of death was available for 84 deaths. Among the 84 deaths with substance use data, 61.9% had used Opiates (e.g., Heroine, Fentanyl, Methadone), 54.8% had used Sympathomimetics (e.g., Methamphetamine, Cocaine), 32.1% had used GABA Agonists (e.g., Barbiturates, Alprazolam), 27.4% had used Alcohol, and 27.4% had used Marijuana. These figures and other substances used by decedents are included in **Figure 19**. A full list of substances included in each category described in **Figure 19** is included in **Appendix C**.

Figure 19.

Opiates Were the Most Commonly Used Drug Type Among Pregnancy-Associated Deaths Related to Mental Health Conditions or Substance Use Disorder

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days, n=84



Polysubstance Use

Multiple cases were also identified to have used drugs from various different drug classes. **Figure 20** demonstrates that almost 70% of the decedents had used two or more substance types before or at the time of death. This means that almost 70% of women used at least one known substance from multiple drug classes **(Appendix C)** at death and/or at some point in their life-course. Over 20% of decedents had used at least one type of drug from 4 or more different drug classes before or at the time of death.

Time and evidence of drug usage was also assessed for all Pregnancy-Associated deaths related to mental health conditions or substance use disorder, and were categorized as three classifications **(Figure 19-20)**. For each decedent with available substance use information, their documented drug used was categorized as one of the following:

- **Primary**: Decedent was positive for the listed substance at the time of death, with the death certificate or toxicology reported indicating the mentioned drug use led to the death (i.e. overdose).
- **Secondary**: Decedent was positive for specified substance at the time of death, however the death certificate or toxicology indicated that mentioned drug did not result in her death.
- **Tertiary**: Decedent was not positive for mentioned substance at the time of death, but a history of usage was documented in the decedent's records (medical records or otherwise).

Among the assessed decedents with a documented substance use, 44.4% had at least one primary substance classification, 46.5% had a at least one secondary classification, and 33.3% had at least one tertiary

classification for any of the reviewed substances **(Figure 21)**. Nearly half (45.2%) of the cases used multiple drug types that were classified under two or more substance classifications **(Figure 21)**.

Figure 20.

The Majority of Women with a Pregnancy-Associated Death Related to Mental Health Conditions or Substance Use Disorder Used At Least 1 Drug from 2 or More Different Drug Groups

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days, n=84

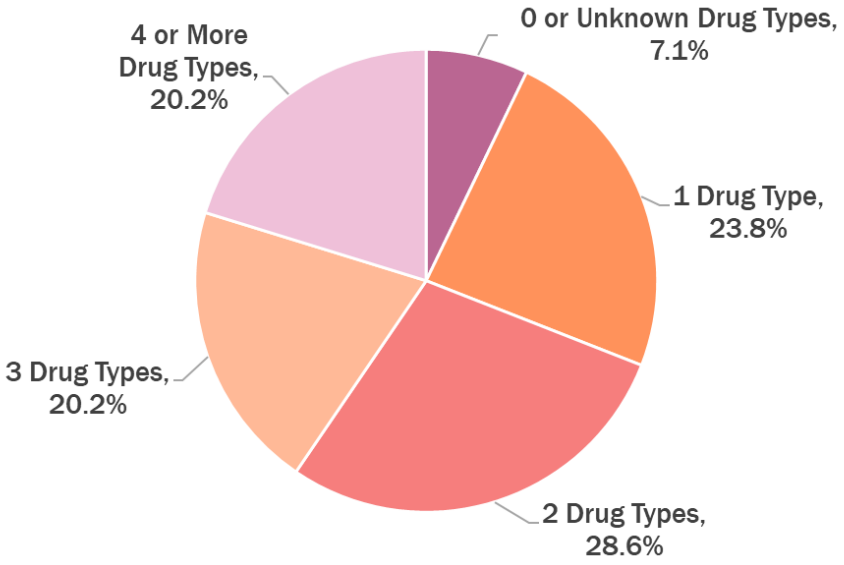
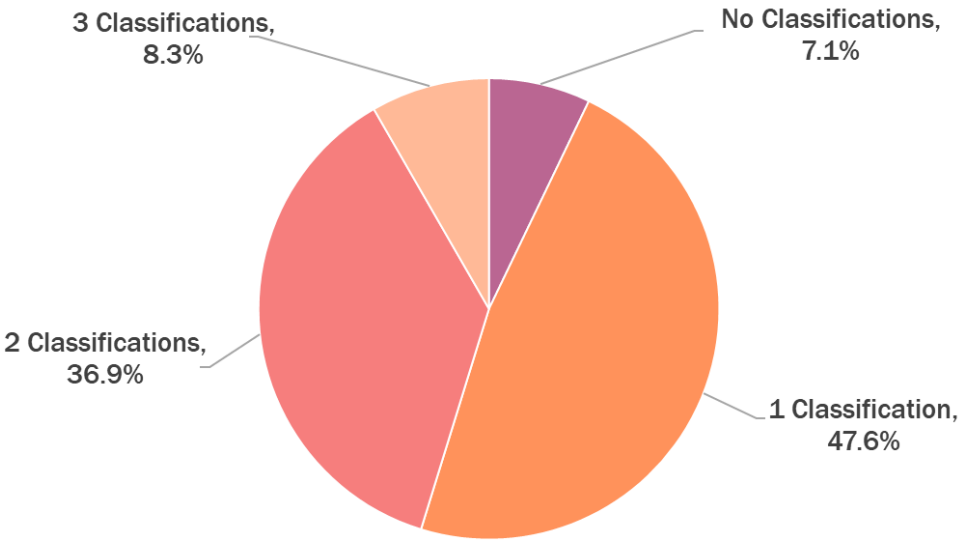


Figure 21.

Almost half of Women with a Pregnancy-Associated Deaths Related to Mental Health Conditions or Substance Use Disorder used multiple drugs classified under two or more substance classifications

2016-2018 Deaths in Arizona of Women 15-49 Years Old with a Pregnancy in the Previous 365 Days, n=84



Section 3: Recommendations for Preventing Maternal Mental Health- and Substance Use-Related Deaths in Arizona

As part of the Maternal Mortality Review Process, the Arizona MMRC identifies recommendations to prevent each Pregnancy-Associated death. MMRP staff completed qualitative analysis on all recommendations made for 2016-2018 deaths. The full list of synthesized recommendations (located in **Appendix D**) are presented in four categories that align with the Levels included in the MMRIA Committee Decisions Form. These Levels indicate who might be responsible for enacting these recommendations, though some recommendations include more specificity than others.

As a next step, the synthesized recommendations were presented the initial synthesized recommendations to the MMRC (**Appendix A**) and Maternal Mental Health Task Force (**Appendix B**). A smaller committee further refined the recommendations to a smaller list based on overarching findings and observations from the findings included in this report. This list, included in **Figure 22**, represents 8 system-level recommendations, that if enacted, would help to achieve the remaining recommendations listed in **Appendix D**. These recommendations are aligned with the key barriers to improving access to maternal mental health services summarized in **Figure 3.** The intent of these recommendations is that, through widespread dissemination, partners and key stakeholders across the state will consider them for implementation.

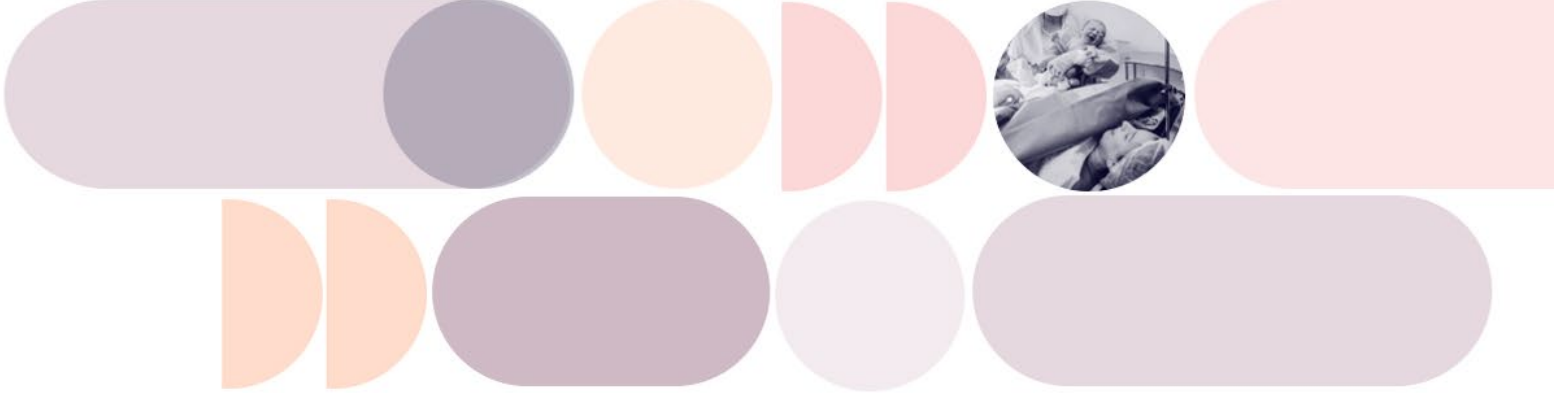


Figure 22.

Prioritized System-Level Recommendations to Improve Maternal Mental Health and Substance Use-Related Outcomes in Arizona

Arizona should expand AHCCCS coverage to 1 year postpartum.

Barrier Addressed: Payment for services

Rationale: 59.3% of maternal MH/SUD-related deaths occur between 43-365 days postpartum, the time period when many postpartum women covered by AHCCCS lose their coverage.

Arizona should establish a fully funded Perinatal Psychiatric Access Program that would provide consultation services and training to front line providers for assessment and treatment of maternal mental health and substance use disorders.

Barrier Addressed: Lack of access to higher level of care/treatment

Rationale: Many providers do not have adequate training to treat pregnant and postpartum women for maternal mental health and/or substance use disorders.

Arizona should expand loan reimbursement and incentives (e.g., free certifications) for the range of behavioral health providers (prescribers and non-prescribers), particularly incentivizing service in rural areas.

Barrier Addressed: Provider pipeline; Provider training

Rationale: Almost all of Arizona falls within a Mental Health Professional Shortage Area, indicating limited access to mental healthcare throughout the state.[98]

Payers should ensure collaborative care codes allow behavioral health medical practitioners and perinatal mental health providers to be reimbursed regardless of where and when care is delivered (e.g., eliminate the same-day limitation for psychiatric reimbursement).

Barrier Addressed: Payment for services; Lack of access to higher levels of care/treatment

Rationale: A primary observation in Maternal Mortality Reviews is that perinatal women are screened for MH and SUD, but are not effectively referred and linked to the appropriate providers.

Payers should recognize perinatal behavioral health specialists as a contracted medical specialty with health plans.

Barrier Addressed: Payment for services; Lack of access to higher levels of care/treatment

Rationale: Many payers, including AHCCCS, do not recognize perinatal behavioral health specialists as a contracted medical specialty, limiting access to risk-appropriate, reimbursable services for pregnant and postpartum women.

Payers should establish quality metrics to improve accountability and utilization of case management, care navigation, social work, peer support, and doula services to ensure continuity of care for high-risk patients.

Barrier Addressed: Stigma and cultural appropriateness; Lack of access to higher levels of care/treatment

Rationale: A primary observation in Maternal Mortality Reviews is that pregnant and postpartum women are not connected to culturally appropriate support services such as case management, care navigation, social work, and doula services that would improve critical continuity of care between obstetric, behavioral health, and other services.

First responders and law enforcement agencies should dispatch behavioral health providers on all calls involving domestic violence, substance use, mental health challenges, or social/economic instabilities and require all first responders and law enforcement staff are trained in a trauma-informed approach.

Barrier Addressed: Lack of access to higher levels of care/treatment

Rationale: A primary observation in Maternal Mortality Reviews is that many women who interact with first responders are not linked to support services during or after these interactions, leaving critical gaps in access to needed services.

All agencies and organizations impacting maternal and infant health should adopt outreach and education practices to reduce stigma of maternal mental health and substance use disorder to increase help-seeking behaviors, including universal screening and referral practices.

Barrier Addressed: Inadequate education and awareness efforts; Stigma and cultural appropriateness

Rationale: Many pregnant and postpartum women either avoid healthcare or do not report MH conditions or SUD due to stigma and fear and repercussions.

Section 4: Limitations

Several limitations should be kept in mind when reviewing data included in this report. The following section describe limitations in reporting maternal mortality data in Arizona.

One of the most significant limitations in reviewing pregnancy-associated deaths is consistency in available records across all decedents. Though MMRP staff work diligently to identify and request records from relevant sources, delays in receiving these records and inconsistencies in details included in records creates gaps in our understanding of the factors contributing to each decedent's death. Records that are often the most difficult to obtain include primary care records if the provider is unknown, case management or social work notes, and mental health or behavioral health records. This limits the MMRP's ability to report more granular information regarding the specific mental health conditions experienced by and substances used by decedents included in this report. The MMRP also respects the sovereignty of data and healthcare records originating from Arizona's tribal nations. To this end, healthcare, police, EMS, and other records from incidents or encounters occurring on a reservation are often unavailable.

While the MMRP does have a standard outline used to develop all case narratives, content included in the narratives is identified and abstracted by clinical nurse abstractors using their best judgment of the information available to them. Social factors that may or may not have contributed to a decedent's death are difficult to interpret from records, particularly in the absence of detailed case management notes or interviews with family members or friends (most often found in police records or medical examiner Preliminary Investigative Reports). Additionally, MMRC membership has shifted over time and attendance for reviews varies slightly from meeting to meeting. To this end, there is often a risk of bias or inconsistency during the abstraction and review process based on the available context narratives or the mix of professionals who are reviewing the narrative in any given meeting.

Though ADHS adopted the Review to Action Guidelines in 2018, the MMRC had already begun reviewing 2016 deaths at that time. Additionally, the Review to Action Guidelines have evolved over time, resulting in slight gaps or inconsistencies in committee decisions made for each death. The MMRP staff kept these inconsistencies in mind when analyzing and reporting data that may be affected. Similarly, recommendations made for each pregnancy-associated death may have been overgeneralized when summarizing for this report. For a more granular review of recommendations related to maternal MH/SUD-related deaths, see **Appendix D.**

While Arizona Vital Statistics records reports race and ethnicity of the decedent on the death certificate, the categories do not account for individuals that identified as multiple racial/ethnic groups. During the abstraction process, the MMRP Nurse Abstractor identifies and records race and ethnicity in the MMRIA platform using the most granular data available related to race and ethnicity from all records, including the

death certificate, birth certificate, and medical records. In some cases, the race and/or ethnicity entered into the MMRIA database differs slightly from what is listed on the death certificate. For example, Arizona Vital Statistics Records revealed 21 deaths to AI/AN women in Arizona. Following thorough review of medical records, the Maternal Mortality Review Program revealed 24 deaths to AI/AN women, which is the figure reported in this document. In summary, race and ethnicity data included in this report may vary slightly from Arizona Vital Statistics and findings should be interpreted with caution.

Finally, as described in **Section 3**, no statistical analyses were completed for findings included in this report, which may limit the ability to observe trends or possible differences that could be influenced by additional factors (e.g., environmental, social, health-related). Readers should interpret these findings with caution. Additionally, quantifiable data related to Adverse Childhood Experiences or other traumas are not available, though a second report including qualitative analysis for maternal MH/SUD-related deaths will be released following this report.

Section 5: Conclusion

Given that almost half of all Pregnancy-Associated deaths between 2016-2018 in Arizona were related to mental health conditions or substance use disorder, and that 98% of these deaths were preventable, more must be done to support these conditions for women and families. American Indian/Alaska Native women experience the greatest disparity in mental health- and substance use-related Pregnancy-Associated deaths in Arizona, while White, non-Hispanic women experience the next largest disparity. Additionally, findings showed that there is an overrepresentation of mental health- and substance use-related Pregnancy Associated deaths in the Western, Northern, and Southeastern regions of the state, which typically are more rural than the Central region, indicating disparities in access to care across Arizona.

With these findings in mind, ADHS is aiming to improve maternal mental health and substance use related outcomes through several strategies:

- **Maternal Mental Health Task Force** – ADHS has convened a Task Force comprised of behavioral health providers, community partners, peer support specialists, and patient/family advocates to develop strategies and priority areas to improve maternal mental health in Arizona. Several strategies identified by this Task Force are included below.
- **Postpartum Support International's (PSI) Perinatal Mood or Anxiety Disorder Training** – ADHS partnered with PSI to offer a training series from PSI for Perinatal Mood and Anxiety Disorders, Advanced Psychotherapy, and Advanced Psychopharmacology. Over 450 participants from 14 of 15 counties in Arizona participated in these trainings.
- **Urgent Maternal Warning Signs Outreach and Education** – ADHS has partnered with CDC's Hear Her campaign to launch a social media campaign in Arizona to educate women on Urgent Maternal Warning Signs. One of these warning signs includes mental health symptoms, for which, ADHS will be launching a second campaign to reduce stigma and improve help-seeking behavior for women experiencing a perinatal mood or anxiety disorder. ADHS is also partnering with home visiting agencies to deliver urgent maternal warning signs education to new mothers in their homes.
- **Maternal Substance Use Stigma Reduction Campaign** – In accordance with the Arizona Opioid Action Plan and the Arizona Neonatal Abstinence Syndrome Action Plan, ADHS launched a statewide stigma reduction campaign to reduce stigma of substance use in pregnancy and encourage help-seeking behavior including social media and radio. This campaign was aimed at both mothers (There's Hope So You Can Heal) and providers (She is a Good Mother).

As indicated by the recommendations developed by the Arizona Maternal Mortality Review Committee, it will require a cross-sector approach to fully prevent maternal mental-health and substance use-related deaths. ADHS encourages all stakeholders to review the recommendations included in this report and to apply them in

settings where women and families may benefit. For more information related to preventing maternal mortality in Arizona, please visit www.azdhs.gov/maternalhealth or email maternalhealth@azdhs.gov.

Section 6: Appendices

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Appendix C. List of Categorized Substances Used in Section 2

The following describes the substances included in the categorization included in **Figure 18.**

- Alcohol
  - Ethanol
- Opioids/opiates
  - Heroin
  - Methadone
  - Oxycodone
  - Morphine
  - Fentanyl
  - Hydrocodone
  - Codeine
  - Percocet (oxycodone and acetaminophen)
  - Buprenorphine
- Sympathomimetics
  - Methamphetamine
  - Amphetamine
  - Ephedrine
  - Ecstasy (MDMA)
  - Cocaine
- Pain Relievers (NSAID)
  - Acetaminophen
  - Tramadol
  - Dipyrone
- THC/Marijuana/Cannabinoids
- Antidepressants
  - Citalopram
  - Fluoxetine
  - Fluvoxamine
  - Paroxetine
  - Nortriptyline
  - Bupropion
  - Trazadone
- Beta blockers
  - Propranolol
- GABA Agonists (Benzodiazepines and Barbiturates)
  - Alprazolam
  - Nordiazepam
  - Chlordiazepoxide
  - Demoxepam
  - 7-aminoclonazepam
  - Lorazepam
  - Diazepam
  - Barbiturates (Phenobarbital, Butalbital)
- Anti-tussive
  - Dextromethorphan
- Antihistamines
  - Doxylamine
  - Diphenhydramine
- Colchicine
- Ketamine

Appendix D: Detailed Recommendations for Preventing Maternal Mental Health- and Substance Use-Related Deaths in Arizona

The recommendations included below are drawn from the previous report, Maternal Mortality and Morbidity in Arizona.

Patient/Family

- Individuals should abide by driving laws and guidelines to prevent distracted driving (e.g., cell phone use, seat belts, driving under the influence).
- Provide email address to healthcare provider/facility for follow-up contact (in addition to phone numbers).
- Families of individuals with substance use disorder or serious mental illness should engage in discharge planning that does not conflict with HIPAA rules.
- Individuals and families of individuals with substance use disorder should have Naloxone available in the home.
- Individuals with history of suicide attempt should not have access to firearms in their home.

Provider/Facility

- **Continuity of Care** - Healthcare systems and providers (including behavioral health providers and treatment facilities) should establish continuity of care through integrated or family levels of care models by 1) assessing all women to determine special healthcare needs of vulnerable populations using an Individual Patient Risk Assessment tool; 2) ensuring that proper communication occurs to convey these needs; 3) referring women to appropriate levels of care, services, and/or resources, including conducting a warm hand-off and confirmation of follow up; and 4) facilitating continuity of care as needed between the overlap of special healthcare needs for these populations using case management or other navigation support mechanisms (e.g., doulas, community health workers, home visitation). Specific vulnerable populations or circumstances that have been identified as frequently underserved in the perinatal period include:

  Most notably:

  - Persons with mental health disorders or disabilities.
  - Persons using substances, including tobacco, alcohol, illicit substances, prescription drugs, medical marijuana.
  - Persons experiencing homelessness, financial instability, lack of consistent insurance, or other life instabilities.

  Other: Persons experiencing domestic violence (e.g., shoe cards, implementing the red/black pen in bathrooms to mark on urine cup as a discrete mechanism to report domestic violence or human trafficking; educating on importance of making safety plan). Persons who are incarcerated or recently incarcerated. Populations experiencing historical trauma and/or systemic or structural barriers. Persons who are experiencing other barriers to care (e.g. childcare, single-parent households, transportation, language barriers). Persons who have had elective/therapeutic abortions. Persons with history of self-harm. Persons whose child has spent time in NICU.

- **Standards of Care** - In accordance with the recommendations and guidelines from the Arizona Perinatal Trust and Alliance for Innovation on Maternal Health, all healthcare facilities/providers should develop, implement, and monitor compliance with evidence-based, standard of care bundles/policies for comorbidities before, during, and after pregnancy. Bundles/protocol suggestions include:

  Most notably:

  - Screening for and treating perinatal mood disorders (using PHQ2/PHQ9 for anxiety in addition to Edinburgh Postnatal Depression Screen (EPDS) (across all perinatal periods), including providing immediate warm hand off for those that score high on these assessments or consideration for inpatient behavioral health admission.
  - Repeated screening for and treating substance use across all perinatal periods), including actively using PDMP to identify early warnings to trigger case manager intervention).
  - Screening for/detecting domestic violence or human trafficking (across all perinatal periods), including following regulations for mandated reporting.
  - Optimization of postpartum care, such as the ACOG Optimization of Postpartum Care Recommendations (postpartum period), including earlier, more frequent, postpartum visits for those at a higher risk of perinatal mood and anxiety disorders or substance use disorder.
  - Protocols related to eliminating bias in care, such as the Reduction of Peripartum Racial/Ethnic Disparities safety bundle (across all perinatal periods).

  Other: Obstetric consultation for pregnant or postpartum patients presenting to the emergency department (e.g., Code 42), especially if testing positive for substance use (across all perinatal periods). Prescription drug monitoring/medication reconciliation (to include looking for drug interactions) (across all perinatal periods). Management of medical marijuana use before, during, and after pregnancy (across all perinatal periods). Care coordination with behavioral health and other providers for those who are prescribed behavioral health medications.

- **Access to Care in Remote and Rural Areas** - Providers and facilities should explore opportunities to expand telemedicine services in Maternity Care Deserts to ensure women and their care providers have access to timely and risk-appropriate care before, during, and after pregnancy.
- **Provider Training** - Enhance state-wide workforce development opportunities to advance provider skills and awareness of conditions across perinatal periods. This includes:
  - Bolstering existing provider consultation or collaboration initiatives between Maternal Fetal Medicine specialists and behavioral health providers.
  - Training perinatal providers and staff on how to assess, diagnose, code, and treat perinatal mood and anxiety disorders, including protocols for prescribing antidepressants, anti-anxiety, ADHD medication, and suboxone treatment for pregnant and postpartum women.
- **Health Equity** - In accordance with the Arizona Health Improvement Plan, all hospital/healthcare systems should adopt a health equity framework (e.g., Institute for Healthcare Improvement Health Equity Framework) that prioritizes health equity as a strategic

priority. This includes conducting organizational assessments, providing equity and inclusion trainings for providers, implement Grand Rounds about birth equity and related strategies, adopting equitable hiring and retention practices, promoting healthy behaviors and opportunities to address Social Determinants of Health (SDoH) of patients and workers, and establishing an equitable physical environment. This framework should include:

- Cultural competency training for all healthcare providers and staff.
- Adopting and promoting specific services for American Indian/Alaska Natives (e.g. Changing Women's Initiative).
- Adopting the Whole Person Initiative to integrate SDoH issues (e.g., housing insecurity) with physical and behavioral health services.
- Training on how to avoid using labels for patients (e.g. non-compliant, poor historian) to reduce initial bias prior to care.

- **Trauma Informed Care** - Facilities should engage in trauma informed care models and training to avoid stigmatizing or other treatment of individuals with history of trauma. This includes:
  - Adopting the ACEs screening tool as part of the general intake for maternity patients.
  - Training that provides information about detecting and screening for ACES, treatment options based on behavioral health and lifestyle factors, education for patients about risk factors.
  - Establishing a referral network to connect patients to community-based, trauma-informed services, particularly services that are appropriate for minors.
  - Ensuring all patients with a history of ACEs receive more frequent follow-up and care coordination for healthcare and other services.

System

Regulatory or State Policy

- In accordance with the Helping MOMS Act (H.R. 4996), expand Medicaid coverage of women to one year postpartum while reducing overall barriers to enrollment upon initial positive pregnancy test (regardless of live birth or pregnancy loss).
- In accordance with the Arizona State Loan Repayment Program and other national and state workforce development programs, create more opportunities to expand and diversify Arizona's healthcare workforce for providers of all levels caring for women before, during, and after pregnancy. This includes a particular focus on diversification of race and ethnicity, and provider types (e.g., OB/GYN, midwifery, mental or behavioral health providers, Community Health Workers, doulas, certified peer support specialists) that serve Arizona's Maternity Care Deserts or areas with limited access to maternity care.
- Identify opportunities to better leverage Health Current (the Arizona Health Information Exchange) to achieve a statewide, universal medical record and prescription drug monitoring/medication reconciliation platform to ensure timely communication and sharing of patient health information, particularly for sharing of records between mental health providers and other providers caring for women before, during, and after pregnancy.
- In accordance with the Build Back Better Act, establish paid family leave.
- Provide licensing and oversight of substance use rehabilitation facilities to ensure standardized services/level of care and broader access for perinatal women

- Require that the Comprehensive Recovery and Addiction Act be implemented in prenatal settings.

Payers

- Integrated care, patient-centered medical homes, and/or family levels of care models need to be adopted or strengthened to foster trust in patient/provider relationships, enhance communication, improve quality of care, and maintain continuity of care. This includes a need for sustainable reimbursement for all levels of providers (including behavioral health) and facilities (e.g. Birth Centers and programs in Tribal Communities) that address the diverse needs of patients, including midwifery, doulas, Community Health Workers, and others. Suggestions for various areas of integrated care include:

  Most notably:

  - Integration of mental health care into primary care, inpatient services, and perinatal care, including covered behavioral health services for maternal mental health conditions.
  - Substance use treatment services, including medication assisted treatment and both intensive outpatient and inpatient services, including those that allow children to accompany adults.
  - Transportation support, case management, community health workers, and home visitation services.
  - Multidisciplinary teams for complex care-needs of patients with multiple comorbidities, generational traumas, or severe mental illness/persistent behavioral health issues.
  - Establishment of care bundles for pregnant women with complex needs with integrated care management/navigation based on severity of need.
  - Group prenatal care models that integrate wrap around services for pregnant women (in accordance with HB2230).
  - Telehealth and mobile unit services, including remote monitoring, for primary care, OB/postpartum, mental health and substance use disorder.
  - Expand access to covered services, including teen pregnancy prevention programs, family planning services, free or low-cost birth control methods, chronic pain management services, and care coordination for patients with complex behavioral health needs
  - Review coverage options for contraception to make options affordable for all and allow for inpatient administration of contraception regardless of location, especially LARCs.
  - Automatic referral to behavioral health treatment (including counseling) for individuals with substance use disorder.

- In accordance with the American College of Obstetricians and Gynecologists, National Institute for Children's Health Quality, and National Academy for State Health Policy, payers should adopt **maternity care incentive plans** to **optimize** both **family planning** and **postpartum care**. This includes postpartum visits via telemedicine, postpartum home visiting, and screenings for mothers during Early and Periodic Screening, Diagnostic and Treatment (EPSDT) visits for infants,

as recommended by the American Academy of Pediatrics Bright Futures Guidelines, and advanced birth equity training for all providers.

- Establish community models of **peer support** across the perinatal period that are reimbursed by health care payers or other funding sources. These support services should include voluntary access and referral to appropriate resources for women experiencing:

  Most notably:

  - Perinatal mood disorders, including support systems for families of individuals with perinatal mood disorders.
  - Substance use disorders, including harm reduction environments.
  - Domestic or intimate partner violence (including safety planning).
  - Loss of a child or miscarriage.
  - Separation from a child or family (e.g., Department of Child Safety involvement).

  Other: Chronic conditions (e.g., diabetes); challenges with parenting, including solo-parenting and/or parenting children with disabilities, or behavioral concerns; those pursuing surrogacy; following the death of a loved one or other traumatic event.

- Health plans and other agencies should prioritize housing for pregnant and high-risk women (including those with children and pets)- coordinate care with housing/substance use/domestic violence/perinatal care.
- Indian Health Services should cover home healthcare services, the full range of contraceptive services, and childcare support for women who are being cared for in facilities that are not close to their homes.

Law Enforcement

- In accordance with the Arizona Opioid Action Plan, establish a supportive **harm reduction environment** for individuals experiencing **substance use disorders** by ensuring law enforcement officers and court systems coordinate with substance use prevention or diversion programs, including teen diversion programs, step down programs for those recently incarcerated (e.g., AHCCCS Justice in Reach Program), mentorship/peer support programs, and resources geared towards families aiming to support those with substance use disorder or people in recovery.
- In accordance with the American College of Obstetricians and Gynecologists Statement on Gun Violence and Safety, establish supportive environments for women experiencing **domestic violence** by identifying funding options for law enforcement to dispatch a social worker or mental health professional on domestic violence calls and enacting stricter enforcement of laws and/or punishments for individuals with multiple offenses of domestic violence or other violent crimes, including offering therapy or diversion programs for domestic violence offenders and providing periodic injury prevention evaluations and counseling regarding weapons (regardless of evidence of abuse).
- Ensure all law enforcement professionals have readily available domestic violence resources to distribute when they detect possible intimate partner violence in the home.
- Ensure interpreter services are available to complete interviews with non-English speakers.
- Establish programming for families that have been incarcerated to support reunification, communication, etc. (e.g., Native American Fathers and Families Program).
- Improve access to safe and sober transitional housing.

Department of Child Safety

- Identify other opportunities to engage mothers after DCS involvement based on individual risk factors (e.g. family treatment court, MAT, participation in AZ Families First program for substance use, peer support groups).
- Ensure women who are separated from children are granted appropriate home visitation rights.
- Review laws and protocols related to mandated reporting, recognize opportunities to support moms rather than focusing on removal.
- Consider not requiring an order of protection when a parent tests positive for a substance if there is no evidence of risk or harm to the child.
- Extend foster care beyond age 17 for individuals who may need the extended support.

Other Systems or Policies

- In accordance with the Arizona Adverse Childhood Experience Consortium, Arizona should become a **trauma-informed state** to recognize and respond to toxic stress and trauma experienced by women and families, and support women and families in overcoming them.
- In accordance with the strategies identified by Governor Ducey's Executive Order to expand telemedicine to Arizonans and Tribal Connect Act of 2020 (H.R.7973), support Arizona residents and providers in **expanding access to telehealth services**, particularly through expansion of low-cost broadband and telephone services on tribal lands and remote areas of the state.

Community

- Develop and provide community-based **outreach** and **education** via text or other communications to enhance awareness of the following topics to support women and families before, during, and after pregnancy:

  Most notably:

  - Availability and awareness of comprehensive perinatal helplines, such as the Birth to Five Helpline (877-705-KIDS (5437)), ADHS Pregnancy and Breastfeeding Helpline (1-800-833-4642), and the Women and Children's Health Information Center (1-800-232-1676) to increase utilization of existing and low-cost services for women and families.
  - In accordance with the Arizona Suicide Prevention Action Plan, strategies for families to support individuals with a history of depression and/or suicide threats/attempts, including strategies for supporting people while they are in crisis, such as the Applied Suicide Intervention Skills Training (ASIST) suicide prevention training program.
  - In accordance with the Arizona Opioid Action Plan and the Arizona Neonatal Abstinence Syndrome Action Plan, availability of local resources (including a hotline or warm line) for substance use treatment and prevention, mental health services, domestic violence, legal services, vocational training, etc., in a manner that is destigmatizing and encouraging to women before, during, and after pregnancy.
  - In accordance with the Arizona Opioid Action Plan, life saving strategies such as CPR or use of opioid antagonists such as Narcan (including information on where to obtain them).
  - In accordance with the AHCCCS Office of Individual and Family Affairs, efforts to reduce stigma of mental health.

- Elements of healthy relationships, strategies/resources to overcome instances of abuse, and education recognizing domestic violence as a crime – education should be provided in all high schools and/or middle schools.
- Opportunities to access free or low-cost health care at federally qualified health centers and other safety-net providers to support early entry into prenatal care.
- In accordance with the CDC's Hear Her Campaign, education about how to support women across all perinatal periods particularly to identify warning signs.

Other: Parental strategies to educate children/youth about sexual predators, alcohol/tobacco/substance use, healthy relationships, and dangerous social environments; dangers of vaping and safe use of medical marijuana before, during, and after pregnancy.

- Support schools in enhancing **behavioral health services** for students experiencing depression or other mental health concerns, while ensuring resources (e.g. Social Work) are available to screen/identify ACEs and link to appropriate services.
- Ensure women in all regions of the state have access to **faith-based services** (e.g., Catholic Social Services) or **other services** (e.g., public health services) to support women in completing their education, issues of life instability, lack of resources for child care, and/or access to healthy foods, etc.
- Establish community models of **peer support** across the perinatal period that includes voluntary access and referral to appropriate resources for women experiencing:

Most notably:

- Perinatal mood disorders, including support systems for families of individuals with perinatal mood disorders.
- Substance use disorders, including harm reduction environments.
- Domestic or intimate partner violence (including safety planning).
- Loss of a child or miscarriage.

Other: Chronic conditions (e.g., diabetes). Separation from a child or family (e.g., DCS involvement). Challenges with parenting, including solo-parenting and/or parenting children with disabilities, behavioral concerns. Those pursuing surrogacy. Following the death of a loved one or other traumatic event.

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