

Reducing pregnancy-related maternal deaths in the United States

TAKEAWAYS

The United States has the highest maternal mortality rate in the developed world.

The African American maternal mortality rate is three to four times higher than that for whites, regardless of income level.

U.S. pregnancy- or childbirth-related maternal deaths are increasing, while declining in other nations.

An estimated 60 percent of U.S. pregnancy-related deaths are preventable.

To address the problem, states have established Maternal Mortality Review Committees to analyze deaths and devise high-impact preventions and interventions, and the CDC provides a free tool that standardizes pregnancy and childbirth care.



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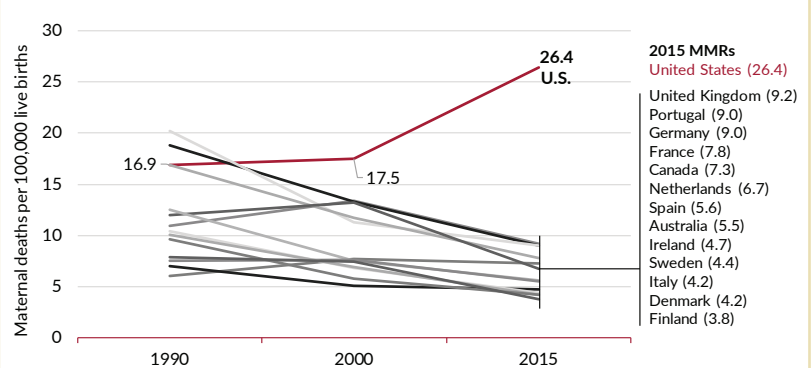
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The United States is a global outlier in maternal mortality.¹ Of the approximately 4 million American women who give birth each year, about 700 die, and some 50,000 nearly die, from pregnancy- or childbirth-related causes.² The Centers for Disease Control and Prevention (CDC) estimates that 60 percent of U.S. pregnancy- and birth-related maternal deaths (hereafter “maternal deaths”) are preventable.³ Public health officials are alarmed not only by the high number of maternal deaths compared to most other developed countries, but also by large disparities within the United States by race, ethnicity, and geographic location.

Trends: The U.S. maternal mortality rate is among the world’s highest, and it’s climbing

Currently in the United States, more women are dying from pregnancy- and birth-related complications than in any other developed country.⁴ Moreover, in most of the world, maternal mortality has been declining, whereas U.S. maternal deaths have been increasing, especially since 2000. The U.S. maternal mortality rate (MMR; deaths per 100,000 live births) is between three and six times higher than those of peer nations (Figure 1). The U.S. rate is not only high but it’s climbing, from 16.9 in 1990 to 26.4 in 2015.⁵

Figure 1. The maternal mortality rate is rising in the United States while declining in peer nations.



Source: Global Burden of Disease 2015 Maternal Mortality Collaborators.
Notes: Maternal mortality rate (MMR) is number of deaths per 100,000 live births.

Disparities: Within the U.S., MMRs vary widely by race, ethnicity, state, and age

Maternal mortality rates vary substantially by race, ethnicity, state, and age within the United States. African American women are at greatest risk, being up to four times more likely to die from pregnancy-related causes than non-Hispanic white women, regardless of age (Figure 2).⁶ Moreover, high-income black women are at greater risk of dying during or after pregnancy than low-income white women.⁷ The District of Columbia has the nation’s highest maternal mortality rate at 40.7, with Georgia (39.3), New Jersey (37.3), and Arkansas (35.4) close behind (see Figure 3); this in part reflects a larger proportion of black women living in these locations, and underscores the complex intersection of race and geography.⁸

In the U.S., heart disease, non-cardiovascular diseases, and infection are the top three causes of maternal death

According to CDC maternal death data from 2011 to 2014, heart disease, non-cardiovascular diseases, and infection or sepsis are the top three causes of maternal death for all races in the United States, with hemorrhage a close fourth (Figure 4). Again, however, African American mothers are three to four times more likely to die from these pregnancy- or childbirth-related causes than white women.⁹ Most maternal deaths (45 percent) occur while the mother is pregnant or in the first 42 days after giving birth.¹⁰

Contributing factors: Socioeconomic and societal context is strongly associated with racial disparities in maternal deaths

To understand the unusually high—and increasing—rates of U.S. maternal mortality, public health experts are comparing findings from biological studies that characterize stress and the environment to those of social scientists studying income, health, and wealth.¹¹ Within this framework, evidence suggests that the causes of the black-white divide in maternal mortality are greatly influenced by the considerable stress associated with societal and systemic racism experienced by black women in America. Stress can cause or worsen cardiovascular and hypertensive disorders such as new-onset high blood pressure in pregnancy.¹² A review last year found that hypertension and seizures caused by it are 60 percent more common and more severe among black women than among white women.¹³ A recent study found that there were only two hypertensive disorder-attributed maternal deaths in the United Kingdom between 2012 and 2014, suggesting that deaths from hypertensive disorder during pregnancy are largely preventable.¹⁴

Strategies: Preventing maternal deaths by identifying and addressing causes

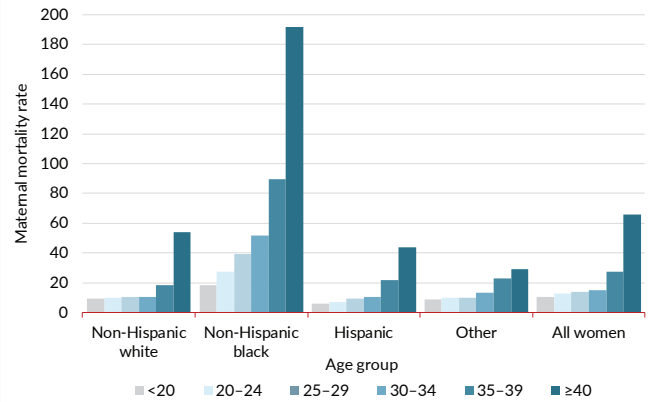
Public health experts are analyzing the causes and correlates of the high U.S. maternal mortality levels to find solutions. Recognizing the importance of gathering, standardizing, and analyzing data to guide prevention and intervention efforts led state and local health agencies to develop a maternal mortality review data system for use by Maternal Mortality Review Committees, which review maternal deaths, assess preventability, identify contributing factors, recommend improvements, and measure the potential impact of implemented recommendations. Public health officials also suggest that committees include discussion of where people live, their income level, and their race/ethnicity—key social determinants of health—and make specific recommendations to address differences in health care quality and access across populations.¹⁵

A coalition of health experts studied data from nine state-based Maternal Mortality Review Committees and found that factors related to providers and systems of care are among the leading contributors. Recommended strategies¹⁶:

1. When a woman arrives at the hospital in labor, ensure that the extent of care she needs is accurately established;
2. Establish and disseminate clear policies regarding prevention initiatives;
3. Enforce policies and procedures related to obstetric hemorrhage; and
4. Improve policies related to patient management, including instructions for reducing the rate of Caesarean deliveries, and identifying providers who are not following best practices.

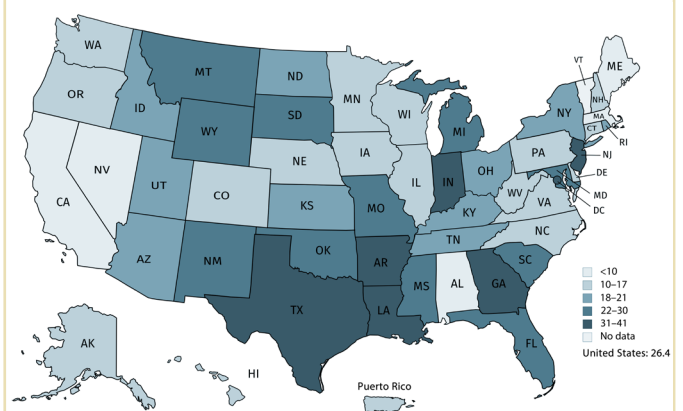
Similar to the Maternal Mortality Review Committees' approach, the CDC provides a free web-based tool, the Levels of Care Assessment Tool (CDC LOCATe), which standardizes definitions of terms and recommended levels of care, which currently vary widely among states.¹⁷ CDC LOCATe is being widely adapted with the hope of reducing pregnancy- and birth-related maternal deaths in the United States.

Figure 2. Maternal mortality rates by race, ethnicity, and age reveal extremely high rates for African American mothers.



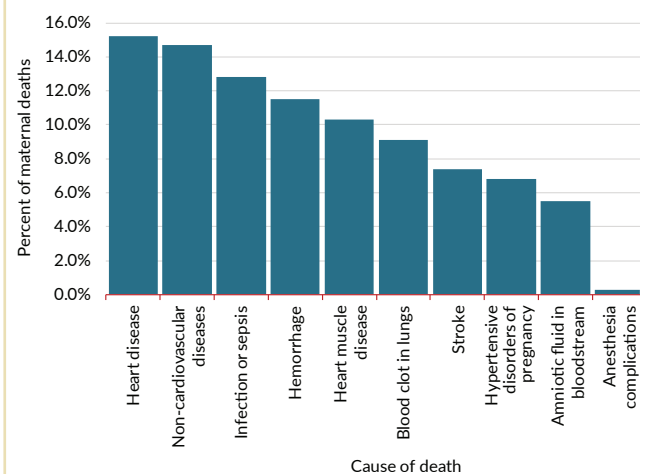
Source: Observational study of Centers for Disease Control and Prevention, Pregnancy Mortality Surveillance System data from 2011–2013.
Note: Maternal mortality rate is number of deaths per 100,000 live births.

Figure 3. Maternal mortality rates vary dramatically by state, all but five of which and Puerto Rico have or are establishing review committees to analyze causes.



Source: American College of Obstetricians and Gynecologists, August 2018.

Figure 4. Heart disease, non-cardiovascular diseases, and infection are the top three causes of maternal death in the U.S.



Source: Centers for Disease Control and Prevention, Pregnancy Mortality Surveillance System.
Note: The cause of death is unknown for 6.5% of all pregnancy-related deaths.

For sources and more information, go to <https://www.irp.wisc.edu/resource/reducing-pregnancy-related-maternal-deaths-in-the-united-states>

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ENDNOTES

¹Special thanks for expert guidance on this brief to Deborah Ehrental of the School of Medicine and Public Health, Department of Population Health Sciences, Department of Obstetrics and Gynecology, and Affiliate of the Institute for Research on Poverty, University of Wisconsin–Madison.

²“Building U.S. Capacity to Review and Prevent Maternal Deaths,” report from nine maternal mortality review committees, 2018. Retrieved from http://reviewtoaction.org/Report_from_Nine_MMRCs; Centers for Disease Control and Prevention, Severe Maternal Morbidity in the United States, November 27, 2017, available at <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html>.

³“Building U.S. Capacity to Review and Prevent Maternal Deaths.”

⁴M. F. MacDorman, E. Declercq, H. Cabral, and C. Morton, “Recent Increases in the U.S. Maternal Mortality Ratio: Disentangling Trends from Measurement Issues,” *Obstetrics and Gynecology* 128, No. 3 (2016): 447–455.

⁵Global Burden of Disease 2015 Maternal Mortality Collaborators, Global, Regional, and “National Levels of Maternal Mortality, 1990–2015: A Systematic Analysis for the Global Burden of Disease Study 2015,” *The Lancet* 388 (2016): 1775–1812

⁶C. J. Berg, W. M. Callaghan, C. Syverson, and Z. Henderson, “Pregnancy-Related Mortality in the United States, 1998 to 2005,” *Obstetrics and Gynecology* 116, No. 6 (2010, December): 1302–1309.

⁷N. Martin and R. Montagne, “Lost Mothers: Nothing Protects Black Women from Dying in Pregnancy and Childbirth,” ProPublica and National Public Radio, December 7, 2017. Available at <https://www.propublica.org/article/nothing-protects-black-women-from-dying-in-pregnancy-and-childbirth>.

⁸The American College of Obstetricians and Gynecologists, *Maternal Mortality, State-by-State*, August 2018, available at <https://www.acog.org/-/media/Departments/Government-Relations-and-Outreach/2018MMRCStateFactSheet.pdf?dmc=1&ts=20180502T1759498616>.

⁹Centers for Disease Control and Prevention, Public Health Grand Rounds, Meeting the Challenges of Measuring and Preventing Maternal Mortality in the United States, slide presentation presented on November 14, 2017. Available at <https://www.cdc.gov/grand-rounds/pp/2017/20171114-maternal-mortality.html>.

¹⁰Thirty eight percent of deaths occur during pregnancy, and 18 percent happen between 43 days and one year after giving birth.

¹¹B. Wolfe, W. Evans, and T. E. Seeman, eds., *The Biological Consequences of Socioeconomic Inequalities*, New York, NY: Russell Sage Foundation (2012, p. xiv).

¹²The American College of Obstetricians and Gynecologists, Women’s Health Care Physicians Frequently Asked Questions, “Managing High Blood Pressure.” Available at <https://www.acog.org/Patients/FAQs/Managing-High-Blood-Pressure>.

¹³K. R. Fingar et al., “Delivery Hospitalizations Involving Preeclampsia and Eclampsia, 2005–2014,” *Statistical Brief #222*, Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, April 2017, available at <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb222-Preeclampsia-Eclampsia-Delivery-Trends.pdf>.

¹⁴A. H. Shennan, M. Green, L. C. Chappell, “Maternal deaths in the UK: Pre-eclampsia deaths are avoidable,” (Comment), *The Lancet* 389 (February 11, 2017): 582–584. Available at <https://action-on-pre-eclampsia.org.uk/wp-content/uploads/2017/02/The-Lancet-Pre-eclampsia-article.pdf>.

¹⁵B. Wolfe, W. Evans, and T. E. Seeman, eds., *The Biological Consequences of Socioeconomic Inequalities*.

¹⁶“Building U.S. Capacity to Review and Prevent Maternal Deaths.”

¹⁷Learn more about CDC LOCATe at <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/LOCATe.html>.