

Out of Sight, Out of Mind?

What Is the True US Maternal Mortality Rate? No One Knows

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Jacklynn Blanchard

Rockefeller
Institute of Government



ABOUT THE AUTHOR

Jacklynn Blanchard is a graduate research assistant at the Rockefeller Institute of Government.



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In recent years, articles about the staggering number of American women losing their lives to pregnancy-related complications have gained traction both in the media and on the campaign trail. Among the 2020 presidential candidates, Kamala Harris¹ and Elizabeth Warren² have garnered the lion's share of attention for their plans to curb the US maternal mortality rate, but candidates like Cory Booker, Kirsten Gillibrand, Amy Klobuchar, and Bernie Sanders have also either introduced or cosponsored bills aimed at saving the lives of mothers.³

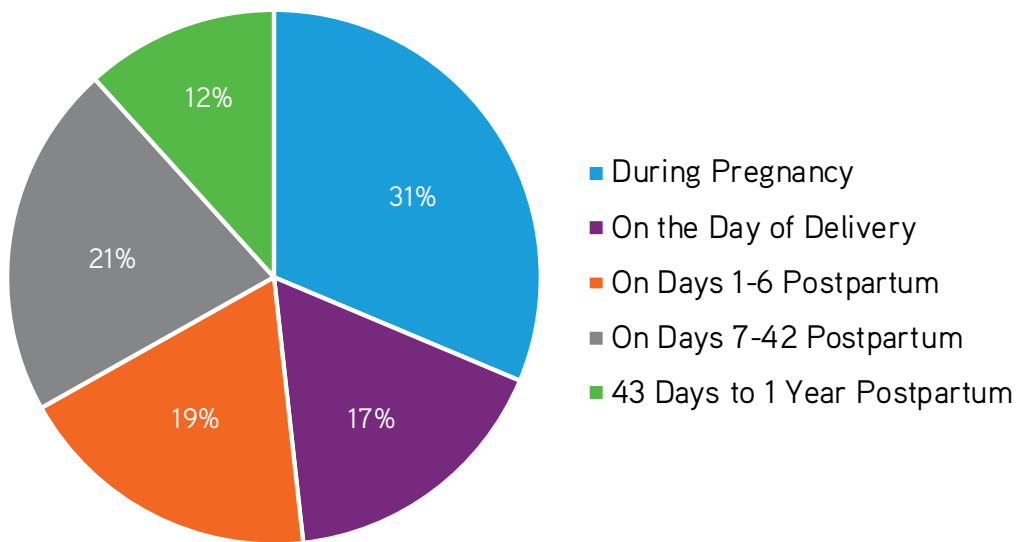
In spite of the increased attention, maternal mortality still goes underreported. The reasons for why are complicated and vary depending on location or individual demographics, but existing research provides some insight into the issue.

Maternal Mortality Nationwide

The most recent numbers released by the Centers for Disease Control and Prevention (CDC), which examined the years 2011 to 2015, estimated the average maternal mortality rate in the United States to be about 17.2 per 100,000 live births. However, other organizations estimate the rate to be as high as 26.4 per 100,000 live births.⁴

For a death to qualify as pregnancy-related it must occur during or up to one year after pregnancy. Between 2011 and 2015, researchers at the CDC identified at least 3,400 pregnancy-related deaths. Of these, one-third of the women died during pregnancy, another third died during or up to one week following childbirth, and a final third died up to a year after childbirth (see [Figure 1](#)).

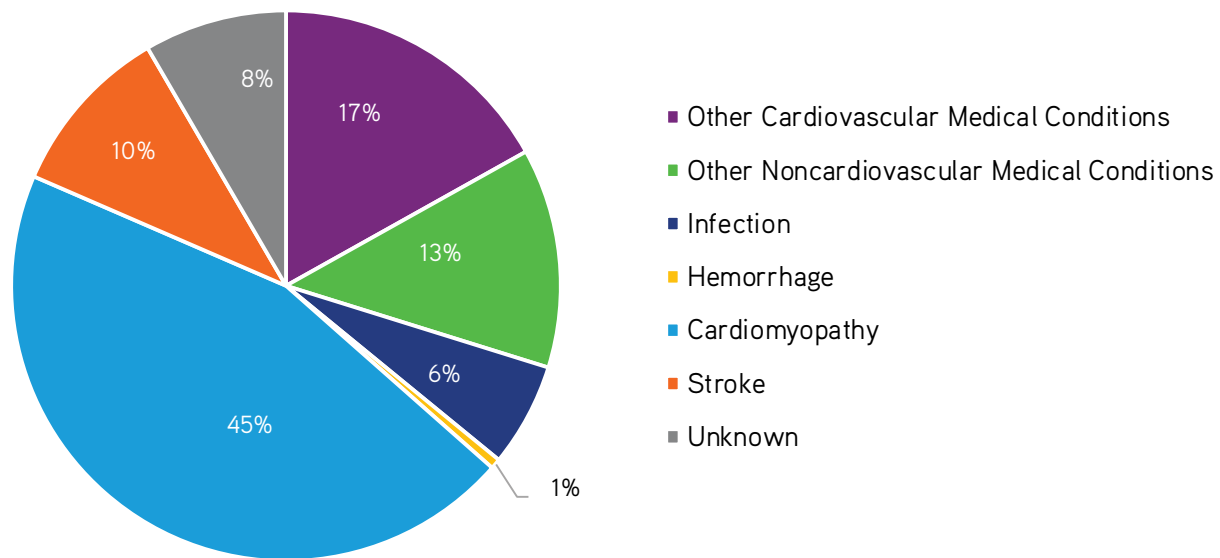
FIGURE 1. Time Period When Maternal Death Occurred, 2011-15



SOURCE: Author's analysis of Petersen, "Vital Signs."⁵

Pregnancy-related deaths must also result from complications or events initiated by childbearing. Of the women who died 43 days to one year after childbirth, 45 percent died as a result of cardiomyopathy. In fact, heart conditions in general were the top killer of postpartum women (see [Figure 2](#)). Additionally, race was the leading risk factor for cardiovascular disease in pregnancy, and black women were 3.4 times more likely to die from postpartum cardiovascular disease than white women.⁶ It is increasingly recommended that all pre- and postpartum women be assessed for cardiovascular disease. In fact, a study found that upwards of 88 percent of women who died of pregnancy-related cardiovascular issues should have been flagged as high-risk; however, because they were less obvious high-risk patients, they fell through the cracks.⁷ Common reasons for a high-risk pregnancy include preexisting health conditions like diabetes or high blood pressure, obesity, having multiples, and the age of the mother (i.e., being younger or older than average).⁸ In line with this finding, the CDC also determined that 60 percent of the deaths in their study were preventable.⁹

FIGURE 2. Causes of Maternal Death from 43 Days to One Year Postpartum, 2011-15



SOURCE: Author's analysis of Petersen, "Vital Signs."

Comparative Trends

More women die as a result of pregnancy-related complications in the United States than in any other developed country. Between 1990 and 2015, the maternal mortality rate dropped by 44 percent globally and by 48 percent in developed countries. In the United States, the rate increased.¹⁰

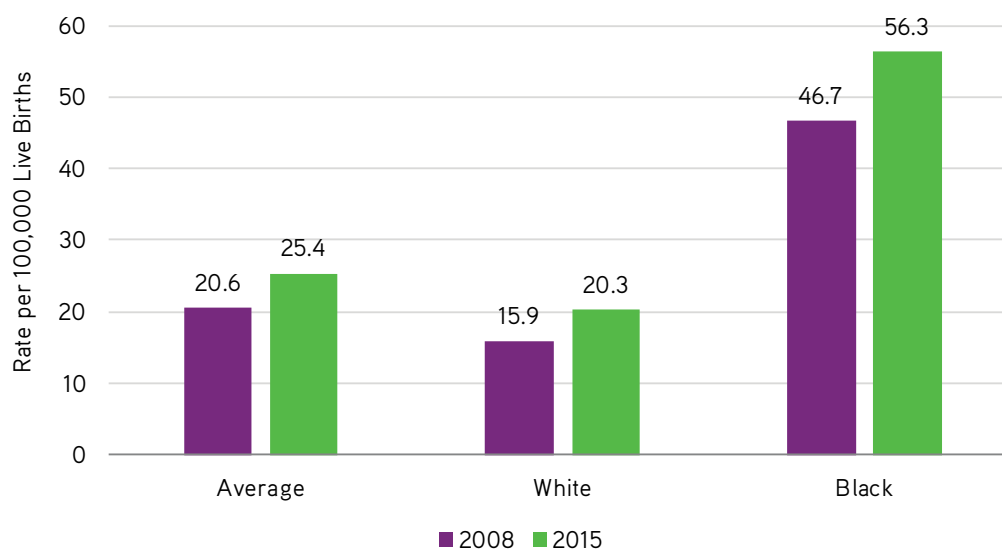
The CDC estimates the mortality rate in the US is 17.2 per 100,000 live births and rising.¹¹ This rate is much higher than in other developed nations, such as the UK, where the maternal mortality rate was nine in 2015 per 100,000, and in Sweden where it was only four per 100,000.¹²

The explanations for the disparate rates range from generally better access to inexpensive healthcare in Europe to lower rates of cesarean sections performed in Europe than in the United States. For instance, in the UK, 23.0 per 100 live births were performed via cesarean in 2016 and in Sweden it was 16.4. Meanwhile, in the United States, 32.5 per 100 births were performed via cesarean section, thus giving the US the dubious honor of being sixth in the world for most cesarean sections performed.¹³

Racial Disparities

In the United States, variances in maternal mortality rates are largely dependent on the race of the mother. Between 2011 and 2015, the maternal mortality rate for Latinas was 11.4, for white women it was 13.0, and for Asian women it was 14.2, whereas for Native American women it was 32.5 and for black women it was 42.8.¹⁴ Maternal mortality is rising the quickest for black women (see [Figure 3](#)). In a study conducted in 2008 comparing the rates in 27 states and Washington, DC, the black maternal mortality rate was 46.7 per 100,000 live births compared to 15.9 for white women. While maternal mortality had increased for both groups since 2008, the maternal mortality rate for black women in 2014 (56.3) was much higher compared to the rate for white women (20.3).

FIGURE 3. US Maternal Mortality Rate by Race and Year, 2008 vs. 2014



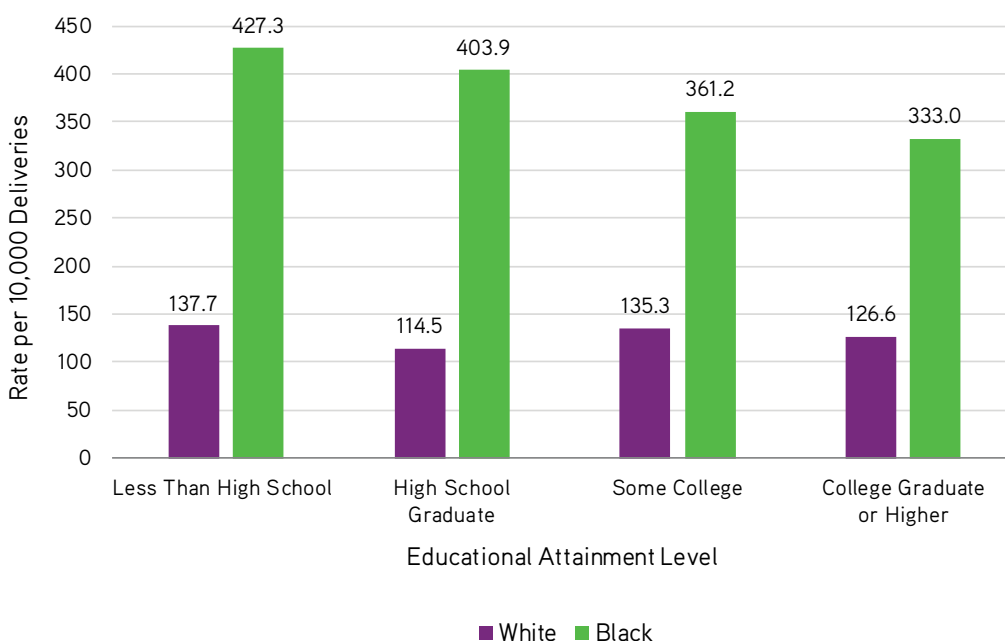
SOURCE: Author's analysis of data from "Trends in Maternal Mortality by Socio-Demographic Characteristics and Cause of Death in 27 States and the District of Columbia."¹⁵

The causes of the distinct difference between the maternal mortality rates for black women versus white women are not always clear-cut. For starters, many protective factors like higher education and income levels do not protect black women in the same way they do white women.¹⁶ For example, in a study conducted in New York City, college-educated black women were nearly three times more likely than white women who had never graduated from high school to die during their pregnancy or up to one year after childbirth (see [Figure 4](#)).

Research reveals another key factor that influences maternal mortality rates: country of origin. In another study conducted in New York City, immigrant black women were found to have lower rates of low-birth-weight babies than native-born black women; this trend also holds true for most immigrant versus native-born Latinas.¹⁷ As giving birth prematurely is often tied to other medical conditions (such as hypertension) that

can lead to the death of the mother,¹⁸ higher rates of preterm birth can increase the maternal mortality rate for women of color. “Weathering” — a term coined by public health researcher Arline Geronimus to describe the effects of increased levels of stress on women of color due to the perpetual need to anticipate and manage racism — is thought to explain some of this disparity both between races and the mother’s country of origin.¹⁹

FIGURE 4. Maternal Morbidity by Educational Attainment, New York City, 2008-12



SOURCE: Author’s analysis of data from *Severe Maternal Morbidity in New York City, 2008-2012*.²⁰

Maternal Data

While the recent spike in attention to the issue of maternal mortality makes it appear novel, the problem has actually been building for decades. In July of 1996, the *New York Times* published an article about the rising number and underreporting of maternal deaths. Concerned by increases in pregnancy-related mortality and the lack of knowledge surrounding the issue, former Representative Patricia Schroeder requested that the Department of Health and Human Services compile a report on the issue.²¹ That report — as well as a study²² published by researchers Dr. Cynthia J. Berg and her colleagues at the federal Centers for Disease Control and Prevention — found strong evidence that the maternal mortality rate in the US was greatly underestimated, and that rates were likely twice as high as what had been officially reported. Following a consistent decades-long reduction in deaths, Dr. Berg’s report found that the average maternal mortality rate increased from 7.2 deaths per 100,000 births in 1987 to 10.0 deaths per 100,000 births in 1990. At the time, this sharp rise in the maternal mortality rate was attributed to better reporting.

In 1986, the CDC introduced its Pregnancy Mortality Surveillance System, which compiles data obtained from copies of birth and death certificates sent from the 52 reporting areas (50 states, New York City, and Washington DC). The data are then summarized and later evaluated by medically trained epidemiologists who ultimately determine the time of death in relation to the stage of pregnancy. However, reporting is not mandatory, so not all reporting areas participate.²³ Additionally, the U.S. National Center for Health Statistics has not published an official maternal mortality rate for over a decade.²⁴ It wasn't until 2003 that all states even added checkboxes to death certificates to indicate whether the person who died was pregnant at the time of death, and this system is imperfect as not all deaths when pregnant are pregnancy-related.²⁵

So, what can be done to stem the tide on the ever-increasing maternal mortality rate in the United States? Many are looking to California for a solution. Over the past 13 years, California has reduced its maternal mortality rate by more than half, which is all the more impressive because one in eight babies in the United States is born in California.²⁶ The California Maternal Quality Care Collaborative has largely contributed to this steep decline. The collaborative was founded in 2006 when a group of doctors, nurses, midwives, and hospital administrators came together to try to find a way to decrease California's skyrocketing maternal mortality rate.²⁷ It collects maternal health data, focuses on preventable issues such as preeclampsia and hemorrhaging, deduces steps for how to best prevent these issues, and creates step-by-step "toolkits" that focus on how healthcare providers can best manage complications in childbirth before they turn deadly. In hospitals participating in the collaborative's programs, there has been a reported 21 percent decrease in their hemorrhage-related maternal mortality rate, whereas other hospitals only saw a 1 percent reduction.²⁸ As of June 2018, 88 percent of all of California's obstetrical hospitals were participating in the program.²⁹

By comparison, in 2016, New York ranked 30th in the nation for its maternal mortality rate with an average maternal mortality rate of 19.6 per 100,000 live births — a marked increase from 15.4 per 100,000 live births in 2003. For black women, the rate was 51.6 per 100,000 in 2016, more than double the average for the state.³⁰ In early March of 2019, the New York State Senate and Assembly passed a bill that would establish a maternal mortality review board and an advisory council.³¹ Shortly thereafter, the New York State Taskforce on Maternal Mortality and Disparate Racial Outcomes issued its recommendations³² to Governor Cuomo about how to reduce the maternal mortality rate in New York. It advised that New York:



Form a statewide maternal mortality review board;



Create and implement a comprehensive antiracial bias program for healthcare workers;



Collect comprehensive data on perinatal outcomes so as to improve results and quality of care;



Increase the use of midwives and community health workers;



Provide fair reimbursement to midwives and diversify their ranks via State University of New York (SUNY) scholarships;



Establish a student loan forgiveness program for underrepresented healthcare workers and for those who specifically intend to practice obstetrical and gynecological healthcare services;



Construct competency-based curricula for medical and nursing schools as well as other medical providers; and



Encourage universal birth preparedness and postpartum continuity of care.



Upon receiving these findings and recommendations, Governor Cuomo committed \$8 million in the 2019-20 Executive Budget to fund the creation and launch of a maternal mortality review board; the creation and implementation of comprehensive implicit racial bias training for healthcare workers; a data warehouse on perinatal health outcomes; and investments in community healthcare worker programs.

Action is also being taken at the federal level. In May of 2019, Senator Kamala Harris resurrected her 2018 bill — Maternal Care Access and Reducing Emergencies Act (Maternal CARE Act) — focusing specifically on how black women have been disproportionately affected by the high rate of maternal mortality and created a plan of action to address the issue. The proposed legislation requested:

- \$25 million to form a grant program that will fund implicit bias training for medical professionals in an effort to reduce unequal care³³;
- \$125 million to incentivize healthcare providers to improve the quality of their healthcare services by ensuring that they are more culturally competent and better able to identify, as well as care for, high-risk pregnancies³⁴; and
- The creation of the Pregnancy Medical Home Demonstration Project which would assist up to 10 states to implement and maintain pregnancy medical home (PMH) programs that would encourage the delivery of integrated healthcare services to pregnant women and reduce negative maternal health outcomes like death or race-based healthcare treatment disparities.³⁵

By comparison, Senator Elizabeth Warren has called for paying hospitals that bring down the black maternal mortality rate at their facilities a bonus and punishing those that do not. However, there are concerns that financially penalizing already cash- and resource-strapped hospitals for providing suboptimal care might ultimately backfire and lead to more deaths rather than fewer. Additionally, similar programs like the Affordable Care Act's Hospital Value-Based Purchasing Program didn't significantly reduce mortality rates in patients.³⁶

Recommendations at the state and federal level are a step in the right direction, especially because they seek to save lives while addressing the role that racism plays



in elevated maternal mortality rates. However, they do not address other risk factors such as subpar postnatal care,³⁷ or the link between high rates of cesarean sections and increased maternal mortality rates.³⁸ Additionally, in order to get a clearer picture of the issue, more comprehensive and accurate data must be made available on a national scale. It must become mandatory for states to collect their maternal mortality data and send it to the CDC for evaluation. In turn, the U.S. National Center for Health Statistics must also publish an accurate maternal mortality rate on a yearly basis. For New York and other states to drastically reduce their maternal mortality rates on a scale akin to that of California, they must not only apply the lessons learned there, but also innovate and find new ways to keep mothers safe. A birth should be the beginning of a life, not the end of one.



- 1 Jay Connor, "Kamala Harris Reintroduces Bill Addressing the Black Maternal Healthcare Crisis," *The Root*, May 22, 2019, <https://www.theroot.com/kamala-harris-reintroduces-bill-addressing-the-black-ma-1834947169>.
- 2 Jessica M. Goldstein, "Elizabeth Warren unveils plan to reduce black maternal mortality rates," *ThinkProgress*, April 25, 2019, <https://thinkprogress.org/elizabeth-warren-plan-reduce-black-maternal-mortality-8b9492fe2494/>.
- 3 Li Zhou and Anna North, "How 2020 Democrats would tackle the problem of startlingly high rates of maternal deaths in the US," *Vox*, June 26, 2019, <https://www.vox.com/2019/6/26/18691611/2020-democrats-maternal-mortality-medicaid>.
- 4 Nina Martin and Renee Montagne, "U.S. Has The Worst Rate Of Maternal Deaths in the Developed World," *NPR*, May 12, 2017, <https://www.npr.org/2017/05/12/528098789/u-s-has-the-worst-rate-of-maternal-deaths-in-the-developed-world>.
- 5 Emily E. Petersen, "Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017," *Morbidity and Mortality Weekly Report* 68, 18 (2019): 423–9.
- 6 American College of Obstetricians and Gynecologists, "ACOG Releases Comprehensive Guidance on How to Treat the Leading Cause of U.S. Maternal Deaths: Heart Disease in Pregnancy," press release, May 3, 2019, <https://www.acog.org/About-ACOG/News-Room/News-Releases/2019/ACOG-Releases-Comprehensive-Guidance-on-How-to-Treat-Heart-Disease-in-Pregnancy?IsMobileSet=false>.
- 7 Ibid.
- 8 "What is a high-risk pregnancy?," National Institutes of Health Eunice Kennedy Shriver National Institute of Child Health and Human Development, last reviewed January 31, 2017, <https://www.nichd.nih.gov/health/topics/pregnancy/conditioninfo/high-risk>.
- 9 Petersen et al., "Vital Signs."
- 10 Julia Belluz, "California decided it was tired of women bleeding to death in childbirth," *Vox*, updated December 4, 2017, <https://www.vox.com/science-and-health/2017/6/29/15830970/women-health-care-maternal-mortality-rate>.
- 11 Petersen et al., "Vital Signs."
- 12 Emily Kumler Kaplan, "Reducing Maternal Mortality," *New York Times*, March 5, 2019, <https://www.nytimes.com/2019/03/05/well/family/reducing-maternal-mortality.html>.
- 13 Niall McCarthy, "Which Countries Have The Highest Caesarean Section Rates? [Infographic]," *Forbes*, January 12, 2016, <https://www.forbes.com/sites/niallmccarthy/2016/01/12/which-countries-have-the-highest-caesarean-section-rates-infographic/#40cc61695b19>.
- 14 Table 1. Pregnancy-related deaths, by sociodemographic characteristics — Pregnancy Mortality Surveillance System, United States, 2011–2015, in Petersen et al., "Vital Signs."
- 15 Data from Marian F. MacDorman, Eugene Declercq, and Marie E. Thoma, "Trends in Maternal Mortality by Socio-Demographic Characteristics and Cause of Death in 27 States and the District of Columbia," *Obstetrics & Gynecology* 129, 5 (2017): 811–8.
- 16 Nina Martin and Renee Montagne, "Black Mothers Keep Dying After Giving Birth. Sharon Irving's Story Explains Why," *NPR*, December 7, 2017, <https://www.npr.org/2017/12/07/568948782/Black-mothers-keep-dying-after-giving-birth-sharon-irvings-story-explains-why>.
- 17 Dolores Acevedo-Garcia, Mah-J Soobader, and Lisa F. Berkman, "The Differential Effect of Foreign-Born Status on Low Birth Weight by Race/Ethnicity and Education," *Pediatrics* 115, 1 (2005): e20–30, <https://pediatrics.aappublications.org/content/pediatrics/115/1/e20.full.pdf>.
- 18 Richard E. Behrman and Adrienne Stith Butler, eds., *Preterm Birth: Causes, Consequences, and Prevention* (Washington, DC: National Academies Press, 2007), <https://www.ncbi.nlm.nih.gov/books/NBK11363/>.
- 19 Danyelle Solomon, "Racism: The Evergreen Toxin Killing Black Mothers and Infants," Center for American Progress, April 18, 2018, <https://www.americanprogress.org/issues/race/reports/2018/04/18/449774/racism-evergreen-toxin-killing-Black-mothers-infants/>.

- 20 Data from Meghan Angley et al., *Severe Maternal Morbidity in New York City, 2008-2012* (New York: New York City Department of Health and Mental Hygiene, 2016), <https://www1.nyc.gov/assets/doh/downloads/pdf/data/maternal-morbidity-report-08-12.pdf>.
- 21 Lisa M. Koonin et al., "Pregnancy-Related Mortality Surveillance -- United States, 1987-1990," MMWR Surveillance Summaries, Centers for Disease Control and Prevention, last reviewed May 2, 2001, <https://www.cdc.gov/mmwr/preview/mmwrhtml/00048923.htm>; Warren E. Leary, "Childbearing Deaths Underreported," *New York Times*, July 31, 1996, <https://www.nytimes.com/1996/07/31/us/childbearing-deaths-underreported.html>.
- 22 Cynthia J. Berg et al., "Pregnancy-Related Mortality in the United States, 1987-1990," *Obstetrics & Gynecology* 88, 2 (1996): 161-7, <https://www.sciencedirect.com/science/article/pii/S0029784496001354>.
- 23 "Pregnancy Mortality Surveillance System," Centers for Disease Control and Prevention, last reviewed June 4, 2019, <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-mortality-surveillance-system.htm>.
- 24 Marian F. MacDorman et al., "Is the United States Maternal Mortality Rate Increasing? Disentangling trends from measurement issues," *Obstetrics & Gynecology* 128, 3 (2016): 447-55, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5001799/>.
- 25 Robin Fields and Joe Sexton, "How Many American Women Die From Causes Related to Pregnancy or Childbirth? No One Knows.," ProPublica, October 23, 2017, <https://www.propublica.org/article/how-many-american-women-die-from-causes-related-to-pregnancy-or-childbirth>.
- 26 Renee Montagne, "To Keep Women From Dying In Childbirth, Look To California," NPR, July 29, 2018, <https://www.npr.org/2018/07/29/632702896/to-keep-women-from-dying-in-childbirth-look-to-california>.
- 27 Belluz, "California decided it was tired of women bleeding to death in childbirth."
- 28 Montagne, "To Keep Women From Dying in Childbirth, Look to California."
- 29 Ibid.
- 30 Bethany Bump, "Report: Combat NY's rising maternal deaths with review board, midwives," *Times Union*, March 12, 2019, <https://www.timesunion.com/news/article/Report-recommends-NY-combat-rising-maternal-13683106.php>.
- 31 Office of New York State Senator Gustavo Rivera, "Bill That Establishes Maternal Mortality Review Boards Passes the New York State Senate Unanimously," press release, March 20, 2019, <https://www.nysenate.gov/newsroom/articles/2019/gustavo-rivera/bill-establishes-maternal-mortality-review-boards-passes-new>.
- 32 *New York State Taskforce on Maternal Mortality and Disparate Racial Outcomes: Recommendations to the Governor to Reduce Maternal Mortality and Racial Disparities* (Albany: Office of the New York State Governor, March 2019), https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/maternal_mortality_Mar12.pdf.
- 33 Jay Connor, "Kamala Harris Reintroduces Bill Addressing the Black Maternal Healthcare Crisis."
- 34 Martin and Montagne, "U.S. Has The Worst Rate Of Maternal Deaths In The Developed World."
- 35 Office of US Senator Kamala D. Harris, "Sen. Harris Introduces Bill Aimed at Reducing Racial Disparities in Maternal Mortality," press release, August 22, 2018, <https://www.harris.senate.gov/news/press-releases/sen-harris-introduces-bill-aimed-at-reducing-racial-disparities-in-maternal-mortality>.
- 36 Sarah Jones, "There's a Problem with Elizabeth Warren's Maternal Mortality Plan," *New York*, April 25, 2019, <http://nymag.com/intelligencer/2019/04/the-problem-with-elizabeth-warrens-maternal-mortality-plan.html>.
- 37 Allison Yarrow, "What no one tells new moms about what childbirth can do to their bodies," Vox, updated May 4, 2018, <https://www.vox.com/science-and-health/2017/6/26/15872734/postnatal-care-america>.
- 38 Michaleen Doucleff, "Rate of C-Sections Is Rising At An Alarming Rate, Report Says," NPR, updated October 12, 2018, <https://www.npr.org/sections/goatsandsoda/2018/10/12/656198429/rate-of-c-sections-is-rising-at-an-alarming-rate>.



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