

Reducing high infant mortality rates in the United States

TAKEAWAYS

The United States is ranked 51st internationally and 26th among OECD nations in the number of babies who die before 1 year of age for every 1,000 live births (“infant mortality rate”).

The African American infant mortality rate is more than twice that for whites, regardless of family income level.

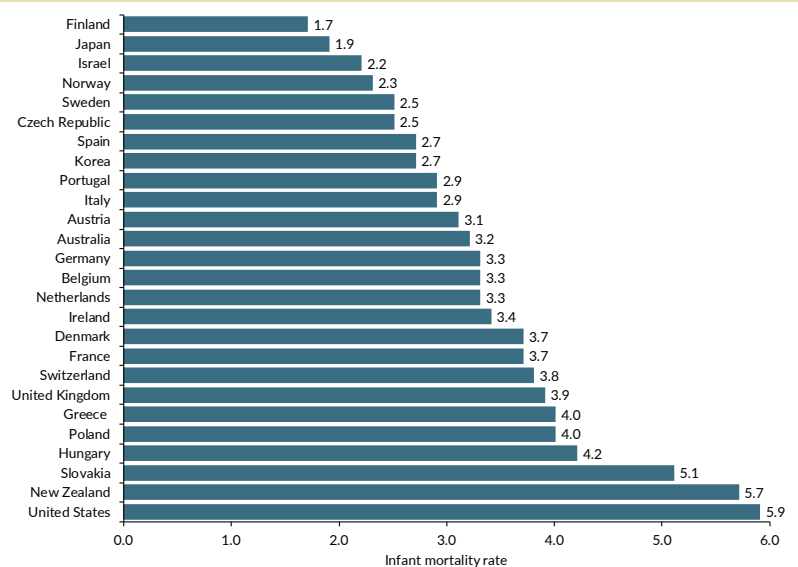
Infant mortality rates also differ by geography. For example, in 2015, Wisconsin had the highest black infant mortality rate in America at 14.3 and New Hampshire the lowest at 3.7.

About two-thirds of U.S. infant deaths occur during the first month of life.

While the U.S. infant mortality rate has declined over the past 15 years, public health officials continue to address both the comparatively high overall rate and the large racial disparities.

The United States is ranked 51st internationally¹—comparable to Russia—and 26th among OECD nations—higher than Slovakia—in the number of babies who die in the first year of life for every 1,000 live births (“infant mortality rate” or IMR).² Of the approximately 4 million American babies born in 2015, 23,460 died within the first year of life.³ The 2015 IMR in the United States was 5.9, higher than most European countries as well as Korea, Israel, Australia, and New Zealand; and more than triple that of Japan (1.9) and Finland (1.7) (Figure 1).⁴ U.S. mothers also have a particularly high risk of dying during and within one year of pregnancy. In fact, the U.S. maternal mortality ratio (pregnancy-related maternal deaths per live births) is the highest in the developed world.⁵

Figure 1. Infants born in the United States are much more likely to die in the first year of life than those born in our peer nations.



Source: Organization for Economic Cooperation and Development (OECD) infant mortality rates (indicator) for select nations: 2015. doi: 10.1787/83dea506-en (Accessed on September 25, 2018).

Note: The New Zealand IMR is for 2014.

U.S. infant mortality varies across place and race and ethnicity.

Infant health and survival in the United States has improved dramatically since 1940, from some 45 deaths per 1,000 live births in 1940 to 6.9 deaths in 2000. Between 2000 and 2014, the decline slowed and fluctuated, but by 2015 infant mortality had fallen to 5.9 per 1,000 births. Meanwhile, infant mortality varies considerably across U.S. racial and ethnic groups and across states and regions, with the highest rates among persons of color, in the South, and in certain Midwestern states.

Among states, Wisconsin has the nation’s highest non-Hispanic African American IMR at 14.3 and New Hampshire has the lowest at 3.7—yet 3.7 is still higher than the overall IMR of most OECD nations (Figure 2). In the U.S. territory of Puerto Rico, where 99 percent of residents identify as Hispanic, the IMR was 7.1 in 2013.⁶ And while national infant mortality declined for most racial and ethnic groups between 2000 and 2015, disparities, especially between African Americans (11.4 IMR) and whites (4.9 IMR), remained large in 2015.

Higher mortality rates among full-term infants substantially contribute to the high U.S. infant mortality rate.

The United States has similar neonatal (< 1 month) mortality but greater post-neonatal (1 to 12 months) deaths than its peer nations. This is a primary reason why U.S. infant mortality is so much higher than in Europe. Further, 39 percent of the difference in infant mortality between the United States and Sweden appears to be due to higher rates of preterm birth in the United States, while 47 percent of the difference appears to be due to higher rates of mortality among full-term (37 weeks or more) infants.⁷ The overall post-neonatal disparity between the United States and its peer nations largely reflects high infant

mortality among infants of low socioeconomic status mothers in the United States.⁸ This finding is consistent with other research that finds connections between disadvantage and poor health, which researchers call the “social determinants of health.”⁹

The five leading causes of death among the more than 23,460 U.S. infants who died in 2015 were:

1. Birth defects¹⁰
Birth defects include heart abnormalities and central nervous system diseases.
2. Preterm birth¹¹
Preterm birth is defined as birth before 37 full weeks of pregnancy.
3. Sudden unexpected infant death¹²
Unexpected deaths include Sudden Infant Death Syndrome, accidental suffocation during sleep (excluding co-sleeping deaths), and other unknown causes.
4. Maternal pregnancy complications¹³
Maternal health complications include anemia, urinary tract infections, mental health conditions, high blood pressure, diabetes, obesity, and infections.
5. Unintentional injuries¹⁴
Unintentional causes of death include car accidents and suffocation during co-sleeping (parent and child sleeping in the same bed).

Leading causes of infant death vary considerably among other countries by development level and health care quality, coverage, and access.

Public health officials outline strategies for reducing infant deaths.

Public health officials from the Centers for Disease Control and Prevention (CDC), National Institutes of Health, American Medical Association, American Academy of Pediatrics, and other agencies are pursuing research-informed strategies, such as those noted below, to reduce infant mortality in the United States.

Ensure access to preconception and prenatal health care. Promote positive health behaviors, attention to modifiable risk factors, and reduction of risks by providing high-quality health care before, during, and after pregnancy. Systematically screen women for depression, intimate-partner violence, tobacco use, substance use, and HIV.¹⁵ Consider new models of prenatal care delivery including group prenatal care, obstetric medical home care, and birth centers.

Target interventions to key identified risks. For example, prevent recurrent pre-term births with evidence-based treatments that have improved outcomes.¹⁶

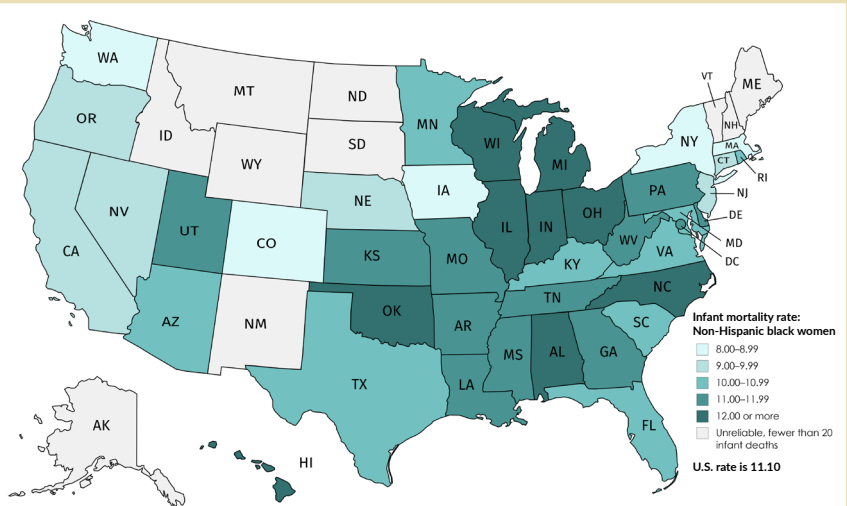
Improve the quality of systems of care. Avoid non-medically indicated early term delivery; use antenatal steroids when indicated; ensure delivery in an appropriate health-care setting; and provide culturally sensitive care to mother and child.¹⁷

Target low-SES groups with resources and health support during pregnancy and after birth. Provide financial and other resources and evidence-based nurse home visiting programs during and after pregnancy to disadvantaged families that may benefit most from health guidance and support.¹⁸

Promote American Academy of Pediatrics safe-sleeping guidelines. Encourage new parents to share a room with their baby without bed-sharing; place baby on her back for all sleep times; keep soft bedding out of crib; and avoid overdressing the baby, which can cause overheating.¹⁹

Create safe, supportive spaces for pregnant women. Provide access to program spaces for connecting with community supports, information about resources, and opportunities for personal growth and development.²⁰

Figure 2. Infant mortality rates for infants of non-Hispanic black women by state were generally highest in Midwestern and Southern states, 2013–2015.



Source: States and DC data: National Center for Health Statistics, Data Brief No. 295, “State Variations in Infant Mortality by Race and Hispanic Origin of Mother, 2013–2015,” 2017.

Note: Figure does not meet standards of reliability or precision; based on fewer than 20 deaths in the numerator.

For sources and more information, go to <https://www.irp.wisc.edu/resource/reducing-high-infant-mortality-rates-in-the-united-states/>

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ENDNOTES

¹Special thanks for expert guidance on this brief to Deborah Ehrenthal 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.

²Central Intelligence Agency, “The World Factbook,” 2013; and Organization for Economic Cooperation and Development (2018), Infant Mortality Rates, 2013–2016 (indicator). doi: 10.1787/83dea506-en (Accessed on October 2, 2018).

³A study comparing cause of infant deaths in the United States to Austria and Finland (because data are available for both) revealed that U.S. deaths from assaults and pneumonia, sudden infant death syndrome, accidents, and other causes are much higher in the United States.

⁴A study comparing cause of infant deaths in the United States to Austria and Finland (because data are available for both) revealed that deaths from sudden infant death syndrome, accidents, and other causes are much higher in the United States.

⁵M. 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(3): 447–455, 2016. See also, “Reducing Pregnancy-Related Deaths in the United States,” *Fast Focus* No. 36–2018, University of Wisconsin–Madison, Institute for Research on Poverty, for more information about U.S. maternal mortality.

⁶T. J. Mathews, M. F. MacDorman, M. E. Thoma, “Infant Mortality Statistics from the 2013 Period Linked Birth/Infant Death Data Set,” *National Vital Statistics Reports* 64(9), Hyattsville, MD: National Center for Health Statistics, 2015.

⁷MacDorman and colleagues, “Recent Increases in the U.S. Maternal Mortality Ratio.”

⁸A. Chen, E. Oster, and H. Williams, “Why Is Infant Mortality Higher in the United States than in Europe?” *American Economic Journal: Economic Policy* 8, No. 2 (2016): 89–124. The U.S. Department of Health and Human Services Health Resources and Services Administration has a Maternal, Infant, and Early Childhood Home Visiting Program which it runs in partnership with the Administration for Children and Families, with the goals of improving maternal and child health; preventing child abuse and neglect; encouraging positive parenting; and promoting child development and school-readiness. See <https://mchb.hrsa.gov/maternal-child-health-initiatives/home-visiting-overview>.

⁹See, for example, B. Wolfe, W. Evans, and T. E. Seeman, eds., *The Biological Consequences of Socioeconomic Inequalities* (New York: Russell Sage Foundation, 2012); A. Currie, M. A. Shields, and S. Wheatley Price, “The Child Health/Family Income Gradient: Evidence from England,” *Journal of Health Economics* 26, No. 2 (2007): 213–232; National Center for Health Statistics, *Health, United States, 2011: With Special Feature on Socioeconomic Status and Health*, Washington, D.C.: Government Printing Office, 2011.

¹⁰Centers for Disease Control and Prevention, “Birth Defects,” September 21, 2018. Available at <https://www.cdc.gov/ncbddd/birthdefects/index.html>.

¹¹Centers for Disease Control and Prevention, “Reproductive Health: Preterm Birth,” April 24, 2018. Available at <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>.

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¹³Centers for Disease Control and Prevention, “Pregnancy Complications,” July 2, 2018. Available at <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-complications.html>.

¹⁴Centers for Disease Control and Prevention, “Protect the Ones You Love: Child Injuries Are Preventable,” March 28, 2017. Available at <https://www.cdc.gov/safekid/index.html>.

¹⁵Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report, “Recommendations to Improve Preconception Health and Health Care, United States,”* 55(RR06), 2006. Available at <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm>. National Institutes of Health, *Healthy Native Babies: Project Workbook and Toolkit*, 2010. Available at https://www.nichd.nih.gov/sites/default/files/publications/pubs/documents/healthy_native_babies_workbook.pdf.

¹⁶J. P. Newnham, J. E. Dickinson, R. J. Hart, C. E. Pennell, C. A. Arrese, and J. A. Keelan, “Strategies to Prevent Preterm Birth,” *Frontiers in Immunology* 5, No. 584 (2014).

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¹⁷See, for example: Wisconsin Association for Perinatal Care, “A Blueprint for Action: Improving Care for Women and Infants Affected by Opioids,” nd. Available at https://perinatalweb.org/assets/cms/uploads/files/Improving%20Care%20for%20Women-Opioids_FINAL.pdf. M. P. Corry and R. Jolivet, “Doing the Right Thing for Women and Babies: Policy Initiatives to Improve Maternity Care Quality and Value,” *Journal of Perinatal Education* 18, No. 1(2009): 7–11. American Medical Association and National Committee for Quality Assurance, “Maternity Care: Performance Measurement Set,” 2012. Available at <https://www.ahrq.gov/sites/default/files/wysiwyg/CHIPRA-BMI-Maternity-Care-Measures.pdf>.

¹⁸Chen, Oster, and Williams, “Why Is Infant Mortality Higher in the United States than in Europe?” *American Economic Journal: Economic Policy* 8, No. 2 (2016): 89–124. The U.S. Department of Health and Human Services Health Resources and Services Administration has a Maternal, Infant, and Early Childhood Home Visiting Program which it runs in partnership with the Administration for Children and Families, with the goals of improving maternal and child health; preventing child abuse and neglect; encouraging positive parenting; and promoting child development and school-readiness. See <https://mchb.hrsa.gov/maternal-child-health-initiatives/home-visiting-overview>.

¹⁹American Academy of Pediatrics, “SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment,” *Policy Statement*, *Pediatrics* 138(5): e 20162938, November 2016.

²⁰L. Mkandawire-Valhmu, L. Lathen, M. J. Baisch, Q. Cotton, A. Dressel, J. Antilla, et al., “Enhancing Healthier Birth Outcomes by Creating Supportive Spaces for Pregnant African American Women Living in Milwaukee,” *Maternal and Child Health Journal*, <https://doi.org/10.1007/s10995-018-2580-4>, published online July 30, 2018.