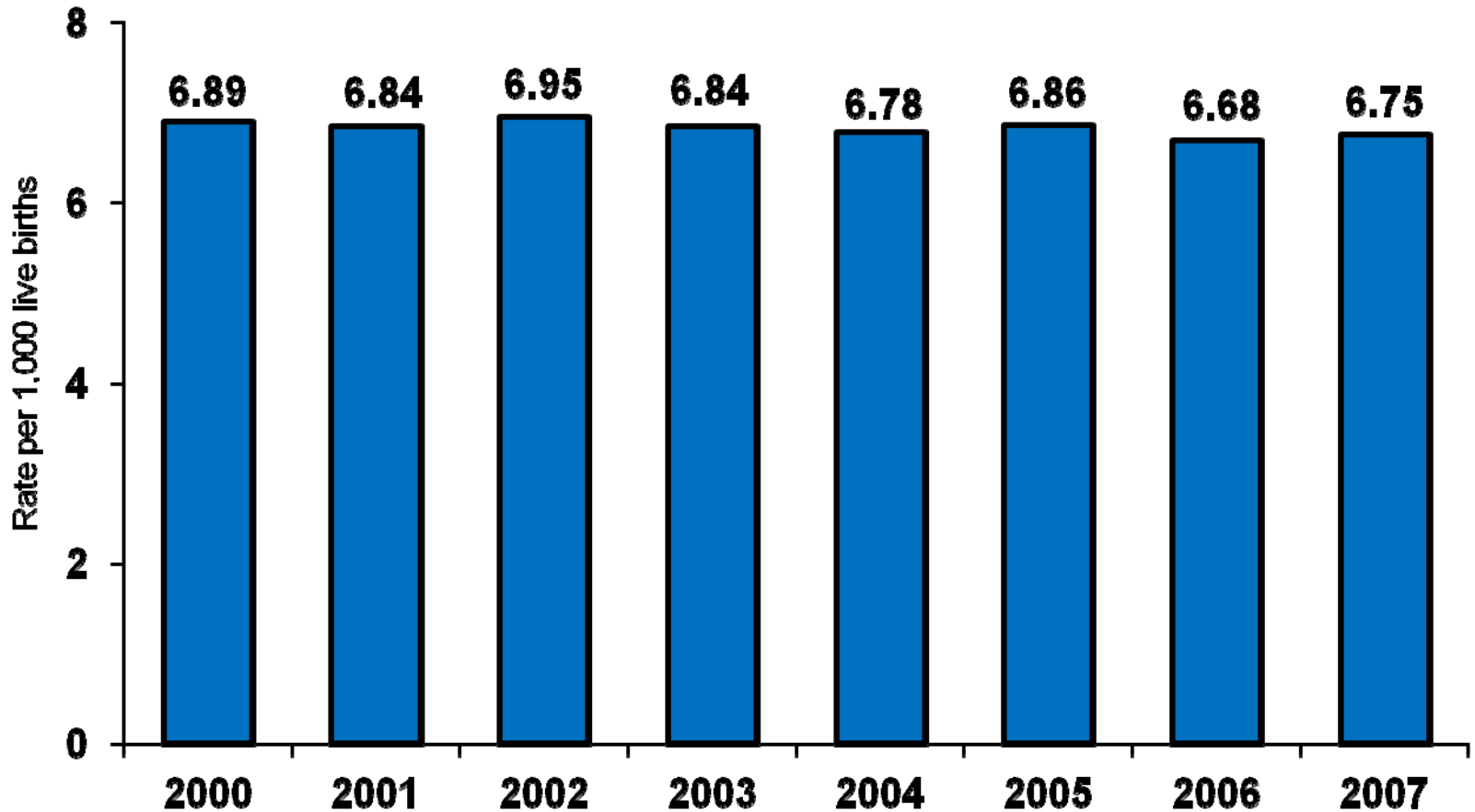


The Challenge of Infant Mortality

Marian MacDorman
Division of Vital Statistics
National Center for Health Statistics

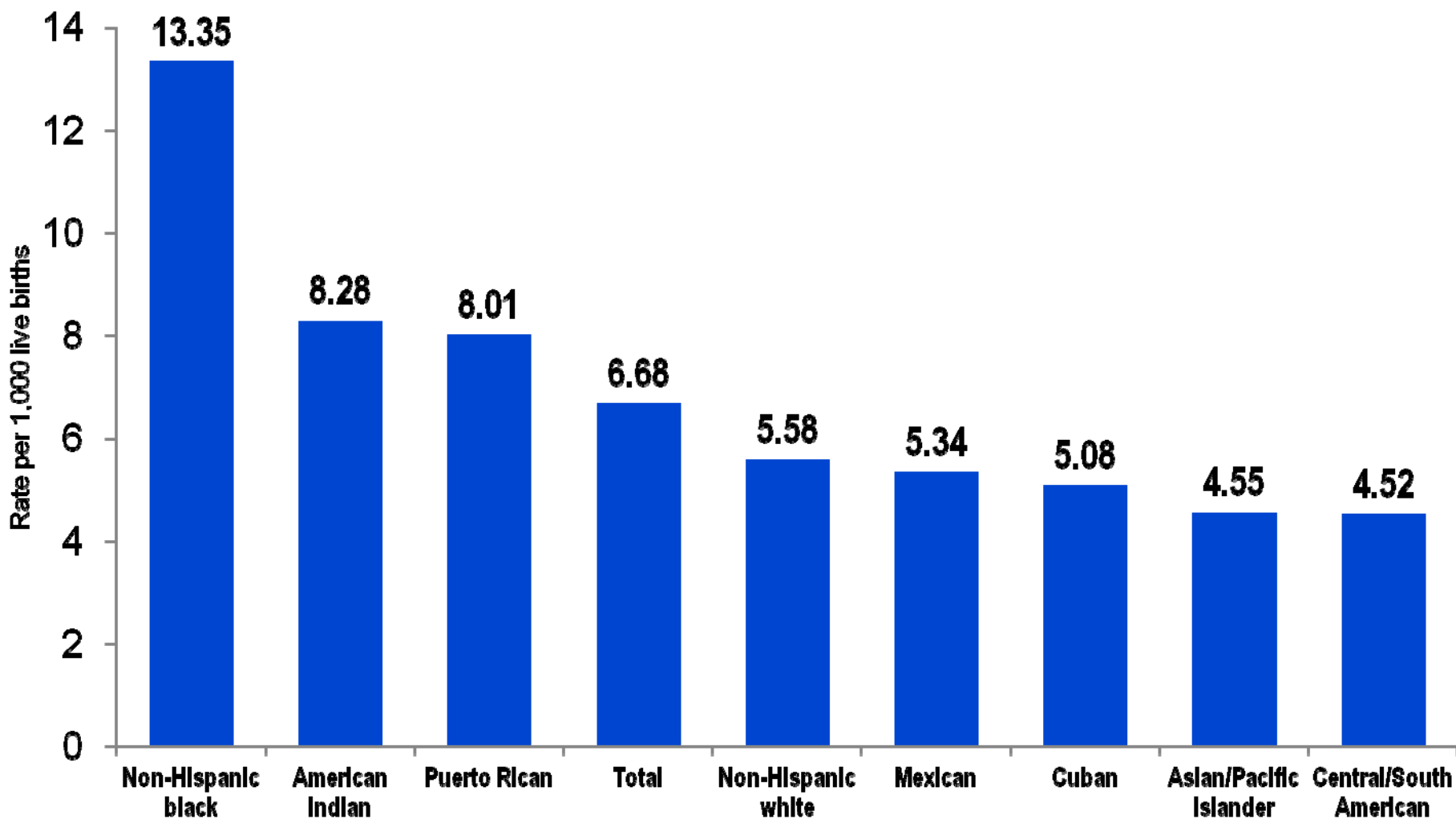
Infant Mortality Summit: DC Stakeholders Meeting
September 2, 2010

Infant mortality rate, United States, 2000-2007



Source: 2000-2006 data are from the linked birth/infant death data sets. 2007 data are from the main mortality file.

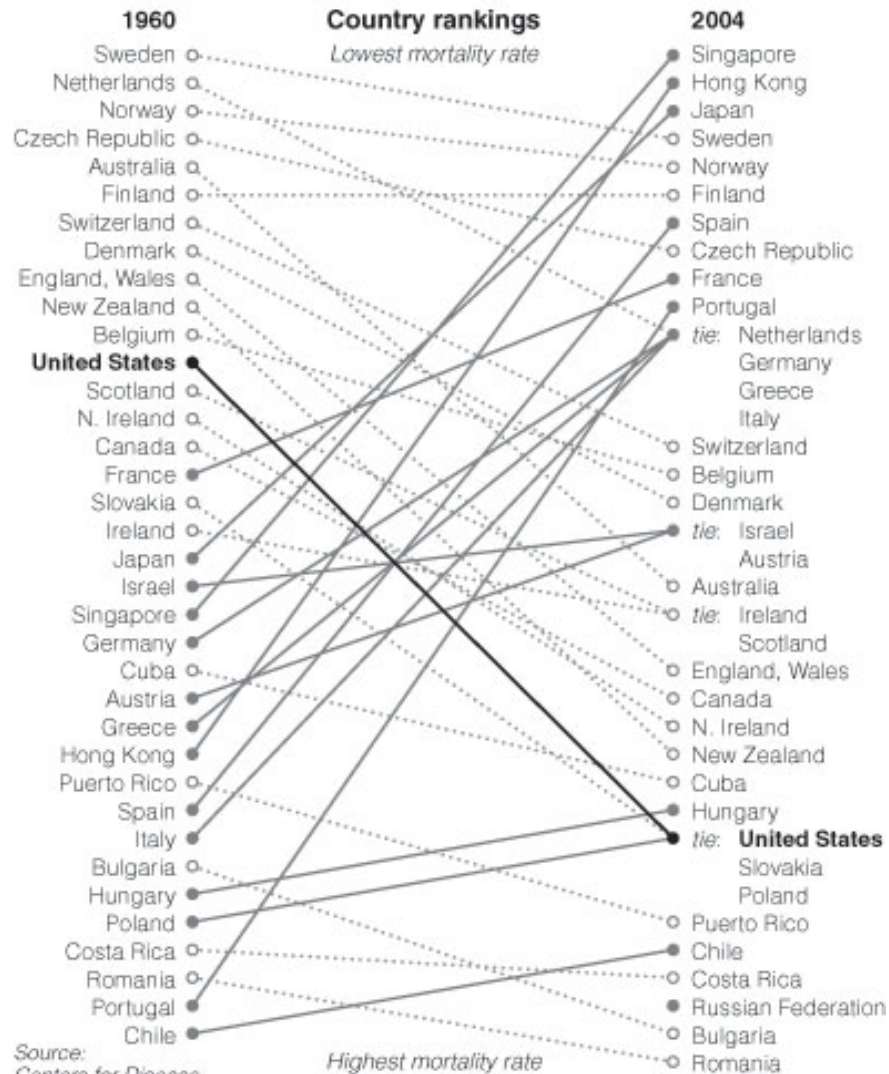
Infant mortality rates by maternal race/ethnicity, US, 2006



Source: Linked birth/infant death data set, 2006.

Rankings of Infant Mortality

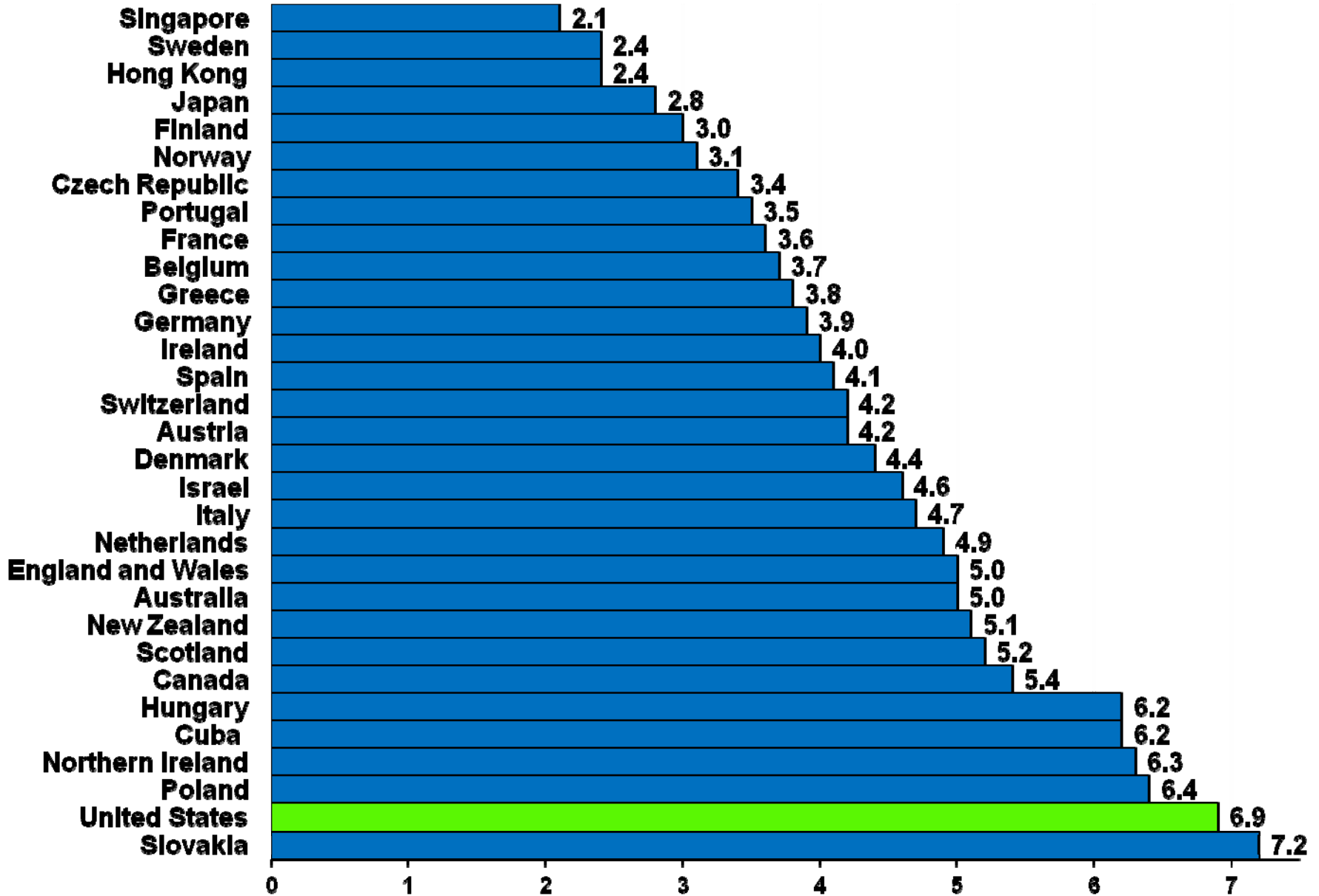
A new report ranks the United States 29th for infant mortality, tied with Slovakia and Poland. In 1960 the United States was ranked 12th.



Source:
Centers for Disease
Control and Prevention

THE NEW YORK TIMES

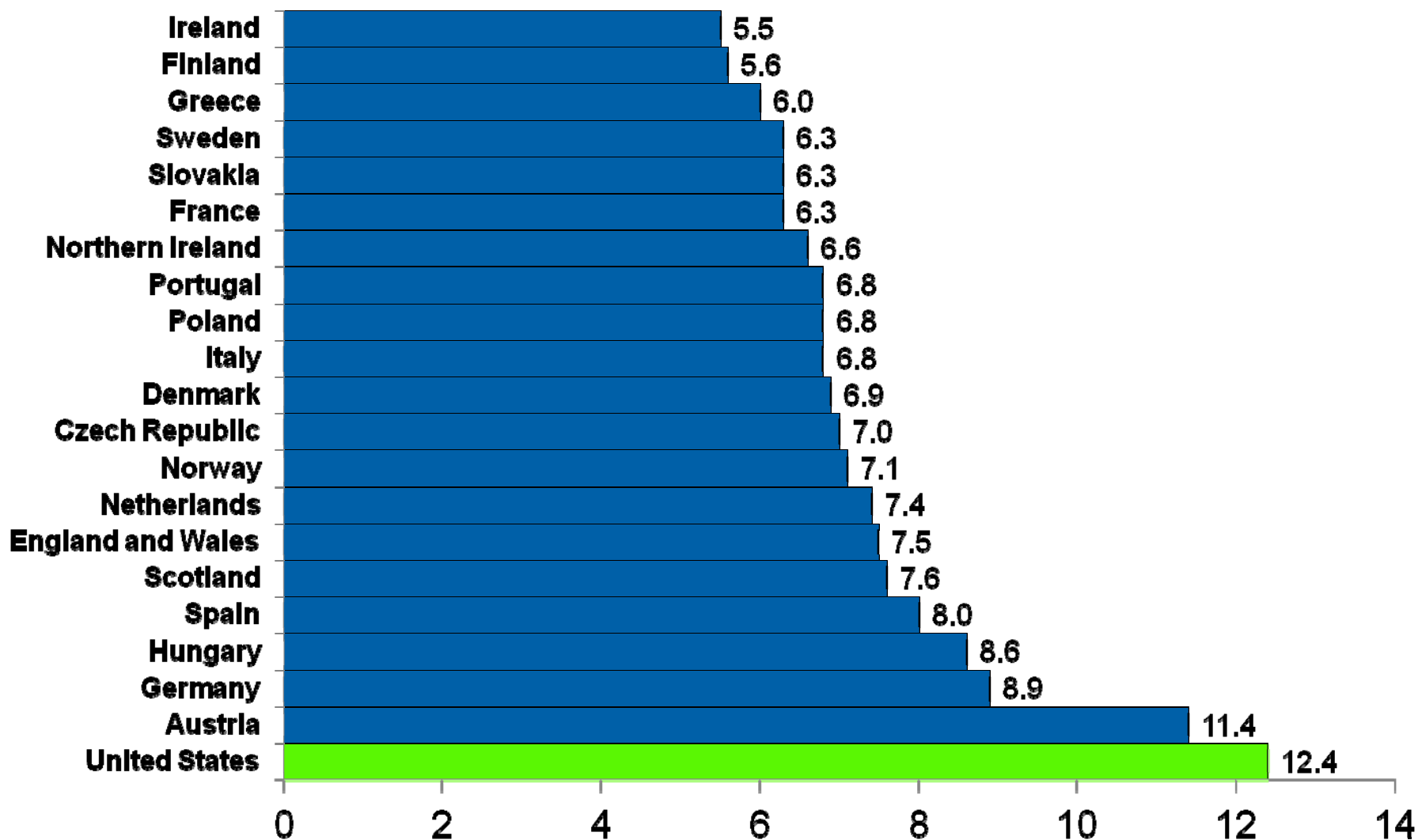
Infant mortality rates, selected countries, 2005



Source: Health, United States, 2008

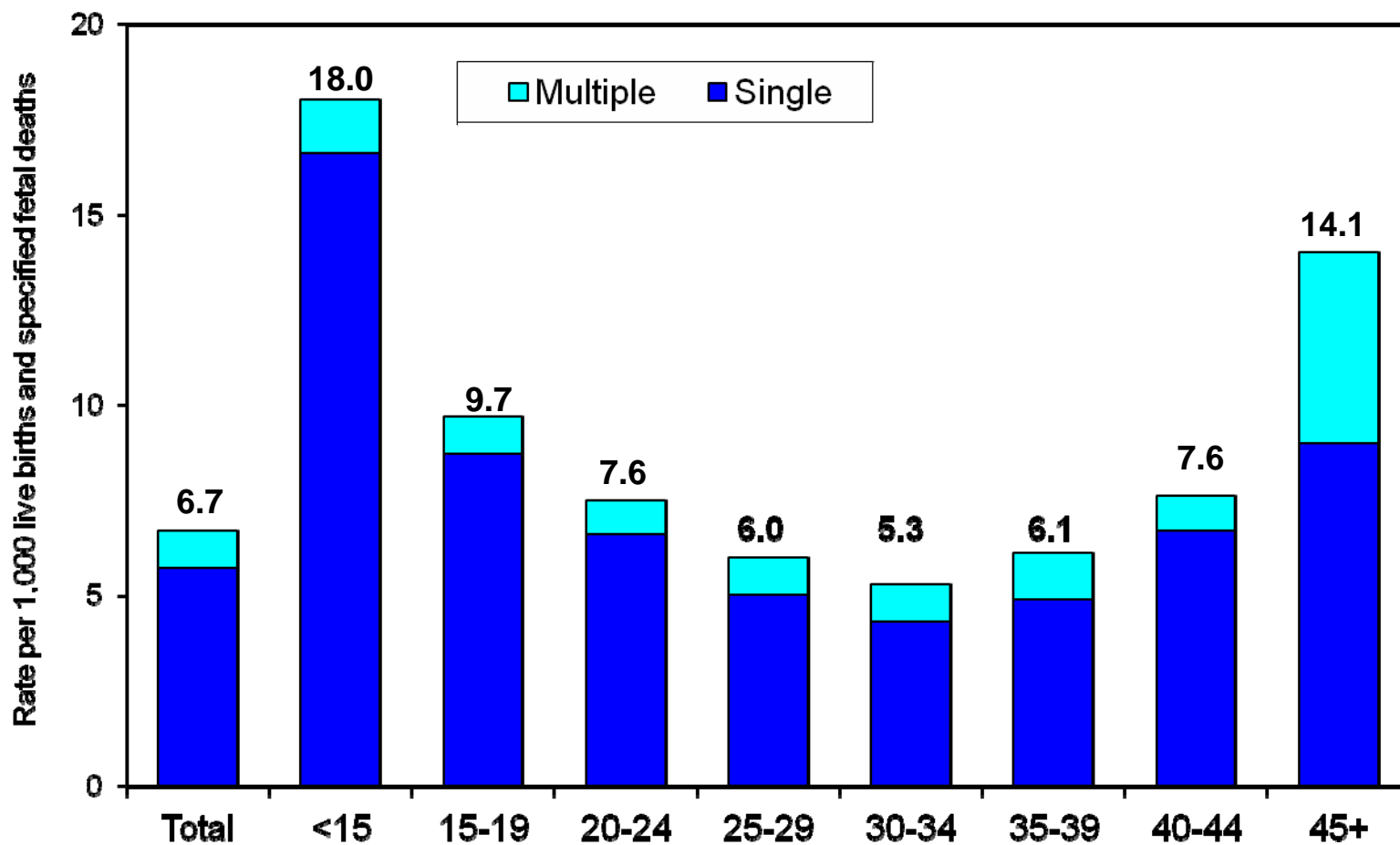
Rate per 1,000 live births

Percentage of preterm births, United States and selected European countries, 2004



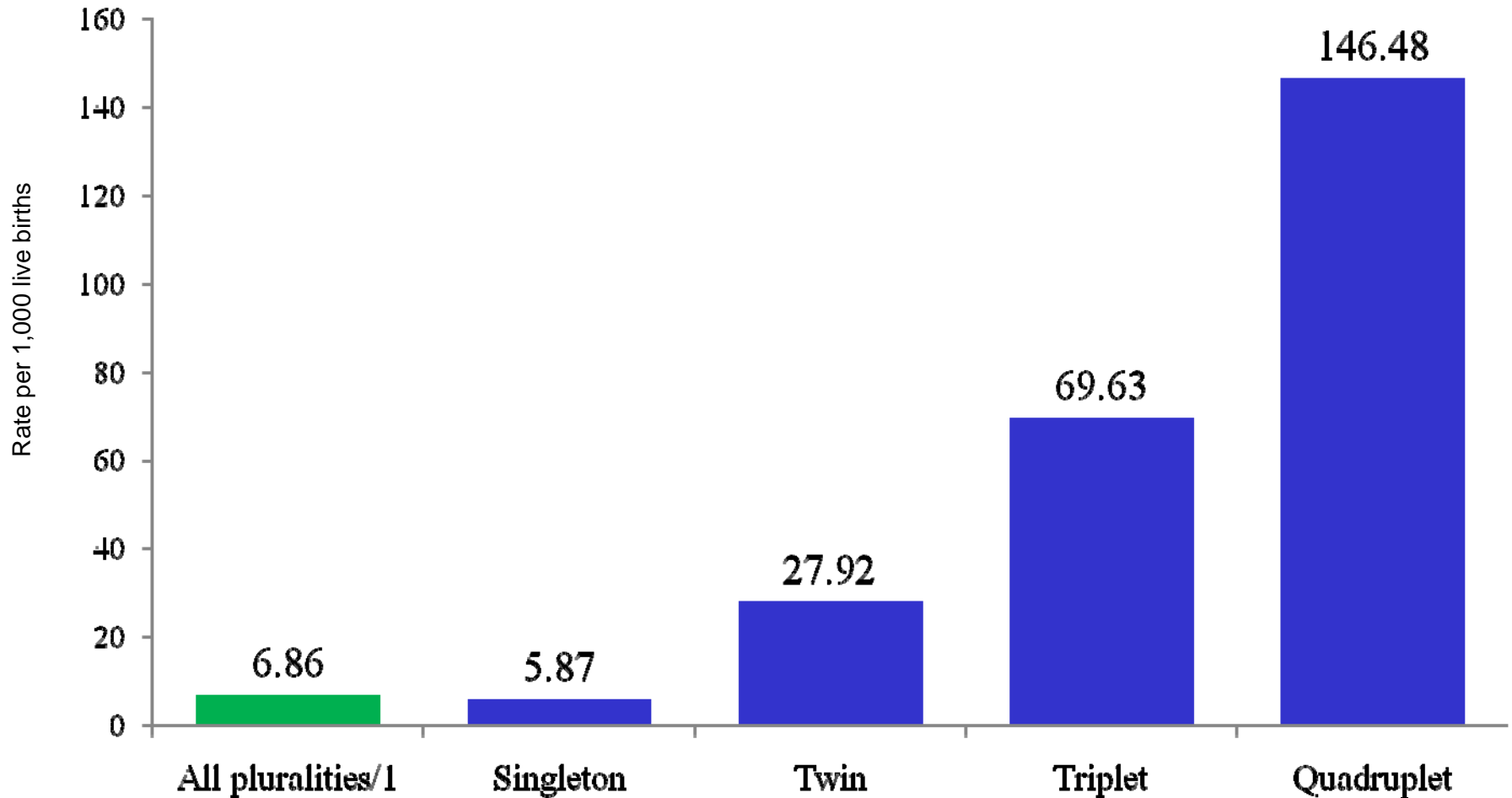
Note: Excludes births at <22 weeks of gestation to promote comparability between countries. Preterm births are those from 22 to 36 weeks of gestation. Source: NCHS linked birth/infant death data set (for US data), and European Perinatal Health Report (for European data).

Infant mortality rates by maternal age, US, 2006



Source: NCHS, linked birth/infant death data set.

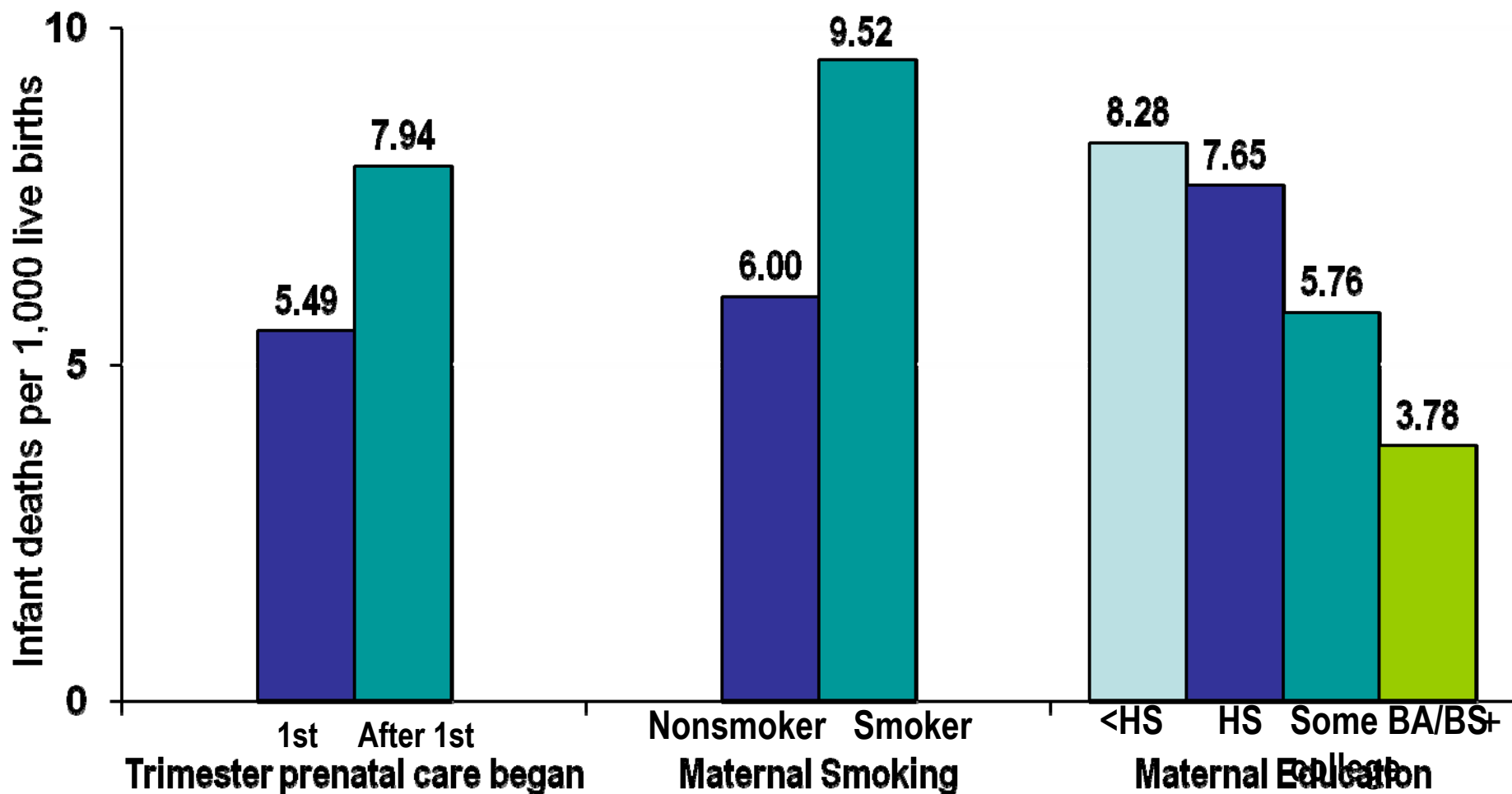
Infant mortality rates by plurality, US, 2006



1 Includes quintuplet and higher order births not shown separately.

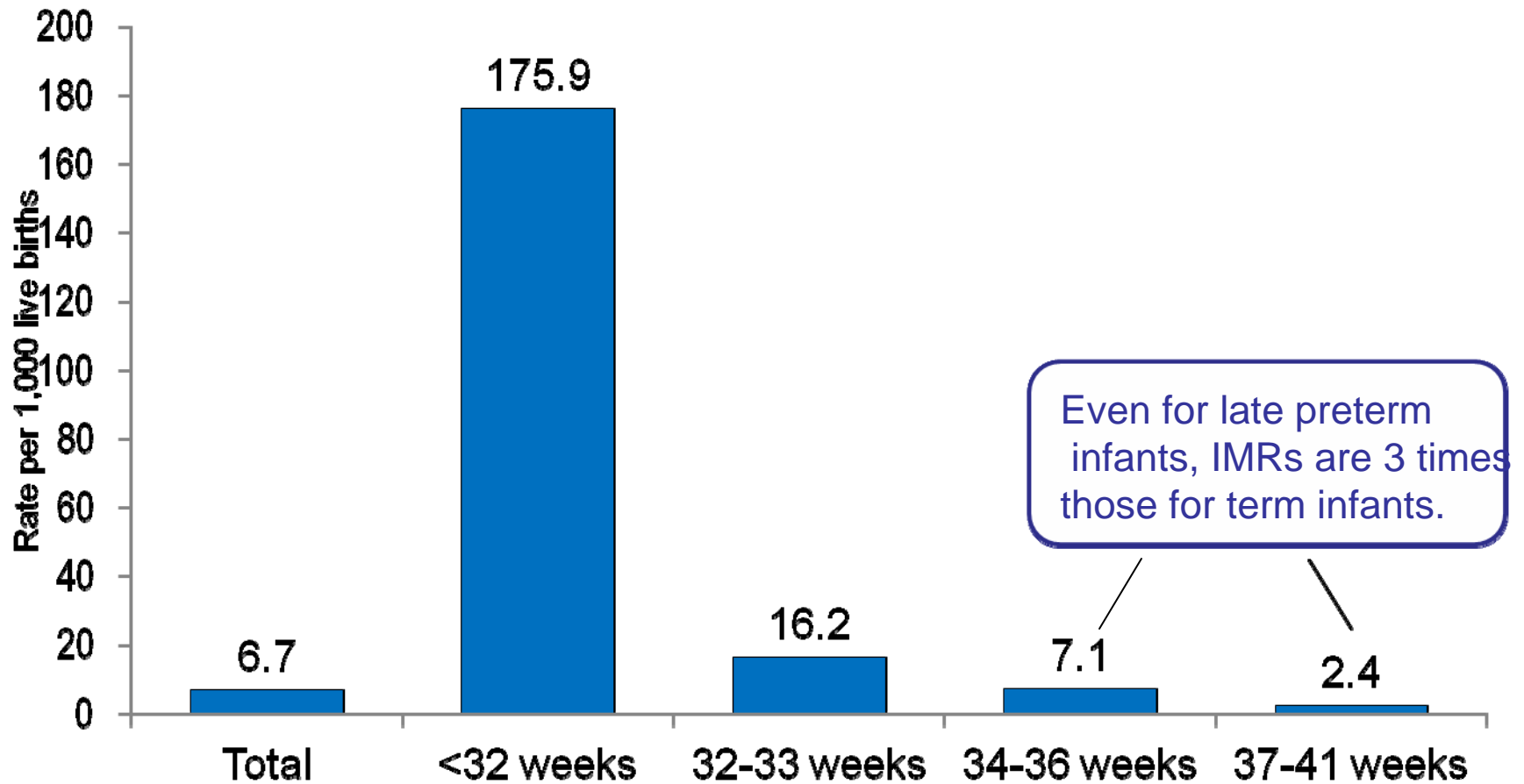
SOURCE: NCHS, linked birth/infant death data set.

Infant mortality rates by selected variables: 12 states, 2006



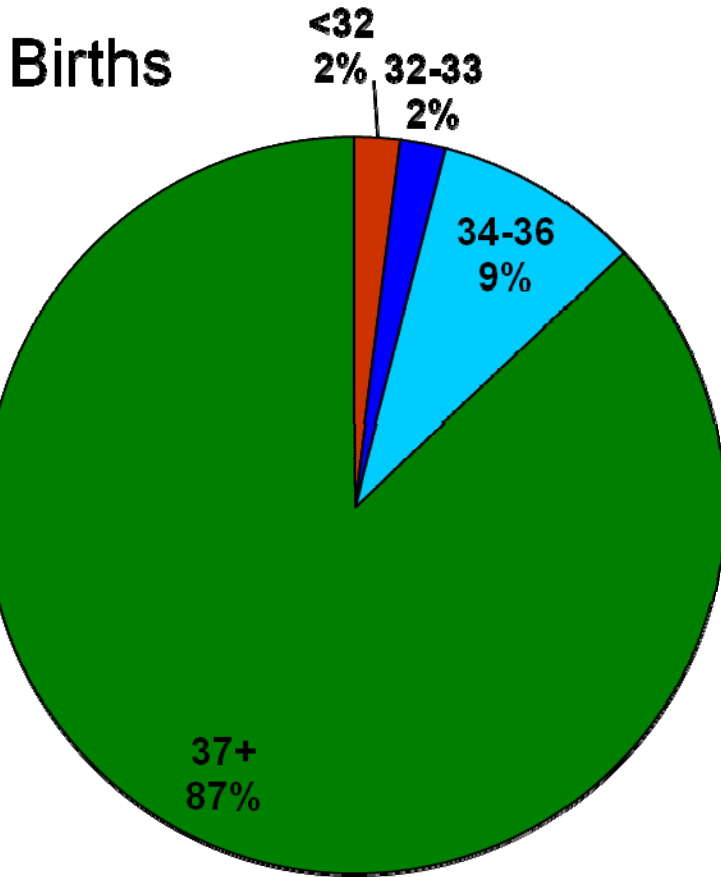
Source: NCHS, linked birth/infant death data set

Infant mortality rates by gestational age, US, 2006

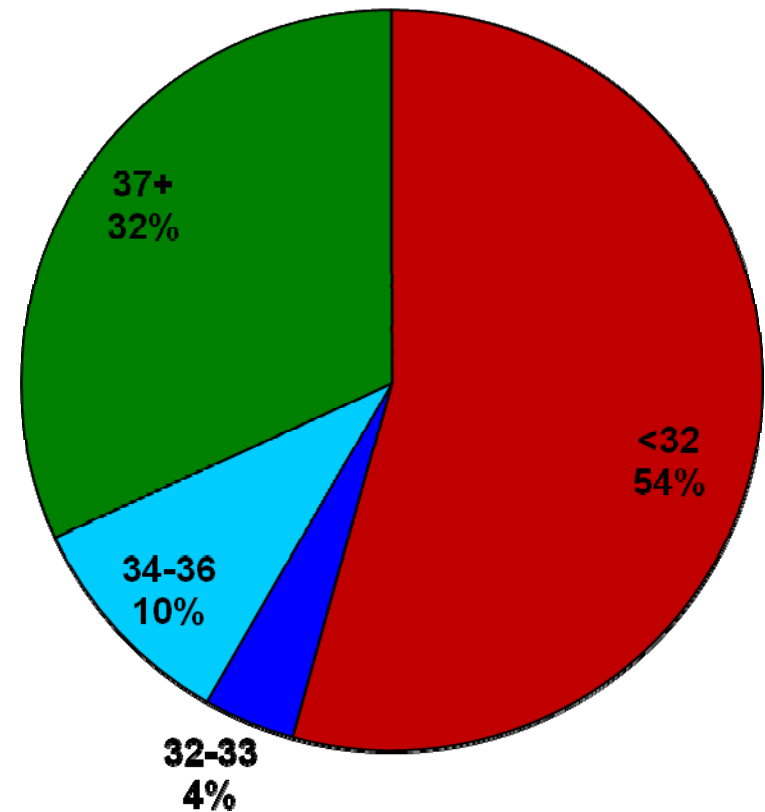


Source: NCHS, linked birth/infant death data set.

Percent of live births and infant deaths by weeks of gestation, US, 2006

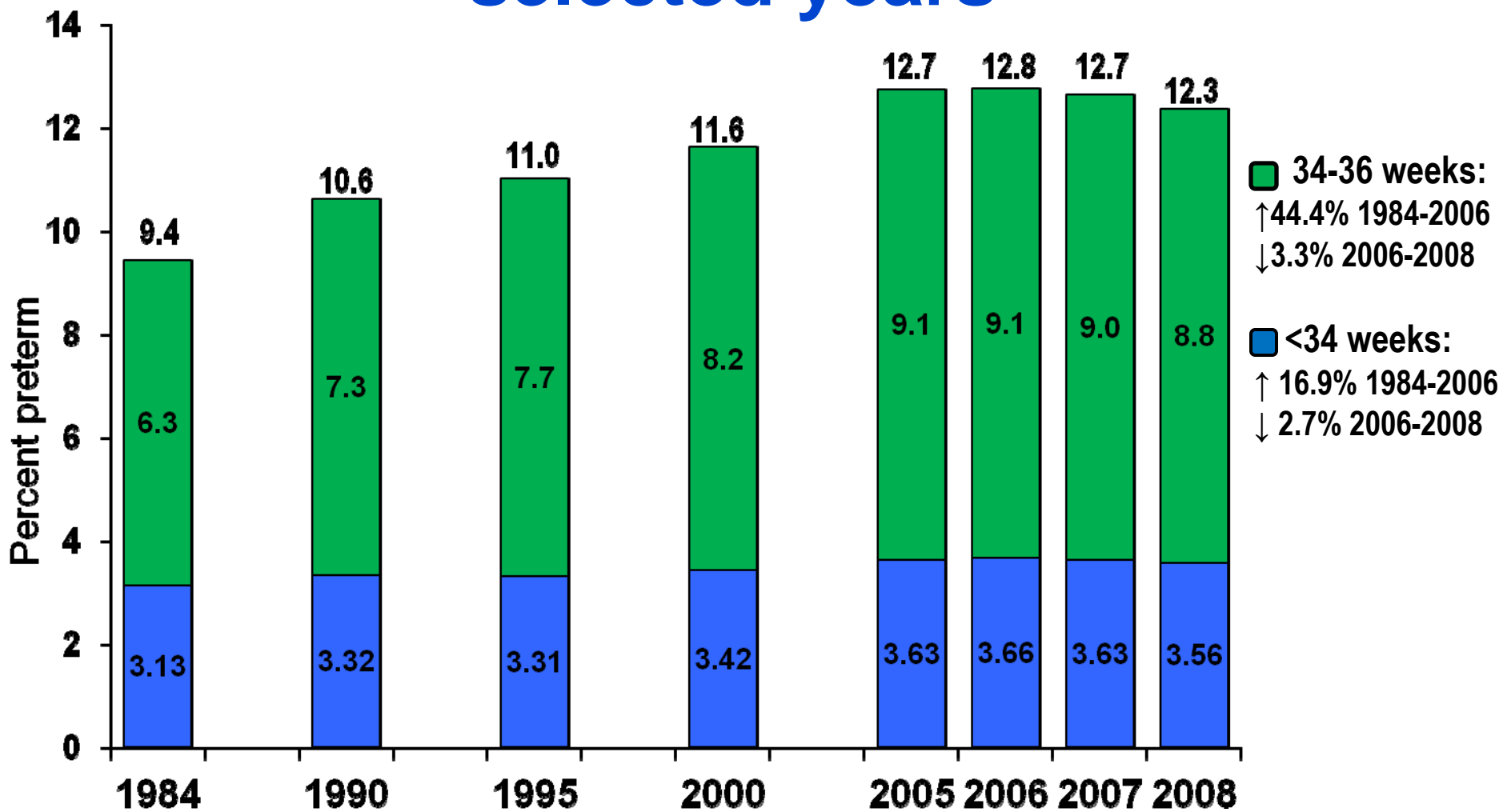


Infant Deaths



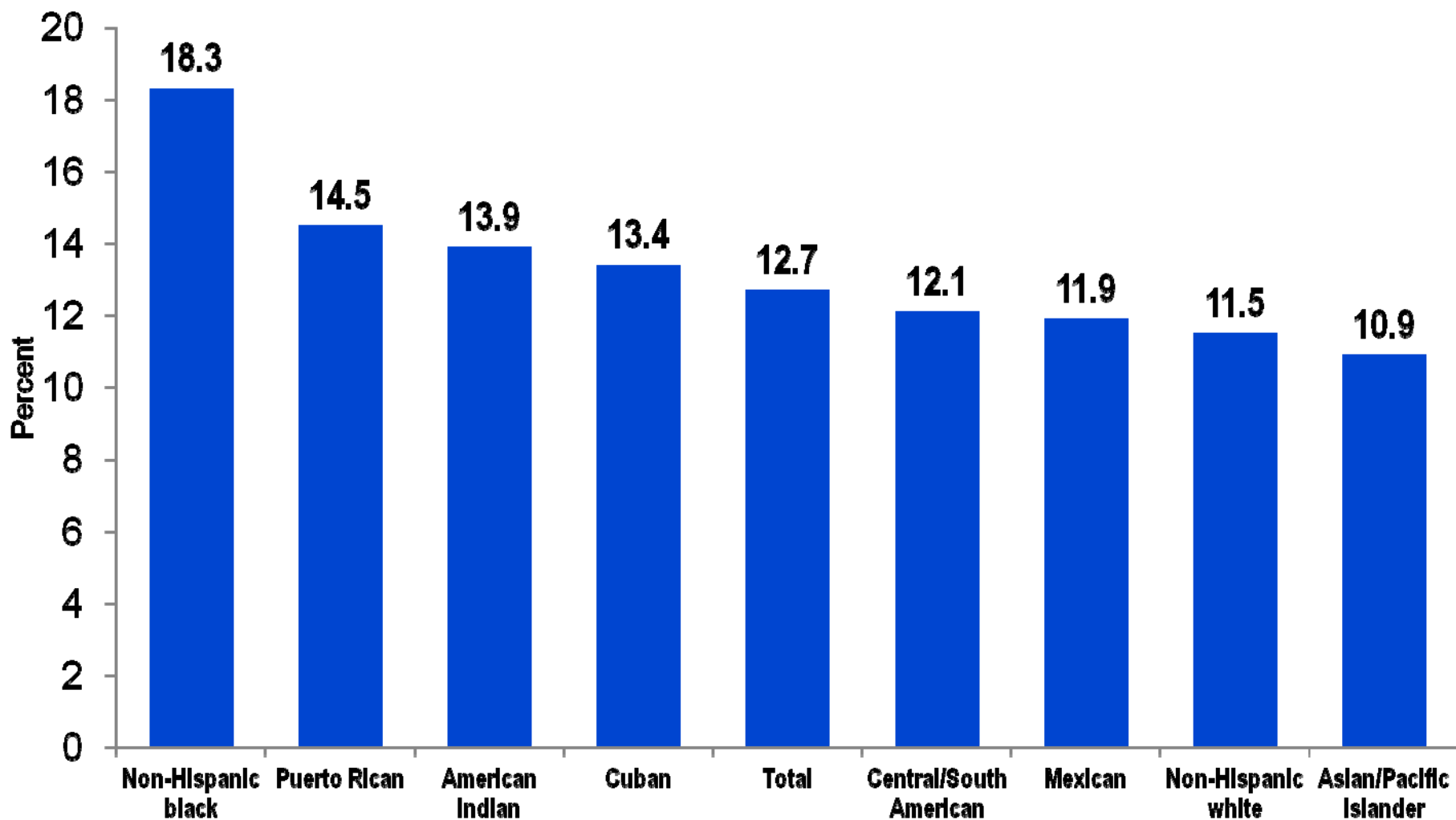
Source: NCHS, linked birth/infant death data set

Percentage of preterm births: US, selected years



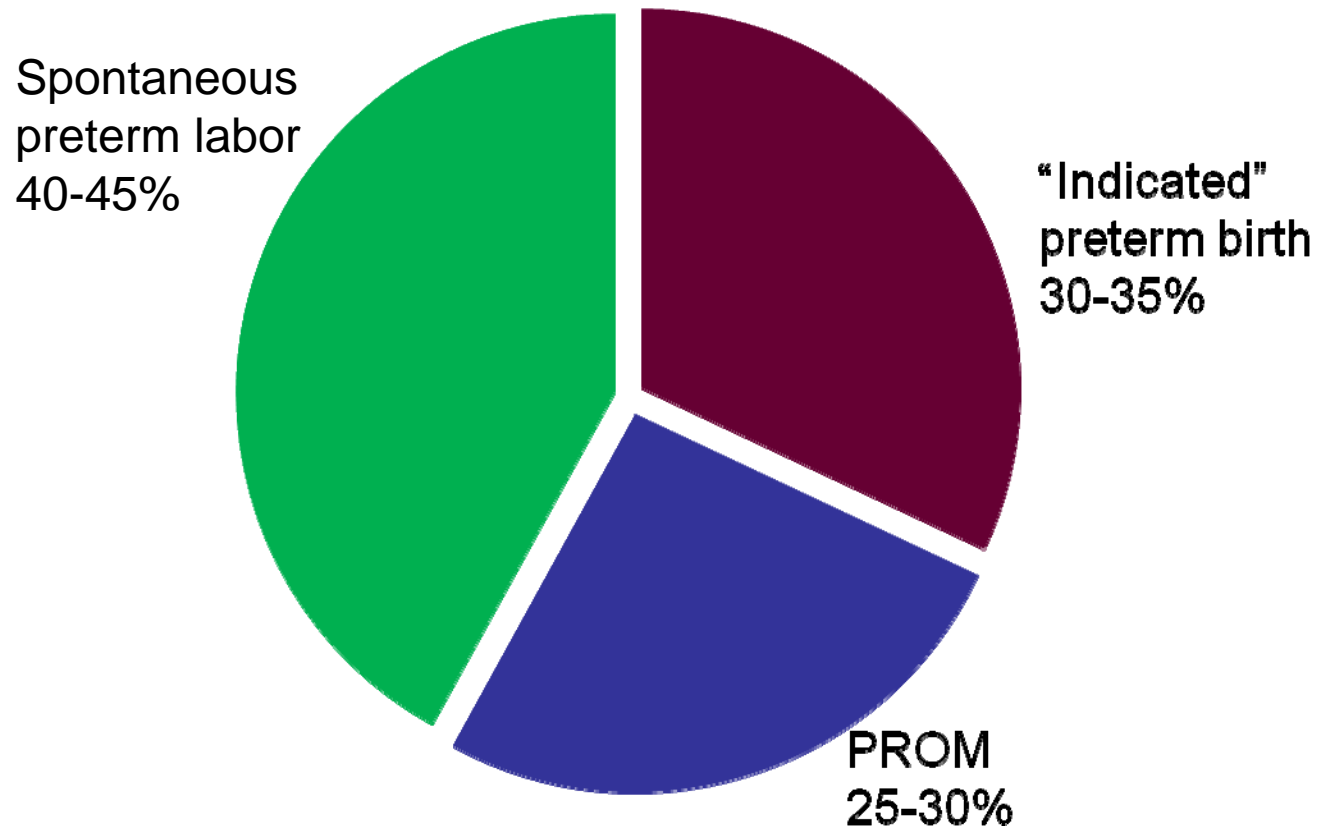
Source: CDC/NCHS national natality files. 1984-2006 are final birth data, 2007 and 2008 data are preliminary.

Percent of preterm births by maternal race/ethnicity, US, 2007



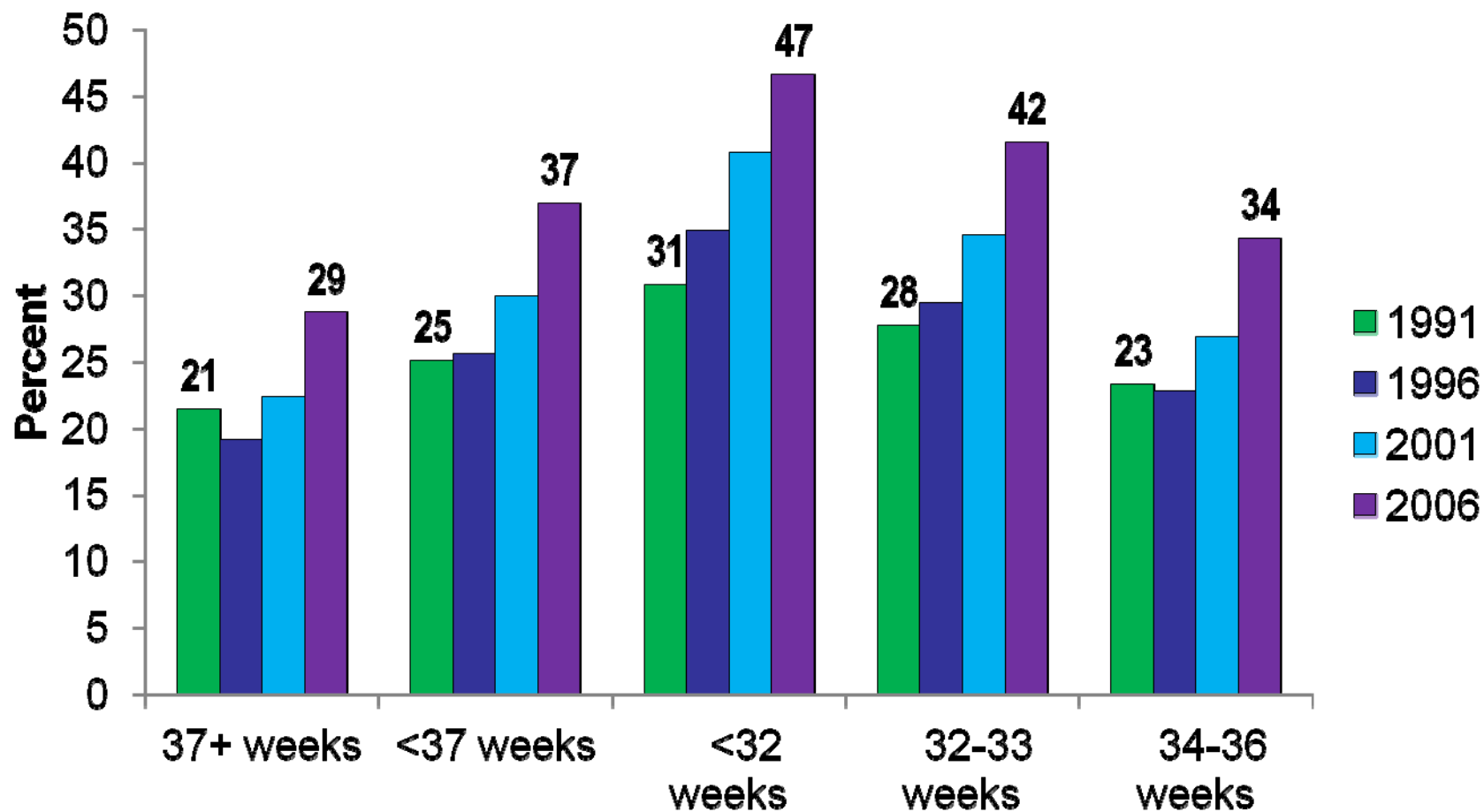
Source: Natality detail data set, 2007.

Components of preterm birth



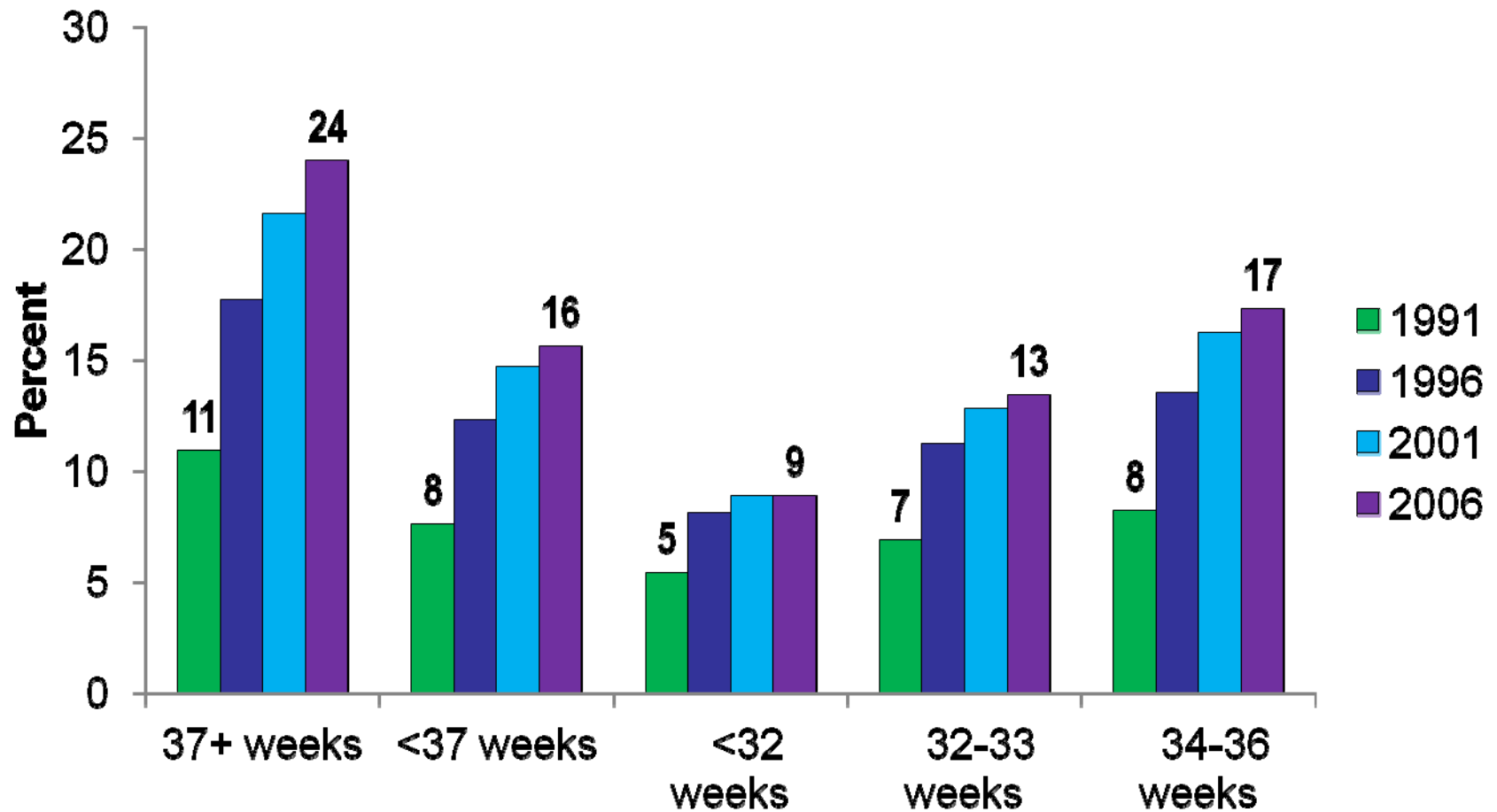
Source: Goldenberg et al. *Lancet*, 2008.

Percent of singleton births delivered by cesarean by gestational age, US, selected years



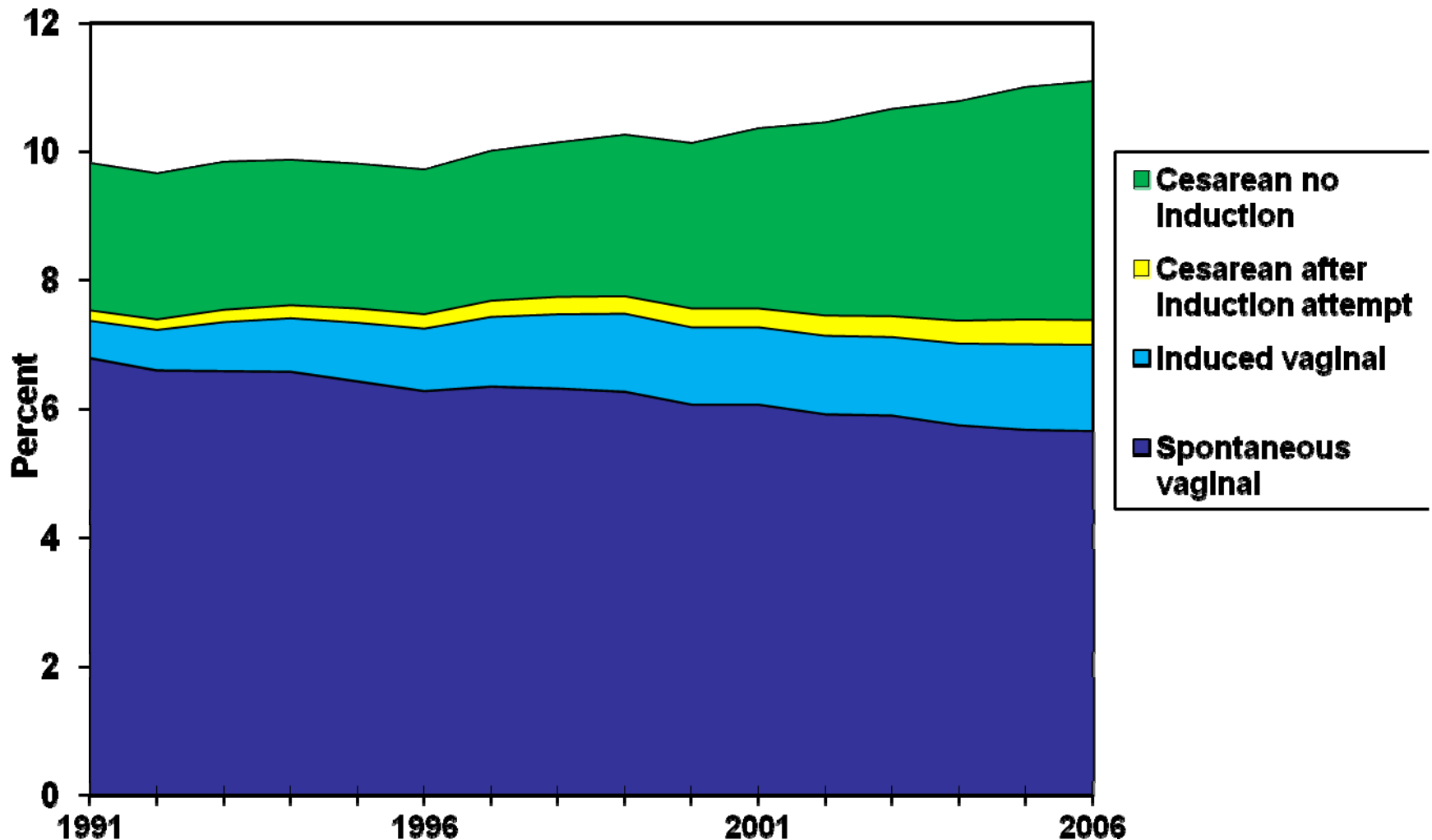
SOURCE: Obstetrical intervention and the preterm birth rate, *AJPH* [in press].

Percent of singleton births with induction of labor, US, selected years



SOURCE: Obstetrical intervention and the preterm birth rate, *AJPH* [in press].

Percent of singleton preterm (<37 weeks) births by method of delivery, US, 1991-2006



Note: Births with method of delivery and induction of labor not stated are excluded.

SOURCE: Obstetrical intervention and the preterm birth rate, *AJPH* [in press].

Decreasing Elective Deliveries Before 39 Weeks of Gestation in an Integrated Health Care System

Bryan T. Oshiro, MD, Erick Henry, MPH, Janie Wilson, RN, D. Ware Branch, MD, and Michael W. Varner, MD, for the Women and Newborn Clinical Integration Program

OBJECTIVE: The American College of Obstetricians and Gynecologists has recommended that elective deliveries not be performed before 39 weeks of gestation, to minimize prematurity-related neonatal complications. Because a worrisome number of elective deliveries were occurring before 39 weeks of gestation in our system, we developed and implemented a program to decrease the number of these early term elective deliveries. Secondary objectives were to monitor relevant clinical outcomes.

METHODS: The electronic medical records of an integrated health care system involving nine labor and delivery units in Utah were queried to establish the incidence of patients admitted for elective induction of labor or planned elective cesarean delivery. These facilities have open staff models with obstetricians, family practitioners, and certified nurse midwives. Guidelines were developed and imple-

less than 3%. A reduced length of stay in labor and delivery occurred with the introduction of the program, and there were no adverse effects on secondary clinical outcomes.

CONCLUSION: With institutional commitment, it is possible to substantially reduce and sustain a decline in the incidence of elective deliveries before 39 weeks of gestation.

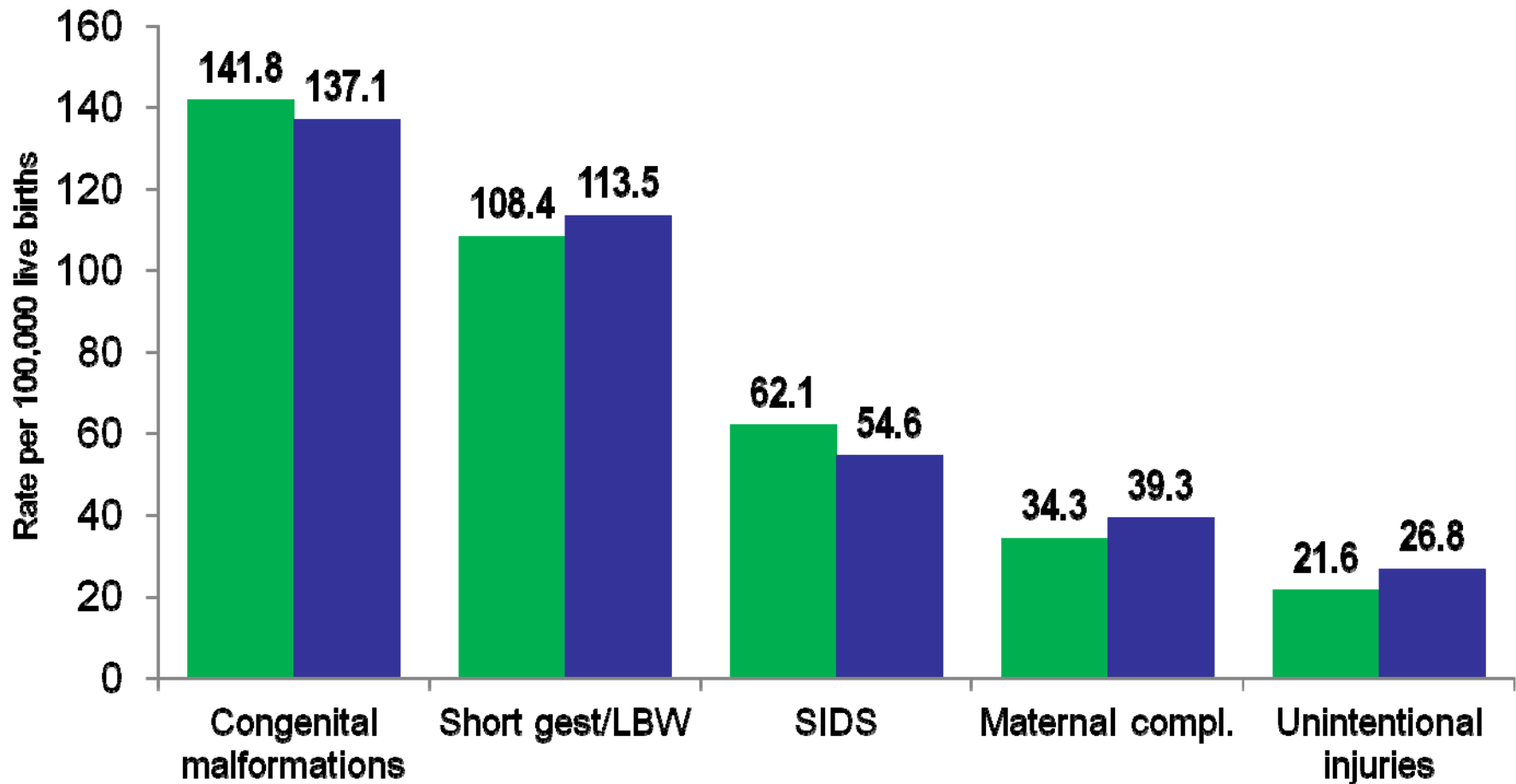
(Obstet Gynecol 2009;113:804-11)

LEVEL OF EVIDENCE: III

Induction of labor in the United States has more than doubled as a proportion of all births, from 9% if 1989 to 21% in 2002, with a sharper increase in elective than in medically indicated inductions.¹ The induction rate in Utah has also increased and has

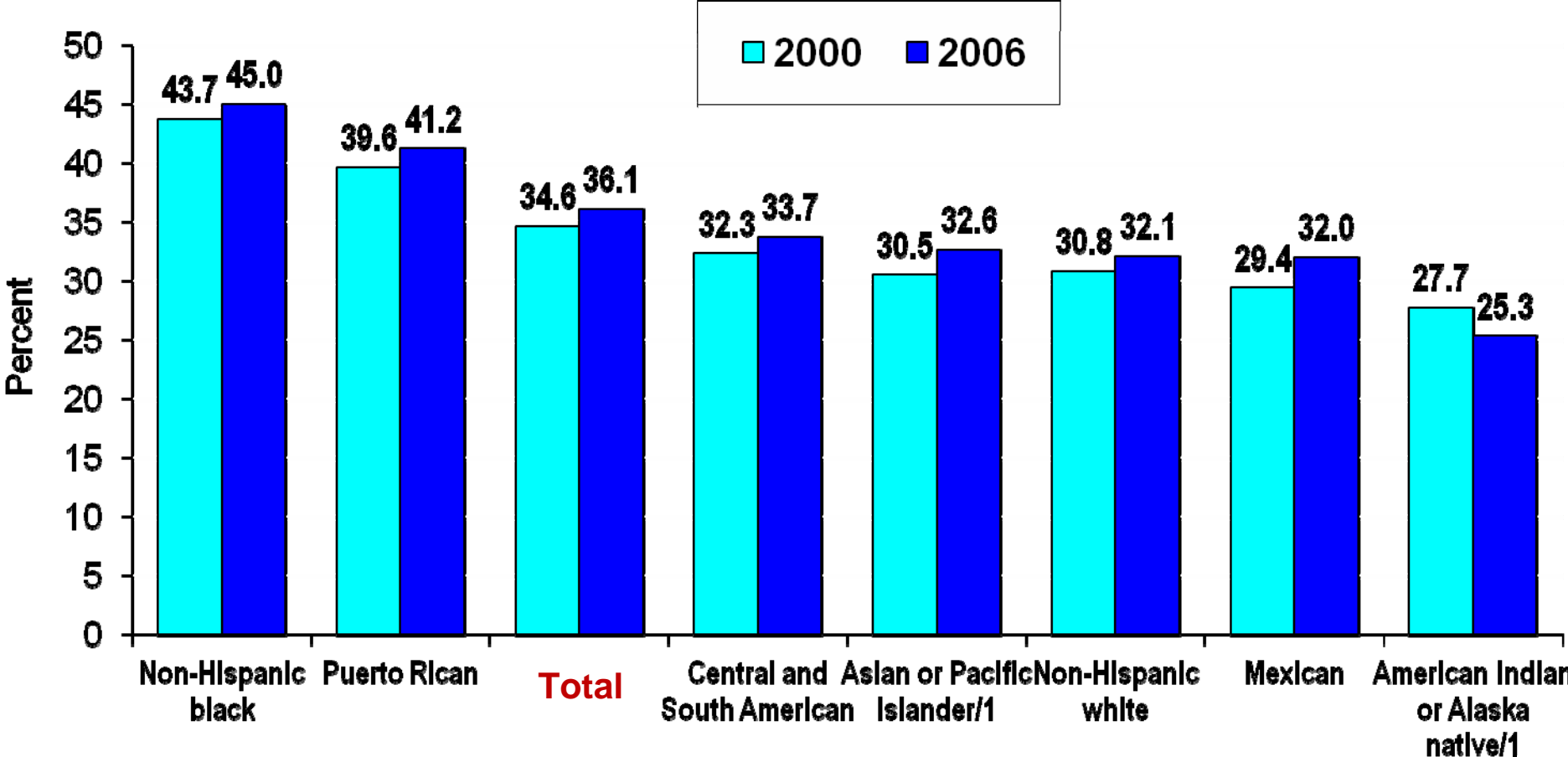
Infant mortality rates by leading causes of death, US, 2000 and 2006

■ 2000 ■ 2006



Source: NCHS, linked birth/infant death data set.

Percentage of Infant Deaths from Preterm-Related Causes* by Race/Ethnicity, US, 2000 and 2006

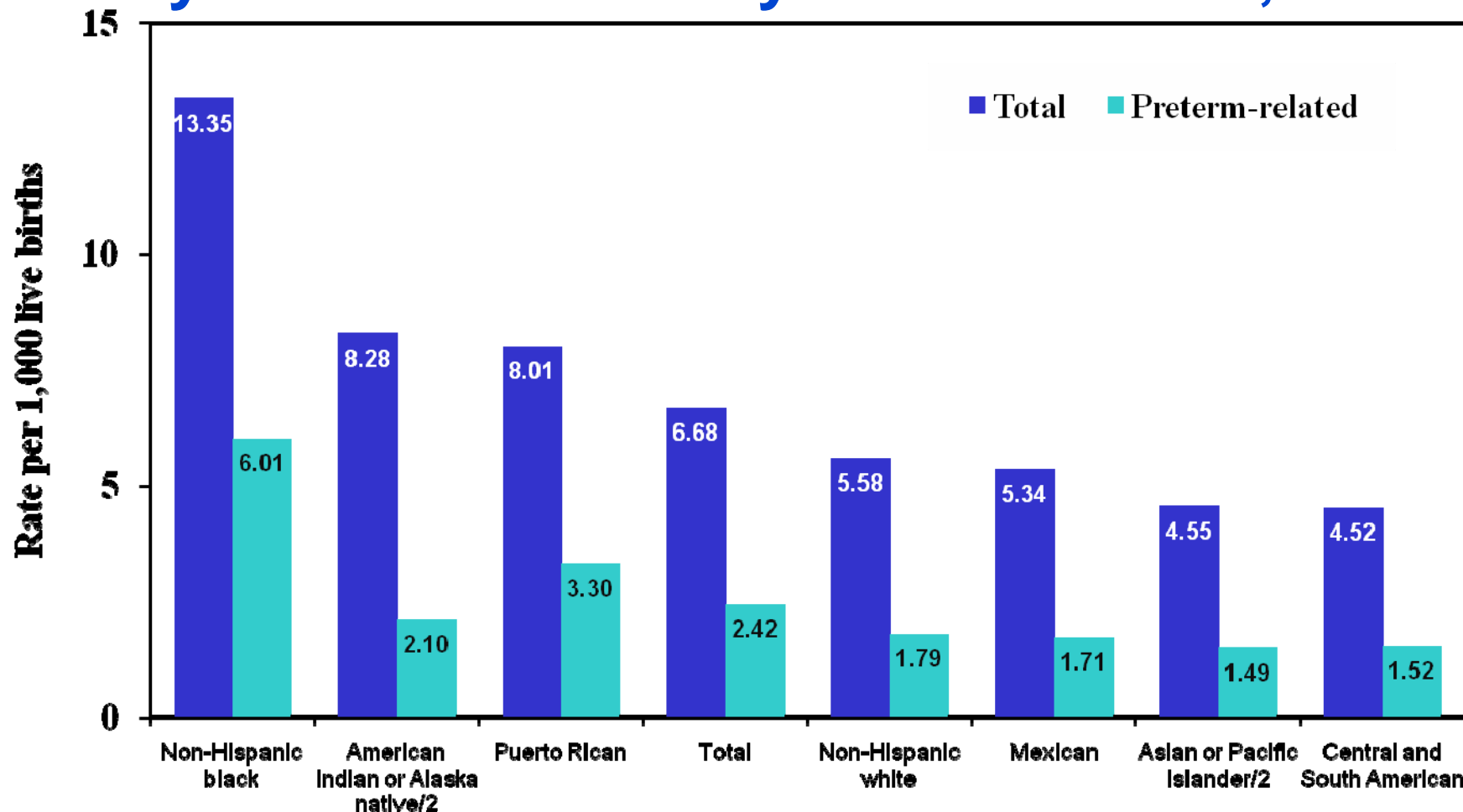


* Infants born at <37 weeks of gestation with cause of death that was a direct cause or consequence of preterm birth (ICD-10 codes K550, P000, P010, P011, P015, P020, P021, P027, P070-P073, P102, P220-P229, P250-279, P280, P281, P360-P369, P520-P523, P77).

1/ Includes persons of Hispanic and non-Hispanic origin.

SOURCE: NCHS, linked birth/infant death data set.

Total and preterm-related infant mortality rates by race and ethnicity of mother: US, 2006

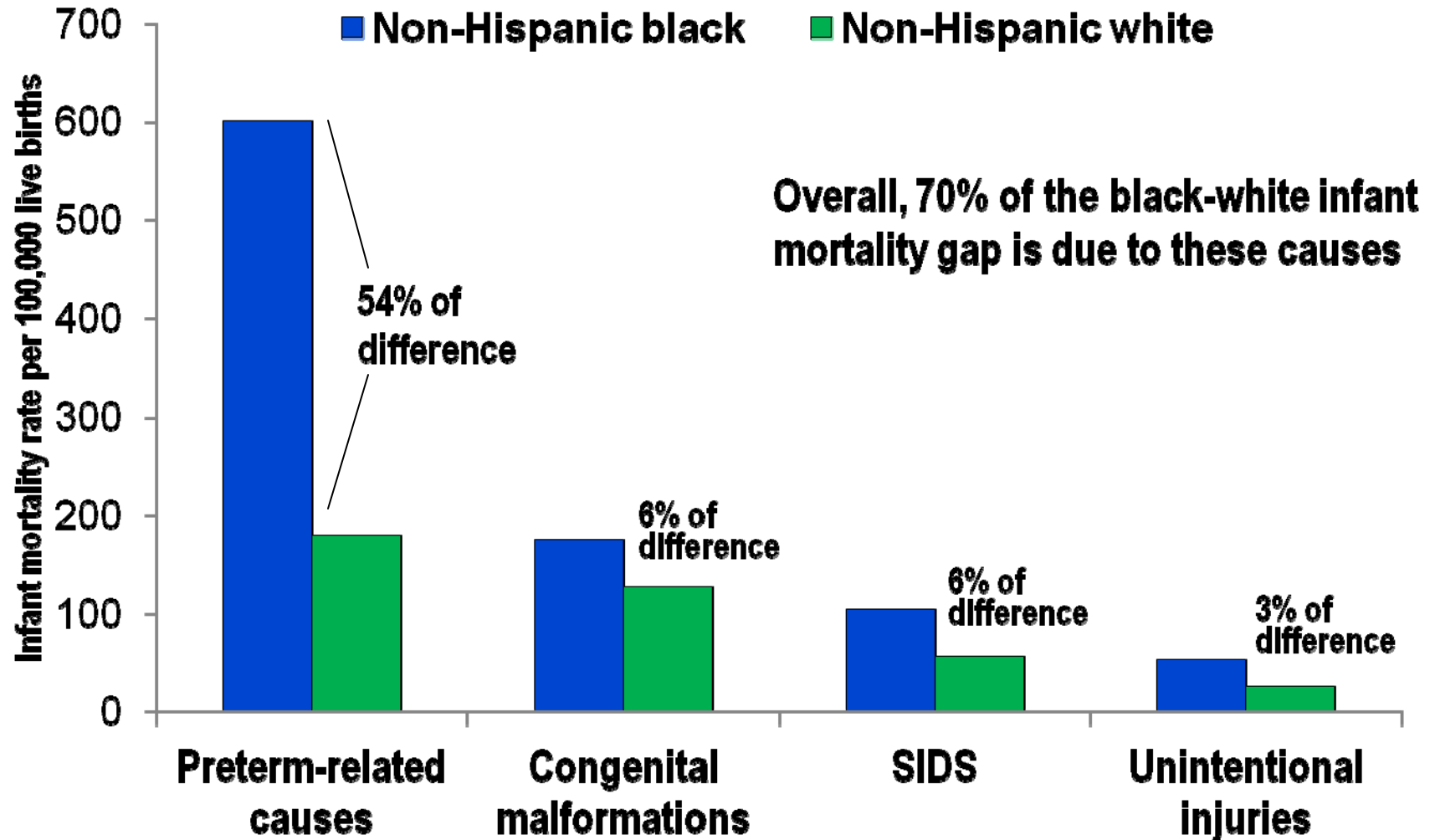


NOTE: Preterm-related deaths are those where the infant was born preterm (before 37 completed weeks of gestation) with the underlying cause of death assigned to one of the following ICD-10 categories: K550, P000, P010, P011, P015, P020, P021, P027, P070-P073, P102, P220-P229, P250-279, P280, P281, P360-P369, P520-P523, P77; see Technical notes.

2/ Includes persons of Hispanic and Non-Hispanic origin.

SOURCE: NCHS, linked birth/infant death data set.

Contribution of causes of death to the black-white infant mortality gap



Summary

- Three main areas of concern for US infant mortality:
 - The stagnation in the US infant mortality rate since 2000.
 - Large and increasing race and ethnic disparities.
 - Poor and declining international ranking.
- The percentage of preterm births in the US increased by 36% from 1984-2006
 - Due largely to increases in iatrogenic preterm birth; the proportion of births with spontaneous vaginal delivery declined sharply.
 - Small decline in preterm birth from 2006-2008 is noteworthy.
- Preterm birth has a major impact on all three areas of concern.