

Inter-Connection of Maternal Health/Mortality and Infant Health/Mortality

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Secretary's Advisory Committee on Infant Mortality
April 9, 2019



Centers for Disease Control and Prevention

National Center for Chronic Disease Prevention and Health Promotion

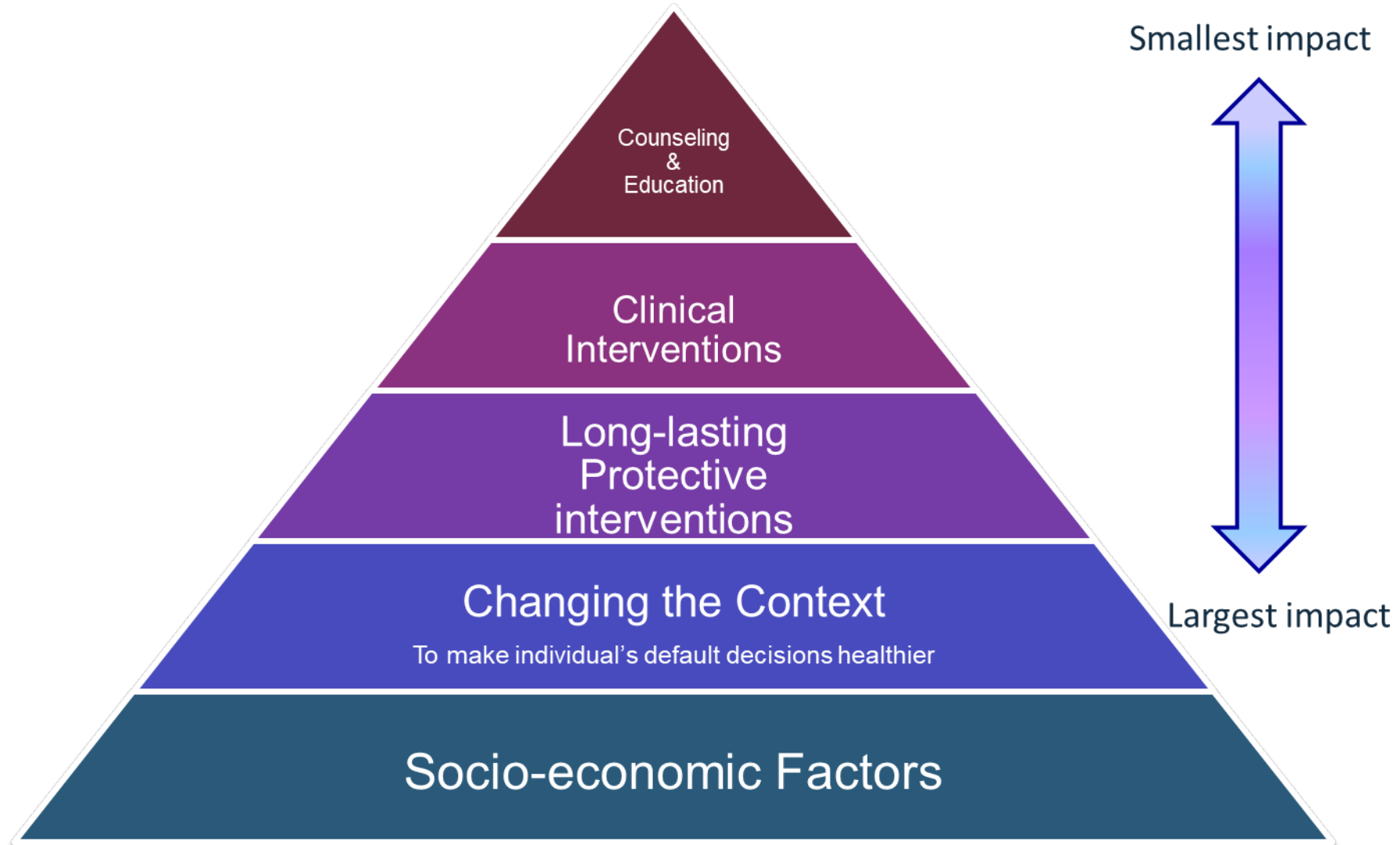
Division of Reproductive Health



AGENDA

- CDC's Impact Pyramid for Infant Mortality Prevention
 - Maternal Mortality and Morbidity
 - Infant Mortality
 - Maternal Health Influence
 - Policy Issues
 - Summary
 - Discussion
-

PUBLIC HEALTH IMPACT PYRAMID

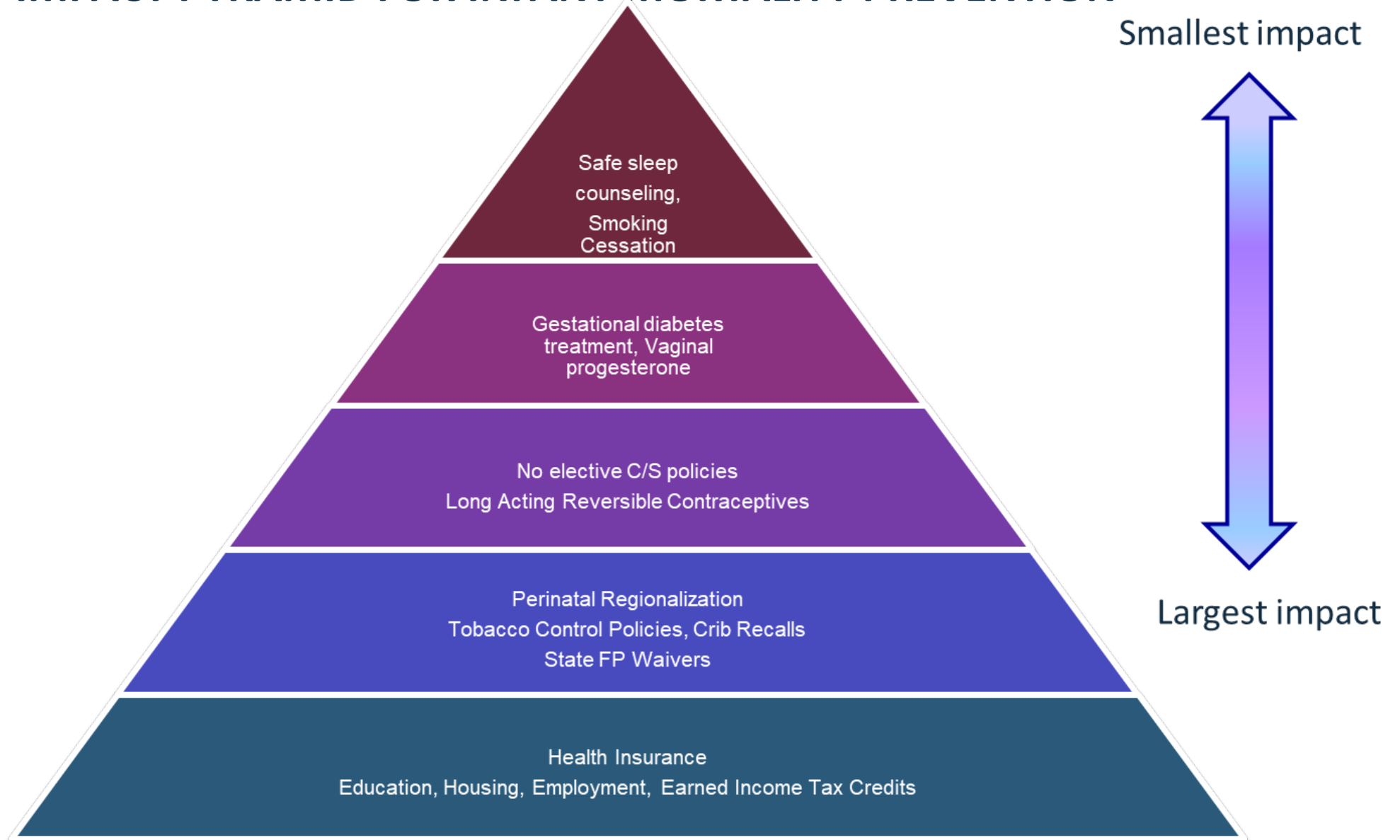


INFANT MORTALITY PREVENTION STRATEGIES

FROM 2013 SACIM MEETING

- ❑ Improving women's health prior to conception
- ❑ Treatment of chronic conditions in pregnancy
- ❑ Long acting reversible contraception (birth spacing)
- ❑ Safe infant sleep, injury prevention
- ❑ New models of care (e.g. Centering)
- ❑ Improving quality of perinatal care (e.g. reducing non-indicated C-Sections)
- ❑ Perinatal regionalization
- ❑ Health insurance, employment

IMPACT PYRAMID FOR INFANT MORTALITY PREVENTION



OPPORTUNITIES FOR COLLABORATION

FROM 2013 SACIM MEETING

❑ **COIIN**

❑ **Maternal Mortality Initiative**

❑ **Surveillance of Preventive Services**

❑ **Tips from Former Smokers Campaign**

❑ **CDC's National ART Surveillance System**





Maternal Mortality



Focus On Infants During Childbirth Leaves U.S. Moms In Danger

12:11

May 12, 2017 · 5:00 AM ET

Heard on Morning Edition



+ QUEUE

EMBED

NINA MARTIN, PROPUBLICA



RENEE MONTAGNE

The New York Times Magazine

Childbirth is killing black women in the US, and here's why



Why America's Black Mothers and Babies Are in a Life-or-Death Crisis

The answer to the disparity in death rates has everything to do with the lived experience of being a black woman in America.

By LINDA VILLAROSA APRIL 11, 2018

CBS NEWS / August 5, 2018, 10:06 AM

Maternal mortality: An American crisis

MATERNAL DEATHS IN FOCUS



700

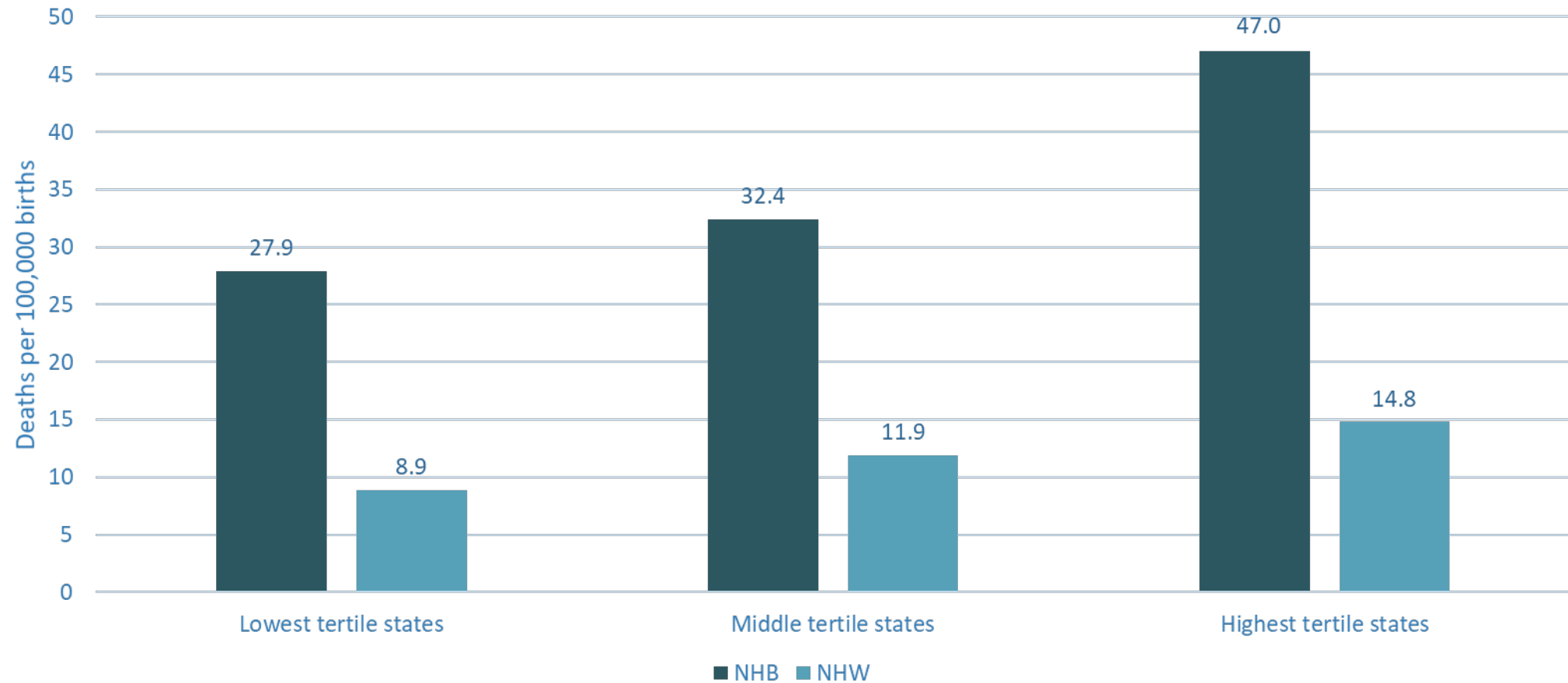
Each year in the U.S., about 700 women die as a result of pregnancy complications



3 – 4x

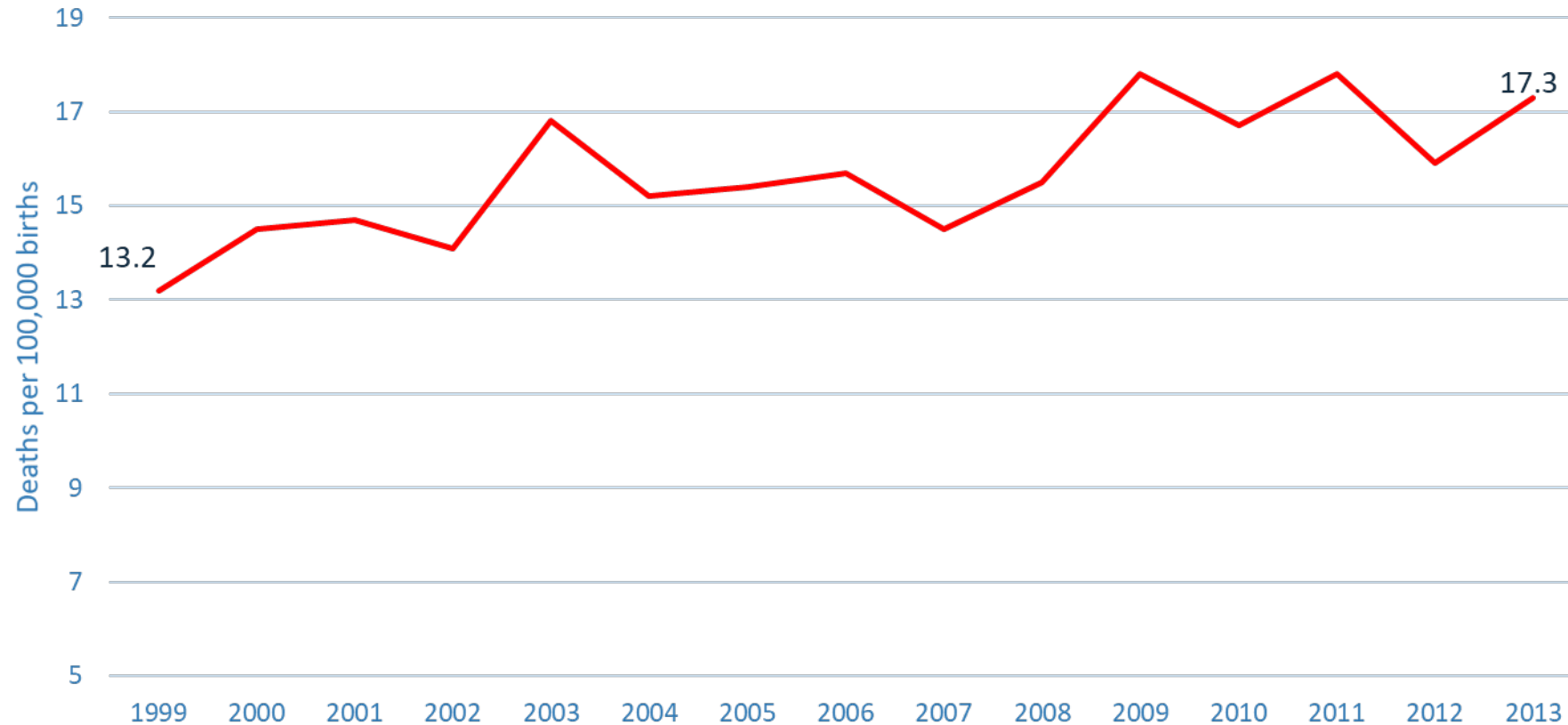
Black women are 3 – 4 times more likely to die of pregnancy-related causes than white women

BLACK AND WHITE DISPARITIES IN PREGNANCY-RELATED MORTALITY PERSIST



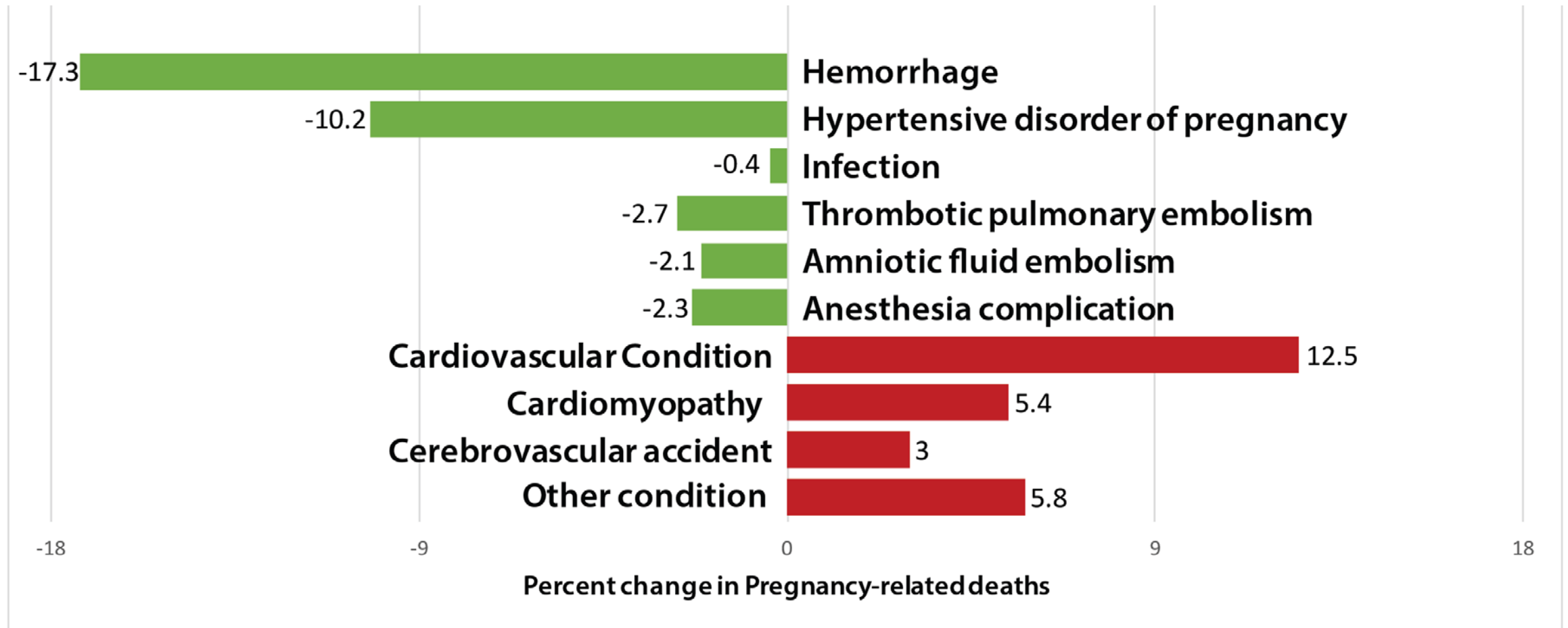
Source: Pregnancy Mortality Surveillance System, 2006-2013

DESPITE TECHNOLOGY, MATERNAL MORTALITY IS NOT IMPROVING

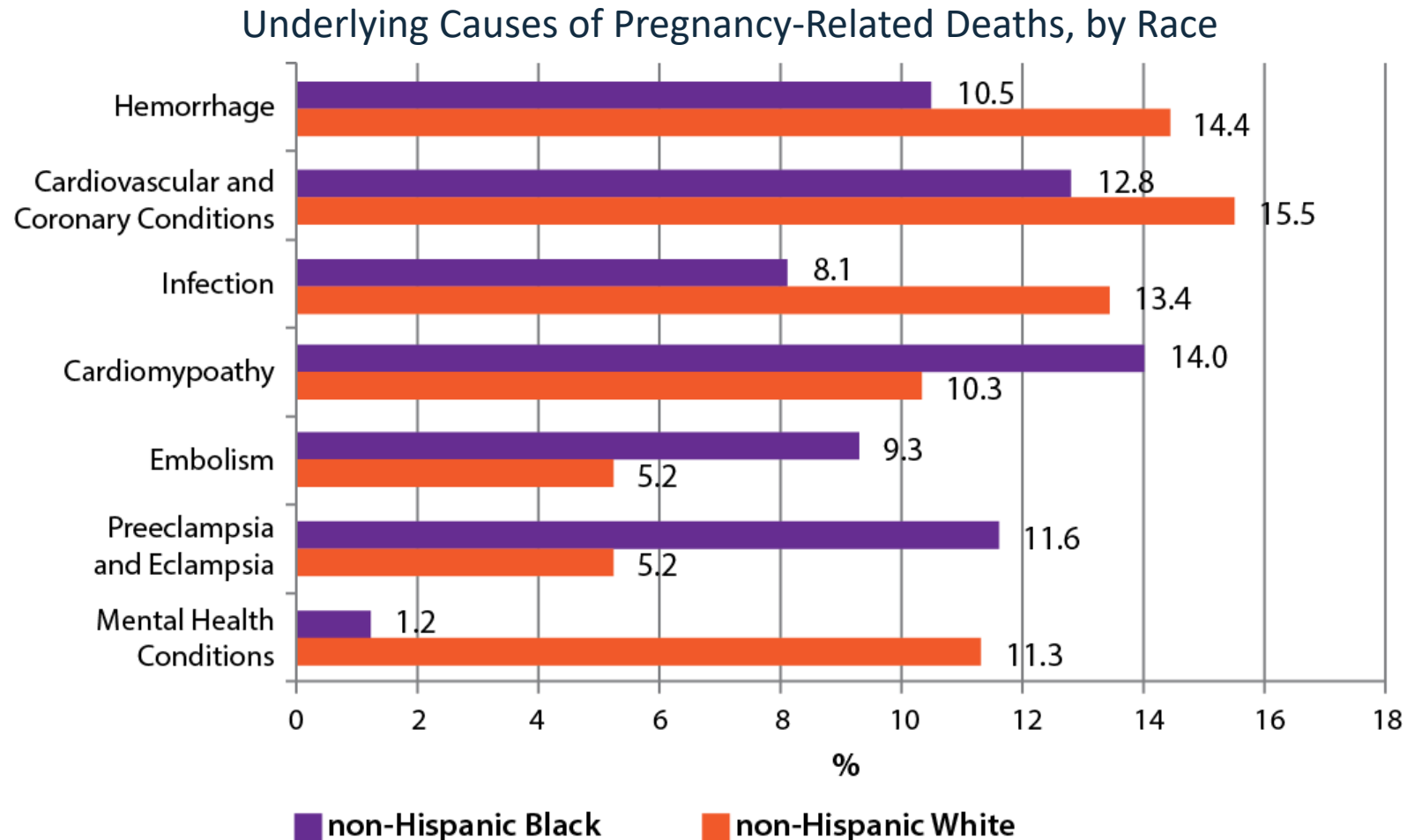


Source: Centers for Disease Control and Prevention, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion

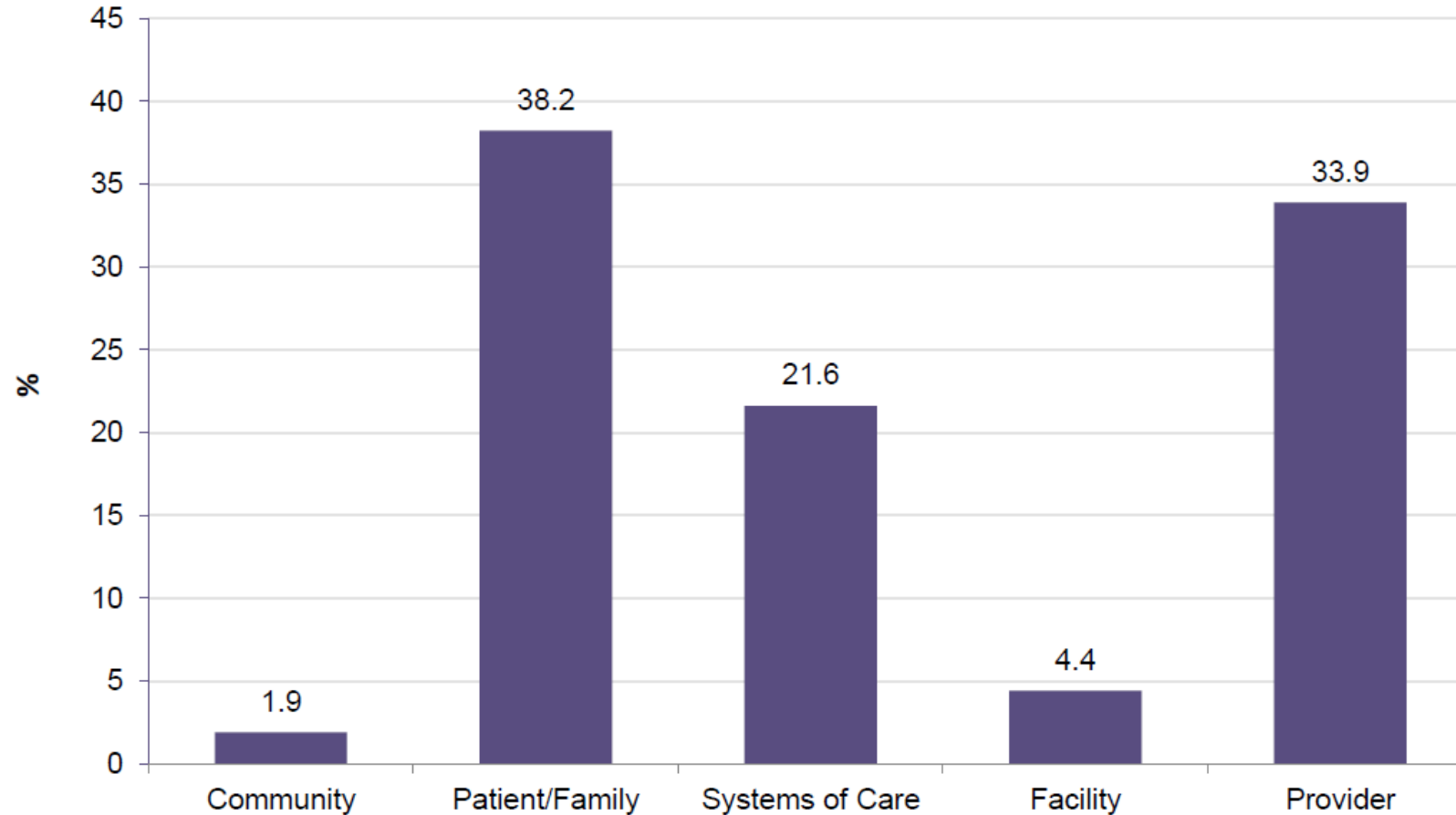
CAUSES OF PREGNANCY-RELATED DEATHS CHANGED BETWEEN 1987 AND 2013



PREGNANCY-RELATED DEATHS: DIVING DEEPER



CONTRIBUTING FACTORS AMONG PREGNANCY-RELATED DEATHS

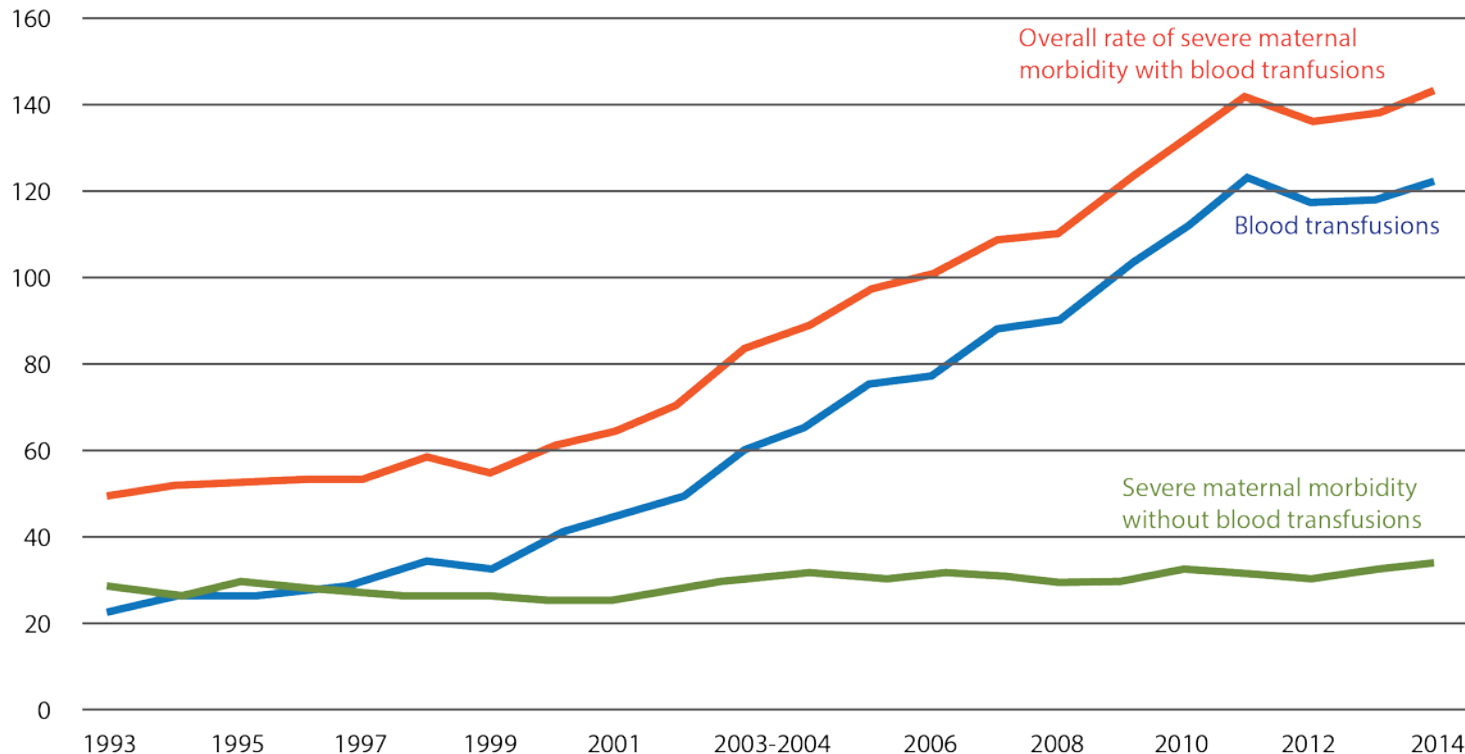


NON-CLINICAL FACTORS ALSO PLAY A ROLE IN PREGNANCY-RELATED DEATHS

- Few instances of community factors contributing to pregnancy-related deaths have been found by MMRCs.
- Evidence supports the role of social determinants for disparities in other related morbidity and mortality (e.g., pre-term birth, infant mortality).
- MMRCs have proposed a framework incorporating health equity into the reviews looking at community factors such as:
 - General health services environment
 - Reproductive health services environment
 - Behavioral health environment
 - Transportation environment
 - Social and economic environment

THE RATE OF SEVERE MATERNAL MORBIDITY IS INCREASING

Rate of severe maternal mortality per 100,000 delivery hospitalizations



Severe maternal morbidity (SMM) includes unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health.

50,000 women were affected in the United States in 2014.

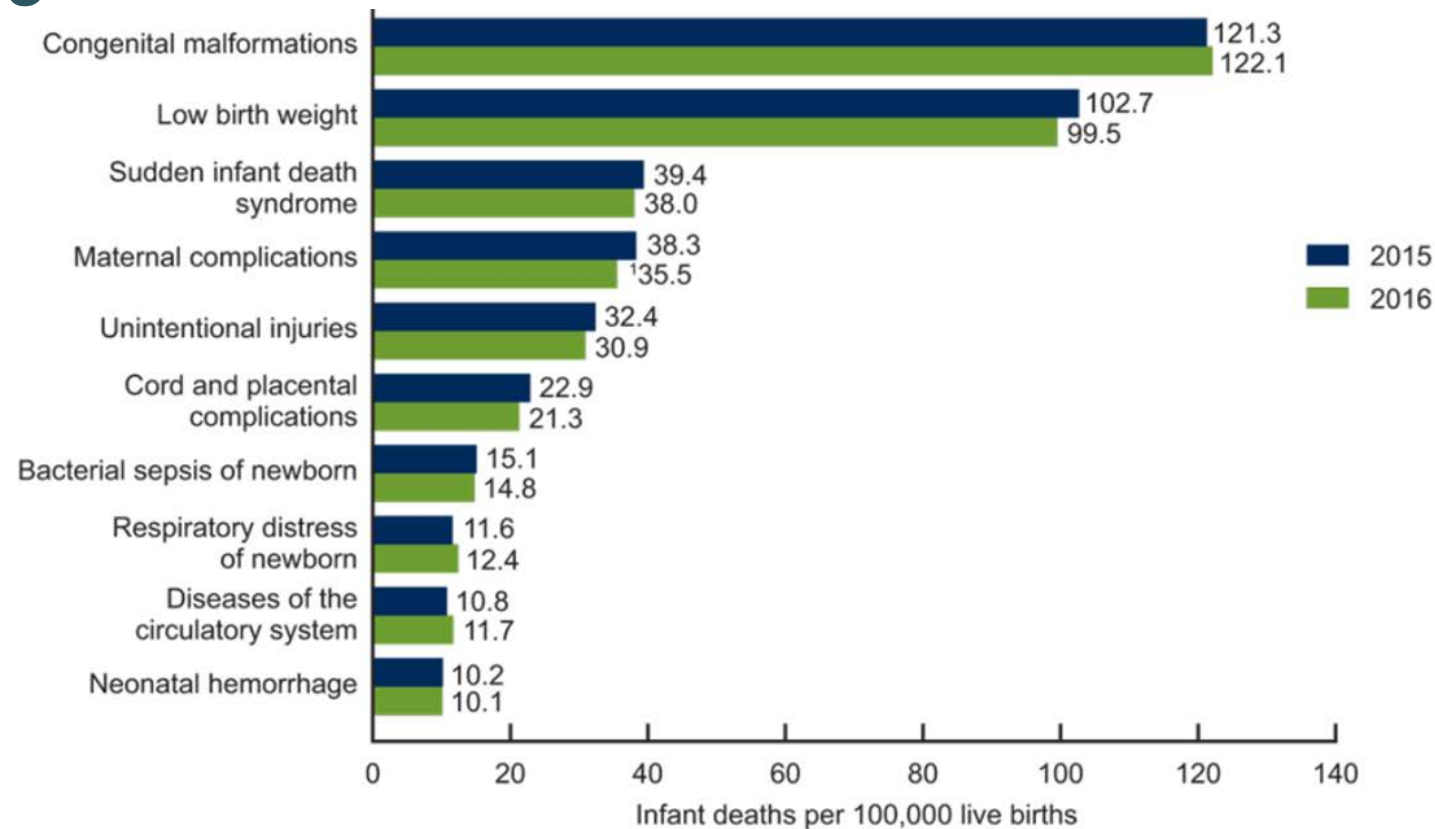
Sources: The National (Nationwide) Inpatient Sample (NIS)

American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine, Kilpatrick SK, Ecker JL. Severe maternal morbidity: screening and review External. *Am J Obstet Gynecol.* 2016;215(3):B17-B22.



Trends in Infant Mortality

INFANT MORTALITY RATES FOR THE 10 LEADING CAUSES OF DEATH IN 2016



¹Statistically significant decrease in mortality rate from 2015 to 2016 ($p < 0.05$).

NOTES: A total of 23,161 deaths occurred in children under age 1 year in the United States in 2016, with an infant mortality rate of 587.0 infant deaths per 100,000 live births. The 10 leading causes of infant death in 2016 accounted for 67.5% of all infant deaths in the United States. A total of 23,455 infant deaths occurred in 2015, with an infant mortality rate of 589.5 infant deaths per 100,000 live births. Rankings for 2015 data are not shown. Causes of death are ranked according to number of deaths. Access data table for Figure 5 at: https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#5.

SOURCE: NCHS, National Vital Statistics System, Mortality.

BIRTH DEFECTS AND INFANT MORTALITY

Birth defects are a leading cause of infant deaths, accounting for 20% of all infant deaths.

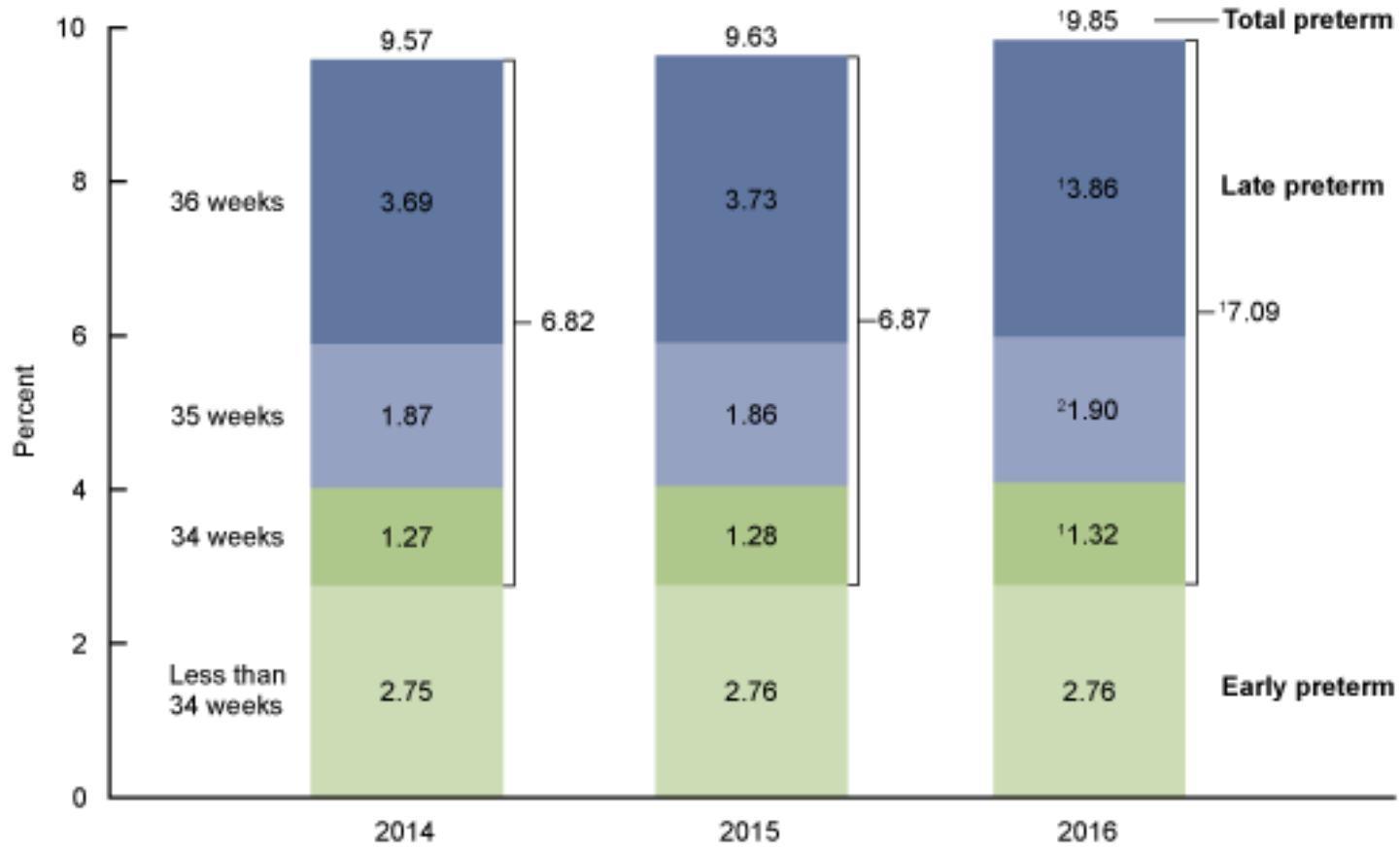
- Critical congenital heart disease (CCHD)
 - Represents about 25% of all congenital heart disease
 - CCHD poses a risk for serious complications, including death, shortly after birth
 - Newborn screening by pulse oximetry was added to the Recommended Uniform Screening Panel in 2011
 - CCHD screening nationwide could save an estimated 120 babies each year

PRE-TERM BIRTHS AND INFANT MORTALITY

- Preterm birth and low birth weight accounted for about 17% of infant deaths in 2015.
- Preterm birth rates decreased from 2007 to 2014, in part, to declines in the number of births to teens and young mothers.
- Preterm births rose for the second straight year in 2016.
- Contributors to pre-term birth include age, race, socioeconomic status and behavior.

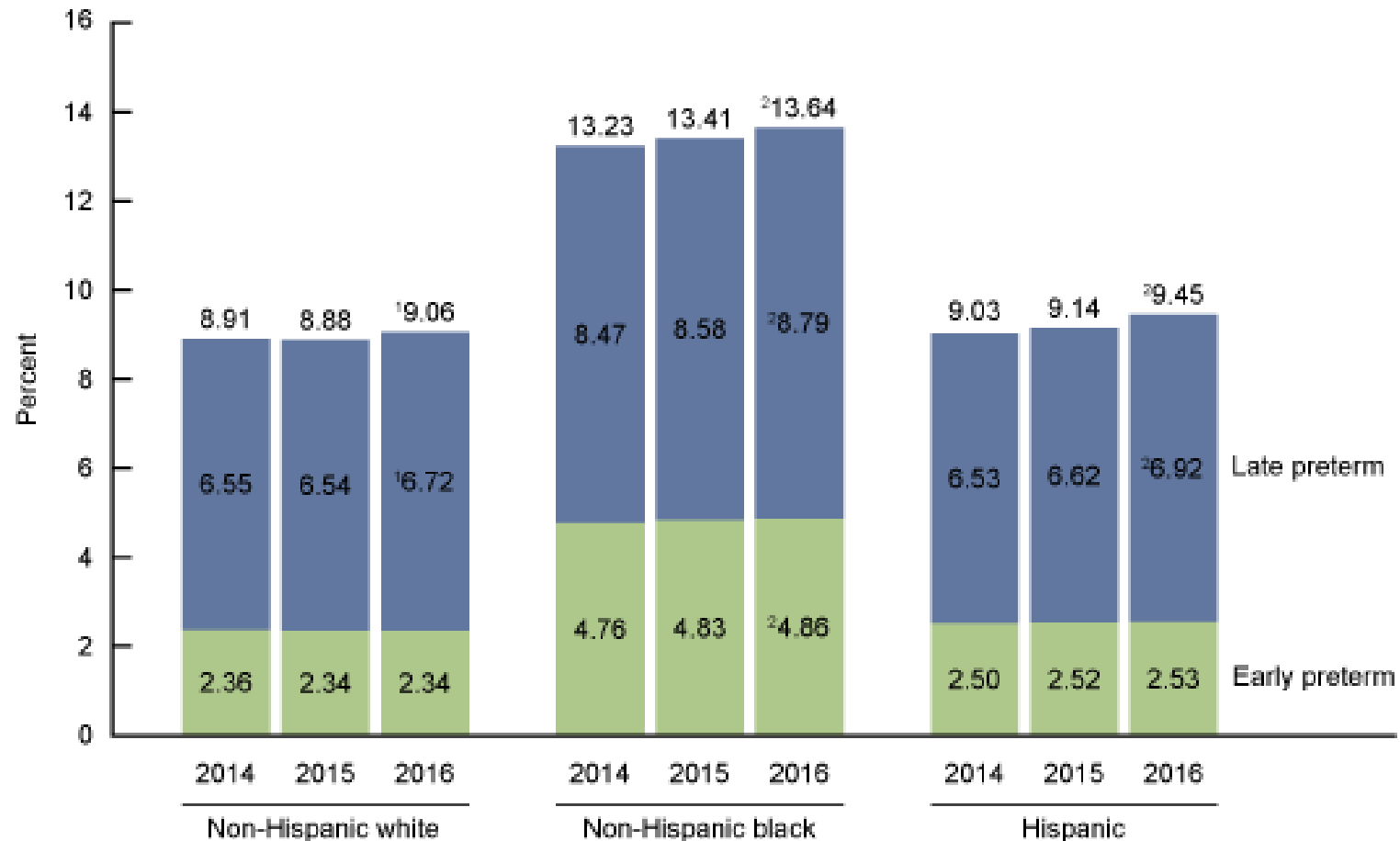
Is the state of maternal health playing a role in why pre-term births are increasing?

PRE-TERM BIRTHS ON THE RISE



SOURCE: NCHS, National Vital Statistics System, Natality.

RACIAL DIFFERENCES IN PRE-TERM BIRTHS REMAIN



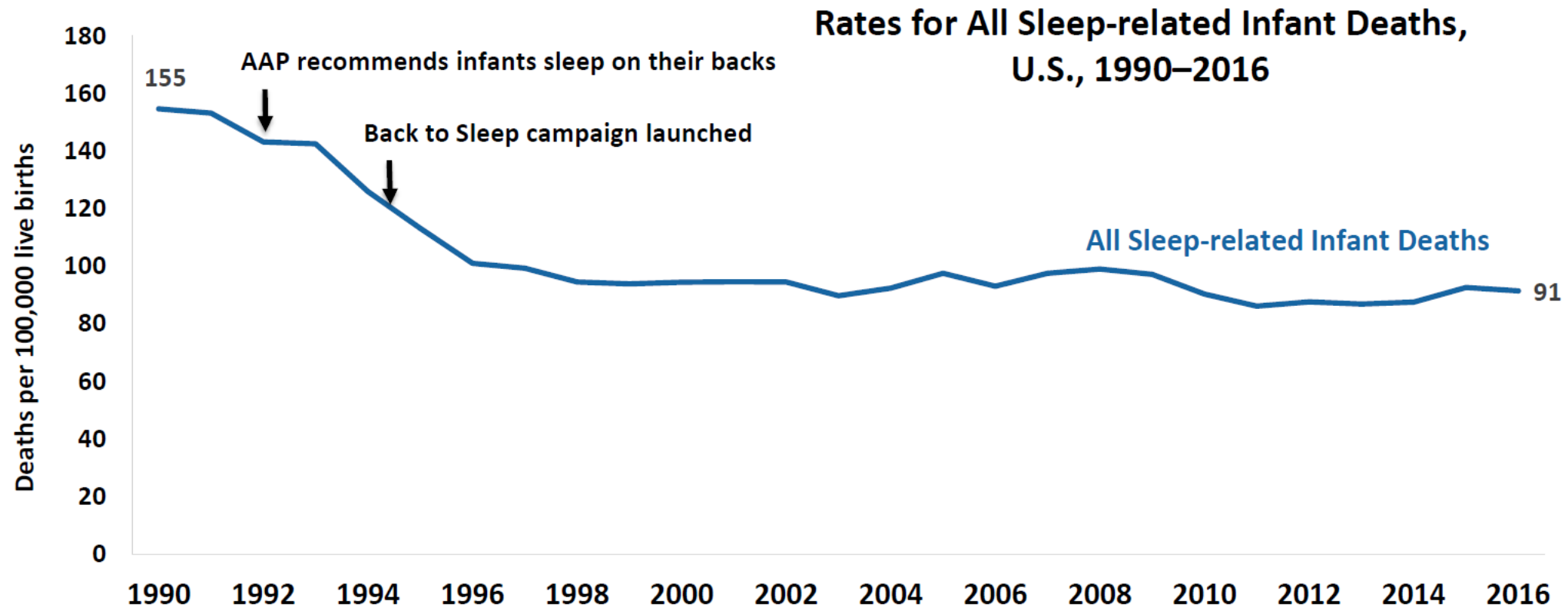
SOURCE: NCHS, National Vital Statistics System, Natality.

SIDS/SUID AND INFANT MORTALITY

- In 2016, there were 3,607 sudden unexpected infant deaths (SUID) in the United States.
- Many of these deaths are preventable with safe sleep practices.
- Social determinants of health (housing, education, etc.) may contribute to a larger percentage of deaths among some racial groups.



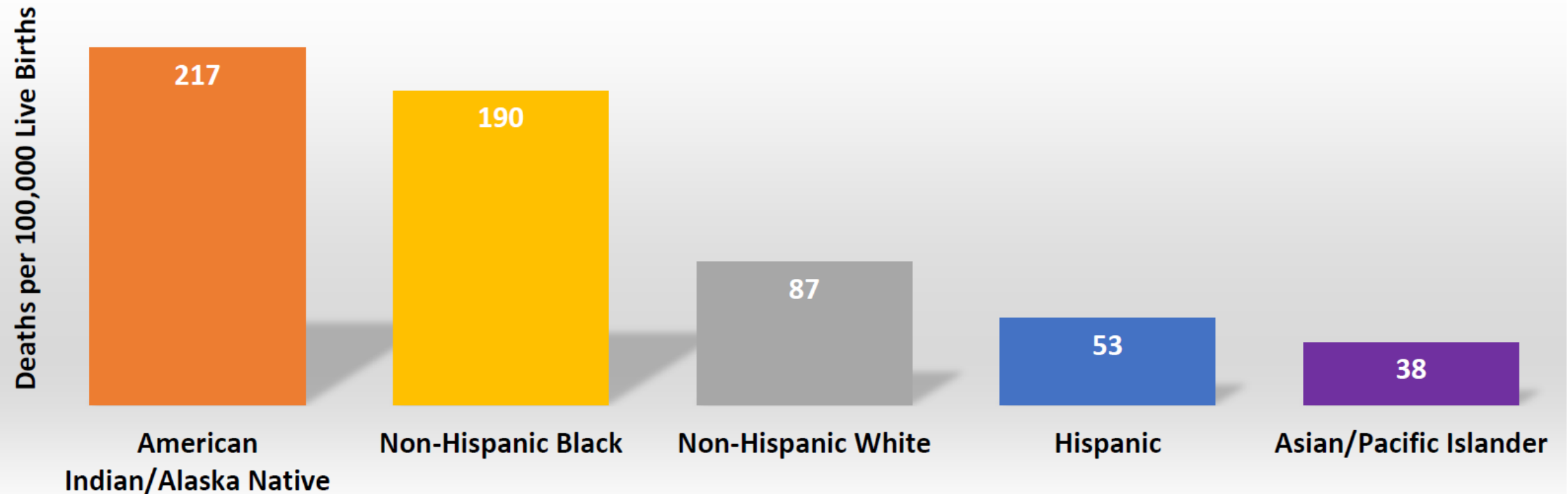
Rates of Sleep-Related Infant Deaths Dropped in 1990s BUT HAVE NOT DECLINED SINCE 2000



Source: June 2017 wonder.cdc.gov/cmfi-icd10.html

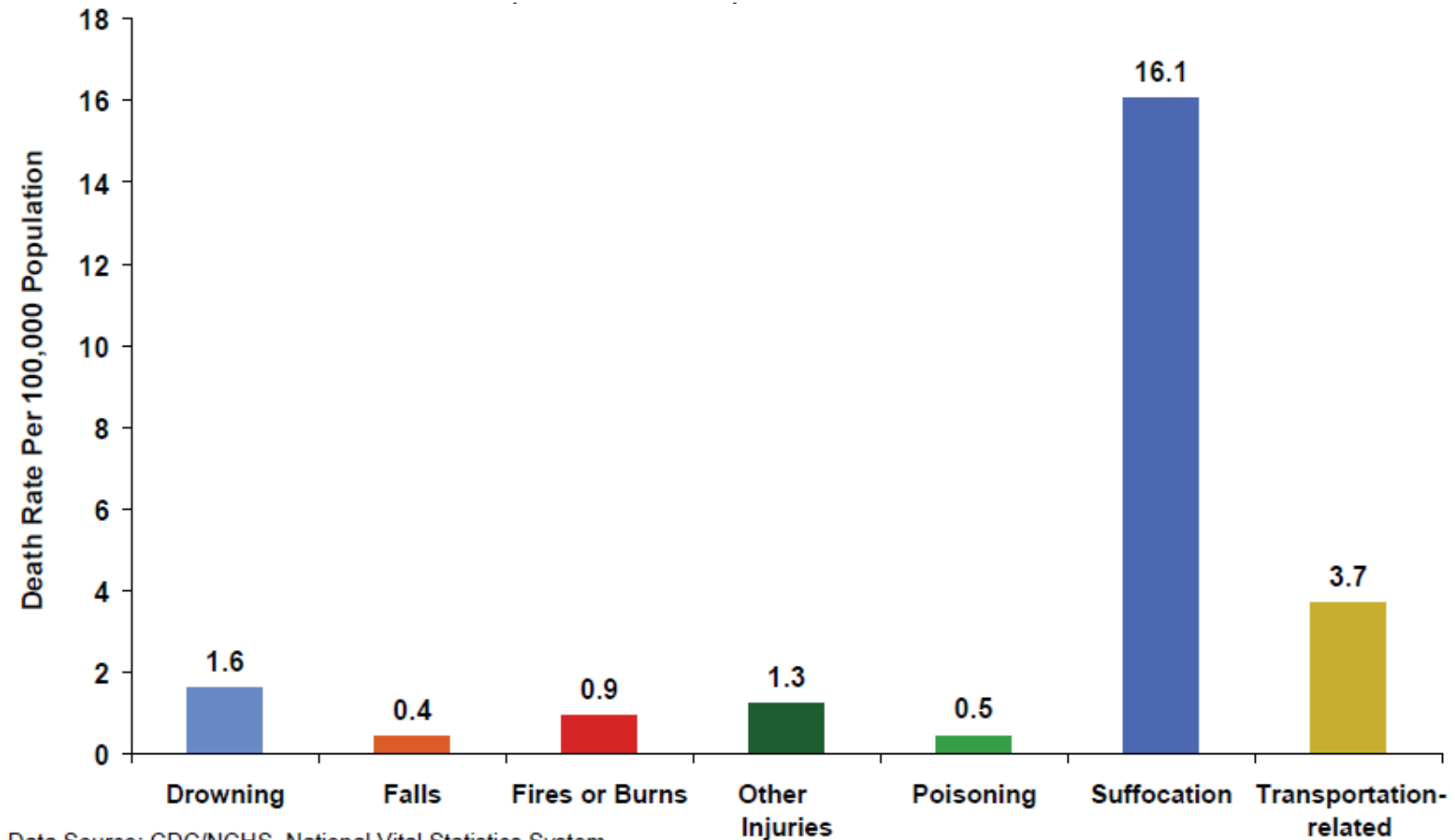
RACIAL AND ETHNIC DISPARITIES EXIST IN SLEEP-RELATED INFANT DEATHS

Racial and Ethnic Disparities in Sleep-related Infant Deaths, U.S., 2015



SOURCE: National Center for Health Statistics, *Public Use Data File Documentation: 2014–2016 Period Linked Birth/Infant Death Data Sets*, Centers for Disease Control and Prevention, Editor. 2016–2018, Department of Health and Human Services: Hyattsville, MD..

UNINTENTIONAL INJURIES ARE ANOTHER CAUSE OF INFANT MORTALITY



Data Source: CDC/NCHS, National Vital Statistics System

Source: CDC Childhood Injury Report: Patterns of Unintentional Injuries Among 0-19 Year Olds in the United States, 2000-2006, Figure 13: Injury Deaths Among Children Less Than 1 Year



Maternal Morbidity and Mortality Influence on Infant Health and Mortality

MATERNAL HEALTH IS A KEY DRIVER OF INFANT HEALTH

Maternal conditions, behaviors and environments contribute to infant health and mortality, including pre-term births.

- Hypertensive disorder / cardiovascular disease
- Diabetes
- Obesity
- Tobacco
- Substance Use
- Poor Nutrition
- Environment/Social Determinants of Health





Policy Issues Impacting Maternal and Infant Health

WHAT POLICY ISSUES CAN BE ADDRESSED TO IMPROVE MATERNAL AND INFANT HEALTH?

- Racial/ethnic disparities
 - Pre-conception health
 - Women's healthcare
 - Post-partum health
 - More research needed on factors that drive adverse maternal health and infant outcomes
 - Social
 - Biologic
 - Environmental
 - Policy
-

SUMMARY

Given the clear connection maternal morbidity and mortality has on infant health, SACIM has an opportunity to address maternal health to prevent infant mortality.

Consider the large roles of pre-term birth and safe sleep, which are responsible for a large proportion of deaths. The Committee can also focus on maternal health factors and delve more deeply into other causes such as injury, SID/SUID, and the influence of social determinants of health on maternal and infant health.

CONCLUSION



DISCUSSION

What are the opportunities to improve infant and maternal health in terms of:

- Research
 - Surveillance
 - Clinical care
 - Service delivery
 - Health equity
 - Insurance coverage
 - Financial support
 - Work place & wages
-

THANK YOU



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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

