MATERNAL MORTALITY: NEW JERSEY

2014 - 2016

NJ Health NJMCQC New Jersey Maternal Care Quality Collaborative

NJ Health NJMMRC New Jersey Maternal Mortality Review Committee

NJ Health NJMDC New Jersey Maternal Data Center

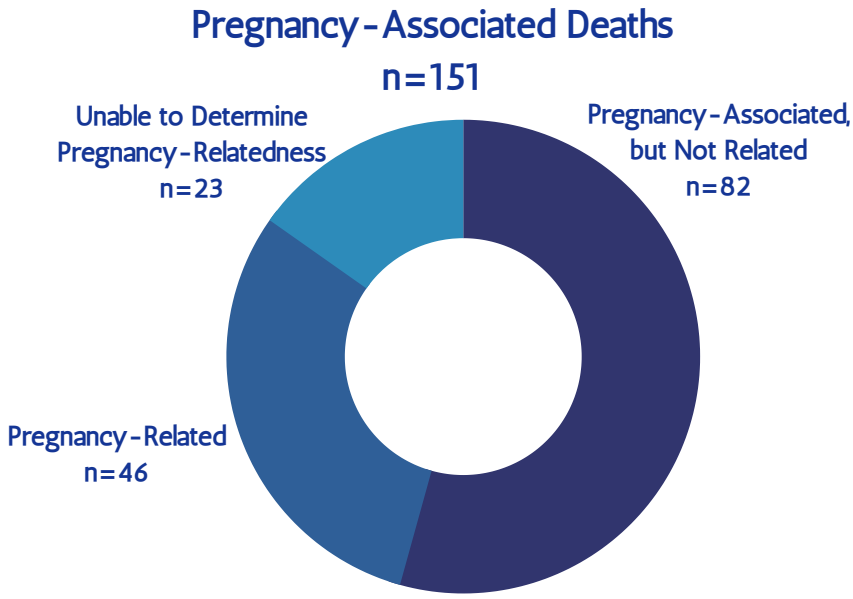
SUMMARY

PREGNANCY-ASSOCIATED DEATHS: 2014-2016

Key Findings (2014-2016)

- Approximately **30% (n=46)** of deaths among women during or within one year of the end of pregnancy were pregnancy-related
- Nearly **70% (n=28/41)*** of pregnancy-related deaths occurred during the postpartum period, within one year of the end of pregnancy
- Non-Hispanic Black women died from pregnancy-related causes at **7.6 times** the rate of non-Hispanic White women
- Nearly **1 in 4** pregnancy-related deaths were due to hemorrhage

*timing of death was not available for 5 pregnancy-related deaths



During 2014-2016 there were 151 pregnancy-associated deaths. The New Jersey Maternal Mortality Review Committee determined that 82 of these deaths were pregnancy-associated, but not related; 46 were pregnancy-related; and 23 were unable to be determined.

DEFINITIONS[1]

Pregnancy-Associated:
A death during or within one year of pregnancy, regardless of the cause.

Pregnancy-Related:
A death during or within one year 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.

MATERNAL MORTALITY

New Jersey, 2014-2016

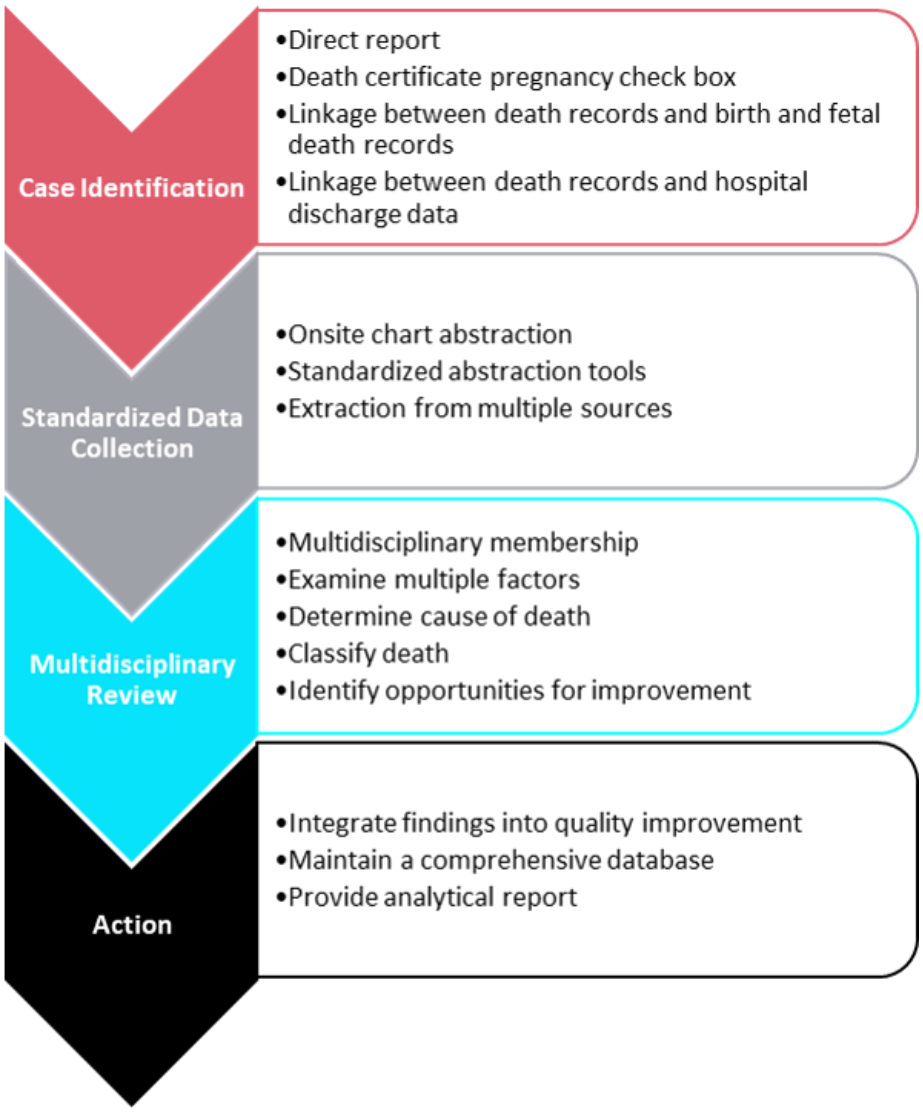
The New Jersey Maternal Mortality Review Committee (NJMMRC) is among the oldest in the United States and has worked collaboratively under the NJ Department of Health's (NJDOH) auspices for decades. The Department identifies pregnancy-associated deaths (deaths during pregnancy or up to a year after pregnancy) for the NJMMRC from death certificates, linkage with live birth or fetal death certificates, hospital discharge data files, coroner reports, and abstracted data from hospital health records. The NJMMRC assesses each case and determines whether the pregnancy-associated death is: (1) pregnancy-related; (2) pregnancy-associated, but not pregnancy-related; or (3) pregnancy-associated, but undetermined whether it is pregnancy-related. The NJMMRC then releases these data alongside contextual factors, such as causes and timing of death, and quality improvement recommendations.

The work of the NJMMRC is part of a longstanding commitment among healthcare professionals and other concerned citizens to reduce and prevent the number of deaths related to pregnancy and childbearing in New Jersey. The New Jersey Maternal Mortality Review Committee is an interdisciplinary team of 26 experts from across the state that, during the time period of this report, met quarterly. As part of the NJMMRC review of each case summary, committee members identify all of the factors that they feel contributed in some way to the woman's death and are tasked to make a recommendation for each contributing factor.

The following brief outlines the process as well as a summary of the issues identified as contributing to the pregnancy-related death and recommendations for action.

CASE REVIEW PROCESS

The NJMMRC process is consistent with the Center for Disease Control's: Review to Action model for review (https://reviewtoaction.org/implement/process-review). The model describes a four-step review process that includes:



Recommendations presented in this report were the result of the identification of contributing factors to pregnancy-associated deaths during NJMMRC committee deliberations. In 2017, New Jersey adopted the new data abstraction tool from CDC known as the Maternal Mortality Review Information Application (MMRIA). This tool includes determination of preventability and steps to create recommendations. Preventability was assessed beginning with the review of 2015 cases.

MATERNAL CHARACTERISTICS: BIRTHS AND DEATHS 2014 TO 2016

- Non-Hispanic Black women accounted for 13.9% of all live births from 2014-2016, however, they accounted for 41.3% of all pregnancy-related deaths during the same time period.
- Nearly half (47.7%) of pregnancy-related deaths were among women with an educational attainment level of a high school diploma, GED, or lower.

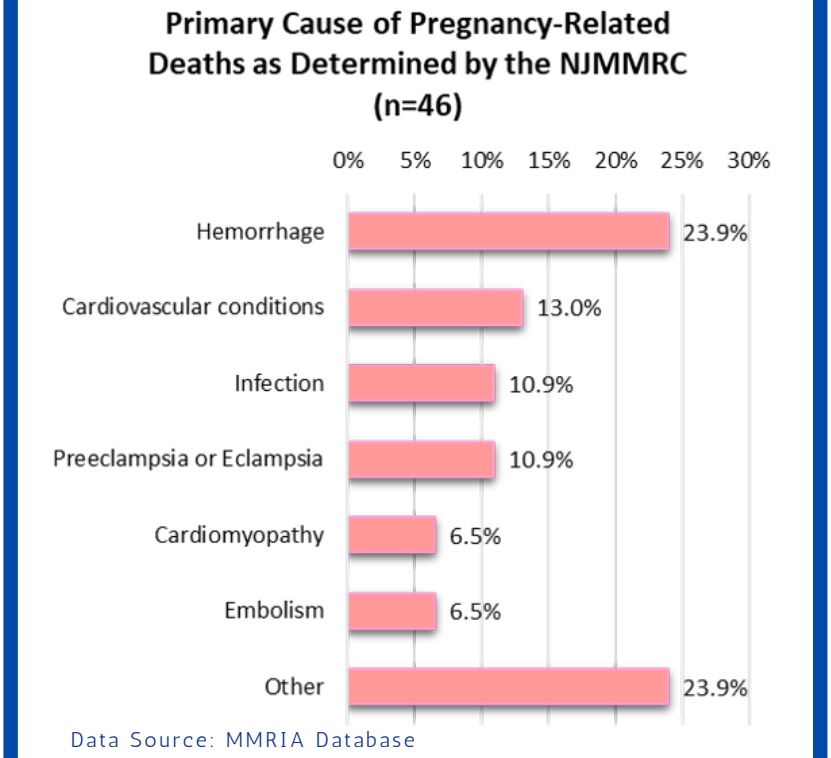
Characteristics of pregnancy-associated deaths in New Jersey, 2014-2016 (n=151)

Demographics	All Live Births (n=307,486)	Pregnancy-Associated, but Not Related (n=82) % (n)	Pregnancy-Related (n=46) % (n)	Pregnancy-Relatedness Undetermined (n=23) % (n)
Race/Ethnicity				
Non-Hispanic White Women	44.8%	46.3% (38)	17.4% (8)	47.8% (11)
Non-Hispanic Black Women	13.9%	30.5% (25)	41.3% (19)	30.4% (7)
Hispanic Women	27.0%	19.5% (16)	28.3% (13)	13.0% (3)
Other/Unknown Race/Ethnicity	14.4%	3.7% (3)	13.0% (6)	8.8% (2)
Maternal age*				
≤19	3.3%	--	4.4% (2)	4.4% (1)
20-24	14.1%	25.6% (21)	8.7% (4)	13.0% (3)
25-29	25.3%	17.1% (14)	28.3% (13)	17.4% (4)
30-34	33.1%	31.7% (26)	21.7% (10)	39.1% (9)
35-39	18.2%	14.6% (12)	19.6% (9)	8.7% (2)
40+	4.4%	9.8% (8)	15.2% (7)	17.4% (4)
Educational Status**				
High School Graduate/GED or less	18.2%	66.3% (53)	47.7% (21)	47.8% (11)
Some College	19.9%	16.3% (13)	13.6% (6)	30.4% (7)
College Degree or Higher	42.1%	17.5% (14)	33.6% (17)	21.8% (5)

*Age at death was not available for 4,605 live births, 1 pregnancy-associated, but not related death and 1 pregnancy-related death (portions of death certificate and birth certificate data were not available)
** Educational attainment was not available for 10,554 live births, 2 pregnancy-associated, but not related deaths, and 2 pregnancy-related deaths
Due to rounding, percentages may all not add up to 100%

Data Sources: Live Births-New Jersey Vital Statistics; Pregnancy-Associated Deaths-MMRIA Database

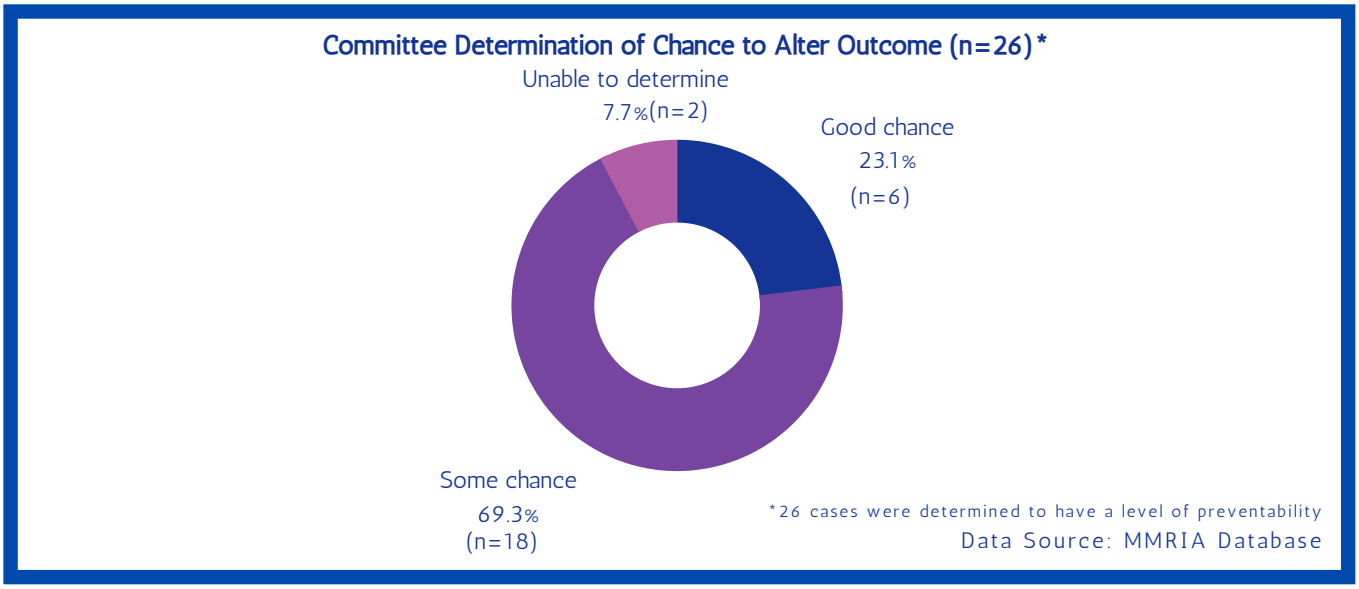
PREGNANCY-RELATED DEATHS



- Nearly 1 in 4 pregnancy-related deaths were due to hemorrhage.
- 13% (n=6) of deaths were caused from cardiovascular and coronary conditions.
- Other causes include amniotic fluid embolism (4.3%, n=2), mental health conditions (4.3%, n=2), metabolic/ endocrine conditions (4.3%, n=2), cerebrovascular accidents (2.2%, n=1), malignancies (2.2%, n=1), seizure disorders (2.2%, n=1), conditions unique to pregnancy (2.2%, n=1), and unintentional injury (2.2%, n=1).
- Two (2) pregnancy-related cases had an undetermined cause of death.

Preventability

Assessments and documentation for preventability began with 2015 maternal deaths reviewed in 2018. The new forms capture the "chance to alter outcome," and the committee determines if there was a "good chance," "some chance," "no chance" or "unable to determine." Of the 46 pregnancy-related deaths reviewed in 2014-2016, 27 were reviewed after implementation of the new documentation in 2018. Of the cases reviewed after implementation of the tool, the committee provided assessment of preventability for 26 of the 27 cases. Overall, 19 cases were reviewed prior to implementation of the new MMRIA forms.



RACIAL DISPARITIES IN PREGNANCY-ASSOCIATED MORTALITY

During 2014-2016, the pregnancy-associated mortality ratio for New Jersey was 49.1 deaths per 100,000 live births. The ratio of pregnancy-associated, but not related deaths was higher than pregnancy-related deaths (26.7 vs. 15.0, respectively). Overall, regardless of relatedness, pregnancy-associated death ratios were higher among non-Hispanic Black women compared to non-Hispanic White women.

Pregnancy-Associated Mortality Ratio

- The pregnancy-associated, but not related mortality ratio was more than twice as high for non-Hispanic Black women than non-Hispanic White women.

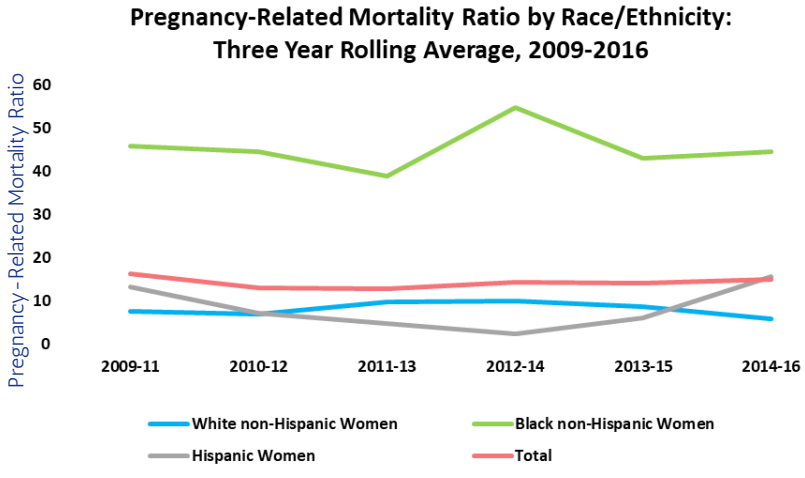
Pregnancy-Related Mortality Ratio by Race/Ethnicity

- Compared to non-Hispanic White women, the pregnancy-related mortality ratio was 7.6 times higher for non-Hispanic Black and 2.7 times higher for Hispanic women.
- The three-year rolling average calculates the average pregnancy-related mortality ratio within a three-year period to better observe changes over time.
- Since 2009, there has been a dramatic racial gap in pregnancy-related deaths, which has persisted over time.
- Since 2013-2015, the pregnancy-related mortality ratio for non-Hispanic Black women and Hispanic women has increased, while the ratio for non-Hispanic White women has decreased.

Race	Total Births 2014-2016	Pregnancy-Associated, but Not Related		Pregnancy-Related		Total Pregnancy Associated	
		Total Deaths	Ratio	Total Deaths	Ratio	Total Deaths	Ratio
Non-Hispanic White Women	137,600	38	27.6	8	5.8	57	41.4
Non-Hispanic Black Women	42,675	25	58.6	19	44.5	51	119.5
Hispanic Women	82,984	16	19.2	13	15.7	32	38.6
Total *	*307,486*	*82*	*26.7*	*46*	*15.0*	*151*	*49.1*

The pregnancy-associated mortality ratio = (# of deaths / # of births) x 100,000)
*Asian and other race/ethnicity is included in the totals only due to small numbers of deaths in each category
Unable to be determined=23 cases

Data Sources: Live Births-New Jersey Vital Statistics; Pregnancy-Associated Deaths-MMRIA Database



Unable to be determined=23 not included in chart
Data Source: MMRIA Database

Issues and recommendations were identified and written specifically by the committee during the review process.

Issues

- **Consumer Education**
  - Signs and symptoms of pregnancy complications
  - Increased access to family planning education
  - Increased knowledge of chronic health conditions & management in pregnancy
- **Provider Education**
  - Health care providers should be assessing if pregnancy was intended
  - Health care providers should conduct mental health assessments following a termination of pregnancy or spontaneous abortion or perinatal loss
  - Lack of health care provider knowledge on the safety of medications during pregnancy
  - Lack of health care provider awareness of mental illness, treatment options, and pregnancy management
  - Lack of access to medication-assisted treatment (MAT) for substance use during pregnancy
- **Systems**
  - Inaccurate response (documentation) of "pregnancy checkbox" on death certificates
  - Lack of access to complete medical records (i.e. prenatal care records, OB triage records, incomplete hospital files, antepartum documentation)
  - Lack of autopsy/toxicology conducted for deaths of undetermined causes and motor vehicle accidents
  - Mental illness: Lack of availability of crisis/inpatient beds

Recommendations

- **Screening and Intervention**
  - Implement universal postpartum depression screening
  - Implement universal domestic violence screening as it is not always completed at the time of admission
  - Referral to services and support for people with history of or current substance use disorders
- **Clinical practice**
  - Conduct postpartum visits within 3 weeks of delivery (per American College of Obstetricians and Gynecologists); women who experienced complications during pregnancy or during labor and delivery should be seen sooner
  - Utilize Central Intake Hub system as single point of entry for referral to supportive services for pregnant women and women with infants
  - Increase availability of providers who can administer MAT, Narcan and comprehensive monitoring of pregnant and postpartum women with Opioid Use Disorder
  - Assist NJ hospitals and healthcare providers in the implementation of Alliance for Innovation on Maternal Health (AIM) and Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) Hemorrhage Bundles
- **Consumer Education**
  - Provide postpartum education on post-birth warning signs
- **Reducing the racial gap**
  - Provide implicit bias and cultural sensitivity training to all providers
  - Address social determinants of health during each pregnancy and postpartum visit by developing a standardized tool

NEW JERSEY
MATERNAL MORTALITY REVIEW COMMITTEE*

Joseph Apuzzio, MD, Chair
University Hospital, Newark
Carlos Benito, MD
Saint Peter's University Hospital
Anthony Caggiano, MD
University Hospital, Newark
Damali Campbell, MD
University Hospital, Newark
Robyn D'Oria, APN
Central Jersey Family Health Consortium
Katharine Donaldson, MSN
Capital Health System
Stephanie Dougherty, RN
Hunterdon Medical Center
Deborah Goss, MD
Hackensack Meridian- Hackensack
University Medical Center
Quinn Ingemi, MA
Southern New Jersey Perinatal Cooperative
Lydia Lefchuck, MSN
St. Peter's University Hospital
Mary McTigue, DNP
Trinitas Hospital, Elizabeth
Alexis Menken, PhD
Montclair, New Jersey, Psychologist
Ann Mruk, MSN
Central Jersey Family Health Consortium
Mehnaz Mustafa, MPH
New Jersey Department of Health
James O'Mara MD
Capital Health-Trenton
Michael Petriella, MD
Hackensack Meridian- Hackensack
University Medical Center
Michele Preminger, MD
Waldwick, New Jersey
Bridget Ruscito, MD
Penn Medicine Princeton Health
Maya Sanghavi, MD
Hackensack Meridian-JFK Medical Center
Clayton Scott, MD
New Jersey Department of Health
Suzanne Spernal, DNP
RWJ Barnabas Health
Elena Such, RN
Hackensack Meridian-JFK Medical Center
Patricia Suplee, PhD
Rutgers University-Camden
Thomas Westover, MD
Cooper University Hospital-Camden
Alexander Wolfson, MD
Penn Medicine Princeton Health
Alex Zhang, MD
Middlesex County Medical Examiner

REPORT PREPARED BY:

Cheryl A. S. McFarland, PhD
Carly Worman Ryan, MA
Kate DiPaola, BS

*Committee members at the time these cases were reviewed.

Data Sources

LIVE BIRTHS

New Jersey Birth Certificate Database. Retrieved on December 26, 2020 from New Jersey Department of Health, New Jersey State Health Assessment Data website: http://nj.gov/health/shad.

PREGNANCY-ASSOCIATED DEATHS

Centers for Disease Control and Prevention Maternal Mortality Review Information Application. Retrieved on October 12, 2020 from MMRIA website: https://reviewtoaction.org/implement/mmria#collapseFour-mmria

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2. Review to Action. Retrieved on December 26, 2020 from https://reviewtoaction.org/implement/mmria

New Jersey Department of Health
Office of Population Health
P.O. Box 360
Trenton, NJ 08625
https://nj.gov/health/maternal/