Fetal, Perinatal, and Infant Mortality

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Vital Statistics Data Files

- Availability of national perinatal data
  - Birth (natality) data
    - 2021 final and provisional estimates through 3rd quarter of 2022 now available.
    - Provisional 2022 report expected to be released May 2023.
    - 2022 final data file expected August 2023.
  - Infant Mortality data (from the general mortality file)
    - 2021 final and provisional estimates through 3rd quarter of 2022 are now available. (Based on general mortality file – does not include race/Hispanic origin data.)
    - 2022 general file data expected in late 2023
  - Fetal death data
    - 2021 final (demographic and cause of death) now available.
    - 2022 provisional data expected Fall/Winter 2023; final data by late 2023.

Vital Statistics Data Files (continued)

- Linked birth/infant death data set (linked file)
  - 2020 period/2019 cohort file now available
  - 2021 period/ 2020 cohort forthcoming (ETA May 2023)
  - Provisional report based on 2022 data in development (ETA Fall/Winter 2023)

Linked birth/infant death data set (linked file)

- Links birth and death certificate data for infant deaths (i.e., deaths within a year of birth).
- Purpose: Use more detailed data from the birth certificate for infant mortality analysis (e.g., maternal demographic characteristics and pregnancy risk factors).

Linked birth/infant death data set (linked file) (continued)

- More accurate information on maternal race and ethnicity than mortality data file (i.e., birth certificate data are based on maternal self-report).
- Starting with 2017 period/2016 cohort data year, users can create cohort files by combining 2 period files using variables included in the file.

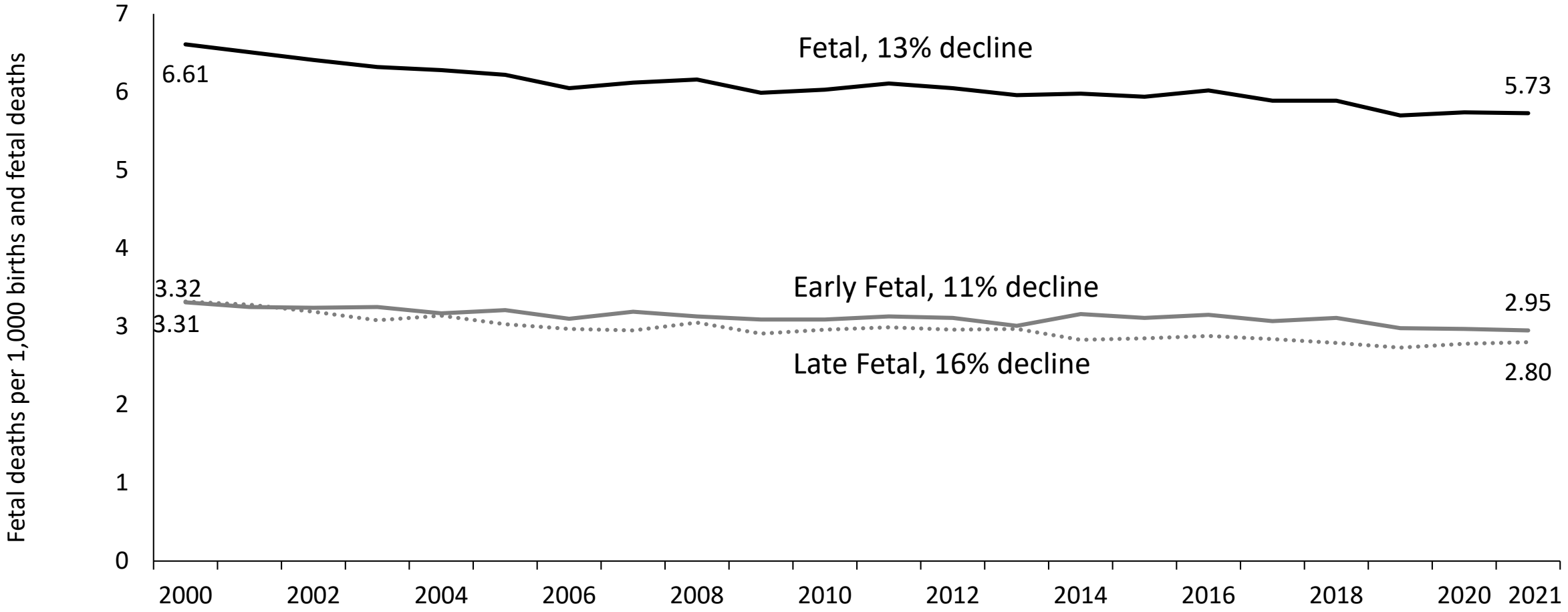
Infant mortality data

- Improvements in timeliness of release of the linked birth/infant death period files made possible by improvements in the timeliness of the mortality file.
  - Striving to further improve timeliness of the period/cohort final data file releases.
  - Development of provisional data release to be released at least 6 months ahead of the final data.

Fetal cause of death

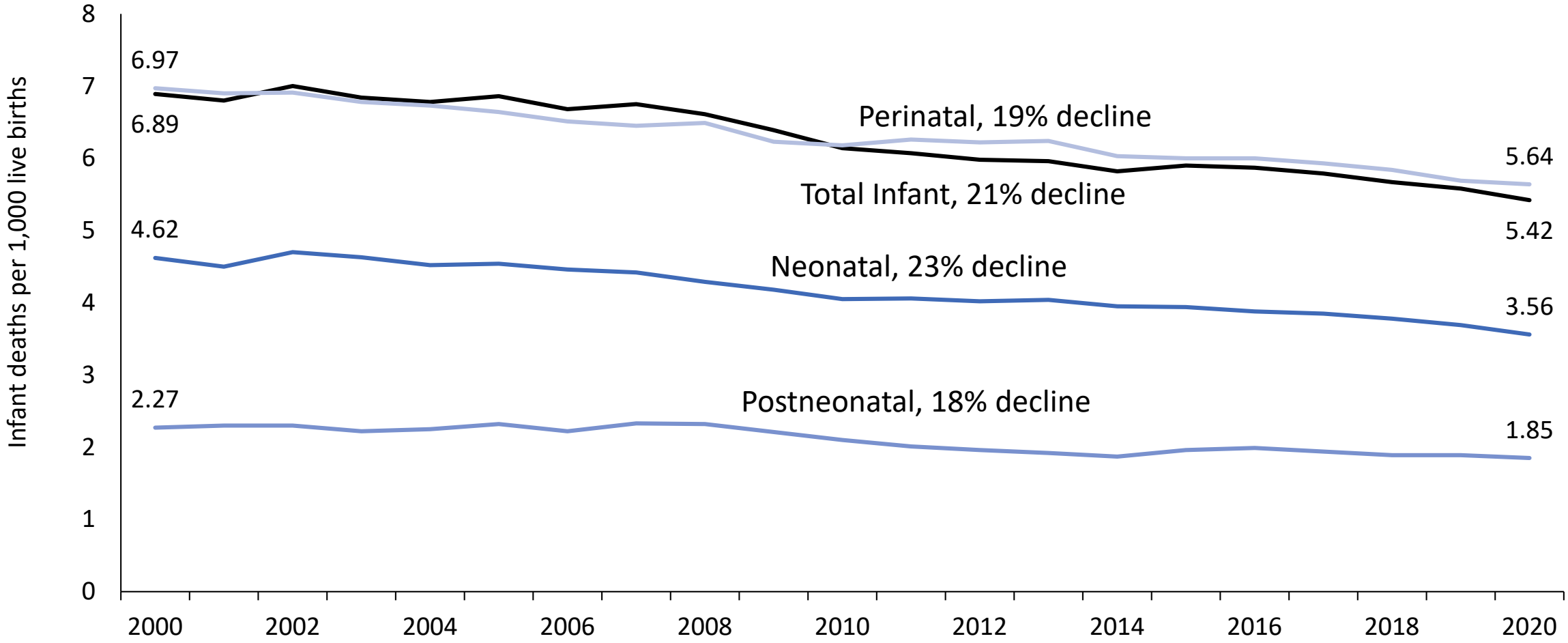
- Recently released 2021 data file with demographic and cause of death data.
  - NCHS has dramatically improved timing of COD coding for both general mortality and fetal death data.
  - Because of resource and quality issues, cause of fetal death data were not available at a national level until 2014 data.
    - Starting with 2017, cause of death data has been released with the demographic file.

Total fetal, early fetal, and late fetal mortality rates: United States, 2000-2021



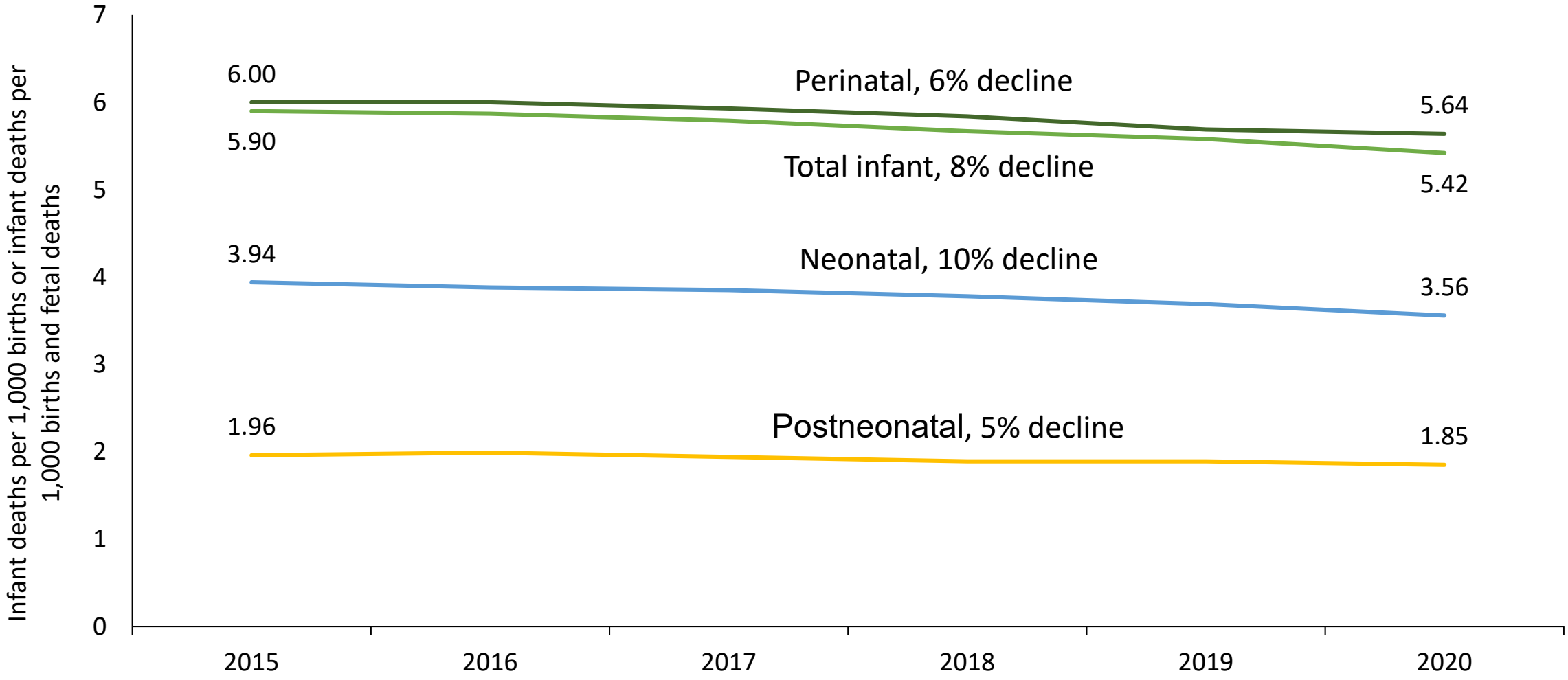
SOURCE: NCHS, National Vital Statistics System.

Perinatal, infant, neonatal, and postneonatal mortality rates: United States, 2000-2020



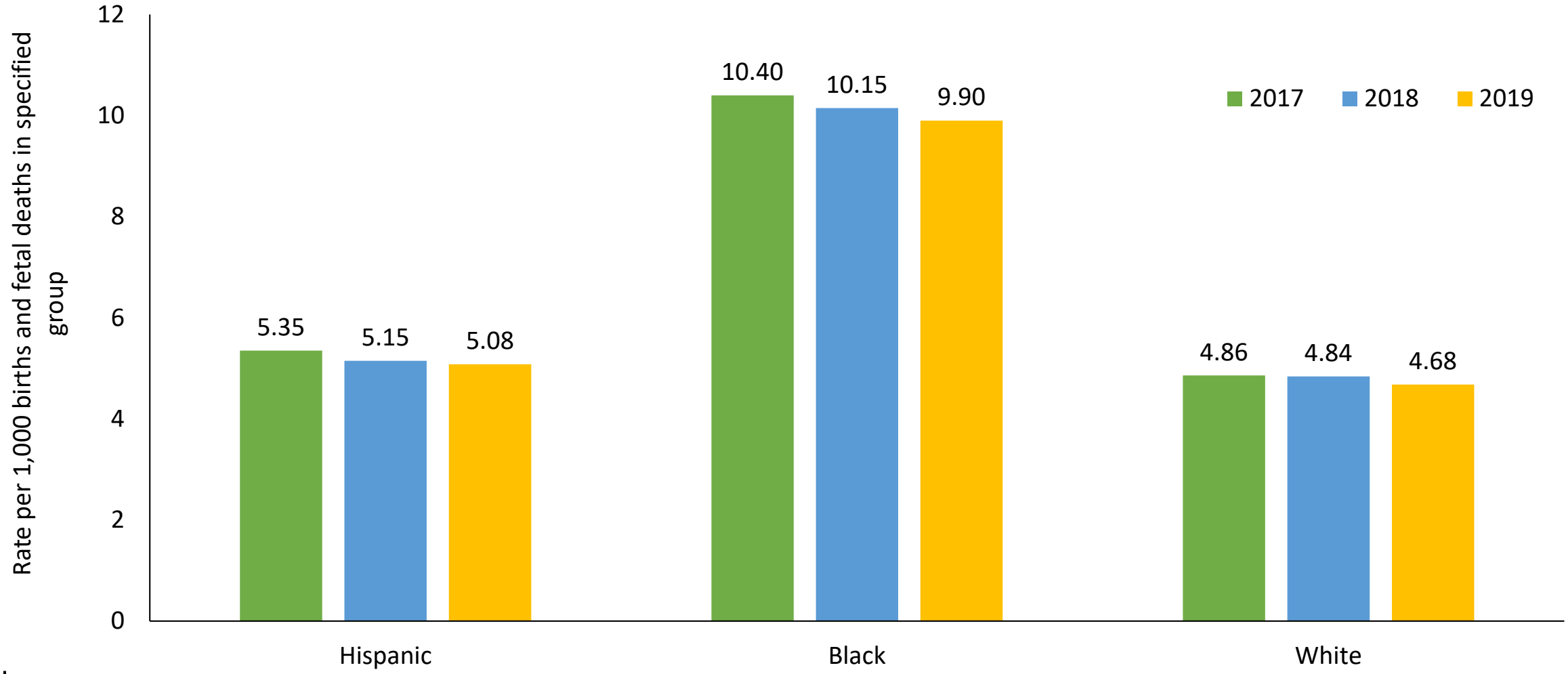
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Total infant, neonatal, postneonatal, and perinatal mortality rates, United States 2015-2020



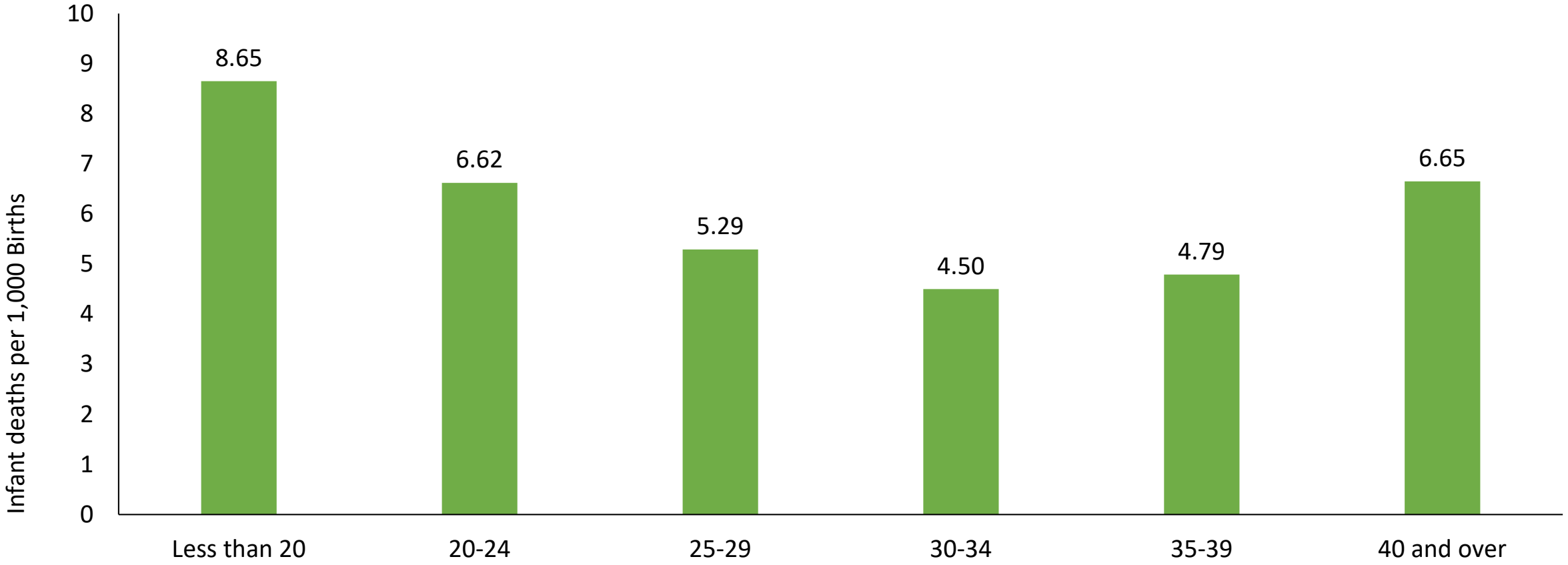
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Perinatal mortality rates, by maternal race and Hispanic origin of mother, 2017-2019



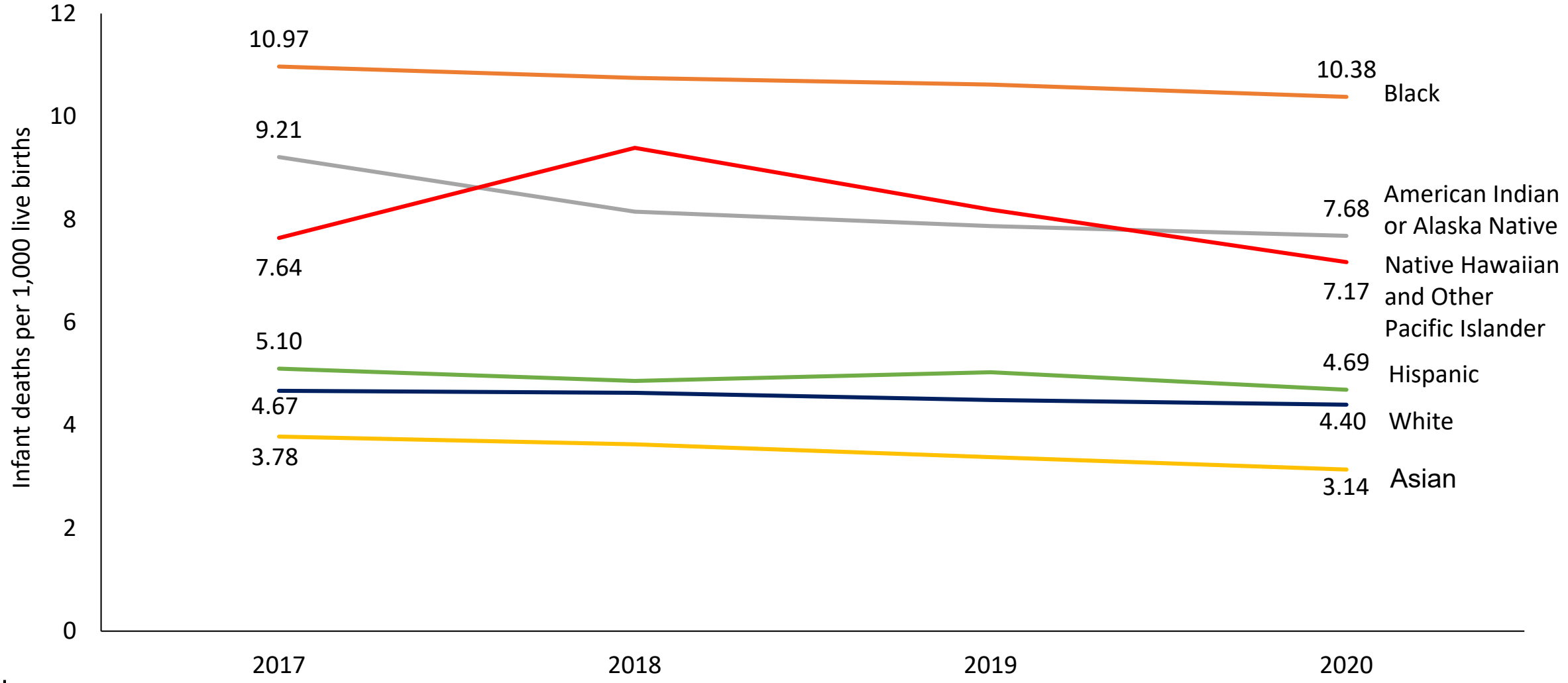
NOTE: All years exclude data for Rhode Island, which did not report mother's race or Hispanic origin for fetal deaths for 2015. All race groups are single race non-Hispanic.
SOURCE: NCHS, National Vital Statistics System.

Infant mortality rate by maternal age: United States, 2020



SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

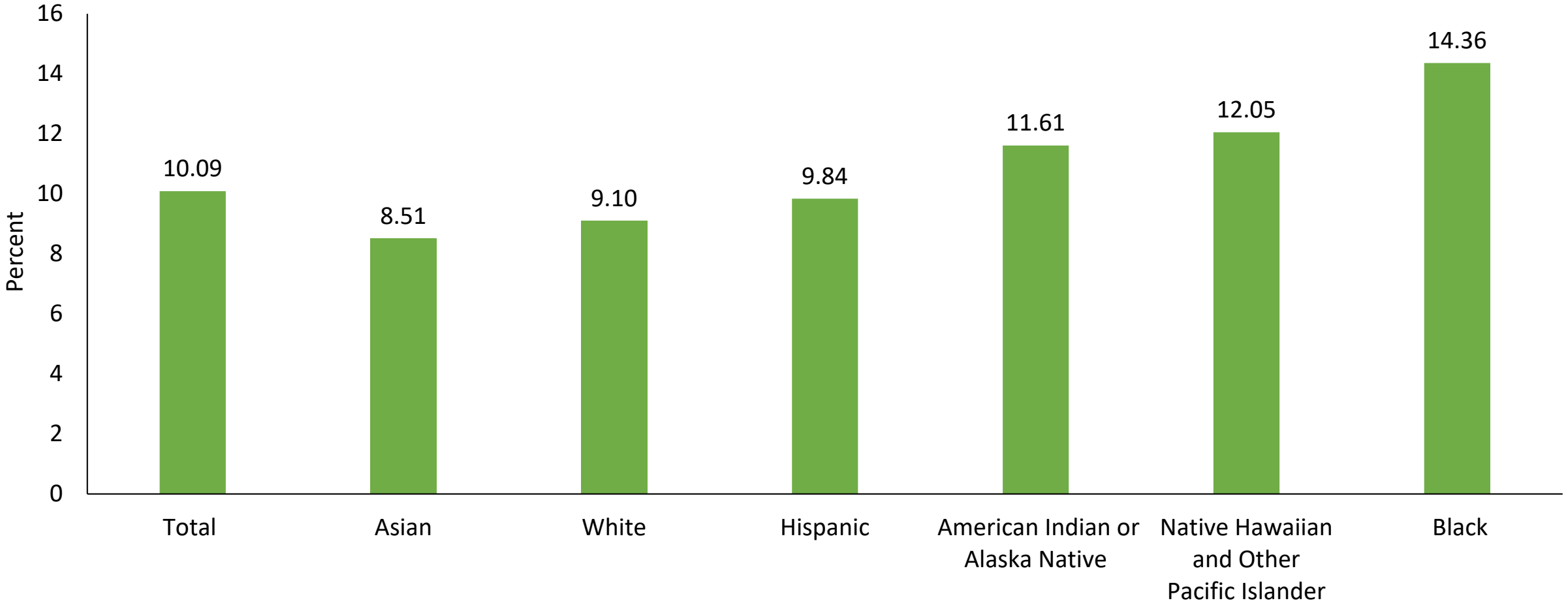
Infant mortality rates by maternal race and Hispanic origin of mother: United States, 2017-2020



NOTE: All race groups are single race non-Hispanic.

SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

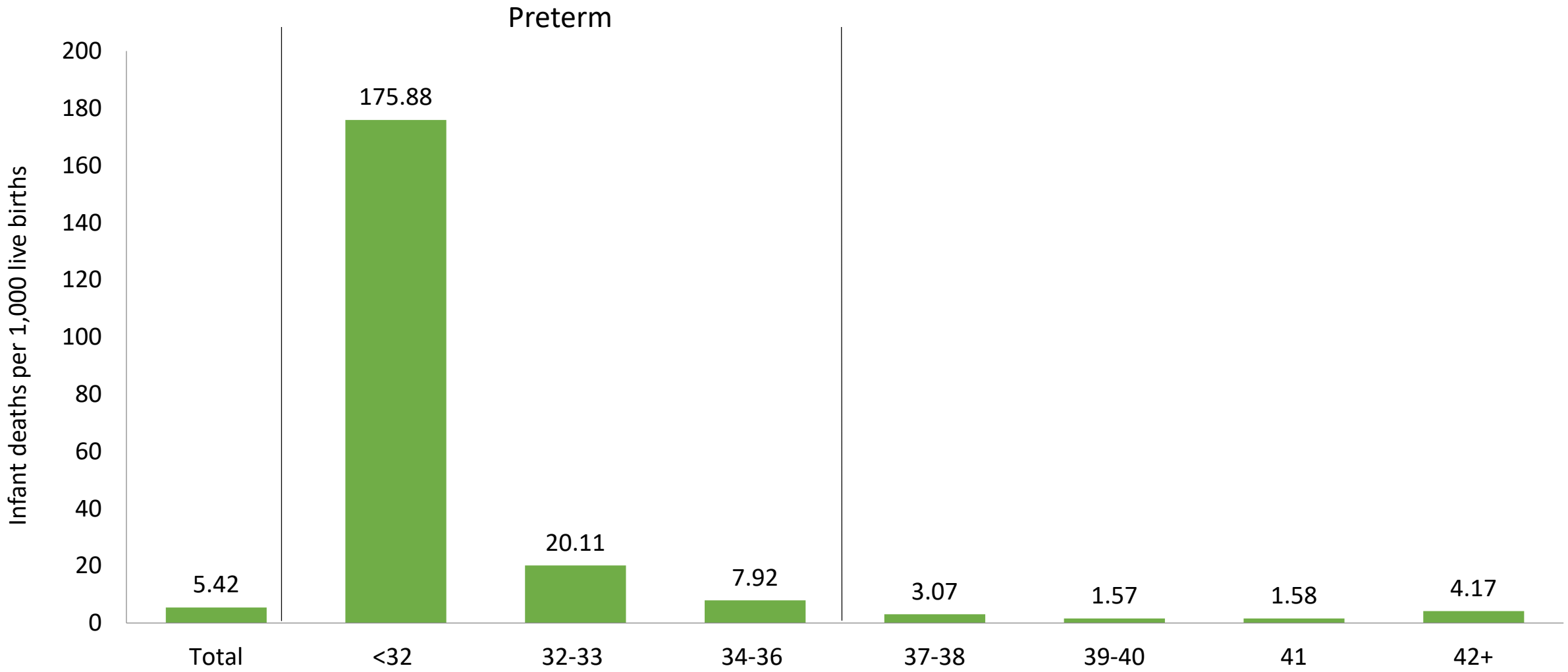
Percentage of preterm births by maternal race and Hispanic origin: United States, 2020



NOTE: Gestational age is expressed in completed weeks based on the obstetric estimate of gestation. Preterm is defined as a gestational age of less than 37 weeks. All race groups are single race non-Hispanic.

SOURCE: NCHS, National Vital Statistics System, Natality.

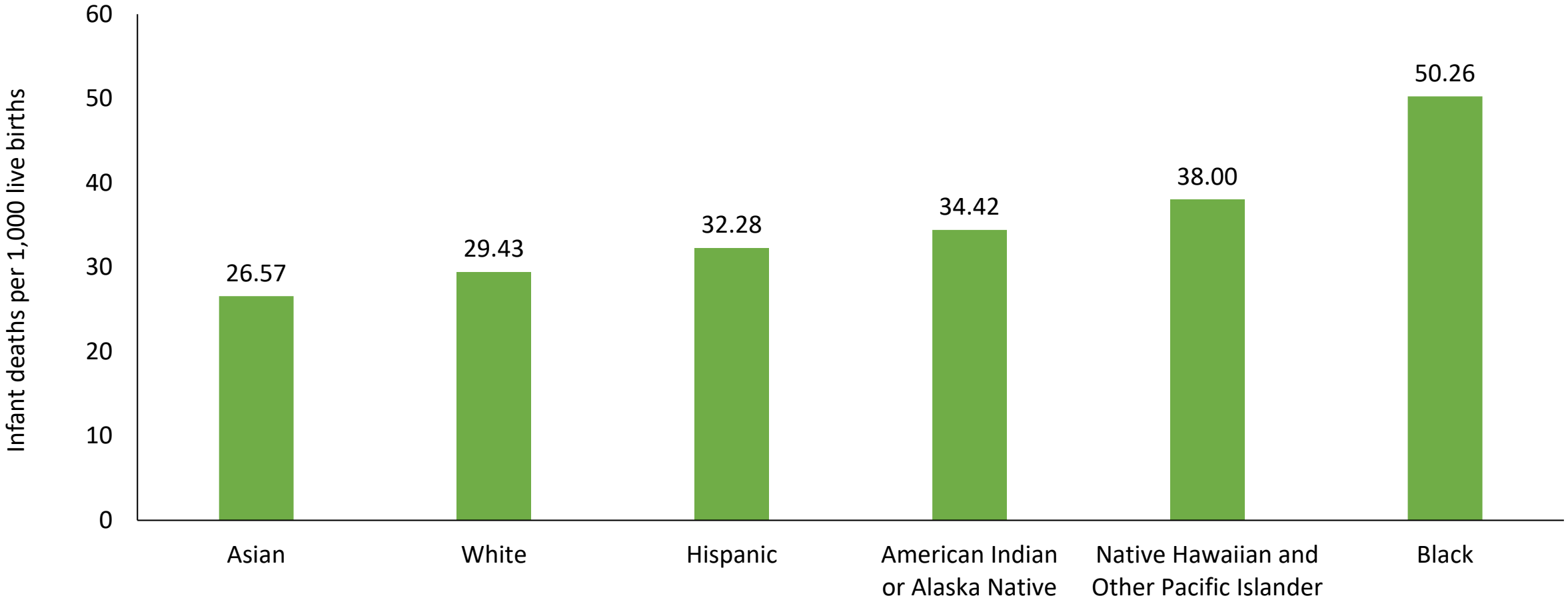
Infant mortality rates by gestational age, United States, 2020



NOTE: Gestational age is in completed weeks based on the obstetric estimate of gestation. Preterm is defined as a gestational age of less than 37 weeks.

SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

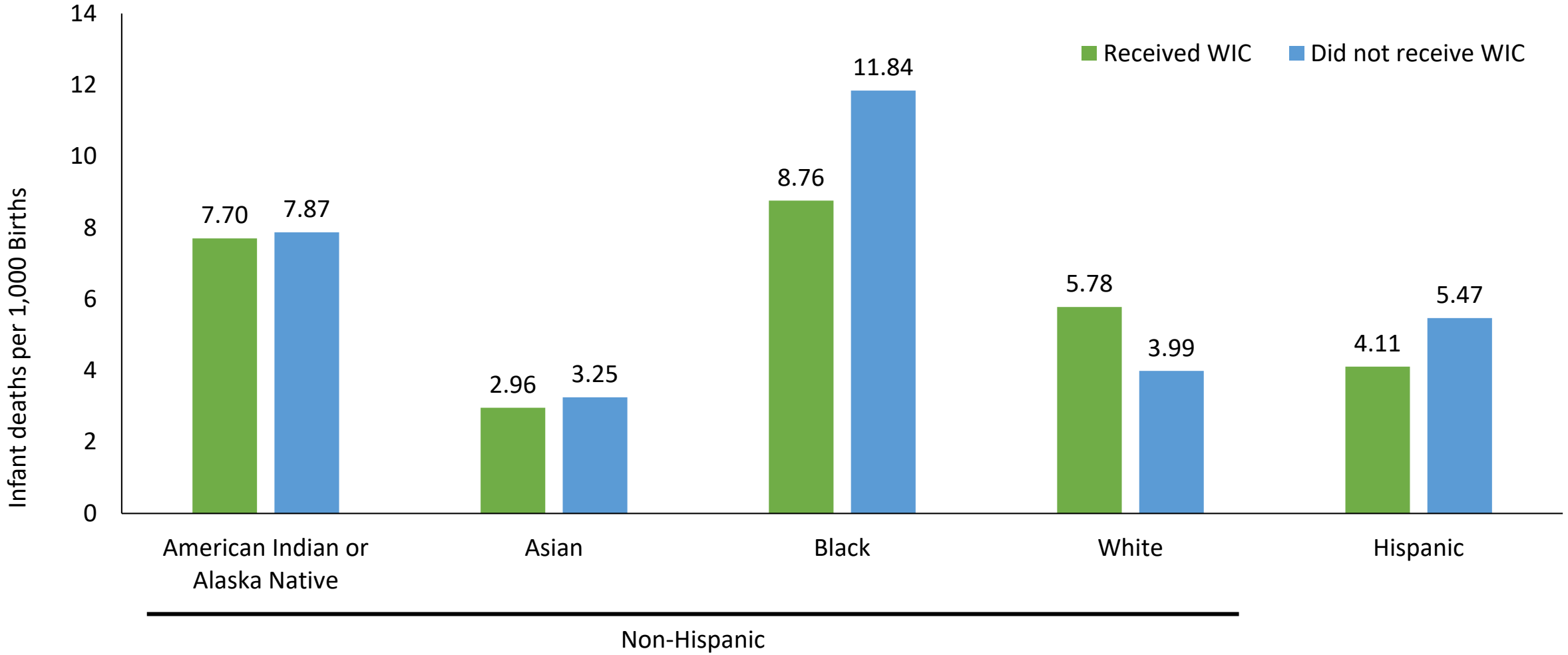
Infant mortality rates for preterm births by maternal race and Hispanic origin: United States, 2020



NOTE: Gestational age is expressed in completed weeks based on the obstetric estimate of gestation. Preterm is defined as a gestational age of less than 37 weeks. All race groups are single race non-Hispanic.

SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

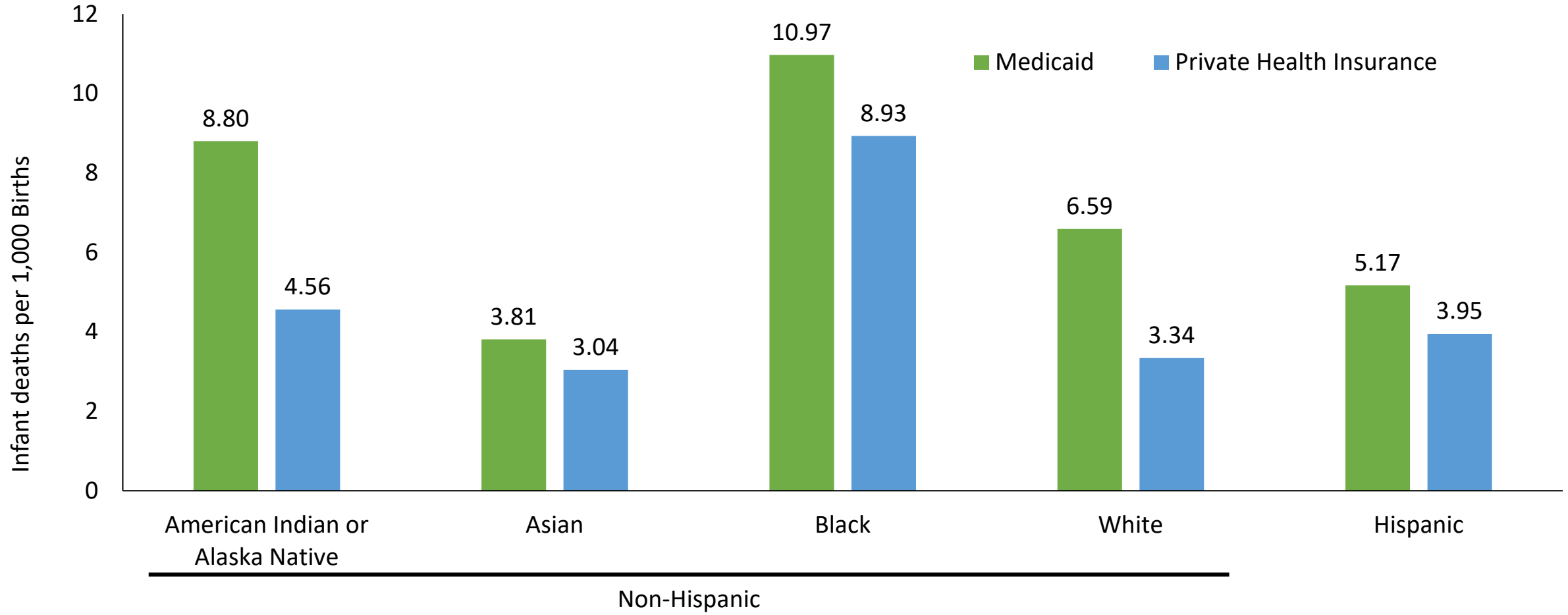
Infant mortality rate by WIC and maternal race and Hispanic origin: United States, 2019-2020



NOTE: WIC is a nutritional program intended to help low-income pregnant women, infants, and children through age 5 years All race groups are single race non-Hispanic.

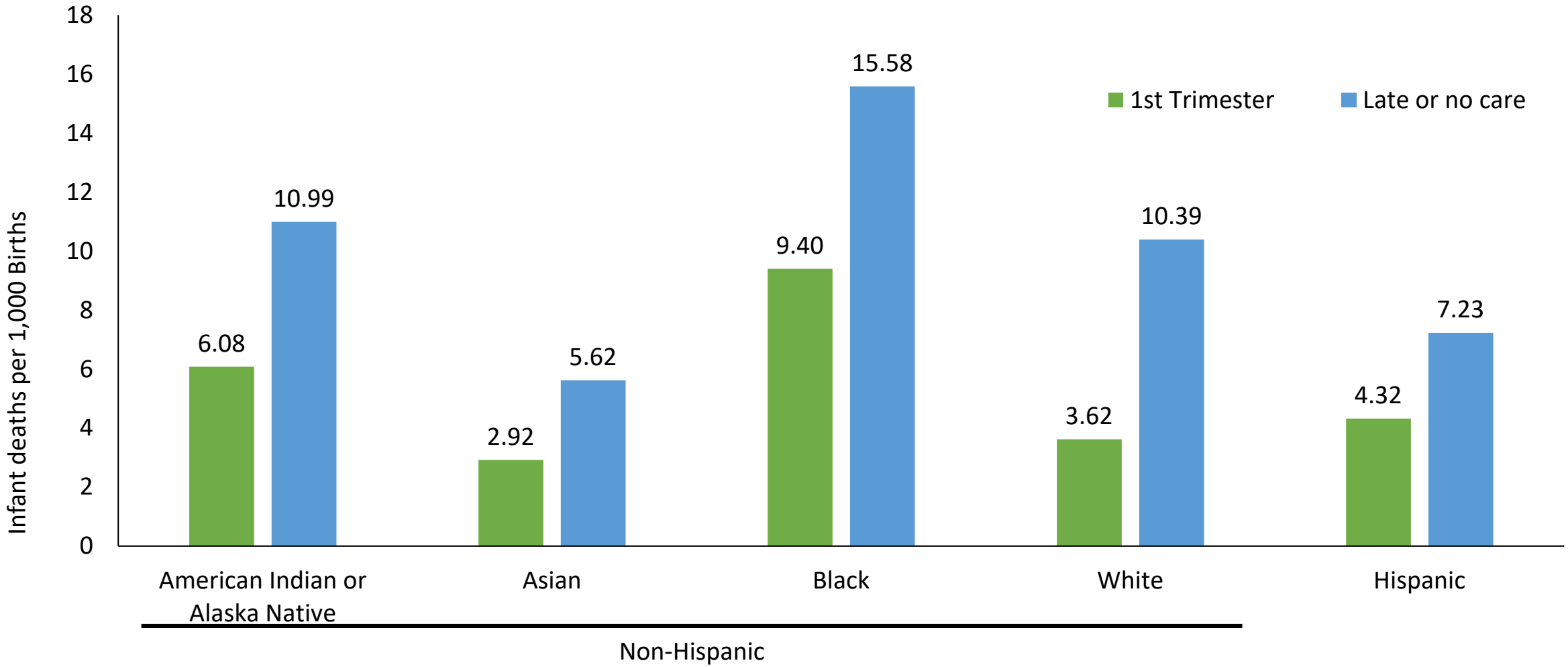
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Infant mortality rate for Medicaid and private health insurance as source of payment for the delivery by maternal race and Hispanic origin: United States, 2019-2020



SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

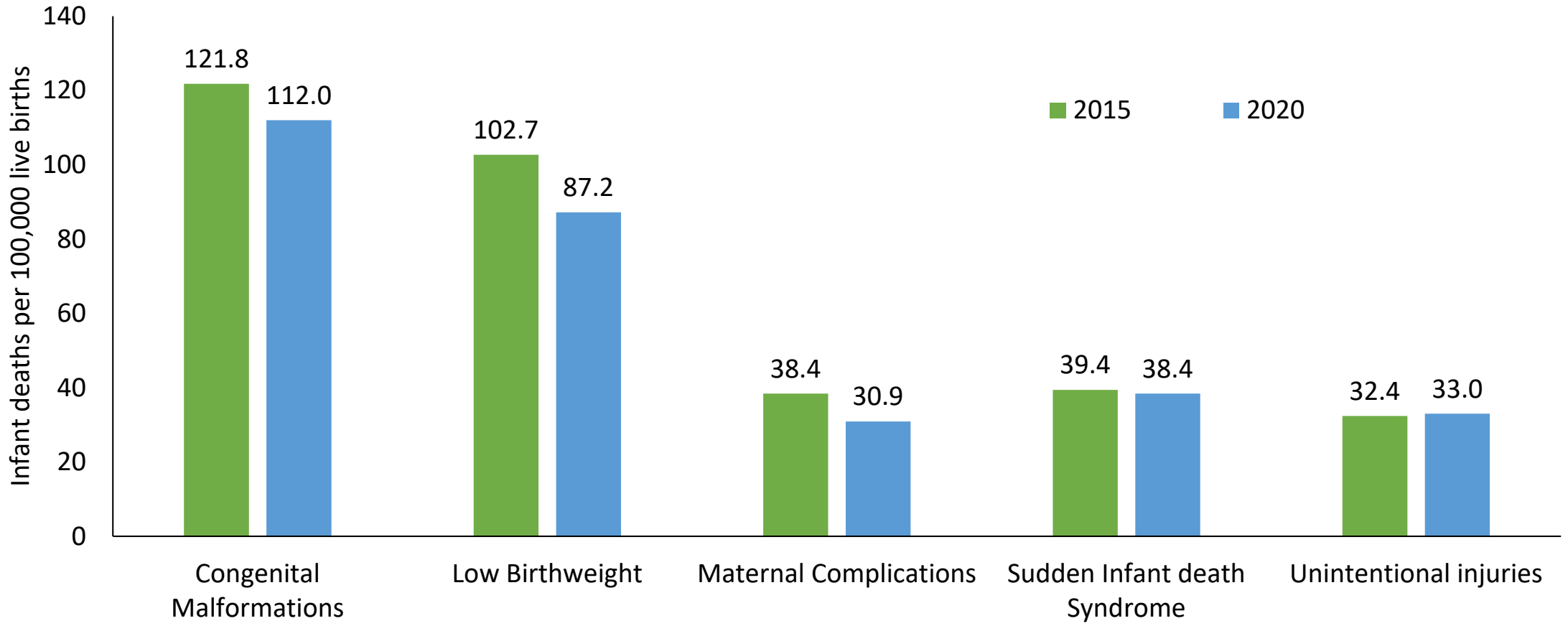
Infant mortality rate by initiation of prenatal care and maternal race and Hispanic origin: United States, 2019-2020



NOTE: Late or no care includes prenatal care starting in the third trimester or those who did not receive prenatal care.

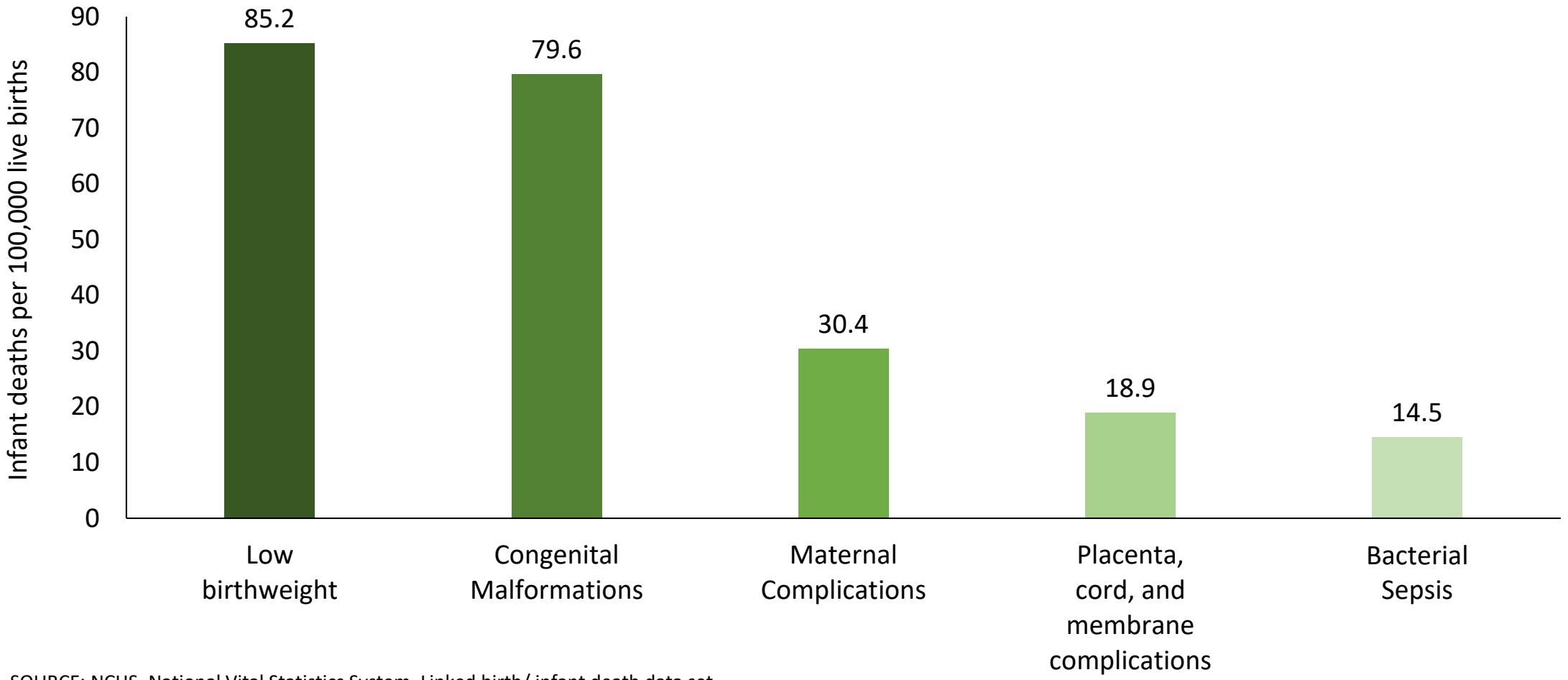
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Mortality rates for five leading causes of infant death: United States, 2015 and 2020



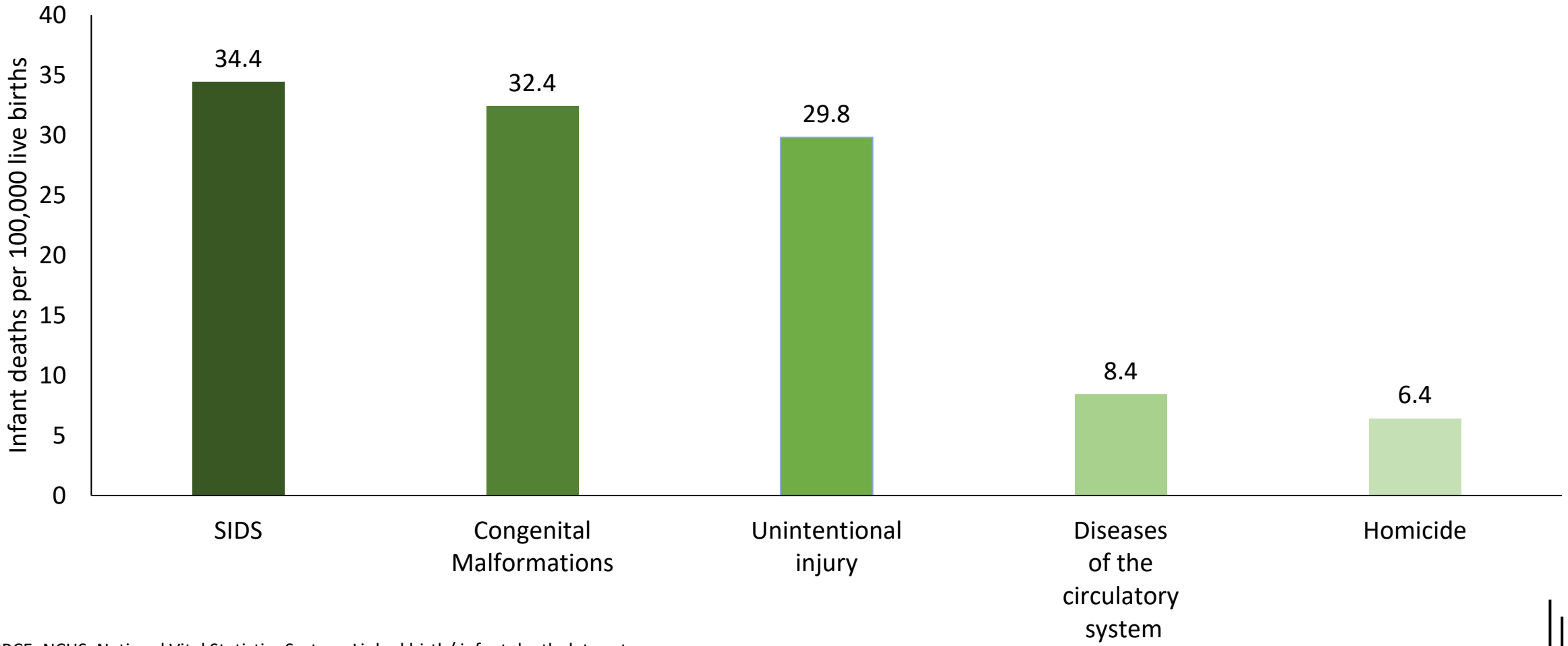
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Mortality rates for five leading causes of neonatal death: United States, 2020



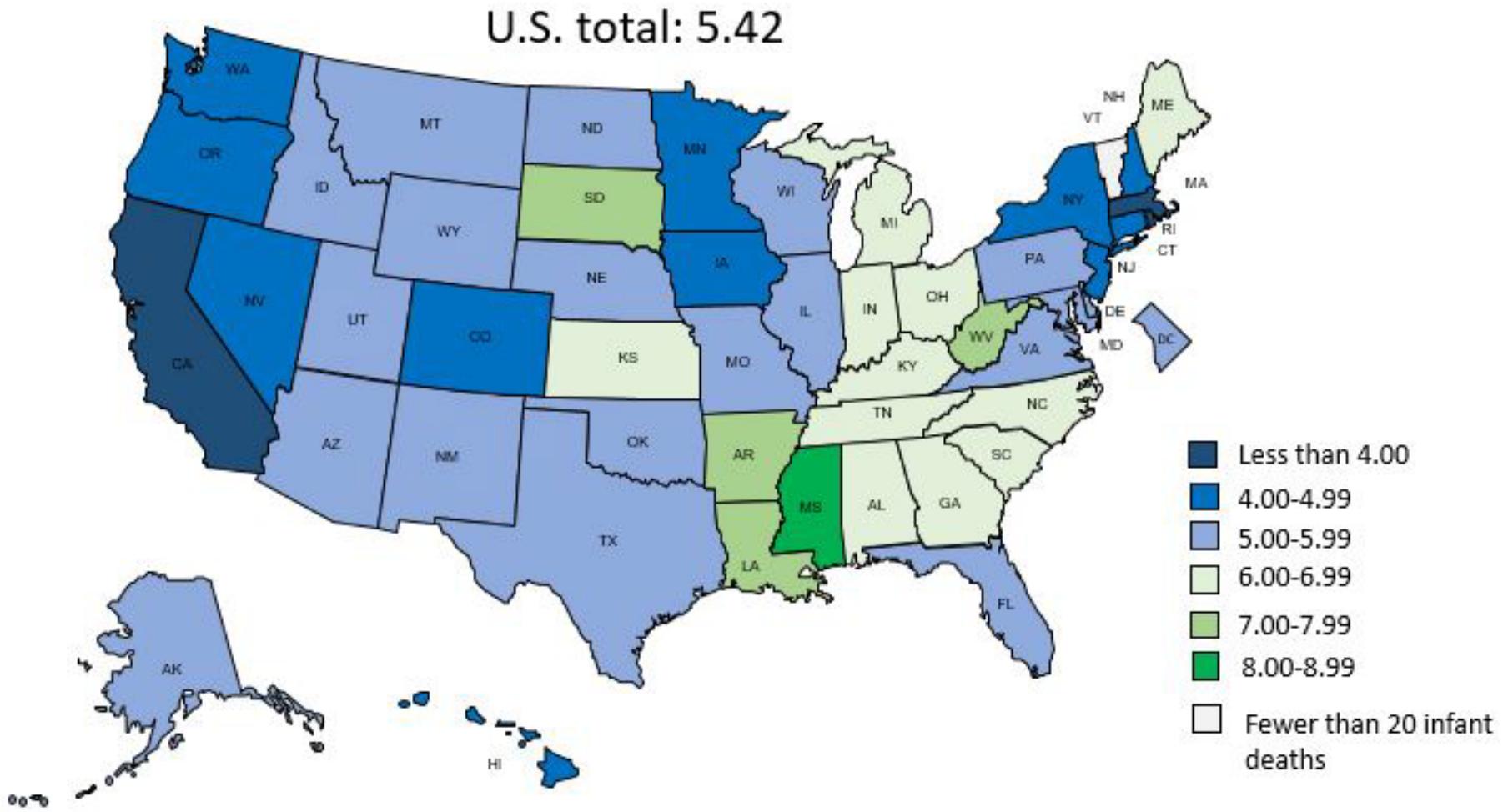
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Mortality rates for five leading causes of postneonatal death: United States, 2020



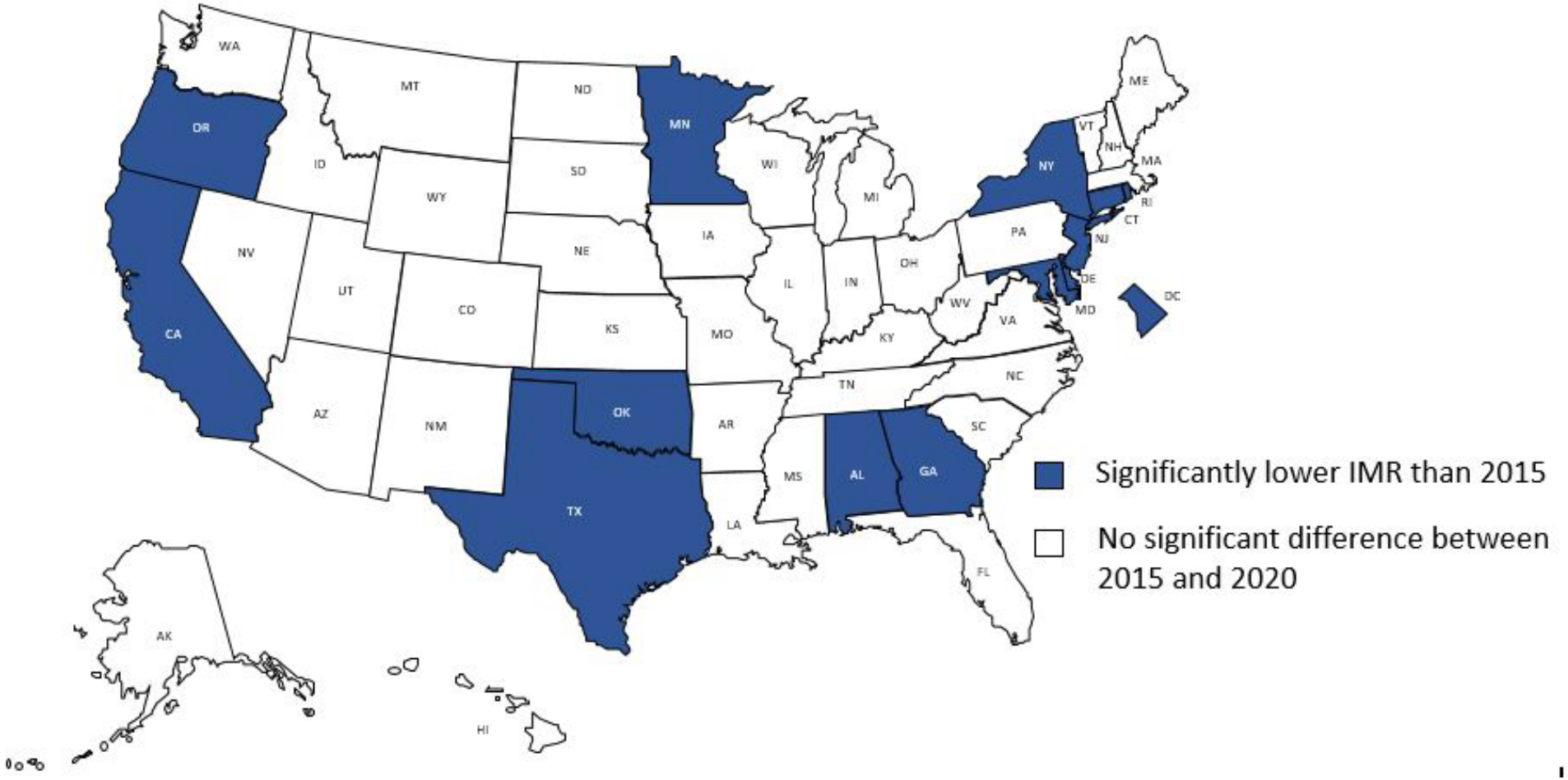
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Infant mortality rates by state: United States, 2020



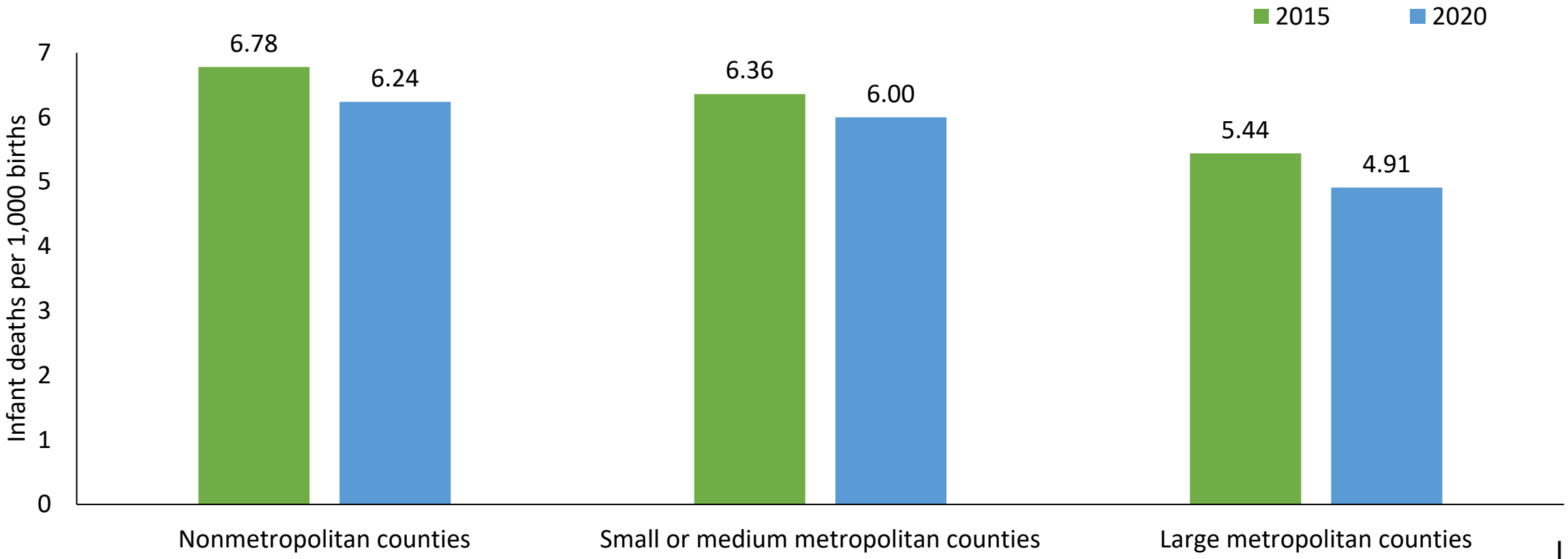
NOTE: Rates ranged from 3.92 infant deaths per 1,000 births in California to 8.12 in Mississippi.
Source: NCHS, National Vital Statistics System

Changes in infant mortality rates: United States, 2015 and 2020



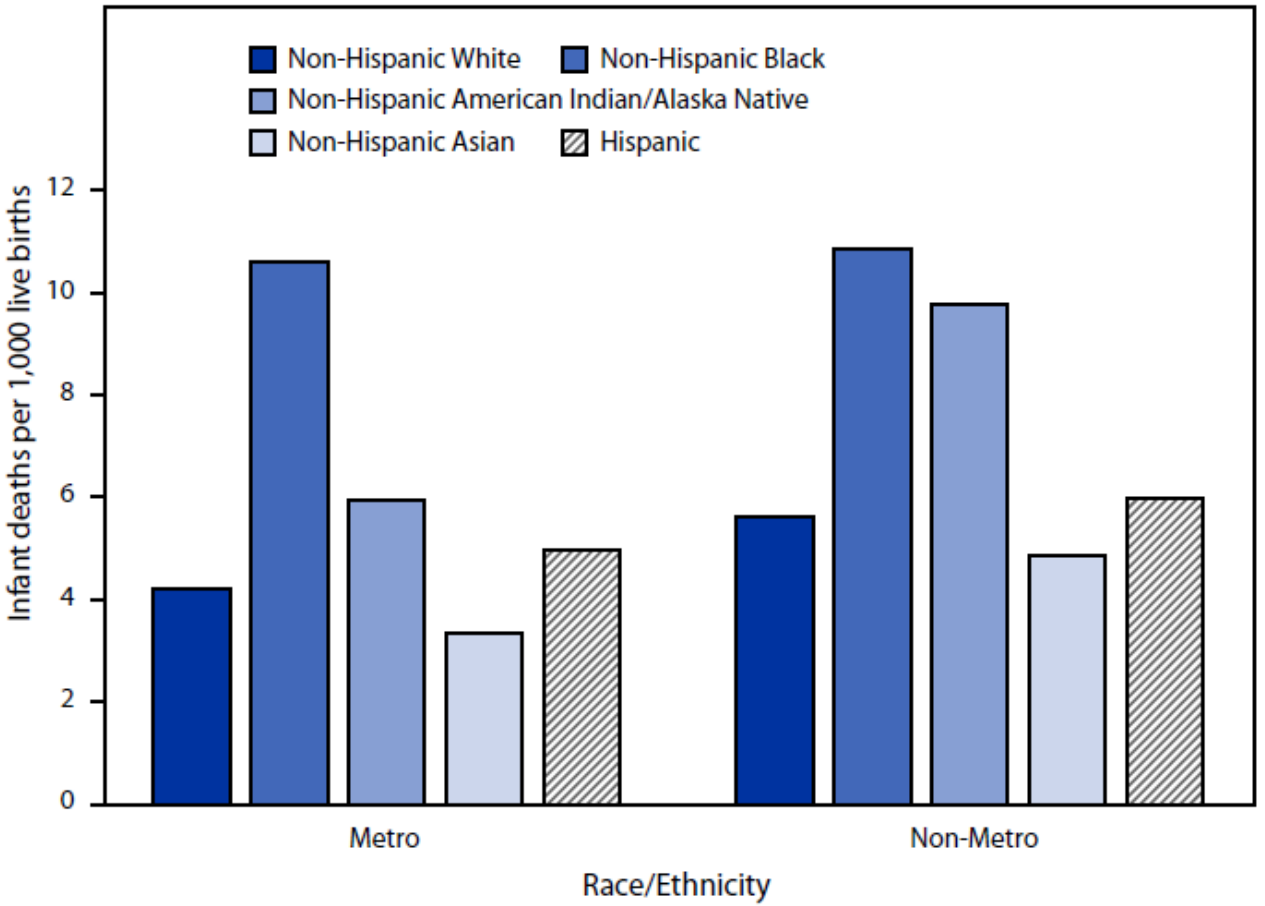
SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Infant mortality rates by urbanization level: United States, 2015 and 2020



SOURCE: NCHS, National Vital Statistics System, Linked birth/ infant death data set.

Infant mortality rates by urbanization status and maternal race and Hispanic origin, 2019



SOURCE: Ely DM. Infant Mortality Rates for Metropolitan and Nonmetropolitan Counties,* by Single Race and Hispanic Origin — National Vital Statistics System, United States, 2019. Morbidity and Mortality Weekly Report (MMWR): 70(44), 7. 2021.

Conclusions - trends

- Fetal and infant mortality declined from 2000 to 2020/2021
- Improvement in perinatal mortality from 2017-2019
  - 4% decline overall
  - 4%-5% decline in perinatal rates among Hispanic, Non-Hispanic Black, and Non-Hispanic White women.

Conclusions – race and Hispanic origin

- Mortality rates among Black infants continue to be more than twice as high as those for Asian, White, and Hispanic infants
- Rates are also higher for American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander infants than for the other race and Hispanic origin groups.

Conclusions – preterm births by maternal race and Hispanic origin

- The percent of preterm births were highest for Black women, followed by Native Hawaiian and Other Pacific Islander and American Indian or Alaska Native women
- Mortality rates for infants born preterm were also higher for infants of Black, Native Hawaiian and Other Pacific Islander, and American Indian or Alaska Native women

Conclusions – WIC and source of payment for delivery by maternal race and Hispanic origin

- Mortality rates for infants of Black and Hispanic women who did not receive WIC were higher than rates for infants of those women who received WIC.
- In contrast, mortality rates were higher for infants of White women who received WIC than for those who did not.
- Mortality rates for infants of women whose deliveries were covered by Medicaid were higher than those for infants of women covered by private health insurance overall, and for all race and Hispanic origin groups

Conclusions –Initiation of prenatal care by maternal race and Hispanic origin

- Mortality rates were higher for infants of women who received late or no prenatal care than for those of women with care in the first trimester, overall and for all race and Hispanic origin groups.

5 Leading causes of infant mortality by age at death: US, 2020

Infant Mortality

- Congenital Malformations
- Low birthweight
- Maternal complications
- SIDS
- Unintentional injuries

Same 5 leading causes of infant mortality since 2006, with some changes in order

Neonatal Mortality

- Low birthweight
- Congenital Malformations
- Maternal complications
- Placenta, cord, and membrane complications
- Bacterial sepsis

Generally the same 5 leading causes since 2007

Postneonatal Mortality

- Congenital Malformations
- SIDS
- Unintentional injuries
- Diseases of the circulatory system
- Homicide

Same 5 leading causes since 2010

Conclusions – place

- Thirteen states and D.C. had significantly lower rates in 2020 compared with 2015
  - Lower rates in Alabama, California, Connecticut, Delaware, D.C., Georgia, Maryland, Minnesota, New Jersey, New York, Oklahoma, Oregon, Rhode Island, Texas
- Infant mortality rates were generally lowest in metropolitan counties and highest in nonmetropolitan counties.

Looking ahead

- Striving to improve timeliness of period/cohort final data file releases
- Developing a publication based on provisional linked birth/death data
  - To include, for example, rates by maternal race and Hispanic origin and age, infant age at death
  - To be released at least 6 months earlier than the final data.
  - Please stay tuned!