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to the
U.S. Commission on Civil Rights

November 13, 2020

Good morning members of the Commission. I am Shanna Cox, Associate Director for Science in the Division of Reproductive Health at the Centers for Disease Control and Prevention (CDC). Thank you for the opportunity to speak with you today about some of the CDC's efforts to better understand and prevent maternal mortality and address persistent disparities in this outcome.

CDC is committed to preventing pregnancy-related deaths and ensuring the best possible birth outcomes. Yet, sadly, each year about 700 women die during or within one year of the end of pregnancy in the United States as a result of pregnancy or delivery complications.

National Data

The CDC's Division of Reproductive Health conducts national surveillance of pregnancy-related deaths through the Pregnancy Mortality Surveillance System, or PMSS. This system was developed because more clinical information was needed to fill data gaps about causes of maternal death, beyond what was available from death certificates alone. Moreover, it was recognized the need to better document pregnancy-related deaths beyond 42 days after pregnancy which is the time frame included in the World Health Organization and CDC National Center for Health Statistics definition of maternal death.

Each year, the PMSS program requests data from the 52 vital statistics reporting areas, which include the 50 states, New York City, and Washington DC. The reporting areas voluntarily send copies of death certificates for all women who died during pregnancy or within 1 year of pregnancy, and if applicable, copies of the matching birth or fetal death certificates. Additional information such as autopsy reports are provided when available. All of the information obtained is summarized, and medically trained epidemiologists review each case to determine the cause of death related to the pregnancy. The power of linking death certificate to the birth and fetal death certificate is it allows us to look at additional pregnancy-related factors like timing of death in relation to pregnancy.

The estimates from the PMSS are described as the pregnancy-related mortality ratio. This estimate represents the number of pregnancy-related deaths per 100,000 live births. Data from CDC's PMSS show that the pregnancy-related mortality ratio in the United States

increased from 7.2 deaths per 100,000 live births in 1987 when the system began to 16.9 deaths per 100,000 in 2016 (the most recent year data is available). It is not clear to what extent the increase is due to improvements and challenges in data reporting such as the addition of the pregnancy checkbox, and to what extent that increase is due to an actual increase in pregnancy-related deaths. Regardless, the rate of deaths is not decreasing and, given that these deaths are largely preventable, the numbers are absolutely unacceptable.

PMSS data allows us to look at patterns in pregnancy-related deaths that happen each year in the United States, with nearly 31 percent happening during pregnancy, 36 percent happening during delivery or the week after, and 33 percent happening one week to one year after delivery. Overall, heart disease and stroke caused more than 1 in 3 pregnancy-related deaths. Other leading causes included infections and severe bleeding. The leading causes of death varies by timing of the pregnancy-related death. In addition, black women are more likely to die in the late postpartum period, 43 to 365 days after pregnancy than white women.

Considerable racial disparities exist, with black women and American Indian/ Alaskan Native (AI/AN) women 2 to 3 times more likely to die from pregnancy-related complications than white women. We know that pregnancy-related deaths increase with age, but PMSS data shows the racial/ethnic differences actually increase with age: among black and AI/AN women older than 30, the rate of dying from pregnancy related complications was four to five times as high as it was for white women in comparable age groups. When you dig deeper looking at social determinants of health like education, the pregnancy-related mortality ratio for black women with at least a college degree was 5 times as high as for white women with a similar education. And even in places where pregnancy related mortality ratios are low relative to other states, significant differences persist. These findings suggest that the disparity observed in pregnancy-related death for black and AI/AN women is a complex national problem.

In addition, PMSS data demonstrate that the proportion of pregnancy-related deaths attributed to each cause vary by race-ethnicity. For example, cardiomyopathy and hypertensive disorders of pregnancy contributed more to pregnancy-related deaths among black women than white women. Hemorrhage and hypertensive disorders of pregnancy contributed more to pregnancy-related deaths among AI/AN than white women. These data underscore the importance of more detailed data to understand how and why women are dying, the drivers of disparities, and what we can do to better prevent these deaths. However, PMSS still relies primarily on vital records as the source of information and hence there remain issues around validity, accuracy and incomplete recording about the cause of death.

Maternal Mortality Review

Acknowledging the limitations of national surveillance using vital records alone, CDC Division of Reproductive Health has emphasized the importance of detailed reviews of maternal deaths as a core state public health function. Maternal Mortality Review Committees get the most detailed, complete data on maternal deaths and can develop recommendations for prevention specific to their local context.

Maternal Mortality Review is a process by which a multidisciplinary committee at the state or city-level identifies and reviews maternal deaths that occur during and within one year of pregnancy. Review Committees may include representatives from public health, obstetrics and gynecology, maternal-fetal medicine, nursing, midwifery, forensic pathology, mental and behavioral health, patient advocacy groups, and community-based organizations.

Data is collected and reviewed from diverse sources beyond vital records and include clinical and non-clinical information such as prenatal care and hospital records, autopsy reports, key informant interview, and social services records. Review Committees have access to multiple sources of information that provide a much deeper understanding of the details and circumstances surrounding each death in order to identify contributing factors and develop actionable recommendations to prevent future deaths.

So a bit of history of CDC Division of Reproductive Health's involvement to strengthen maternal mortality review committees: since 2016, through a partnership with the Association of Maternal and Child Health Programs and the CDC Foundation, with support from Merck for Mothers, CDC provided technical assistance to support state and local Maternal Mortality Review Committees, with every state requesting technical assistance during a three year period.

As there was increasing attention to the importance of addressing maternal mortality, we continued to use this platform to raise the visibility of this important work. In December of 2018, the Preventing Maternal Deaths Act of 2018 was enacted. It authorized activities at CDC to support states in their work to conduct maternal mortality reviews to inform strategies to reduce pregnancy-related deaths, eliminate disparities and improve the health of women during pregnancy, childbirth, and in the postpartum period.

Beginning in Fiscal Year 2019, CDC received an appropriation to more directly support state Review Committees. In the fall of 2019, CDC announced awards of more than \$45 million over five years to support the work of review committees through the Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) program for 24 awardees representing 25 states. The funding directly supports Maternal Mortality Review Committees to identify and characterize maternal deaths and related prevention recommendations by:

- Facilitating an understanding of the drivers of maternal mortality and complications of pregnancy and associated disparities;
- Determining what interventions at patient, provider, facility, system and community levels will have the most impact;
- So that we can implement initiatives in the right places for families and communities who need them most.

CDC continues to provide technical assistance and training to all Review Committees to assist in moving them forward. CDC is also partnering with the National Indian Health Board to identify the approaches and needs of American Indian and Alaska Native women.

Another key component of CDC's assistance to states is the Maternal Mortality Review Information Application (known as MMRIA) to support essential Review Committee functions such as data abstraction, case narrative development, documentation of committee decisions, and analysis. MMRIA is an Information Technology solution that facilitates standardized data across jurisdictions, so we not only have better data at the state level, but we also have a better picture of what is happening throughout the country. MMRIA helps walk through a number of considerations as reviewing maternal deaths such as use of emergency transport, and more recently added, a module on the role of discrimination. As more states improve the standardization of their review process, the data will improve. Over time this will lead to comprehensive data on maternal mortality in the U.S. that will identify recommendations for prevention from committees that can point the way to eliminating preventable maternal mortality in the U.S.

We are already receiving powerful information on maternal mortality from Review Committees. For example, data from 14 state MMRCs determined that each pregnancy-related death was associated with multiple contributing factors, including access to appropriate and high-quality care, missed or delayed diagnoses, and lack of knowledge among patients and providers around warning signs. It's not just one thing that will prevent these deaths. Review Committee data suggest the majority of deaths – about 2 in 3 – could have been prevented by addressing these multi-level factors. Of note, the proportion that are preventable does not differ by race/ethnicity.

While considerable progress has been made, much work remains to establish sustainable, fully functional Review Committees that collect and disseminate robust, accurate data that informs effective prevention of maternal mortality and saves the lives of women.

As more states implement and evaluate their efforts, we will build the evidence base to reduce maternal deaths and related disparities. With improved data, we can have a better understanding and identify the initiatives that will have the most impact.

Understanding the Drivers of the Disparities

As we improve the data, we will better be able to identify the drivers of maternal deaths and most importantly address disparities. Developing a better understanding of the racial disparities in pregnancy-related deaths is a critical question that continues to drive research and discussion. The bottom line: addressing this complex national problem requires coordination and collaboration among community organizations, health facilities, patients and families, health care providers, and health systems.

Some of the factors to be addressed include:

- *Variation in Hospital Quality.* There is evidence that some of differences in quality of care received in hospitals vary by race. A national study found a similar prevalence of pregnancy related complications among black and white women, but a significantly higher case-fatality rate among black women. Several studies have suggested that black women are more likely than are white women to receive obstetric care in hospitals that

provide lower quality of care. Hospitals that disproportionately care for black women at delivery had increased poor outcomes for both black and white women in those hospitals.

- *Underlying Chronic Conditions.* Chronic conditions such as cardiovascular diseases are more prevalent in black women, and these chronic conditions are associated with increased risk of pregnancy-related mortality.
- *Access to Risk Appropriate/ Quality Care.* In individual cases, there may be access issues related to the appropriate level of care. For example, we know that many AI/AN women are more likely to live in rural and frontier areas of the country where there may be challenges in accessing risk appropriate care.
- *Impacts of Structural Racism and Implicit Bias on Health.* A growing body of research documents the role that structural racism and implicit bias play a role in generating these differences. Structural racism is the macrolevel systems and ideologies that generate and reinforce inequities among racial and ethnic groups. For example, racial segregation plays a role in health care facility access and delayed prenatal care initiation is associated with experiences of racism. These chronic stressors are related to the weathering hypothesis which proposes that black women experience earlier deterioration of health because of the cumulative impact of exposure to psychosocial, economic, and environmental stressors. This hypothesis may be supported in the PMSS data I discussed earlier, the trajectory in the increases in maternal mortality by age is much sharper for black and American Indian/Alaskan Native women than white women.

In addition to strengthening the data on maternal mortality, CDC is supporting efforts to improve the quality of care women receive during pregnancy and the year postpartum. For example, Review Committees often work closely with state Perinatal Quality Collaboratives (PQCs). PQCs are state networks of teams working to improve the quality of care for mothers and babies. PQC members use data to identify health care processes that need to be improved and use the best available methods to make changes as quickly as possible. PQCs are working on maternal health initiatives addressing things like maternal opioid use disorder, hypertension, and hemorrhage. Illinois MMRC data demonstrated the need for support for sustainable quality improvement efforts. A paper came out this month that showed the Illinois Perinatal Quality Collaborative improved timely treatment for women with severe high blood pressure, increasing the percentage of patients treated within 60 minutes from 41% at baseline to 79% in the first year of the project. This is an important approach and we need to be sure quality improvement efforts reach the hospitals that need them most, even if they may have fewer resources to implement such activities. CDC funds 13 state PQCs, including Illinois, and the National Network of PQCs to disseminate strategies related to improving quality of care more broadly to PQCs across the country.

Risk-appropriate care is another strategy to improve health outcomes for pregnant women and infants. Standardized, risk-appropriate care can assure the right care in the right places at the right time for women. States may develop coordinated regional systems to help ensure that pregnant women and infants at high risk of complications receive care at a birth facility that is

best prepared to meet their health needs. CDC developed the CDC Levels of Care Assessment Tool (LOCATe) to help states create standardized assessments of levels of maternal and neonatal care. CDC works with states on the implementation of LOCATe to strengthen states' ability to understand the resources and challenges in their health care systems.

The Division of Reproductive Health's Pregnancy Risk Assessment and Monitoring System can provide a host of contextual data that describes the experiences of women with a recent live birth before, during and after pregnancy for important domains of interest. For example, In May of 2019, the American College of Obstetricians and Gynecologists issued a Committee Opinion on Redefining the Postpartum Visit. This document highlighted that postpartum care should become an ongoing process, rather than a single encounter, with services and support tailored to each woman's individual needs. Data systems like PRAMS can help us understand differences in postpartum care visit attendance, content of health care and counseling received and barriers to postpartum care attendance. Addressing and tracking respectful care, including the impacts of a birth companion, is something we have found improves outcomes in our global work. We are interested in looking at this on a larger scale domestically, as well. NYC has included some questions through the Pregnancy Risk Assessment and Monitoring System that could help us measure efforts.

In August 2020, CDC released a national communication campaign that brings attention to maternal morbidity and mortality in the United States. **Hear Her** seeks to raise awareness of potentially life-threatening warning signs during and in the year after pregnancy and encourages the people supporting pregnant and postpartum women to really listen and take action when she expresses concerns.

The **Hear Her** campaign is inspired by the people who have been personally affected by a severe pregnancy-related complication or death and features stories of women who have experienced urgent maternal warning signs. Listening to and taking seriously the concerns of pregnant and postpartum women are simple, yet powerful actions to prevent adverse health outcomes and even death.

As of October 2020, there have been over 115,000 unique visitors to the HearHer website and over 6,000 unique users have engaged with Facebook posts. Overall, moms received 11.5M impressions in August and September. Our media strategy incorporated the need to reach African American moms, who received 5.7M impressions in August and September resulting in 23K clicks to the Hear Her Website. We are now working to expand the campaign to better reach providers and American Indian and Alaskan Native women.

Over time, ensuring we have robust, accurate data that can inform data-driven actions will work to eliminate preventable maternal deaths in the U.S. Quality improvement initiatives are essential, but these efforts need to be accessible to all facilities that serve women. Utilizing communication efforts to raise awareness of the urgent maternal warning signs and encourage providers to listen to women and address their concerns will also help ensure women receive the timely quality care they need. Working together with other stakeholders including federal

agencies and clinical and non-clinical organizations will help us amplify these messages. Racial disparities are a critical piece to solve the puzzle of pregnancy-related deaths in our country, we are working to ensure that reductions in adverse outcomes are achieved among those that bear the largest burden.

Thank you for your time and interest in this important public health issue. I'm happy to answer any questions you may have.

Racial/Ethnic Disparities in Pregnancy-Related Deaths — United States, 2007–2016

Data confirms significantly higher pregnancy-related mortality ratios among Black and American Indian/Alaskan Native women. These gaps did not change over time.



700

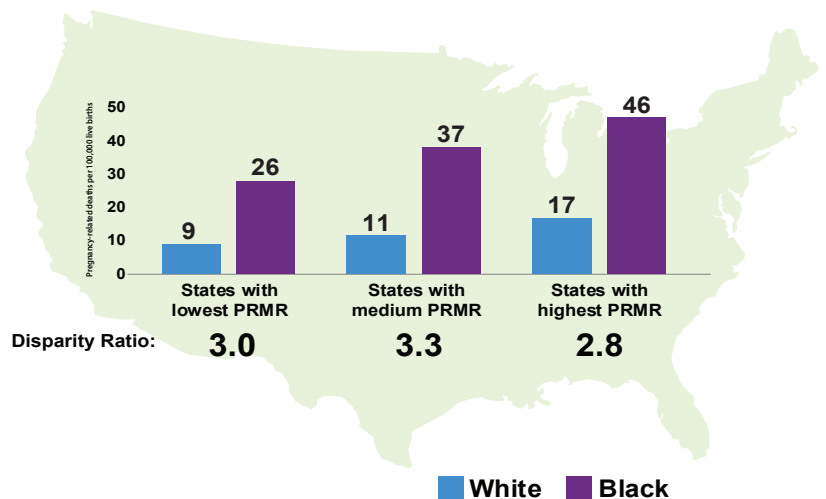
About 700 women die each year in the U.S. as a result of pregnancy or its complications.

2-3x

American Indian/Alaska Native and Black women are 2 to 3 times as likely to die from a pregnancy-related cause than white women.

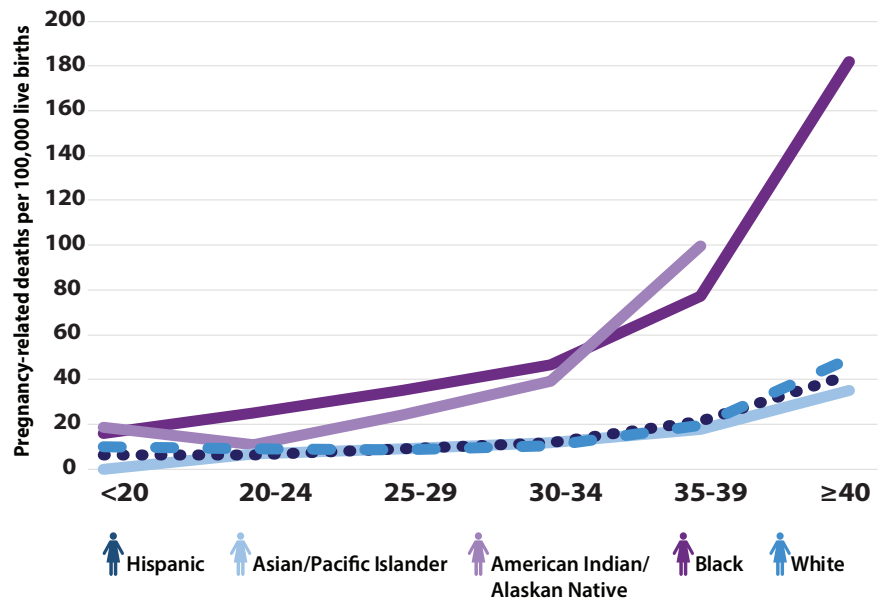
Disparities Across the Nation

State Pregnancy-Related Mortality Ratios (PRMR) were placed equally into three groups (high, medium, low) and the PRMR was further calculated by race/ethnicity for each group. Even in states with the lowest PRMR, the PRMR for black women was about 3 times as high as the PRMR for white women.



Disparities by Age

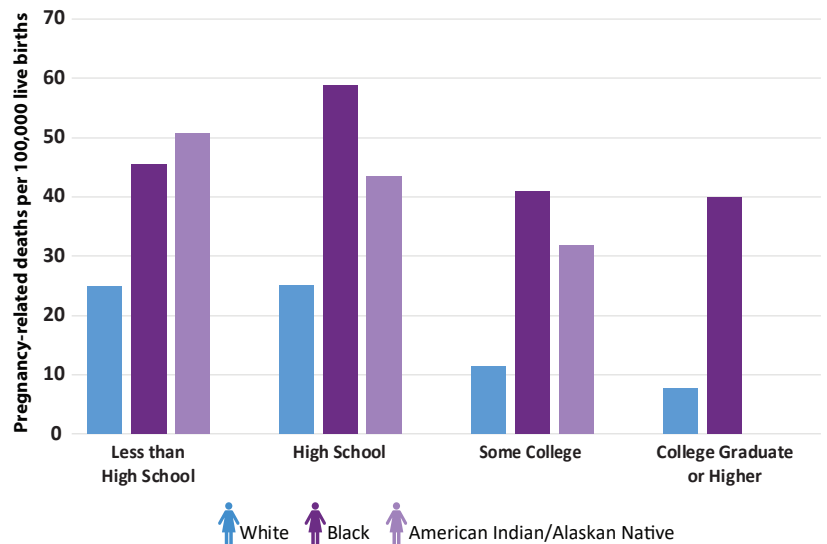
Inequities increase by age, with the disparity for black and AI/AN women older than 30 years four to five times that of their white counterparts. For example, the disparity ratio for black women compared to white women ranged from 1.5 among the <20 years age group to 4.3 for the 30–34 years age group.



Disparities by Education Level



The PRMR for black women with at least a college degree was 5 times as high as white women with a similar education.



For More information

For more information on CDC's activities to better understand and prevent pregnancy-related deaths, please visit www.cdc.gov/reproductivehealth/maternal-mortality/index.html.



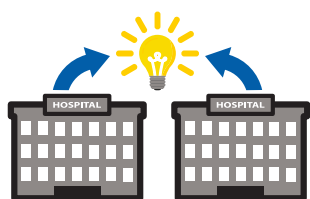
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Perinatal Quality Collaboratives: Working Together to Improve Maternal Outcomes



Overview

Perinatal Quality Collaboratives (PQCs) serve an important role, providing infrastructure that supports quality improvement efforts addressing obstetric care and outcomes. State-based PQCs partner with hospitals, providers, nurses, patients, public health, and other stakeholders to provide opportunities for **collaborative learning**, **rapid response data**, and **quality improvement science support** to achieve systems-level change.



Collaborative
Learning



Rapid Response
Data



Quality Improvement
Science Support

Improving Maternal Outcomes

PQCs have contributed to important changes in healthcare and led to significant improvements in maternal and infant outcomes. For example:

- The Illinois Perinatal Quality Collaborative improved timely treatment for women with severe high blood pressure, increasing the percentage of patients treated within 60 minutes from 41% at baseline to 79% in the first year of the project.
- The Northern New England Perinatal Quality Improvement Network improved care for women with opioid use disorder, increasing access to medication-assisted treatment (11% to 36%) and breastfeeding counseling (51% to 72%) over a 13-month time period.
- The California Maternal Quality Care Collaborative reduced serious pregnancy complications among women with severe bleeding during pregnancy or delivery, decreasing rates by 22.7% at baseline to 18.0% in the last half of the 14-month project.



41%
to
79%



11%
to
36%



51%
to
72%

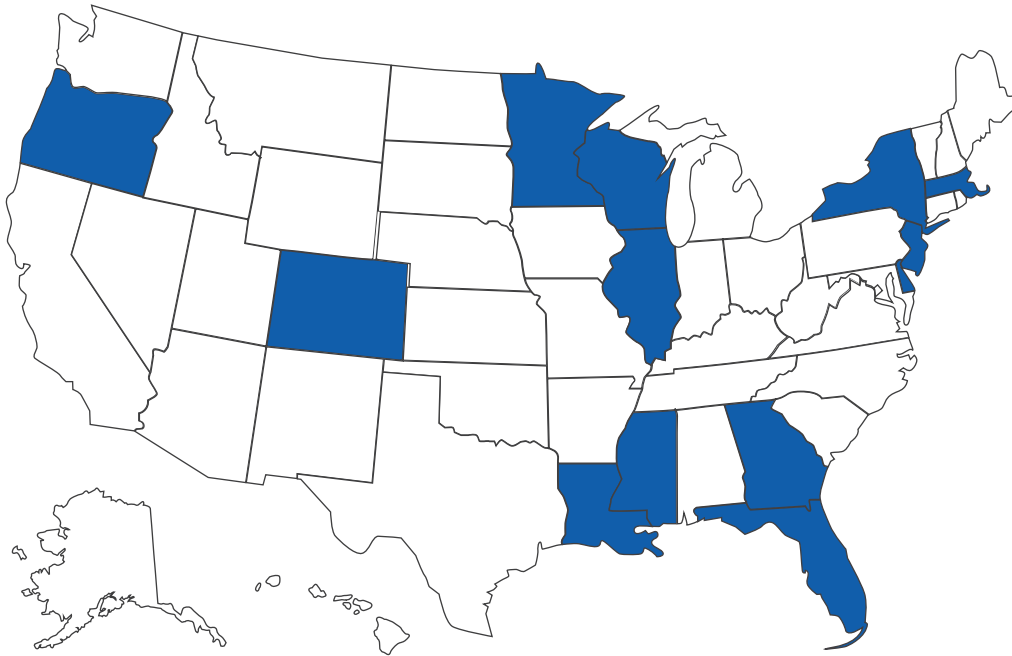


22.7%
to
18.0%



Supporting PQCs

CDC's Division of Reproductive Health (DRH) is currently providing support for state-based PQCs in Colorado, Delaware, Florida, Georgia, Illinois, Louisiana, Massachusetts, Minnesota, Mississippi, New Jersey, New York, Oregon, and Wisconsin, and for the National Network of Perinatal Quality Collaboratives..

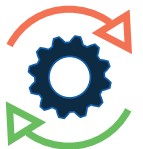


The Future of PQCs

Given the urgent challenges facing maternal and newborn health across the country, there is an important role for PQCs nationwide.

- PQCs can adapt and address critical current and emergent perinatal health issues facing our nation.
- CDC will continue to support strong science that demonstrates the impact of using a collaborative population-based approach to improve the quality of care for our nation's moms and babies.
- As state maternal mortality review committees (MMRCs) develop clinical recommendations to improve maternal outcomes, PQCs will be a key partner in implementing recommendations more broadly across health facility networks.

www.cdc.gov/reproductivehealth/maternal-mortality/erase-mm/index.html



For more information, visit [CDC's PQC webpage](#) and read *Advances in Maternal Fetal Medicine – Perinatal Quality Collaboratives: Working Together to Improve Maternal Outcomes*.



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