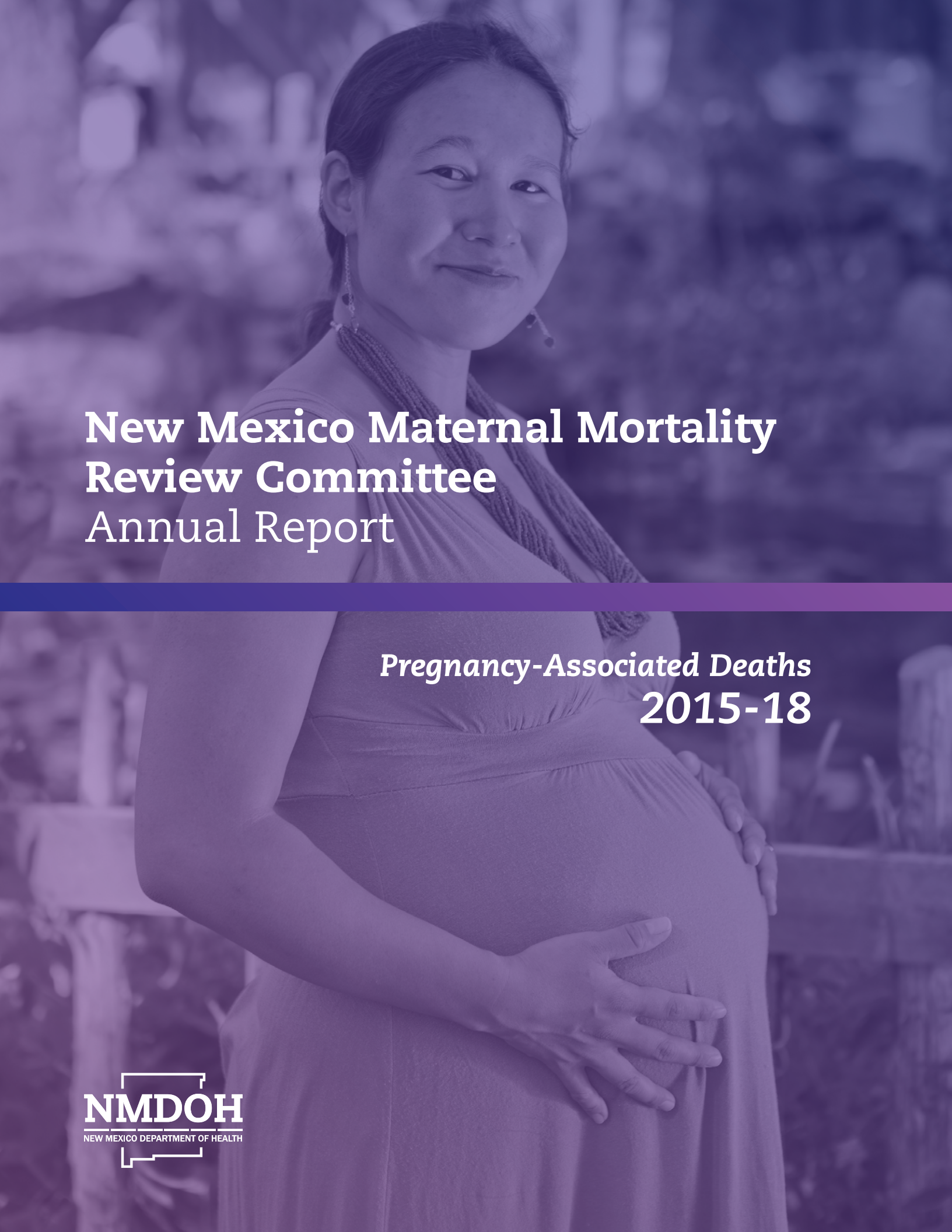


New Mexico Maternal Mortality Review Committee
Annual Report

Pregnancy-Associated Deaths
2015-18

NMDOH
NEW MEXICO DEPARTMENT OF HEALTH

Table of Contents

The following are committee members who reviewed deaths occurring between 2015 and 2018.

Administrative Co-Chair and Member Ex-Officio
Thomas Massaro

Clinical Co-Chair
Gillian Burkhardt

Current Committee Members

Fernando Bayardo
William "Mac" Bowen
Matt Brennan
Micaela Lara Cadena
Conrad Chao
Damaris Donado
Joseph Griggs
Mandy Hatley
Nina Higgins
Jean Howe
Cathy Lexa
Sophie Peterson
Keri Rath
Nichele Salazar
Joel Teicher

Former Committee Members

Susan Akins
Kent Argubright
Catherine Avery
Karen Cline-Parhamovich
Virginia Hernandez
Ellen Interlandi
Mark Kassouf
Clarissa Krinsky
Amy Levi
Abe Lichtmacher
Sharon Phelan, Former Clinical Co-Chair
Katherine Seligman

Operational Staff

Susan Akins
Eirian Coronado
Sarah Heartt
Jessi Fuchs
Katrina Nardini
Abigail Reese
Melissa Schiff

Acknowledgements

This report is dedicated to the memory of individuals whose deaths are documented here, and to the families and communities impacted by these tragic deaths.

We thank the people who are taking a lead to change policy and practice to prevent future deaths and improve the health and wellbeing of all New Mexico birthing people, families, and communities.

The New Mexico Maternal Mortality Review Committee (NM MMRC) is supported by the U.S. Centers for Disease Control and Prevention (CDC) through an Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) program award (2019-2024).

List of Acronyms

ACOG	American College of Obstetricians and Gynecologists
AIM	Alliance for Innovation on Maternal Health
BC	Birth certificate
CDC	U.S. Centers for Disease Control and Prevention
CYFD	Children Youth and Families Department
DC	Death certificate
ECHO	Extension for Community Healthcare Outcomes
EMR	Electronic Medical Record
EMS	Emergency Medical Services
ERASE MM	Enhancing Reviews and Surveillance to Eliminate Maternal Mortality
HRSA	Health Resources and Services Administration
MMRIA	Maternal Mortality Review Information Application
MTP	Massive Transfusion Protocol
MVC	Motor vehicle crash
NCHS	National Center for Health Statistics
NIH	National Institutes of Health
NM DOH	New Mexico Department of Health
NM ECECD	New Mexico Early Childhood Education and Care Department
NM HSD	New Mexico Human Services Department (Medicaid)
NM MMRC	New Mexico Maternal Mortality Review Committee
NMPC	New Mexico Perinatal Collaborative
NM PMP	New Mexico Prescription Monitoring Program
OB-GYN	Obstetrician-Gynecologist
OMI	Office of the Medical Investigator (UNM Health Sciences)
ORT	Opioid Replacement Therapy
PAMR	Pregnancy-Associated Mortality Ratio
PRMR	Pregnancy-Related Mortality Ratio
SAMHSA	Substance Use and Mental Health Services Administration
SUD	Substance use disorder

Executive Summary

The New Mexico Maternal Mortality Review Committee (NM MMRC) began reviewing pregnancy-associated deaths in 2018. This inaugural report reflects the findings from all NM-resident deaths that occurred during pregnancy or within one year (365 days) of a pregnancy from 2015 through 2018.

The purpose of the maternal mortality review is to (a) determine if pregnancy is implicated in the cause of death; (b) assess preventability; (c) identify contributing factors that could be addressed through changes in policy, practice or behavior at the patient/family, provider, health system, or community levels, and (d) develop actionable recommendations to save lives.

This report has been compiled to inform prevention efforts for those working in state agencies, professional societies, perinatal care systems, and communities.

Two key definitions that are central to this process are:

- **Pregnancy-Associated Death**: a death occurring during pregnancy or within one year of the end of pregnancy
- **Pregnancy-Related Death**: a death occurring during pregnancy or within one year of the end of pregnancy as a result of a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy

Substance use disorder (SUD) and mental health conditions were major contributors to pregnancy-associated death in New Mexico. The NM MMRC determined that substance use was a contributing factor in nearly half of both pregnancy-associated and pregnancy-related deaths. Mental health conditions contributed to over one-third of pregnancy-associated (42%) and pregnancy-related (36%) deaths.

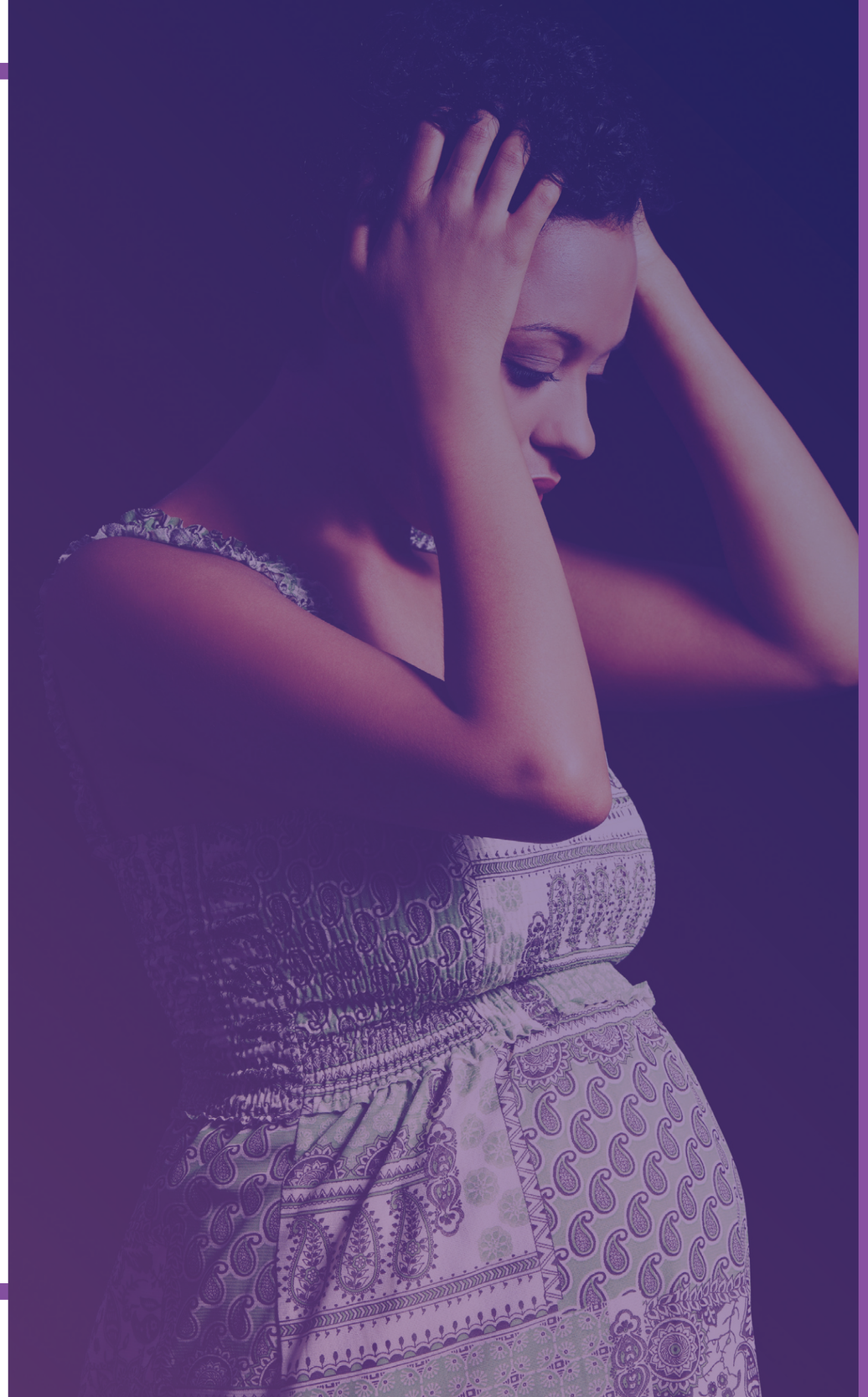
NM MMRC priority recommendations highlight the urgent need for policy and practice changes to address gaps in treatment capacity and coordination to save lives.

For the years 2015-2018, New Mexico recorded 77 pregnancy-associated deaths with the following select characteristics:

- Pregnancy-associated deaths were greatest among pregnant and postpartum people 35 years and older.
- Pregnancy-associated deaths were 4.6-fold greater among Medicaid-insured individuals compared to those with private insurance.
- Sixty percent of pregnancy-associated deaths occurred 43-365 days postpartum.
- The most prevalent causes of pregnancy-associated death were injury and mental health conditions.
- The most prevalent pregnancy-associated injury deaths were motor vehicle crashes and drug overdoses.
- Substance use disorder (SUD) contributed to 47% of pregnancy-associated deaths.
- Mental health conditions contributed to 42% of pregnancy-associated deaths.
- Twelve percent of pregnancy-associated deaths were suicides.
- Seventy-eight percent of pregnancy-associated deaths were judged to be preventable

For the 2015-2018 period, New Mexico recorded 25 pregnancy-related deaths (among the 77) with the following select characteristics:

- Pregnancy-related death was greatest in pregnant and postpartum people 35 years and older.
- Thirty-two percent of deaths occurred in pregnancy, 32% occurred 0-42 days postpartum, and 36% occurred 43+ days postpartum.
- The most prevalent causes of death were mental health conditions, cardiac conditions, embolism and hemorrhage.
- Substance use disorder (SUD) contributed to 40% of pregnancy-related deaths.
- Mental health conditions contributed to 36% of pregnancy-related deaths.
- Twenty percent of pregnancy-related deaths were suicides.
- Eighty percent of pregnancy-related deaths were judged to be preventable.



In reviewing de-identified case summaries for each death, the NM MMRC crafted recommendations targeted to policy makers, public health professionals, healthcare systems, and providers.

These recommendations are consolidated into six priority recommendations as follows:

Expand Medicaid eligibility to provide full pregnancy benefits coverage (including mental health, substance use and violence prevention services) to one year postpartum.

Increase access to perinatal mental health care by expanding treatment options and supporting alternative venues and modes of care, especially in rural communities.

Address the extremely limited availability of in-patient and community-based SUD treatment programs for pregnant and parenting individuals.

Increase resources for care coordination among perinatal care, substance use, and mental health treatment providers.

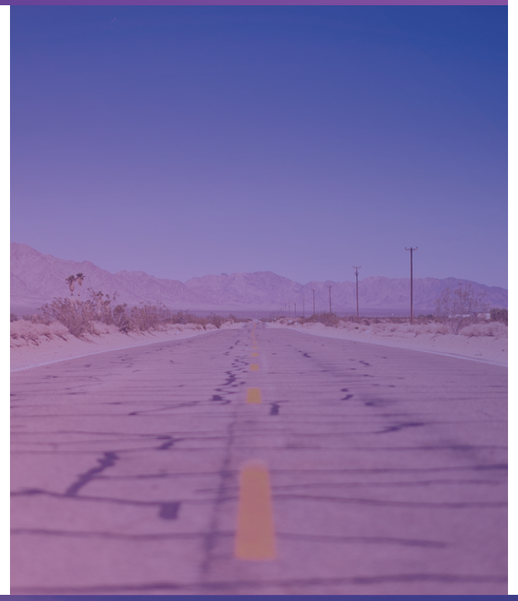
Incentivize all birthing hospitals, birth centers, and perinatal care clinics to ensure participation in ongoing perinatal quality improvement activities shown to reduce the leading causes of maternal mortality.

Increase resources and support for prevention, detection, intervention, and treatment for intimate partner violence.

Introduction

New Mexico is a vast, largely rural state with a rich history of birthing traditions and community-based knowledge. The birthing population, a diverse, majority population of color, faces many challenges including limited access to prenatal and delivery care, frequent lapses in insurance coverage, and the concentration of acute perinatal health services in metropolitan areas. Although the full array of perinatal care providers, including midwives, is represented, New Mexico is chronically under-served by medical and behavioral health professionals with 31 out of 33 counties qualifying as healthcare professional shortage areas.[1] Without any perinatal care providers or birthing facilities, eleven New Mexico counties have been identified as maternity care deserts.[2]

Despite innovative efforts to address these challenges and to help navigate and support pregnant and postpartum people through social and health-related obstacles, sadly, every year too many New Mexicans die during pregnancy or within a year after pregnancy.



New Mexico's Maternal Mortality Review Committee Development and Composition

Regulations initially promulgated by the New Mexico Department of Health in 1998 established a maternal mortality review committee. In 2016, a New Mexico Maternal Mortality Review Committee Task Force convened to draft a bill that would clarify the mandate and parameters of the committee's work. By 2018, the NM MMRC formed and began reviewing 2015 deaths. In 2019, the New Mexico Legislature passed enabling legislation that strengthened the MMRC's authority to review each death of a New Mexico resident occurring during pregnancy or within 365 days of the end of pregnancy. This legislation codified committee membership criteria that privileged clinical expertise and institutional affiliation. The committee from 2018-2020 was diverse in geographic representation but limited in non-clinical, racial, ethnic, and cultural diversity, and it had few community or family advocate voices. In 2021, the statute was amended to increase the size of the committee and diversify its expertise, specifically requiring representation from Black and Indigenous communities most impacted by pregnancy-related deaths. The legislation also included reimbursement provisions to enable participation by members who may be challenged by travel expenses or income lost due to time spent on the committee.

The NM MMRC receives technical assistance and funding through the U.S. Centers for Disease Control and Prevention's (CDC) Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) program, a five-year (2019-2024) award designed to help states standardize the case review process, identify the causes of maternal mortality, and develop recommendations to prevent deaths.

This report presents findings from the committee's review of pregnancy-associated, including pregnancy-related, deaths occurring from 2015 through 2018.

New Mexico's Maternal Mortality Review History

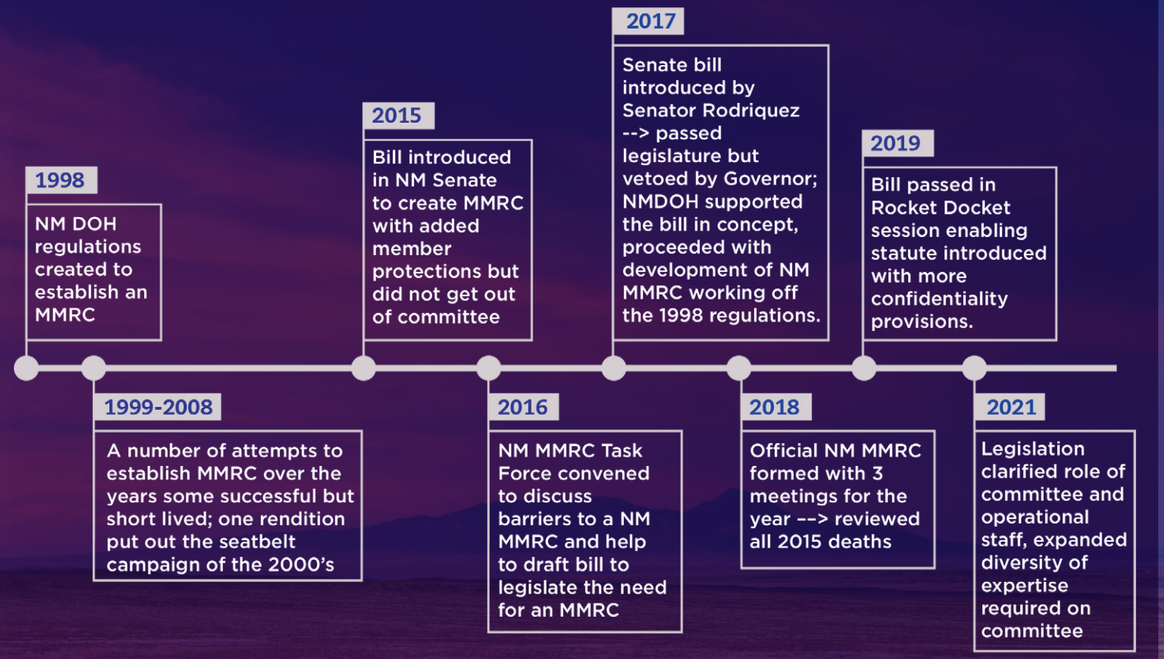


Figure 1: New Mexico's Maternal Mortality Review history timeline

1 Health Indicator Report of Health Care Access - Primary Care Physicians Compared to Population Size. 1/30/19. Retrieved Thu, 14 October 2021 from New Mexico Department of Health, Indicator-Based Information System for Public Health Web site: http://ibis.health.state.nm.us

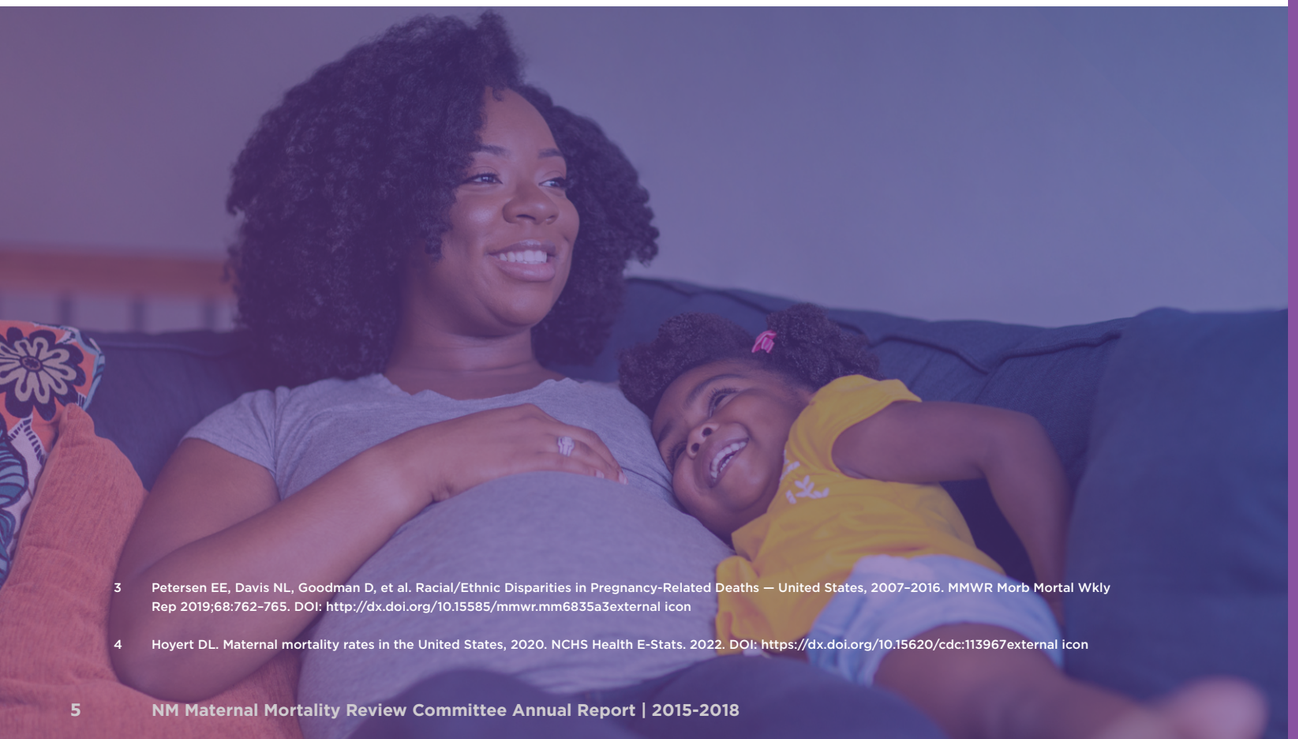
2 March of Dimes. (2020). Nowhere to Go: Maternity Care Deserts Across the U.S. 2020-Maternity-Care-Report.pdf (marchofdimes.org)

Acknowledgment of Structural Inequities and Racism

Structural and institutional racism, as well as interpersonal racism, are pervasive in our society and impact health outcomes. National data tell us that Black and American Indian/Alaska Native women are two to three times more likely to die from pregnancy-related causes than non-Hispanic white women.[3,4] Although we are not able to assess statistically significant racial or ethnic disparities in the current state findings, we acknowledge that racism and discrimination have a role in pregnancy-associated deaths and that pregnancy-related deaths in the United States are disproportionately experienced by Black and Indigenous people.

It is important for MMRCs to consider the ways that racism, discrimination and social determinants of health impact care and outcomes for pregnant and postpartum people and to identify upstream interventions to save lives. To address racial/ethnic disparities in our state, the NM MMRC is working to improve the committee's ability to identify racism and discrimination, how these factors may have influenced the death, and to develop focused recommendations to address their impact. Future reports will highlight these factors in analyses and recommendations for action.

> ***"Future reports will highlight these factors in analyses and recommendations for action."***



3 Petersen EE, Davis NL, Goodman D, et al. Racial/Ethnic Disparities in Pregnancy-Related Deaths — United States, 2007–2016. MMWR Morb Mortal Wkly Rep 2019;68:762–765. DOI: http://dx.doi.org/10.15585/mmwr.mm6835a3external icon

4 Hoyert DL. Maternal mortality rates in the United States, 2020. NCHS Health E-Stats. 2022. DOI: https://dx.doi.org/10.15620/cdc:113967external icon

Review Process

Identification

The NM MMRC reviews all deaths that occur during pregnancy or within one year of the end of pregnancy. The committee's goal is to review each death within two years of the date of death.

Pregnancy-associated deaths are identified in the following ways by the New Mexico Bureau of Vital Records and Health Statistics:

- A death can be identified by checking death certificates of New Mexico residents for International Classification of Diseases pregnancy and postpartum codes (O-codes indicating an obstetric cause of death).
- Both live birth and fetal death certificates can be linked to all death certificates of those identified as female for the 12-month period after the involved pregnancy.
- A death can be identified using a checkbox on the death certificate that indicates if the decedent was pregnant at time of death or within the past 12 months.

Classification

Deaths are classified into **pregnancy-associated, pregnancy-related, and pregnancy-associated but not related deaths**. Pregnancy-associated deaths include pregnancy-related deaths and deaths that are pregnancy-associated but not related.

A **pregnancy-associated death** is the death of a person during pregnancy or within one year of the end of pregnancy from any cause.

A **pregnancy-related death** is the death of a person 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 death is the death of a person during pregnancy or within one year of the end of pregnancy from a cause that is not related to pregnancy.

For this report, we present data on **all pregnancy-associated deaths, including the subset of pregnancy-related deaths** to address preventability and inform policy and practice changes needed to save lives

Review Process

Accessing and Reviewing Records

Records related to each death are requested by the New Mexico Department of Health (NMDOH) from hospitals, clinics, provider offices, the New Mexico Office of the Medical Investigator (OMI), law enforcement agencies, the New Mexico Prescription Monitoring Program (NM PMP), and any other information sources that might help us understand the circumstances leading up to a death.

After all records are obtained, trained abstractors review the records and enter all relevant information into the CDC's Maternal Mortality Review Information Application (MMRIA) database. The abstraction team writes a comprehensive case summary of events preceding the death. Each case summary is shared in a de-identified format with MMRC members who determine the preventability and pregnancy-relatedness of each case.

Confidentiality

The maternal mortality review process is structured to ensure confidentiality of patient, family, provider, and hospital system information. All committee members, operational staff and guest experts must sign a confidentiality statement prior to attending NM MMRC meetings, and committee meetings are closed and inaccessible to others. Case medical, social service and law enforcement records are securely stored at NMDOH in accordance with department policy.

Committee Membership

The NM MMRC is a multidisciplinary committee with an evolving array of members that includes obstetric providers (OB-GYN, Family Practice, Certified Nurse-Midwife, Maternal Fetal Medicine), other medical personnel (RN and other medical specialties), community health providers (doulas, health promoters, home visitation specialists) public health professionals, social services representatives, and community advocates.

A leadership group consisting of the co-chairs of the NM MMRC, the lead abstractor, the lead data analyst, the NMDOH MMRC Coordinator, and other DOH staff provide oversight and support for for the review process including facilitation and documentation of committee meetings.

Committee Review

The focus of committee review is to determine if the death was pregnancy-related; verify the cause of death; identify factors contributing to the death; determine preventability; and make recommendations to prevent future deaths. Examples of contributing factors include chronic disease, quality of care, mental health conditions, trauma, or racism.

- In reviewing each case summary, the NM MMRC determines if there were opportunities to prevent the death. The committee uses the CDC-recommended definition to determine preventability:

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/family, provider, facility, system, and/or community factors.

Data Analysis

For New Mexico's 2015-2018 deaths, all data entered in the MMRIA database were aggregated into an analysis file. All pregnancy-associated deaths and pregnancy-related deaths were calculated into ratios of deaths per 100,000 live births.

- The pregnancy-associated mortality ratio (PAMR) was defined as:

$$\frac{\text{Number of pregnancy-associated deaths from 2015-2018 in NM}}{\text{Number of resident live births from 2015-2018 in NM}}$$

- The pregnancy-related mortality ratio (PRMR) was defined as:

$$\frac{\text{Number of pregnancy-related deaths from 2015-2018 in NM}}{\text{Number of resident live births from 2015-2018 in NM}}$$

The PAMR and PRMR were also calculated for demographic factors including maternal age, race/ethnicity, insurance type, and urban/rural classification based on Metropolitan Statistical Areas (NCHS) for the county of the location of residence, place of delivery (if delivered) and place of death.[5] For each of the ratios calculated by demographic factors, the denominator was the number of live births in that demographic group. Notes have been added beneath tables regarding the absence of statistical significance (*no differences in ratios) by demographics or characteristics.

Deaths were also analyzed by timing of death relative to pregnancy, underlying cause of death, mechanism of injury for injury deaths, preventability, mental health conditions, SUD, suicide and homicide.

Because a significant percentage of deaths were caused by motor vehicle crashes (MVCs), a database of all pregnancy-associated MVCs was developed with crash information collected from law enforcement and the New Mexico Department of Transportation. Data were analyzed by maternal age, race/ethnicity, timing of MVC related to pregnancy, speeding, substance use, seat belt use, and unrestrained children in the vehicle.

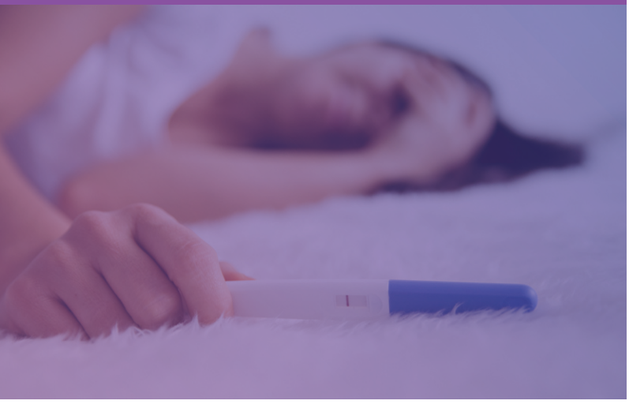
5 Metropolitan was defined as 50,000 – 2,499,999; micropolitan was defined as 10,000 – 49,999; and rural was defined as <10,000 population.

Data Findings

Pregnancy-Associated Deaths

Summary of key findings for pregnancy-associated deaths:

- New Mexico recorded 77 pregnancy-associated deaths and calculated a ratio of 79.5 per 100,000 live births from 2015-2018
- The PAMR was:
  - Greatest in pregnant and postpartum people ages 35 and older
  - 4.6-fold greater among Medicaid-insured individuals compared to those with private insurance
  - Greatest in pregnant and postpartum people with less than high school education
- Sixty percent of deaths occurred **43-365 days postpartum**
- The most prevalent causes of pregnancy-associated death were **injury, mental health conditions, cardiac conditions, and infections**
- The most prevalent injury deaths were **motor vehicle crashes** and **drug overdoses**
- **Substance use disorder** contributed to **47% of deaths**
- Mental health conditions contributed to **42% of deaths**
- 1**2% of deaths were suicides**
- **78% of deaths** were judged to be **preventable**



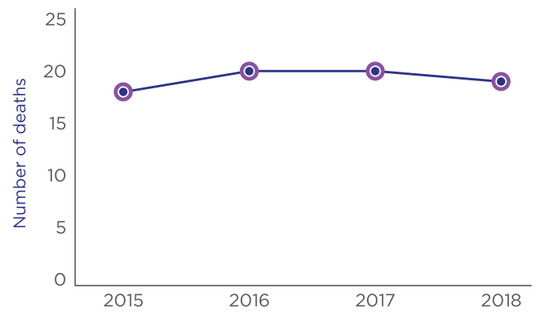


Figure 2: Counts of pregnancy-associated deaths by year

The Pregnancy-Associated Mortality Ratio (PAMR) from 2015-2018 was **79.5 per 100,000 live births.**

PAMR by age group	
Age Group	Number of pregnancy-associated deaths per 100,000 live births
15-19	88
20-29	68
30-34	77
35+	127

PAMR by race/ethnicity	
Race/Ethnicity	Number of pregnancy-associated deaths per 100,000 live births
Non-Hispanic White	100
Hispanic	61
American Indian/Alaska Native	120
Black	104

*Differences in pregnancy-associated mortality ratios were not statistically significant by race/ethnicity

PAMR by education level	
Education level	Number of pregnancy-associated deaths per 100,000 live births
< High School	130
High School graduate	110
Some college	63
College graduate	26

PAMR by insurance	
Insurance Type	Number of pregnancy-associated deaths per 100,000 live births
Medicaid	102
Private	22
Other	27

PAMR by geographic place of residence	
Location of residence	Number of pregnancy-associated deaths per 100,000 live births
Metropolitan	76
Micropolitan	72
Rural	149

*Differences in pregnancy-associated mortality ratios were not statistically significant by location of residence

PAMR by geographic place of delivery	
Location of birth	Number of pregnancy-associated deaths per 100,000 live births
Metropolitan	63
Micropolitan	53
Rural	30

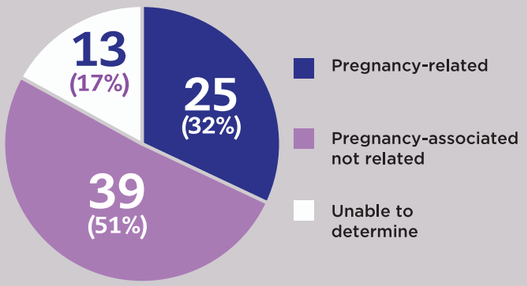
* Differences in pregnancy-associated mortality ratios were not statistically significant by place of delivery

PAMR by geographic place of death	
Location of death	Number of pregnancy-associated deaths per 100,000 live births
Metropolitan	83
Micropolitan	56
Rural	119

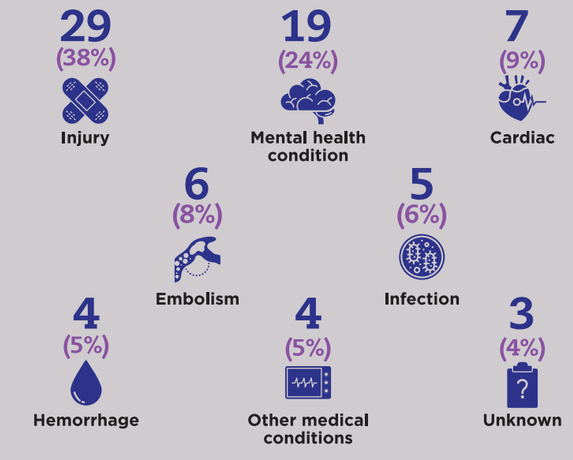
* Differences in pregnancy-associated mortality ratios were not statistically significant by place of delivery

Pregnancy-associated deaths by timing of death

Pregnancy-relatedness of deaths

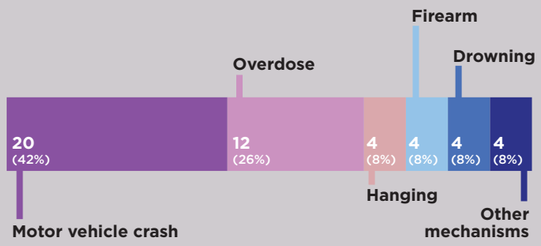


Causes of pregnancy-associated deaths

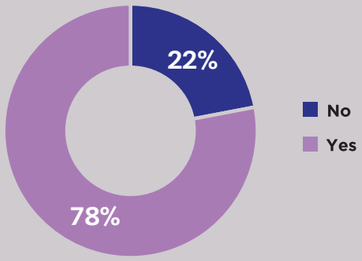


The most prevalent causes of pregnancy-associated death were injury, mental health conditions, cardiac conditions, and infections.

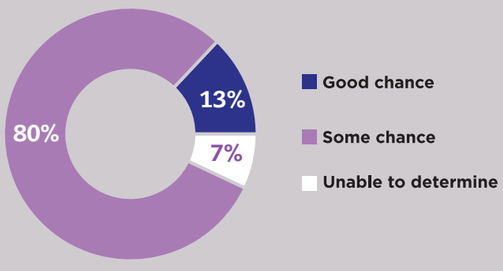
Mechanisms of injury for injury and mental health deaths: pregnancy-associated deaths

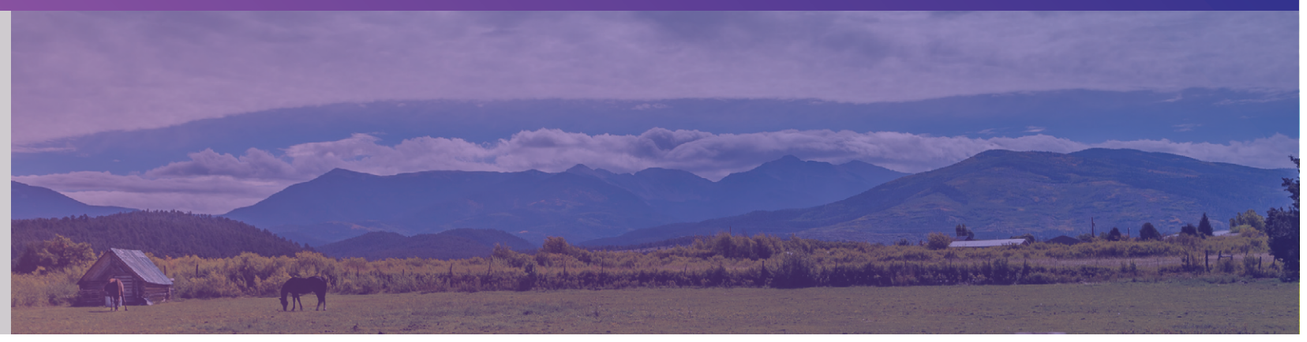


Preventability of pregnancy-associated deaths



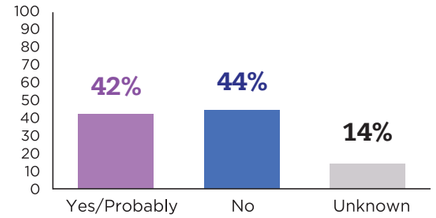
Chance to alter outcome of pregnancy-associated deaths if preventable



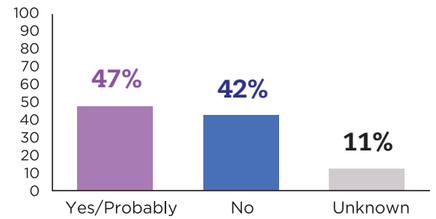


Contributing factors for pregnancy-associated deaths

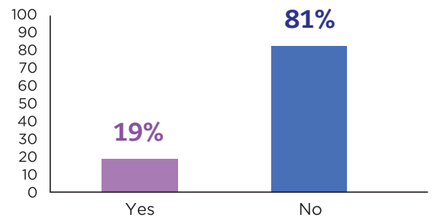
Mental Health Condition



Substance Use Disorder

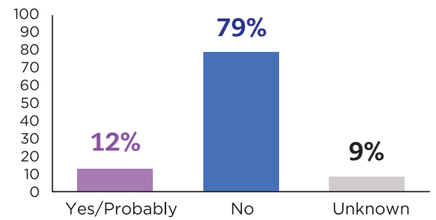


History of Intimate Partner Violence

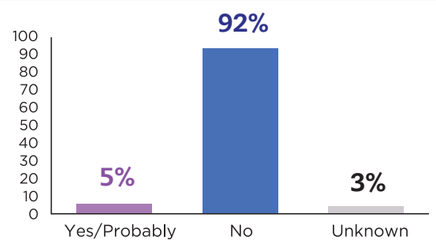


Manner of pregnancy-associated deaths

Suicide



Homicide



Data Findings

Pregnancy-Related Deaths

Summary of key findings for pregnancy-related deaths:

- There were 25 pregnancy-related deaths and 96,979 births in 2015-2018. This was calculated into a ratio of 25.8 deaths per 100,000 live births.
- The PRMR was **greatest** in pregnant and postpartum people **35 years and older**
- Thirty-two percent of deaths occurred in pregnancy, 32% occurred 0-42 days postpartum, 36% occurred 43+ days postpartum
- The most prevalent causes of death were **mental health conditions, cardiac conditions, embolism, and hemorrhage**
- **Substance use** contributed to **40% of pregnancy-related deaths**
- **Mental health conditions** contributed to **36% of deaths**
- **Twenty percent** of deaths were **suicides**
- **Eighty percent** of deaths were judged to be **preventable**

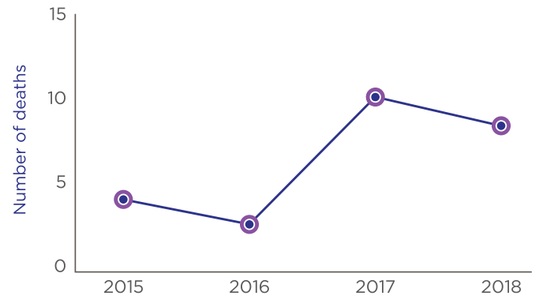


Figure 3: Counts of pregnancy-associated deaths by year

The Pregnancy-Related Mortality Ratio (PRMR) from 2015-2018 was **25.8 per 100,000 live births.**

PRMR by age group

Age Group	Number of pregnancy-related deaths per 100,000 live births
15-19	13
20-29	24
30-34	23
35+	48

PRMR by education level

Education level	Number of pregnancy-related deaths per 100,000 live births
< High School	38
High School graduate	38
Some college	20
College graduate	10

* Differences in pregnancy-related mortality ratios were not statistically significant by education level

PRMR by insurance

Insurance Type	Number of pregnancy-related deaths per 100,000 live births
Medicaid	35
Private	7
Other	0

* Differences in pregnancy-related mortality ratios were not statistically significant by insurance type

PRMR by geographic place of residence

Location of residence	Number of pregnancy-related deaths per 100,000 live births
Metropolitan	24
Micropolitan	28
Rural	30

* Differences in pregnancy-related mortality ratios were not statistically significant by location of residence

PRMR by geographic place of delivery

Location of birth	Number of pregnancy-related deaths per 100,000 live births
Metropolitan	16
Micropolitan	19
Rural	0

* Differences in pregnancy-related mortality ratios were not statistically significant by location of birth

PRMR by geographic place of death

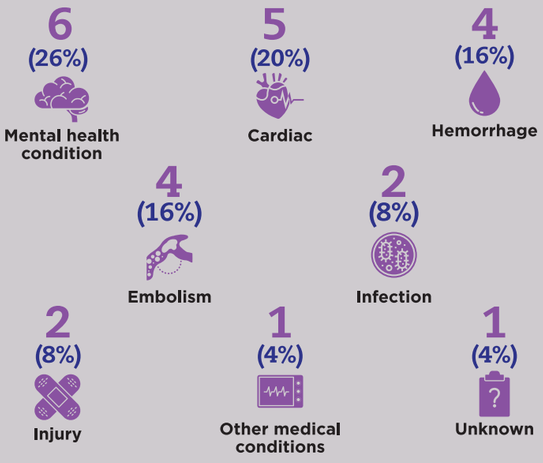
Location of death	Number of pregnancy-related deaths per 100,000 live births
Metropolitan	26
Micropolitan	25
Rural	30

* Differences in pregnancy-related mortality ratios were not statistically significant by location of death

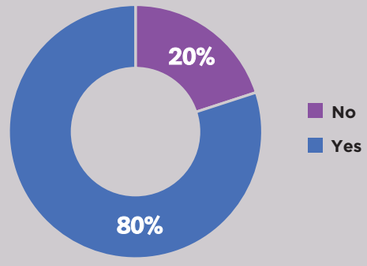
Eighty percent of deaths were judged to be preventable.

Pregnancy-related deaths by timing of death

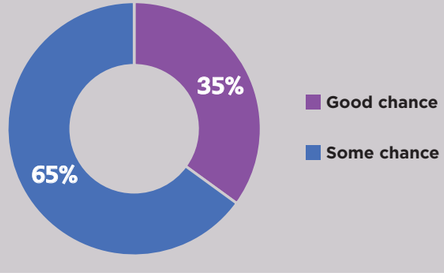
Causes of pregnancy-related deaths



Preventability of pregnancy-related deaths

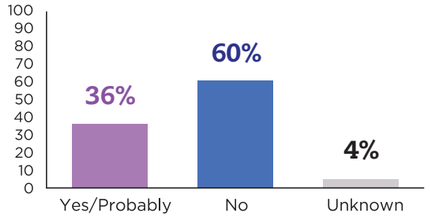


Chance to alter outcome of pregnancy-related deaths if preventable

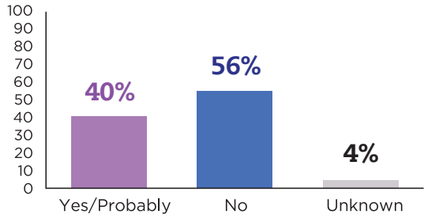


Contributing factors for pregnancy-related deaths

Mental Health Condition

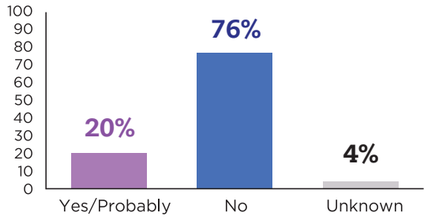


Substance Use Disorder

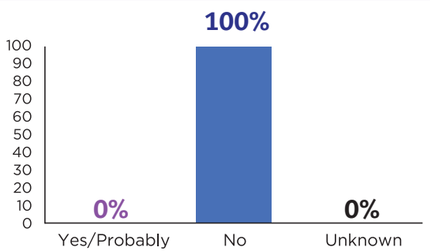


Manner of pregnancy-related deaths

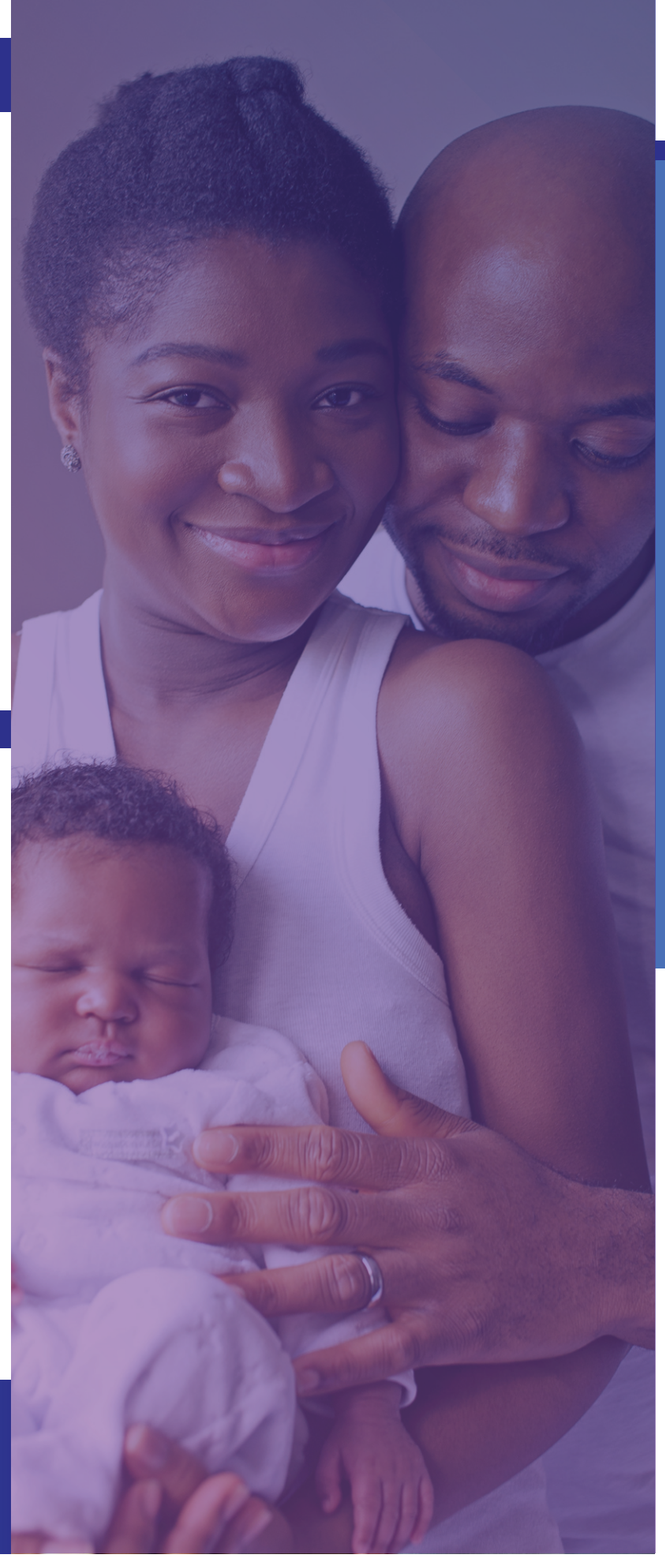
Suicide



Homicide



Twenty percent of deaths were suicide.



Data Findings

Pregnancy-Associated Deaths from Motor Vehicle Crashes (MVCs)

Summary of key findings for MVC-related deaths:

- **Twenty-one pregnancy-associated deaths** resulted from motor vehicle crashes
- The **majority** occurred in **20-29-year-olds**
- The **majority** were among **Hispanic people**
- **Approximately 40%** were among people **pregnant at time of crash**
- **Approximately 40%** were among people **6 weeks or more postpartum at time of crash**
- **Twenty-nine percent** were in vehicle that was **speeding** at time of crash
- T**hirty-two percent** noted **substance use in driver of vehicle**
- **Forty-seven percent** of maternal decedents **were not wearing a seat belt**
- **Fifty-six percent** had **at least one unrestrained child** among crashes with a child in the vehicle

Distribution of MVC deaths by age

Age Group	Percent
15-19	19
20-29	67
30-39	14
40+	0

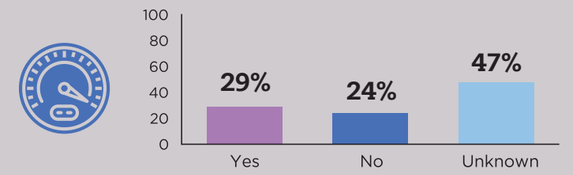
Distribution of MVC deaths by race-ethnicity

Race/Ethnicity	Percent
Non-Hispanic White	19
Hispanic	57
American Indian/Alaska Native	19
Black	5

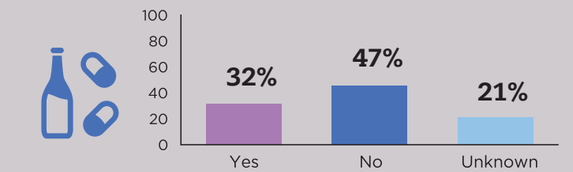
MVC timing related to pregnancy

Type of MVC

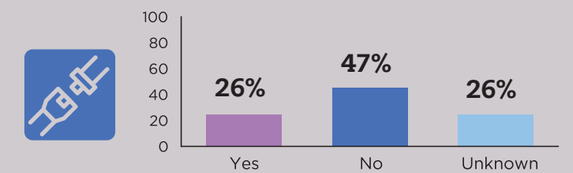
In vehicle that was speeding at time of MVC



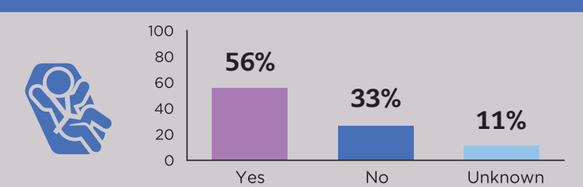
Substance use noted for driver of vehicle at time of MVC



Seat belt use of decedent at time of MVC



Unrestrained children in vehicle among crashes with a child in vehicle (N=9)



Composite Case Narratives

The following case narratives have been created to highlight problems that, if remedied, could save lives in the State of New Mexico. These case narratives do not describe actual cases but have been written to illustrate themes that emerged from our review of 2015-2018 deaths.

Maternal Mortality Case Example "Amy": Perinatal Depression Without Follow-Up and Lapsed Insurance Coverage

"Amy" was a 24-year-old white woman pregnant for the second time. Her first baby had been born six months prior. She found out she was pregnant during an emergency room visit for abdominal pain. Amy was not using birth control at the time, as she believed that breastfeeding would prevent her from becoming pregnant. She was having relationship problems with her partner, and they were fighting a lot, which Amy reported to the hospital staff as stressful. The couple had moved to New Mexico recently and had no local family or other support.

Amy established care with a midwife once she found out she was pregnant. A mental health screening test noted depression and anxiety at her first visit. Amy declined medication treatment and was given a list of counselor/therapist resources in her community. There was no mention of follow-up for her depression in the prenatal record.

Amy felt decreased fetal movement the day before her due date and went into the hospital at which time an emergency C-section was performed due to concerns about the fetus. The baby was in the hospital's neonatal intensive care unit for 15 days due to respiratory problems. Amy was discharged from the hospital four days after her baby was born and given appointments for follow-up in two and six weeks. Amy had to travel to and from the hospital to visit the baby but was only able to do so when her partner was available to watch their other child. She missed her 2 and 6-week postpartum appointments.

Although there were no records of calls made to try to reschedule or assess the new mom, there was a record of one call from Amy at 12 weeks postpartum, during which Amy stated that she was experiencing worsening depression. The nurse tried to schedule a follow-up appointment, but Medicaid insurance for Amy's pregnancy had expired. Amy was told she would have to pay for her visit, which she stated she could not afford. Amy was found dead 120 days after delivery, having died by carbon monoxide poisoning caused by enclosing herself in a garage with the car running. A suicide note was found.

Maternal Mortality Case Example "Celia": Distance to Care for Rural Residents

"Celia" was a 38-year-old Native American woman pregnant with her second baby. She lived in a rural area of New Mexico with a two-hour drive to prenatal care. Celia had a history of a preterm birth and was anxious about having this baby early as well. She was evaluated three times during her early third trimester for preterm labor at the local hospital emergency room, which had no obstetric providers. On the third visit, the emergency room physician assessed Celia to be 5 cm dilated and arranged air transport to the nearest medical center with a labor and delivery unit. When she arrived at the medical center, she was found to be 1cm dilated and she was sent home by car with her husband. The couple left the medical center at 3:30 a.m. On the way home, her husband fell asleep at the wheel, veered off the road, and collided with a tree. When emergency services arrived, Celia was dead.

Maternal Mortality Case Example "Beatriz": SUD, Trauma, and System Involvement Without Access to Trauma-Informed Care or Resources

"Beatriz" was a 19-year-old Hispanic person, pregnant for a third time, with a history of one spontaneous and one therapeutic abortion (no living children). At her first prenatal visit, Beatriz reported unstable housing and a poor relationship with her parents. She stayed with her boyfriend sometimes but felt that his family did not like her. Beatriz reported a history of sexual assault and anxiety. She was screened for depression and anxiety, intimate partner violence, and substance use. All screens were negative, except for anxiety. Beatriz stated that she had a counselor whom she saw regularly. No efforts were made to connect with the counselor or note who was providing care. Upon review of medical records, it was found that Beatriz had only one visit with the counselor.

Beatriz was offered home visiting services, but the referral was made too late for her to qualify. She attended four of nine scheduled prenatal visits, reporting problems with transportation. When Beatriz arrived at the hospital with complaints of contractions, she appeared "out of it" per nursing notes. Beatriz was asked to consent to a urine drug screen and declined. She was admitted for early labor and proceeded to have a vaginal birth. Beatriz's newborn was tested for substances and found to have methamphetamines and opioids in his system. When questioned, Beatriz stated that she never used any drugs, and there must have been an error. Child Protective Services (CPS) was called. Stating concerns about drug use, unstable housing, and lack of support systems, CPS removed the baby from Beatriz's custody. Beatriz was discharged home from the hospital with plans for a two-week postpartum follow-up. She came to the emergency room five days later, belligerent and complaining of pain. A urine test showed methamphetamines and opioids present. Her pain issues were not addressed as she was deemed to be "pain medication seeking," and she was discharged home. There is no note in the emergency room record indicating that Beatriz had been pregnant recently.

Beatriz attended her two-week postpartum visit, and sobbed, stating she was in terrible pain, that her heart was breaking, and that she wanted her baby back. Screening was done for depression, and she scored very high. Beatriz was instructed to go to the emergency psychiatric hospital for immediate evaluation. She went to the hospital but left without being seen. A week later, Beatriz was found dead in the bathtub at her boyfriend's house. She had drowned. Toxicology screen and autopsy showed multiple substances including toxic levels of Fentanyl in her blood. The cause of death was noted as an accidental overdose.

Recommendations

During each committee review meeting, the MMRC members develop recommendations to prevent future deaths in New Mexico. Recommendations are structured on who (agency or organization) will do what (specific recommendation action) when (during what phase of pregnancy) to reduce or prevent deaths in the future. Recommendations are neither punitive nor accusatory in nature but are presented to guide various stakeholders to act. The recommendations presented in this report have been organized by topic area and by potential leaders of future or developing interventions.

NM MMRC presents the following priority recommendations to address preventable causes of maternal mortality and to highlight opportunities to improve care and services for pregnant people and families in New Mexico.

The recommendations presented may represent activities currently being implemented by state agencies, community organizations, and perinatal health systems. However, the purpose of presenting these recommendations is not to highlight current activities; *instead, the following recommendations were created by the committee during the review of deaths that occurred between 2015 and 2018 to address preventable causes of pregnancy-associated mortality and should be prioritized for ongoing or new initiatives in New Mexico.*

Priority Recommendation 1: Expand Medicaid eligibility to provide full pregnancy benefits coverage for one year postpartum.

A priority recommendation that emerged across all topic areas, and should be paramount for action, is the expansion of Medicaid coverage for up to one year postpartum. New Mexico Medicaid has covered up to 71% of all births occurring annually in the state with coverage up to 60 days postpartum.[6] From 2015-2018, 61% of pregnancy-associated deaths occurred 43 or more days after pregnancy, with many falling outside of the current coverage period for Medicaid benefits. To address this gap, expanded eligibility up to one year postpartum is urgently needed for all postpartum individuals. Expanded coverage must include mental health, substance use, and violence prevention services.

ACHIEVED.

On April 1, 2022, New Mexico Medicaid coverage was **expanded from 60 days to a full year postpartum**. It is estimated that this extension in coverage will benefit **17,000 New Mexicans**.

6 Kaiser Family Foundation Survey of Medicaid Officials in 50 states and DC conducted by Health Management Associates, October 2019.

Priority Recommendation 2: Increase access to perinatal mental healthcare and support by expanding treatment options, including telehealth models, and integrating wrap-around services, such as home visiting, particularly in rural communities.

The committee identified an urgent need to expand access to mental health care services, having found that mental health conditions contributed to over a third of both pregnancy-associated (42%) and pregnancy-related (36%) deaths.

NM MMRC recommendations for mental health center on expanding the workforce to both screen for and provide perinatal mental health services. The committee recommends that expanded screening for mental health conditions be conducted by all types of health care providers including family practitioners, emergency medicine practitioners, midwives, pediatric providers, and OB-GYNs for pregnant and postpartum persons (up to one year postpartum).[7,8]

Electronic medical records (EMR) systems should be configured to trigger validated screening for perinatal depression upon initiation of prenatal care, with follow up at appropriately timed intervals during pregnancy and the postpartum period, as well as during well-child visits. Current evidence indicates that standardized screening processes are effective in identifying individuals in need of treatment and support, and they have the potential to save lives.[9,10]

Expanding capacity at inpatient and outpatient treatment facilities, as well as home visiting and wrap-around services, should be prioritized. To improve access in rural areas, tele-mental health services should also be expanded and incentivized by Medicaid and all insurance providers.

Finally, national campaigns, such as the CDC's Hear Her campaign that raises awareness of all maternal health warning signs, should specifically be leveraged to decrease stigma and raise awareness about perinatal mental health, anxiety and mood disorders.

Policy and Budgetary Recommendations

- Increase funding to expand training programs for behavioral health/SUD treatment providers.
- Expand reimbursement for telehealth as an approach to behavioral health services.

NM DOH & NM Human Services Department

- Expand the development of public health campaigns to give voice to those who have mental health or medical conditions and continue to promote the CDC's "Hear Her" campaign with local adaptations.

Perinatal Systems of Care

- Recruit and support mental health professionals within health systems to increase the mental health workforce across the state.
- Implement standardized screening tools within EMRs to trigger assessment for depression and other mental health disorders during the prenatal and postpartum periods and newborn visits to allow better identification of pregnant and postpartum people with mental health disorders

7 Nathan Beucke, Andrea Pauley, Shannon VonDras, Rachel Kryah; Postpartum Depression Screening, Referral, and Follow-Up in Pediatric Primary Care: The Healthy Steps Effect. Pediatrics August 2019; 144 (2_MeetingAbstract): 62. 10.1542/peds.144.2MA1.62

8 Pluym ID, Holliman K, Afshar Y, Lee CC, Richards MC, Han CS, Krakow D, Rao R. Emergency department use among postpartum women with mental health disorders. Am J Obstet Gynecol MFM. 2021 Jan;3(1):100269. doi: 10.1016/j.ajogmf.2020.100269. Epub 2020 Oct 20. PMID: 33103100; PMCID: PMC7574686.

9 Kendig, Susan JD, MSN; Keats, John P. MD, CPE; Hoffman, M. Camille MD, MSCS; Kay, Lisa B. MSW, MBA; Miller, Emily S. MD, MPH; Moore Simas, Tiffany A. MD, MPH; Frieder, Ariela MD; Hackley, Barbara PhD, CNM; Indman, Pec EdD, MFT; Raines, Christena MSN, RN; Semenuk, Kisha MSN, RN; Wisner, Katherine L. MD, MS; Lemieux, Lauren A. BS Consensus Bundle on Maternal Mental Health, Obstetrics & Gynecology: March 2017 - Volume 129 - Issue 3 - p 422-430 doi: 10.1097/AOG.0000000000001902

10 Screening for perinatal depression. Committee Opinion No. 757. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018; 132, e208-e212.

Priority Recommendation 3: Address the extremely limited availability of inpatient and community-based substance use disorder treatment programs for pregnant and parenting individuals by increasing treatment capacity statewide.

Perinatal substance use disorder (SUD) was a contributing factor in nearly half of both pregnancy-associated and pregnancy-related deaths.

Recommendations center on increasing access to substance use treatment services beginning with an increase in statewide capacity for both inpatient and outpatient treatment programs. Especially needed are programs structured to allow for the participation of individuals parenting infants and young children. Facilities should work to create supportive environments for persons with SUD by providing programs such as group prenatal care; increasing wrap-around services, such as home visiting programs; and creating environments that promote respectful care. Additionally, coordination among SUD treatment programs, including methadone treatment facilities, is needed to ensure continuity and quality of care for individuals receiving opioid replacement therapy (ORT).

Consistent with established clinical best practice, implementation of standardized verbal screening for substance use with a validated screening tool should be universal across all perinatal healthcare sites in the state. Trainings on screening, treatment, and biases in caring for persons with SUD should be mandated for facilities and incentivized by the state and insurance providers. Ultimately, the committee recommends that every facility (hospital/clinic) and provider have the ability and resources to care for pregnant people using substances in a manner that respects patient autonomy and reduces stigma. Furthermore, the committee recommends that all perinatal care facilities and providers implement the Alliance for Innovation on Maternal Health (AIM) Maternal Safety Initiative bundle, Caring for Pregnant and Postpartum People with Substance Use Disorder[11].

Finally, communication and public service campaigns should be conducted to increase awareness and reduce the stigma surrounding perinatal SUD.

Policy and Budgetary Recommendations

- Increase number of outpatient and inpatient treatment programs (including for dual diagnosis of mental health disorders and SUD during pregnancy, postpartum, and pre-conception periods) and expand access for people with young children.

NM DOH, CYFD, NM Early Childhood Education and Care Dept (ECECD) & NM Human Services Department

- Develop public health campaigns to increase public health announcements on how to use/obtain naloxone, especially for pregnant or postpartum people.
- Fund case management or social work follow-up for families with SUD during pregnancy and up to 12 months postpartum.
- Provide incentives and payment differentials to increase access to opioid replacement therapy programs for pregnant people and ensure appropriate reimbursement for services.

Professional / National Organizations

- Encourage the National Institutes of Health (NIH), SAMHSA, and the CDC to develop targeted funding for coordinated research efforts in evidenced-based treatment for SUD, to address methamphetamine use, and to support transition between pregnancy and parenthood.
- Advocate for the addition of methadone to the NM PMP to facilitate coordination of care between methadone clinics and prenatal providers.

Perinatal Systems of Care

- Increase availability of substance use treatment and integrate systems for ORT so pregnant and postpartum persons can be started or restarted on ORT in the Emergency Department or OB Triage settings with coordinated referral for ongoing care.
- Promote and provide group and alternative care models for prenatal and postpartum for persons with SUD.
- Participate actively in the AIM Maternal Safety Initiative to implement best practices in care of substance using individuals during the perinatal period, including implementation of the SUD-focused maternal safety bundle and data tracking to assess progress and impact.
  - Require all perinatal care providers to receive training in SUD in pregnancy, including buprenorphine waiver trainings.
  - Create protocols/guidelines for narcotic prescribing after procedures and circulate fewer narcotics in community.
  - Require and implement training to staff and providers about respectful communication and create environments that are welcoming to pregnant and postpartum people with SUD (examples are trainings on unconscious bias and stigma related to SUD).
  - Implement evidence-based protocols and increase training on pain management for providers that includes recognizing racial bias and possible discrimination towards patients in pain to help address under and over treatment.

11 Care for Pregnant and Postpartum People with Substance Use Disorder | AIM Program (Previously Council on Patient Safety) (safehealthcareforeverywoman.org)

Priority Recommendation 4: Increase resources for Care Coordination, Continuity of Care, and Access to Care between prenatal/postpartum care providers, substance use treatment, and mental health treatment

In addition to the recommendations above specific to mental health and substance use services, creating linkages between care access points is essential. Inadequate care coordination and service gaps were recurring themes among cases reviewed by the committee. **Increasing coordination between prenatal/postpartum care providers, substance use treatment, and mental health treatment has the potential to save lives.** Emergency services and pediatric providers must also be engaged to ensure all points of contact with health care systems are aware if a person is pregnant or has recently been pregnant. To facilitate access to care for patients with mental health disorders and SUD, online directories of existing mental health resources, treatment facilities, and providers should be maintained, expanded, cross-referenced with SUD treatment, and publicized widely to community members and perinatal care providers.

Establishing systems to follow-up with people who miss prenatal or postpartum appointments, either through routine health channels or through home visiting services, was also recommended by the committee. Given the rurality of New Mexico and the lack of services in many areas of the state, expansion of telehealth models for routine prenatal care, social services, as well as mental health and substance use is recommended. In addition, the state should work to ensure that rural communities have broadband internet connections necessary to utilize telemedicine services.

Policy and Budgetary Recommendations

- Increase funding for telehealth models of care, including increased broadband access for service provision as well as reimbursement for services.
- Expand reimbursement for telemedicine as an approach to prenatal care services, substance use treatment, and behavioral health counseling.

NM DOH, ECECD & NM Human Services Department

- Increase funding and workforce support for universal home visiting programs supporting NM birthing and parenting families.
- Support and disseminate the ongoing comprehensive, statewide, web-based directories of SUD treatment and behavioral health counseling services; ensure resources are publicized and easily accessible to healthcare providers and the public

Perinatal Systems of Care

- Establish a coordinated system for postpartum follow-up if missed appointments are noted and include EMR tracking enhancements to alert clinic staff to “no-shows” and breaks in care.
- Implement protocols that require screening for access to transportation to/from prenatal care and identify resources for pregnant and postpartum people as needed.

> *“Increasing coordination between prenatal/postpartum care providers, substance use treatment, and mental health treatment has the potential to save lives.”*

Priority Recommendation 5: All birthing hospitals, freestanding birth centers, and perinatal healthcare providers should participate actively in ongoing perinatal quality improvement activities that have been shown to reduce the leading causes of maternal mortality.

Hemorrhage and cardiac conditions accounted for the most common medical causes of pregnancy-associated deaths. To address these conditions, the committee recommends that all perinatal healthcare facilities should participate in the AIM Maternal Safety Initiative, a quality improvement program which focuses on the implementation of maternal safety best practices that address recognition, preparedness, and standardized treatment for maternal health emergencies such as OB hemorrhage, hypertension, and infection. Consideration should be given to incentivize systems that are implementing AIM bundles. In addition to the implementation of AIM safety bundles, specific clinical recommendations pertaining to OB hemorrhage and hypertension also emerged during committee review and are included below as additional areas for action.

> *"Hemorrhage and cardiac conditions accounted for the most common medical causes of pregnancy-associated deaths."*

OB HEMORRHAGE

Perinatal Systems of care

- All birthing facilities should have a Massive Transfusion Protocol (MTP) or emergency hemorrhage protocol (tailored to institution and blood product availability) with training and simulations on how to activate/use it, including guidelines for immediate transfer if no availability.
- Facilities with blood banks should consider carrying cryoprecipitate for OB hemorrhage emergencies.
- Ensure that women with previous cesarean section are further evaluated for placenta location/implantation prior to delivery.
- Increase education to providers regarding recognition of sepsis versus bleeding (causes of shock).

OB HYPERTENSION

Perinatal Systems of care

- Establish guidelines which include timely notifications to providers and treatment for high blood pressure, particularly in emergency rooms, for pregnant and recently pregnant patients (as well as for all reproductive age patients on combined oral contraceptives).
- Monitor patients with hypertensive disorders longer in the postpartum period before discharging patient after delivery (per ACOG guidelines).

Priority Recommendation 6: Increase resources and support for the identification, prevention and intervention to address intimate partner violence (IPV)

IPV was determined to be a contributing factor in nearly 20% of pregnancy-associated deaths. Screening and referral for persons experiencing IPV should occur more frequently during prenatal care and at other healthcare service delivery points, such as emergency departments and pediatric well-child visits. Increasing awareness and comfort level with screening tools and where to refer persons experiencing IPV is essential and needed throughout the state. Law enforcement agencies must also have the tools and resources needed to protect and support persons experiencing IPV.

NM DOH & NM Injury Prevention Coalition

- Create and maintain a comprehensive and current list of safe houses and counseling services in the community for use by healthcare providers for persons experiencing IPV.
- Provide recommendations for gun safety in the home.

NM Department of Public Safety & Local Law Enforcement Agencies

- Provide funding to increase support staff to law enforcement agencies to include expertise in handling IPV situations and develop an IPV response unit in conjunction with local police departments.
- Enforce existing legislation to require firearm removal in households with violent crime charges pending.

Perinatal Systems of Care

- Consider gun violence as a medical/public health issue and include gun safety as part of routine screening.
- Provide support services for those experiencing IPV, including referrals for safe housing and counseling.
- Screen for IPV at each encounter postpartum for up to a year.
- Ensure that persons with mental health disorders have gun safety strategies in place (have gun safe or locked box to store ammunition) or do not have gun in home

Priority Recommendation 7: Raise community-level awareness of the significant role of motor vehicle crashes (MVCs) in pregnancy-associated deaths, and increase funding for education on risks, proper use of seatbelts, and enforcement of road safety regulations.

More than one quarter of pregnancy-associated deaths were the result of MVCs, with more than half occurring among unrestrained persons. Excessive speed and substance use were significant contributing factors in these cases. Increasing campaigns on seatbelt use and distracted driving should be targeted towards pregnant and postpartum people and their families. Additional resources are needed to enforce road safety regulations.

> *"More than one quarter of pregnancy-associated deaths were the result of MVCs..."*

Policy and Budgetary Recommendations

- Increase funding and human resources for motor vehicle safety campaigns, particularly in rural areas, so current laws can be followed.
- Perform toxicology screens for drivers and passengers in all MVC deaths.

State Agencies and Community Partners

- Collaborate to develop a parent-child safe driving campaign that focuses on driving risks that may be more prevalent during prenatal and postpartum periods such as fatigue, distraction within the vehicle with young children, safety of seat belts during pregnancy, availability of seat belt extenders and car-seat use.
- Increase public education on distracted driving (i.e., eating, texting, fighting, etc.) in vehicle specifically targeted to pregnant and postpartum people.
- Create public messaging about drinking and driving targeted to pregnant and postpartum people and their families.

New Mexico Department of Health Initiatives on Maternal Health

The NM DOH is currently implementing several initiatives that specifically address findings in this report. These activities include but are not limited to the following:

- Improving processes and best practices in maternal mortality review through national network engagement, technical assistance, and funding through the CDC ERASE Maternal Mortality Program.
- Increasing collaboration with community partners to diversify MMRC membership and increase the full range of expertise available to inform comprehensive reviews and formulate actionable recommendations. State-based and national leaders are also providing consultation to improve processes for conducting productive and collaborative multidisciplinary reviews. The MMRC is specifically indebted to the Black & Indigenous Maternal Child Health Policy Coalition whose leadership has been instrumental in guiding this work.
- Participating in the Postpartum Working Group that laid the groundwork for Postpartum Medicaid eligibility expansion.
- Funding the AIM maternal safety bundle initiative led by the New Mexico Perinatal Collaborative (NMPC):
  - Currently 23 out of 26 non-federal birthing hospitals are enrolled in this program
  - The program supports bi-weekly Improving Perinatal Health ECHO sessions to support collaboration between hospitals and to promote best practices
  - DOH shares outcomes data to assess impact of best practices implementation
  - NMPC is supporting the implementation of the hemorrhage and hypertension bundles and is in the process of rolling out the SUD bundle

Conclusions

New Mexico birthing people face multiple challenges during their pregnancies and in the first year after pregnancy. The tragic deaths that the MMRC has reviewed and described in this report reflect the complexity of limited healthcare providers, difficulty in coordination of services, and the need for multiple levels of prevention. The recommendations brought forth in this report are meant to bring hope and to create actionable pathways to families, policy advocates, medical experts, state agencies and health systems.

Because SUD and other mental health conditions were implicated in over half of all pregnancy-associated, including pregnancy-related deaths, providing opportunities to identify and help persons struggling with depression, anxiety, substance use and inter-personal violence before and throughout pregnancy and the postpartum period is paramount. The resilient and impactful perinatal workforce, including birth workers, doulas, home visiting professionals, and social service advocates hold many tools and possible solutions to intervene and prevent future deaths. Bringing more resources and training to these trusted experts and further integrating medical and social services systems of care will allow us to work together on future mortality prevention strategies.

The NM MMRC will continue its work of identifying and understanding preventable deaths by improving representation from diverse communities throughout the state, naming the contributing factors to death, and creating recommendations for action. The NM MMRC is committed to sharing findings to advocate for improved reproductive healthcare and health outcomes for all New Mexican communities. Together we can create bold and innovative solutions to erase maternal mortality in New Mexico.

NMDOH

NEW MEXICO DEPARTMENT OF HEALTH

Maternal Health Program
New Mexico Department of Health
Family Health Bureau
www.nmhealth.org/about/phd/fhb/mch