

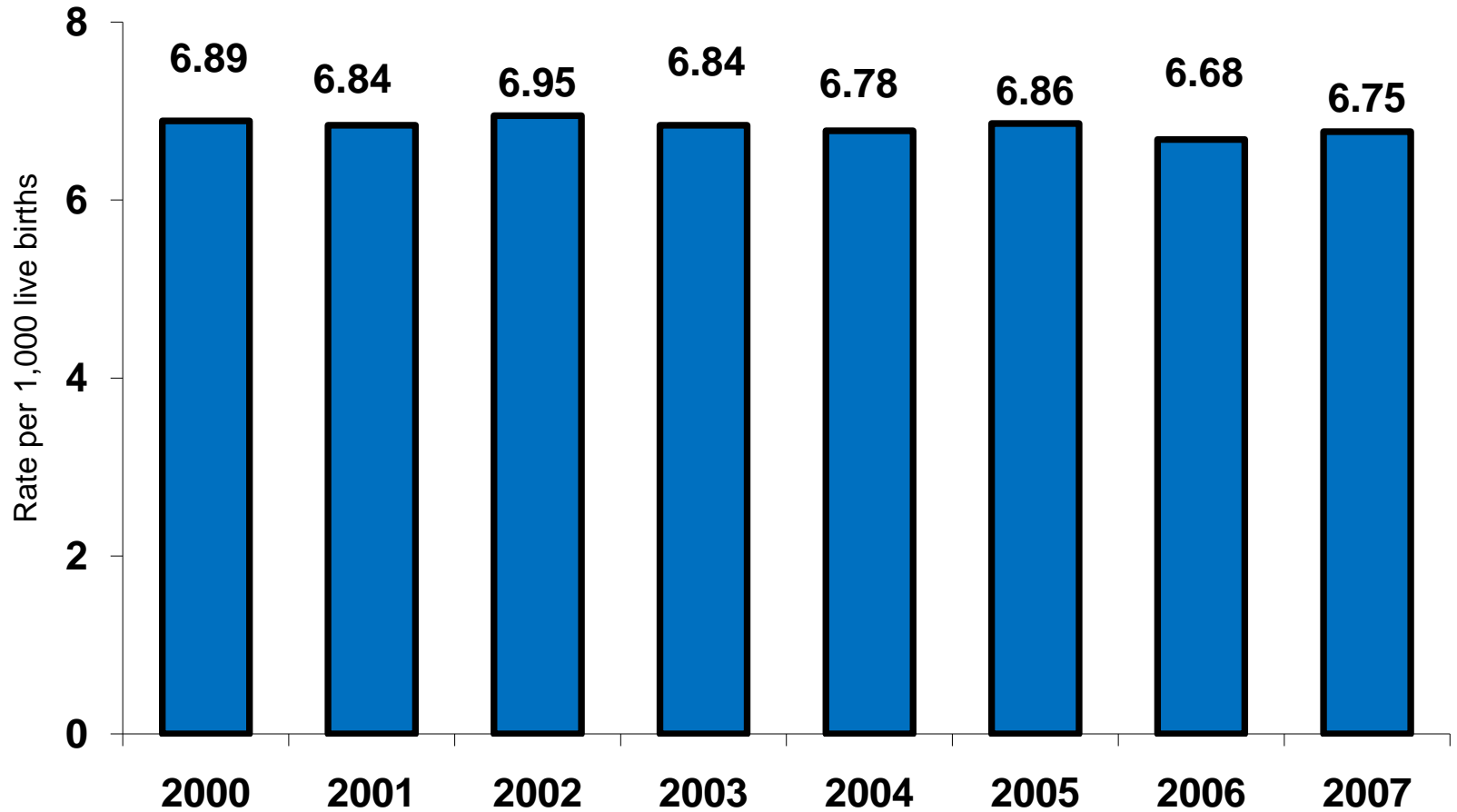
Behind International Rankings of Infant Mortality: How the United States Compares with Europe

Marian MacDorman and T.J. Mathews
Division of Vital Statistics
National Center for Health Statistics

Acknowledgements:
Sam Notzon and Jennifer Madans, NCHS

International Health Rankings: A Look Behind the Numbers
National Conference on Health Statistics
August 16-18, 2010

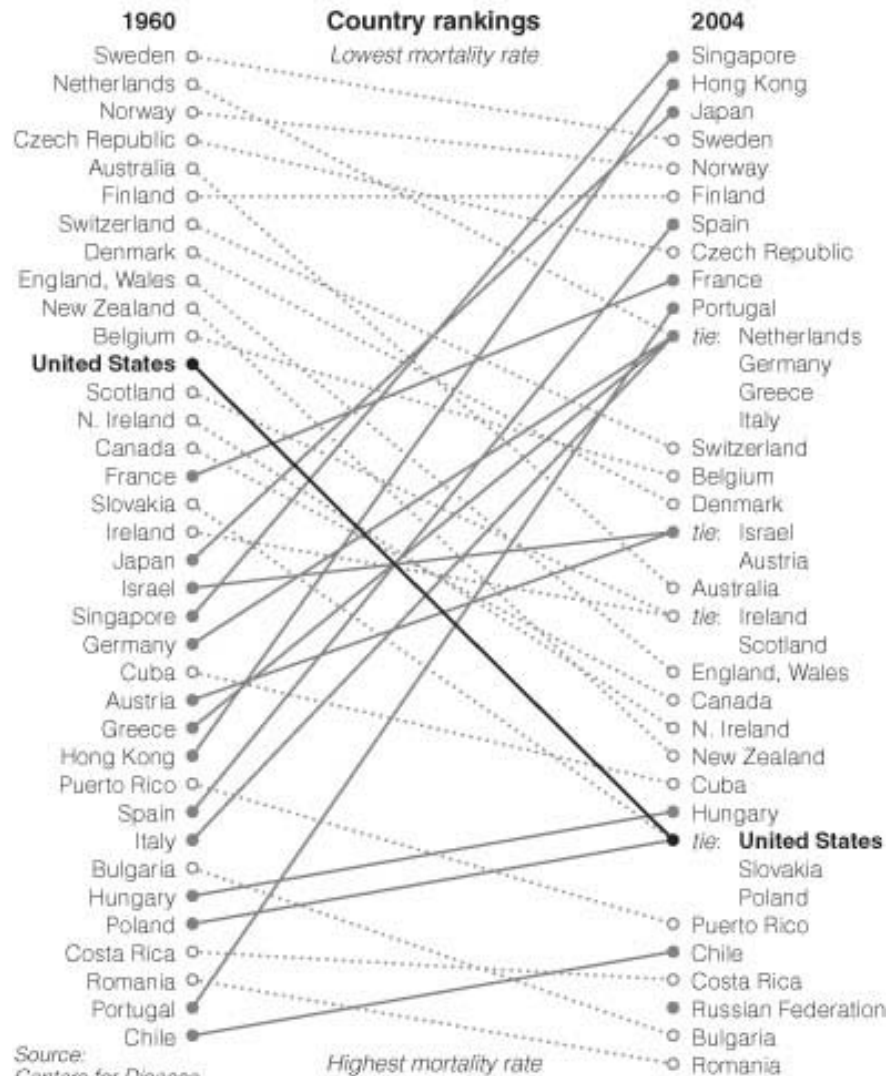
Infant mortality rate, United States, 2000-2007



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

Rankings of Infant Mortality

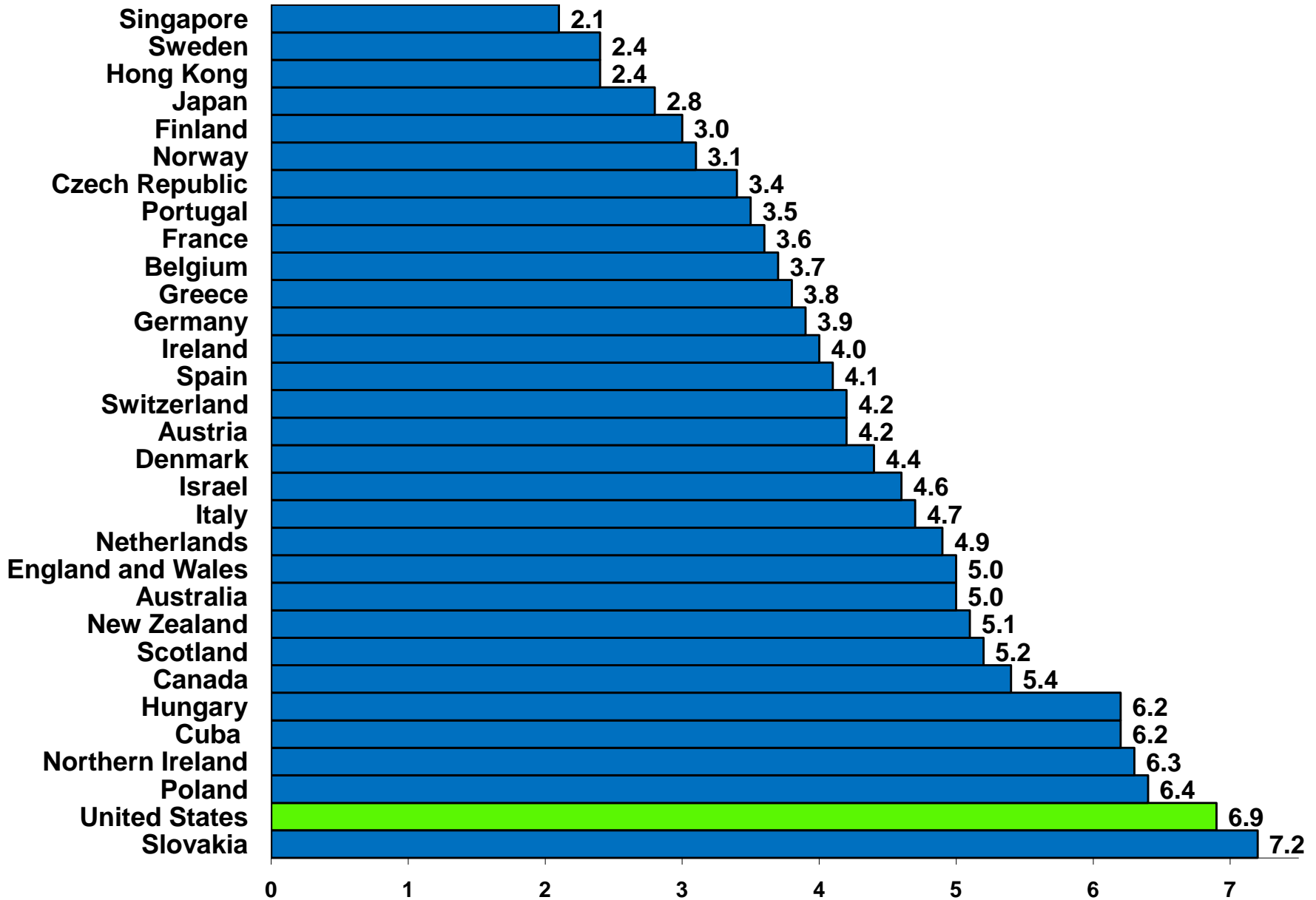
A new report ranks the United States 29th for infant mortality, tied with Slovakia and Poland. In 1960 the United States was ranked 12th.



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



EUROPEAN PERINATAL HEALTH REPORT

**by the EURO-PERISTAT project
in collaboration with
SCPE, EUROCAT & EURONEOSTAT**

Data from 2004

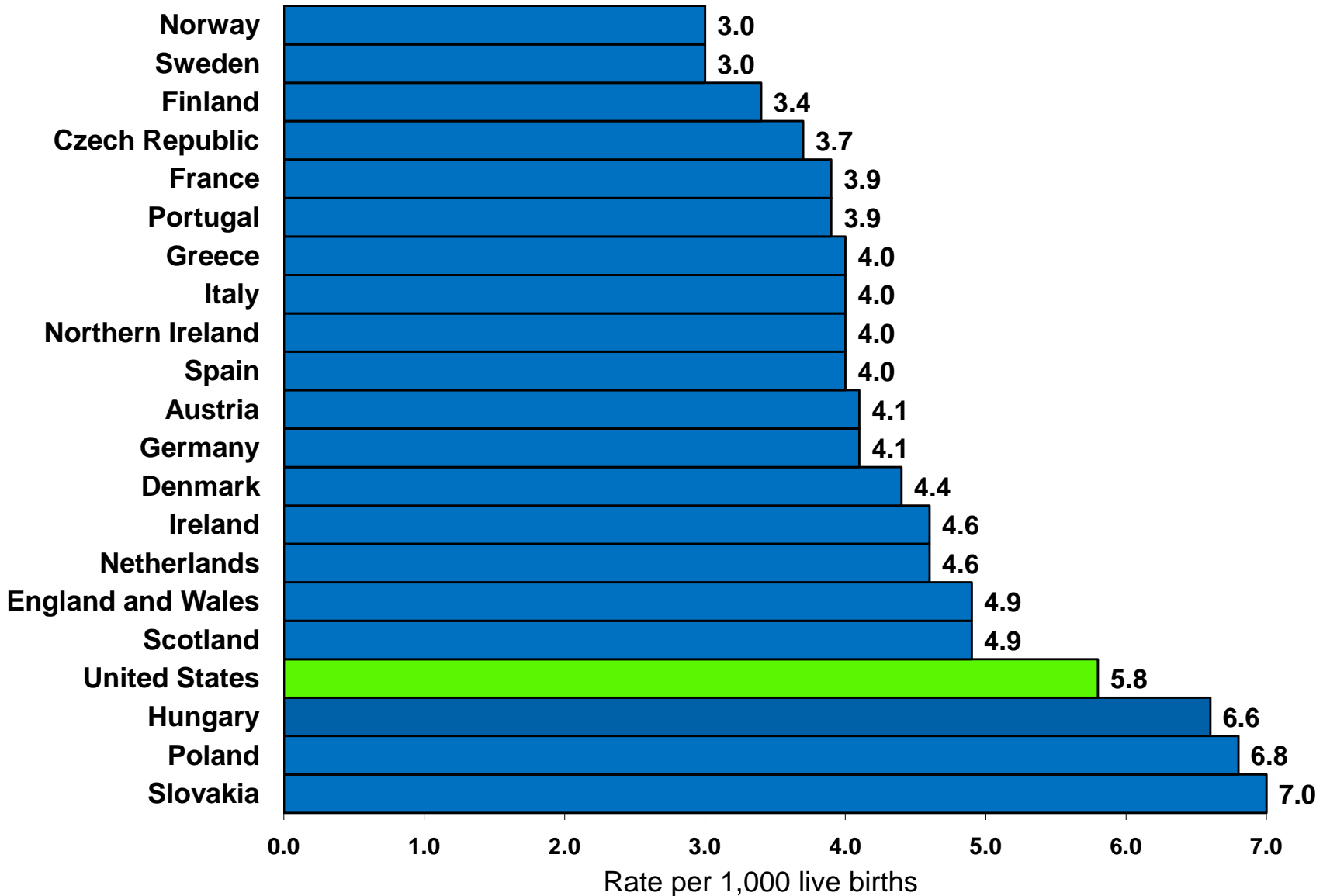
EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT. European Perinatal Health Reports, 2006. Available: www.europeristat.com

Table 1. Requirements for reporting a live birth, United States and selected European countries, 2004

Reporting requirement	Country
All live births	Austria, Denmark, England and Wales, Finland, Germany, Hungary, Italy, Northern Ireland, Portugal, Scotland, Slovak Republic, Spain, Sweden, United States
Live births at 12 weeks of gestation or more	Norway
Live births at 500 grams birthweight or more, and less than 500 grams if the infant survives for 24 hours	Czech Republic
Live births at 22 weeks of gestation or more, or 500 grams birthweight or more	France
All live births for civil registration, births at 500 grams birthweight or more for the national perinatal register	Ireland
Live births at 22 weeks of gestation or more, 500 grams birthweight or more if gestational age is unknown	Netherlands
Live births at 500 or more grams birthweight	Poland

SOURCE: NCHS/National Vital Statistics System for U.S. data and European Perinatal Health Report, p. 40 for European data: <http://www.europeristat.com/bm.doc/european-perinatal-health-report.pdf>.

Infant mortality rates excluding births at <22 weeks of gestation, US and selected European countries, 2004



Source: NCHS linked birth/infant death data set (for US data), and European Perinatal Health Report (for European data).

Infant mortality can be partitioned into two key components:

1. Gestational age-specific infant mortality rates (i.e. the mortality rate for infants at a given gestational age).
2. Distribution of births by gestational age.

Table 2. Gestational age-specific infant mortality rates, United States and selected European countries, 2004

Selected countries	22–23 weeks ¹	24–27 weeks	28–31 weeks	32–36 weeks	37 weeks or more
United States	707.7	236.9	45.0	8.6	2.4
Austria	888.9	319.6	43.8	5.8	1.5
Denmark	947.4	301.2	42.2	10.3	2.3
England and Wales ²	880.5	298.2	52.2	10.6	1.8
Finland	900.0	315.8	58.5	9.7	1.4
Northern Ireland	1,000.0	268.3	54.5	13.1	1.6
Norway	555.6	220.2	56.4	7.2	1.5
Poland	921.1	530.6	147.7	23.1	2.3
Scotland	1,000.0	377.0	60.8	8.8	1.7
Sweden	515.2	197.7	41.3	12.8	1.5

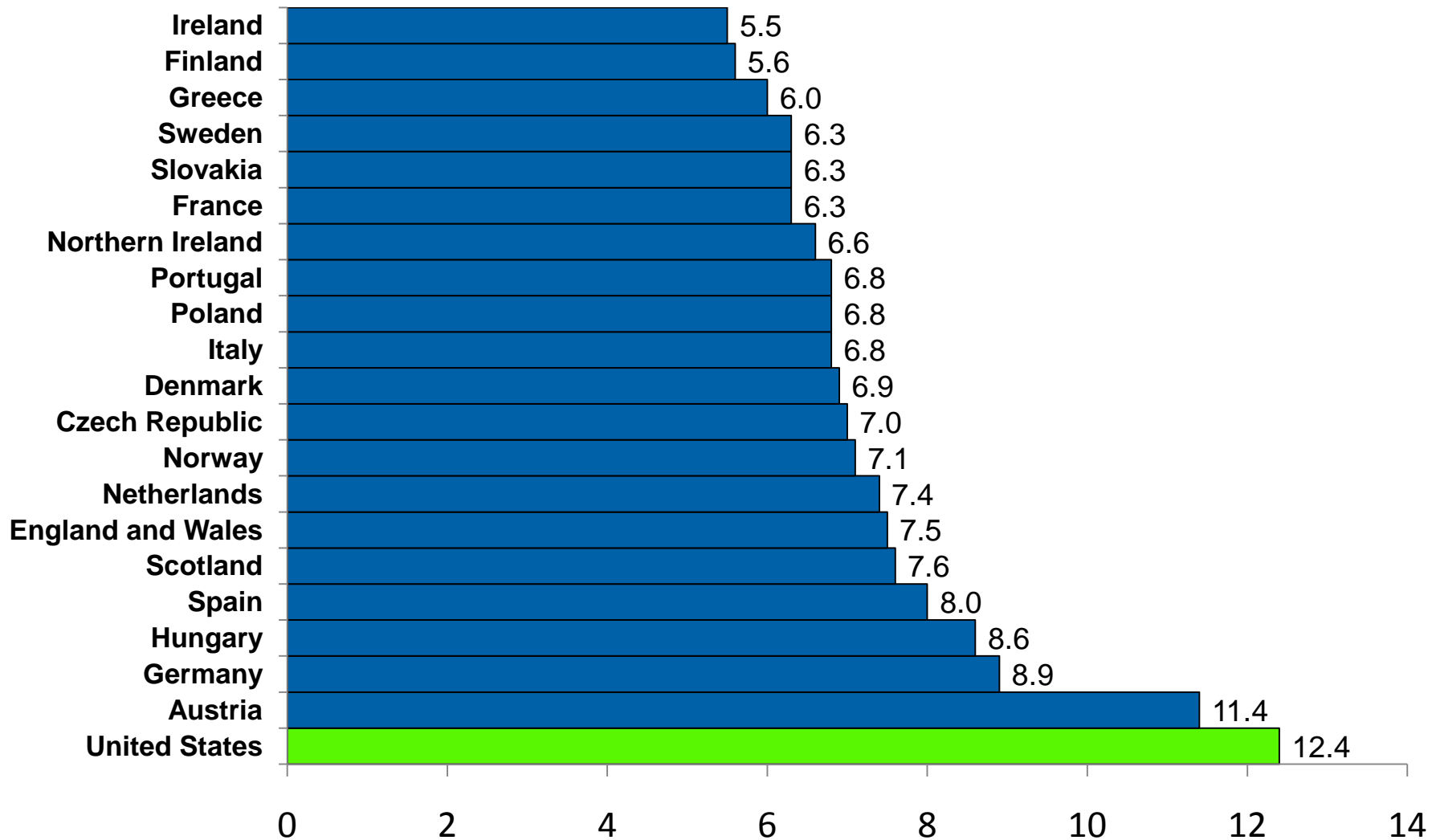
¹Infant mortality rates at 22–23 weeks of gestation may be unreliable due to reporting differences.

²England and Wales provided 2005 data.

NOTE: Infant mortality rates are per 1,000 live births in specified group.

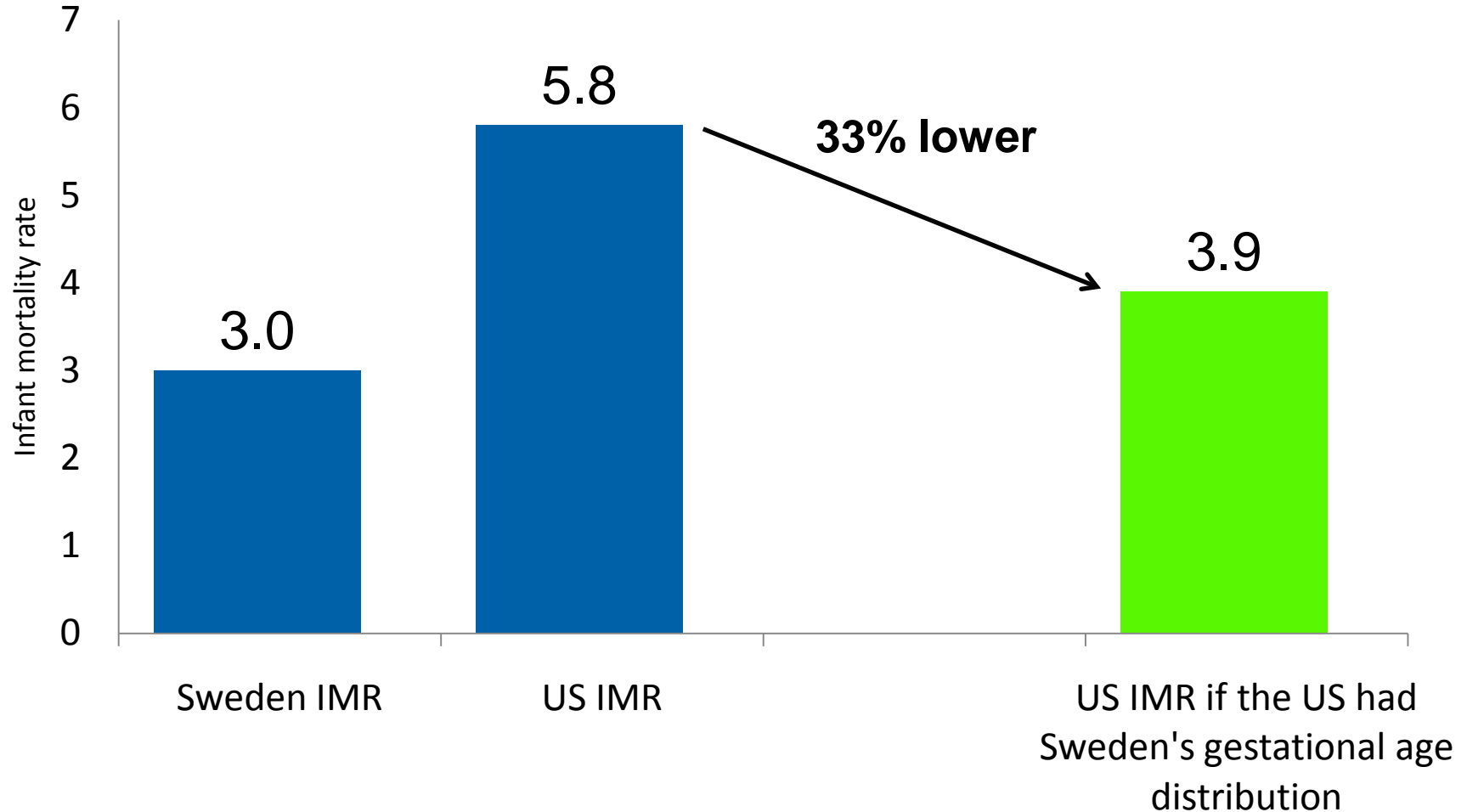
SOURCE: NCHS linked birth/infant death data set (for U.S. data), and *European Perinatal Health Report* (for European data).

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 rate for the US and Sweden, and the US infant mortality rate standardized for Sweden's gestational age distribution, 2004



Note: Excludes births at <22 weeks of gestation

Conclusions

- In 2005, the United States ranked 30th in the world in infant mortality.
- Some differences exist in reporting of very small infants.
- These reporting differences are not the primary explanation for the United States' relatively low international ranking.
- In 2005, 22 countries had infant mortality rates of 5.0 or below.
- One would have to assume that these countries did not report more than 1/3 of their infant deaths for their infant mortality rates to equal or exceed the US rate.
- This level of underreporting appears unlikely for most developed countries.

Conclusions (cont.)

- Infant mortality rates for preterm infants are lower and rates for full-term infants are higher in the US than in Europe.
- In 2004, 1 in 8 US infants were born preterm compared to 1 in 16 in France and Sweden and 1 in 18 in Ireland and Finland.
- If the United States had Sweden's distribution of births by gestational age, nearly 8,000 infant deaths in the US would be averted each year, and the US infant mortality rate would be 1/3 lower.
- The main cause of the US' high infant mortality rate when compared to Europe is the very high percentage of preterm births in the US, the period when infant mortality is greatest.

Behind International Rankings of Infant Mortality: How the United States Compares with Europe

Marian F. MacDorman, Ph.D., and T.J. Mathews, M.S.

Full report available at:

<http://www.cdc.gov/nchs/data/databriefs/db23.pdf>

Key findings

Data from the United States' Linked Birth/Infant Death Data Set and the European Perinatal Health Report

- Infant mortality rates for preterm (less than 37 weeks of gestation) infants are lower in the United States than in most European countries; however, infant mortality rates for infants born at 37 weeks of gestation or more are higher in the United States than in most European countries.

- One in 8 births in the United States were born preterm, compared with 1 in 18 births in Ireland and Finland.

- If the United States had Sweden's distribution of births by gestational age, nearly 8,000 infant deaths would be averted each year and the U.S. infant mortality rate would be one-third lower.

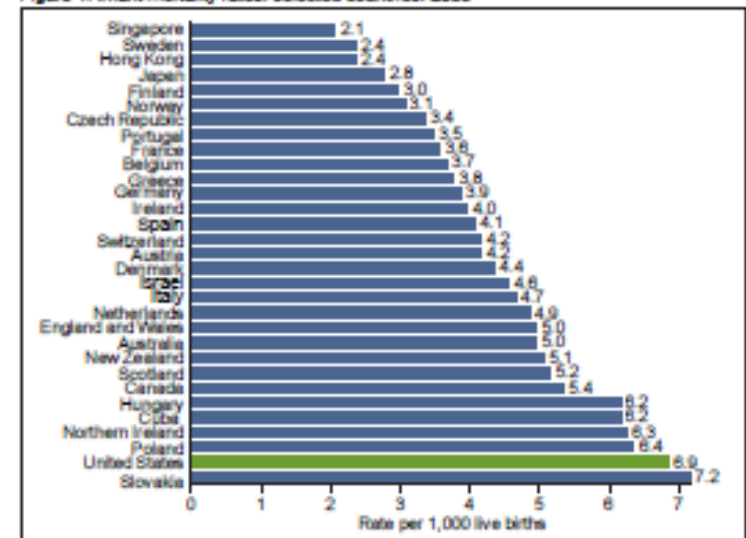
- The main cause of the United States' high infant mortality rate when compared with Europe is the very high percentage of preterm births in the United States.

Infant mortality is an important indicator of the health of a nation, and the recent stagnation (since 2000) in the U.S. infant mortality rate has generated concern among researchers and policy makers. The percentage of preterm births in the United States has risen 36% since 1984 (1). In this report we compare infant mortality rates between the United States and Europe. We also compare two factors that determine the infant mortality rate—gestational age-specific infant mortality rates and the percentage of preterm births. U.S. data are from the Linked Birth/Infant Death Data Set (2,3), and European data for 2004 are from the recently published *European Perinatal Health Report* (4). We also examine requirements for reporting a live birth among countries to assess the possible effect of reporting differences on infant mortality data.

Keywords: infant mortality • international comparisons • preterm birth • gestational age-specific infant mortality rates

In 2005, the United States ranked 30th in infant mortality.

Figure 1. Infant mortality rates, selected countries, 2005



Questions?

Marian MacDorman
mfm1@cdc.gov