

Low and Very Low Birthweight Infants

Headline

In 2005, 8.2 percent of all newborns were low birthweight (less than 5.5 pounds), the highest percentage since the early 1970s. ([See Figure 1](#))

Importance

Babies who are very low in birth weight (less than 1,500 grams, or 3 pounds, 4 ounces) have a 25 percent chance of dying before age one. Mortality among heavier, but still low birthweight, babies (between 1,500 and 2,499 grams, or 5 pounds, 8 ounces) is much lower at around two percent, though still higher than the mortality of babies who are born above that weight (about one quarter of a percent).¹ Risk factors for low and very low birthweight include smoking, low maternal weight gain or low prepregnancy weight, maternal or fetal stress, infections, and violence.²

Infants born at a low birthweight are also at increased risk of long-term disability and impaired development.³ Infants born under 2,500 grams are more likely than heavier infants to experience delayed motor and social development.⁴ Children ages 4 to 17 who were born at a low birthweight are more likely to be enrolled in special education classes, to repeat a grade, or to fail school than children who were born at a normal birthweight.⁵

Trends

The percentage of infants who were low birthweight (under 2,500 grams, or 5 pounds 8 ounces) declined between 1970 and 1980, but has been increasing slowly but steadily since that time to 8.2 percent in 2005 (preliminary estimate). ([See Figure 1](#))

Research indicates that the overall increase in low birthweight rates is in part the result of an increase in multiple births after 1980.⁶ In addition, improvements in technologies used to monitor at-risk pregnancies may have contributed to an increase in Cesarean section deliveries and the number of low weight infant births.⁷ The percentage of infants who were very low birthweight has increased slightly since 1980, but has stayed fairly consistent since the 1990s and was 1.5 percent in 2005 (based on preliminary estimate). ([See Figure 1](#))

Differences by Race and Hispanic Origin

Non-Hispanic black infants are more likely than babies of other races to be low birthweight. In 2005, 14.0 percent of non-Hispanic black infants were low birthweight, compared with 8.0 percent of Asians/Pacific Islanders, 7.4 percent of American Indians/Alaska Natives, 7.3 percent of non-Hispanic whites, and 6.9 percent of Hispanic infants (preliminary estimates). ([See Figure 2](#)) Among those of Hispanic origin, Puerto Rican infants were the most likely to be low birthweight (9.8 percent) in 2004, the most recent year for which data are available. Among Asian/Pacific Islanders, Filipinos were

the most likely to be low birthweight (8.6 percent) in 2002, the most recent year for which data are available. ([See Table 1](#))

Non-Hispanic black infants are also more than twice as likely as other infants to be very low birthweight (3.3 percent in 2005, compared with a little more than one percent among those of other major race groups). ([See Table 1](#))

Differences by Maternal Smoking

In 2003, the most recent year for which data are available, 12.4 percent of infants born to cigarette smokers were low birthweight, compared with 7.7 percent of infants born to non-smokers. ([See Figure 3](#))

State and Local Estimates

2004 state-level estimates of low birthweight rates by race are available at: Martin JA, Hamilton BE, Sutton PD, et al. (2006). "Births: Final data for 2004." *National Vital Statistics Reports*, 55(1). Hyattsville, MD: National Center for Health Statistics. Tables 36. http://www.cdc.gov/nchs/data/nvsr/nvsr55/nvsr55_01.pdf.

Estimates of low birthweight infants for 1990-2003 are available for all states and the 50 largest cities in the U.S. from *The Right Start for America's Newborns: City and State Trends*. <http://www.aecf.org/kidscount/sld/rightstart.jsp>

State-level estimates for 2002 are available by race and Hispanic origin from the State Health Facts Web site of the Kaiser Family Foundation. <http://statehealthfacts.org/cgi-bin/healthfacts.cgi?> (Health Status)

International Estimates

International estimates are available from UNICEF's *The State of the World's Children 2005*. <http://www.unicef.org/sowc05/english/fullreport.html> (Table 4)

National Goals

Healthy People 2010 has set a goal to reduce the percentage of low birthweight infants from 7.6 in 1998 to 5.0 by 2010 and the percentage of very low birthweight infants from 1.4 percent in 1998 to 0.9 by 2010.

More information is available at:

<http://www.health.gov/healthypeople/document/html/objectives/16-10.htm>

Definition

Low birthweight: infants weighing less than 2,500 grams or 5 pounds 8 ounces

Very low birthweight: infants weighing less than 1,500 grams or 3 pounds 4 ounces

Note: Estimates are based on live births with known birthweight, and exclude stillborn births and live births with unknown birthweight.

Data Sources

Preliminary Data for 2005: Hamilton BE, Martin JA, and Ventura SJ. (2006). "Births: Preliminary data for 2005." *National Vital Statistics Reports*; vol 55. Hyattsville, MD: National Center for Health Statistics. Table 4.

<http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimbirths05/prelimbirths05.htm>

Data for 2004: Martin JA, Hamilton BE, Sutton PD, et al. (2006). "Births: Final data for 2004." *National Vital Statistics Reports*, 55(1). Hyattsville, MD: National Center for Health Statistics. Tables 23, 24.

http://www.cdc.gov/nchs/data/nvsr/nvsr55/nvsr55_01.pdf

Data for 2003 very low birthweight, smoking status: National Center for Health Statistics. (2005). "Health, United States, 2005 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 13.

<http://www.cdc.gov/nchs/data/hus/hus05.pdf>.

All other data for 2003: Martin JA, Hamilton BE, Sutton PD, et al. (2005). "Births: Final data for 2003." *National Vital Statistics Reports*, 54(2). Hyattsville, MD: National Center for Health Statistics. Tables 24, 25, and 33.

http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_02.pdf.

Data for 2002: Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Munson ML. Births: Final data for 2002. *National vital statistics reports*; vol 52 no 10. Hyattsville, Maryland: National Center for Health Statistics. 2003.

http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_10.pdf

Data for all other years: National Center for Health Statistics. (2003) *Health United States, 2003 with Chartbook on Trends in the Health of Americans*. National Center for Health Statistics. 2003. Table 12. See <http://www.cdc.gov/nchs/data/hus/hus03.pdf>

Raw Data Source

Birth Data, National Vital Statistics System

<http://www.cdc.gov/nchs/births.htm>

Next Update

Winter 2008

¹Mathews, TJ, Menacker, F, and MacDorman, MF. (2002). "Infant mortality statistics from the 2000 period linked birth/infant death data set." *National Vital Statistics Reports. Vol. 50, No. 12.*

http://www.cdc.gov/nchs/data/nvsr/nvsr50/nvsr50_12.pdf (See Table 6)

See also Iyasu, S., and Tomashek, K. (2002) "Infant Mortality and Low Birth Weight Among Black and White Infants – United States, 1980 – 2000." *Morbidity and Mortality Weekly Report. 51(27)589-592.*

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5127a1.htm>

² Ricketts, Sue Austin, Murray, Erin K., and Schwalberg, Renee. (2005). "Reducing Low Birthweight by Resolving Risks: Results from Colorado's Prenatal Plus Program." *American Journal Public Health, 57(11):1952-1957.*

³ Hack, M., Klein, NK, Taylor, HG. (1995). Long-term developmental outcomes of low birth weight infants. In: *The Future of Children: Low Birth Weight.* Vol. 5(1):19-34. Los Altos, CA: Center for the Future of Children. The David and Lucile Packard Foundation. http://www.futureofchildren.org/pubs-info2825/pubs-info.htm?doc_id=79872

⁴ Hediger, M L., Overpeck, M.D., Ruan, W.J., and Troendle, J.F. (2002). Birthweight and gestational age effects on motor and social development. *Pediatric and Prenatal Epidemiology, 16:33-46.*

⁵ National Education Goals Panel. (1997). *Special early childhood report.* Washington, D.C.: National Education Goals Panel. <http://govinfo.library.unt.edu/negp/Reports/spcl.pdf>

⁶ Martin JA, Hamilton BE, Ventura SJ, Menacker F, Park MM, Sutton PD. Births: Final data for 2001. *National vital statistics reports; vol 51 no.2.* Hyattsville, Maryland: National Center for Health Statistics. 2002. http://www.cdc.gov/nchs/data/nvsr/nvsr51/nvsr51_02.pdf

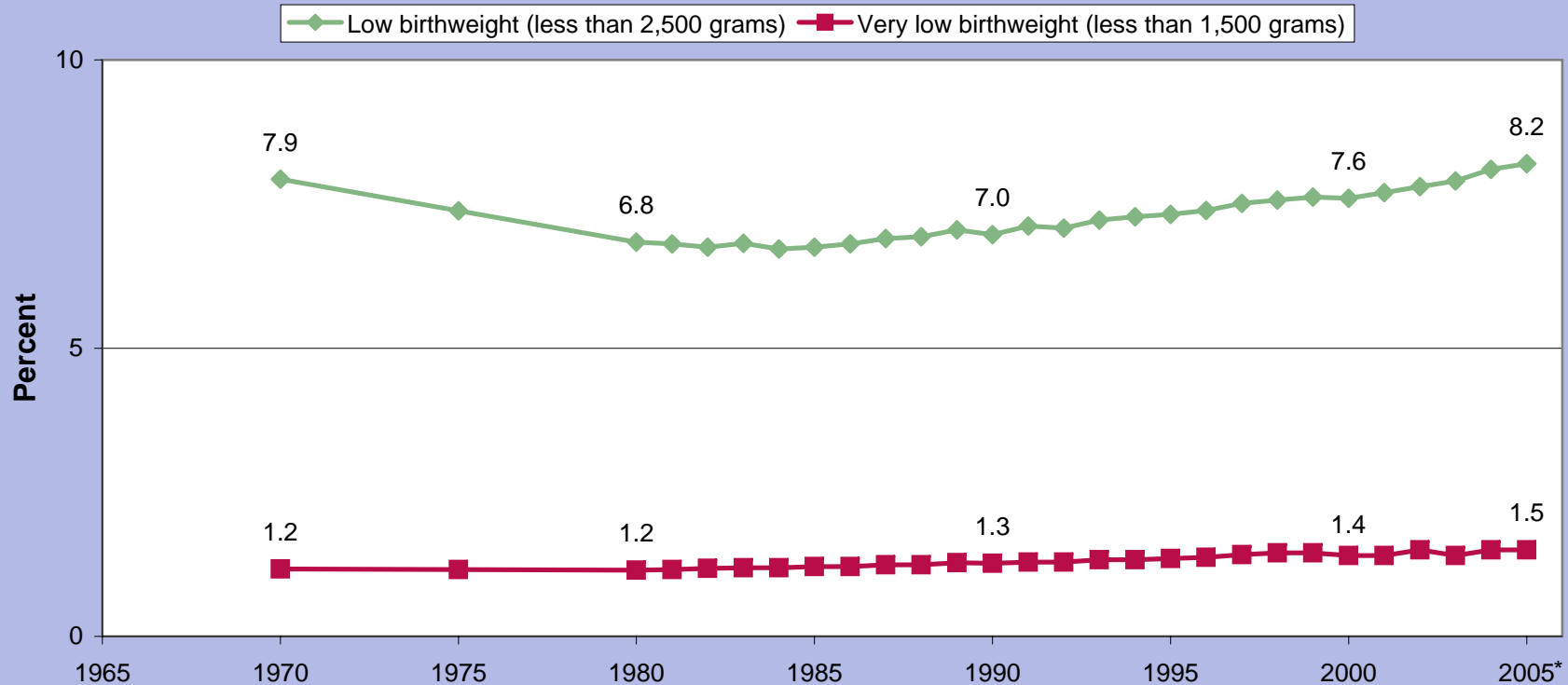
⁷ MacDorman, M.F., Martin, J.A., Mathews, T.J., et al. *Explaining the 2001-02 infant mortality increase: Data from the linked birth/infant death data set.* National vital statistics reports; vol 53, num 12.,

Hyattsville, Maryland: National Center for Health Statistics. 2005.

http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_12.pdf.

Figure 1

Percentage of Infants Born at a Low or Very Low Birthweight, 1970-2005*

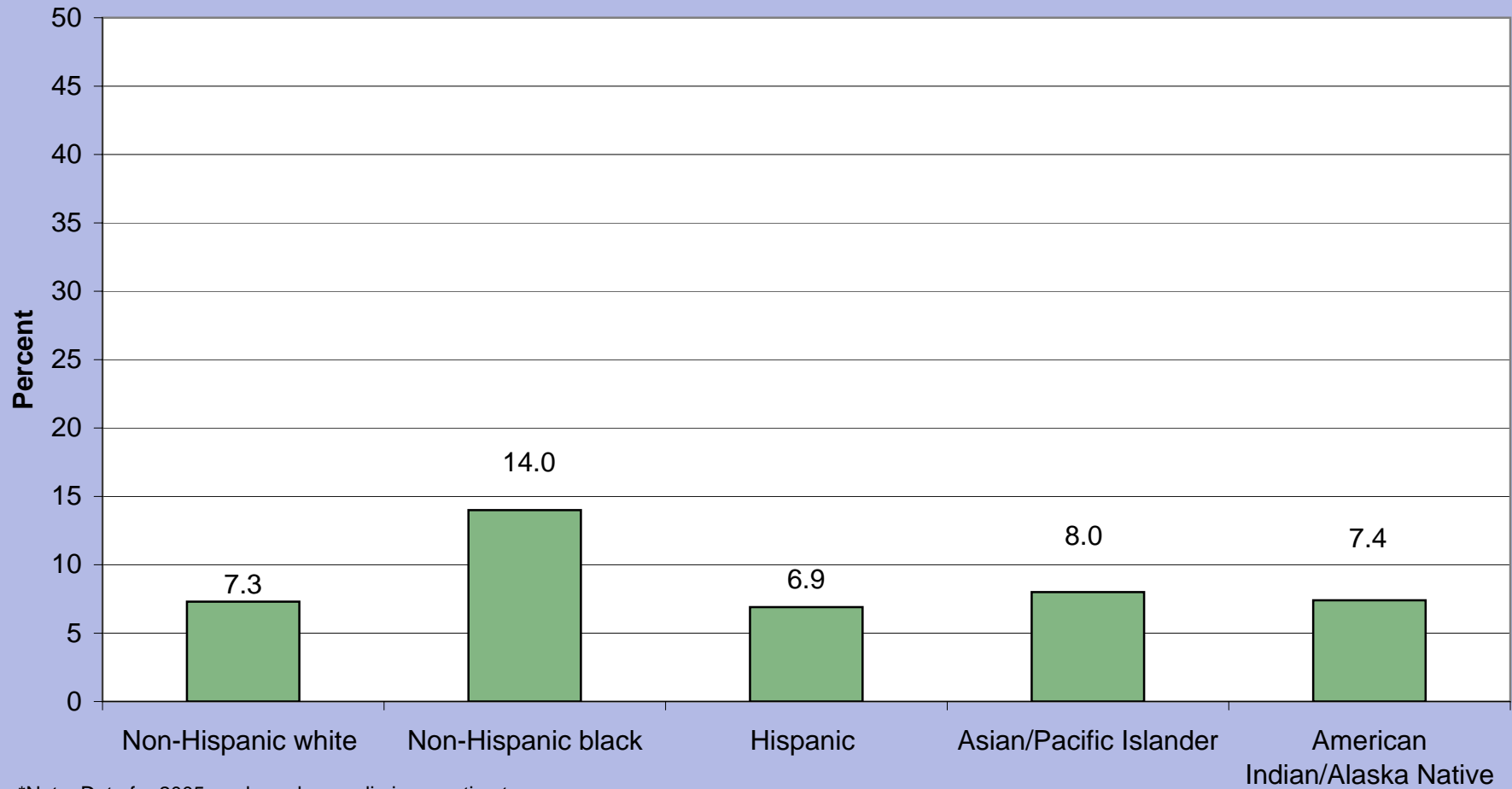


*Note: Data for 2005 are based on preliminary estimates.

Sources: Data for 1970-2001: National Center for Health Statistics. Health United States 2003 with Chartbook on Trends in the Health of Americans. Hyattsville, Maryland: 2003: Table 12. Data for 2002 from: Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Munson ML. Births: Final data for 2002. National vital statistics reports; vol 52 no 10. Hyattsville, Maryland: National Center for Health Statistics. 2003. Data for 2003: Martin JA, Hamilton BE, Sutton PD, et al. (2005). "Births: Final data for 2003." National Vital Statistics Reports, 54(2). Hyattsville, MD: National Center for Health Statistics. Tables 24, 25, and 33. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_02.pdf. Data for 2004: Hamilton, BE, Martin, JA, Ventura, SJ, Sutton, PD, and Menacker, F. (2006). "Births: Preliminary Data for 2004". National Vital Statistics Reports, 54(8). Hyattsville, MD: National Center for Health Statistics. Table F. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_08.pdf. Data for 2004: Martin JA, Hamilton BE, Sutton PD, et al. (2006). "Births: Final data for 2004." *National Vital Statistics Reports*, 55(1). Hyattsville, MD: National Center for Health Statistics. Tables 23, 24. Preliminary Data for 2005: Hamilton BE, Martin JA, and Ventura SJ. (2006). "Births: Preliminary data for 2005." *National vital statistics reports*; vol 55. Hyattsville, MD: National Center for Health Statistics. Table 4. <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimbirths05/prelimbirths05.htm#ref02>.

Figure 2

Percentage of Infants Born at a Low Birthweight, by Race and Hispanic Origin, 2005*



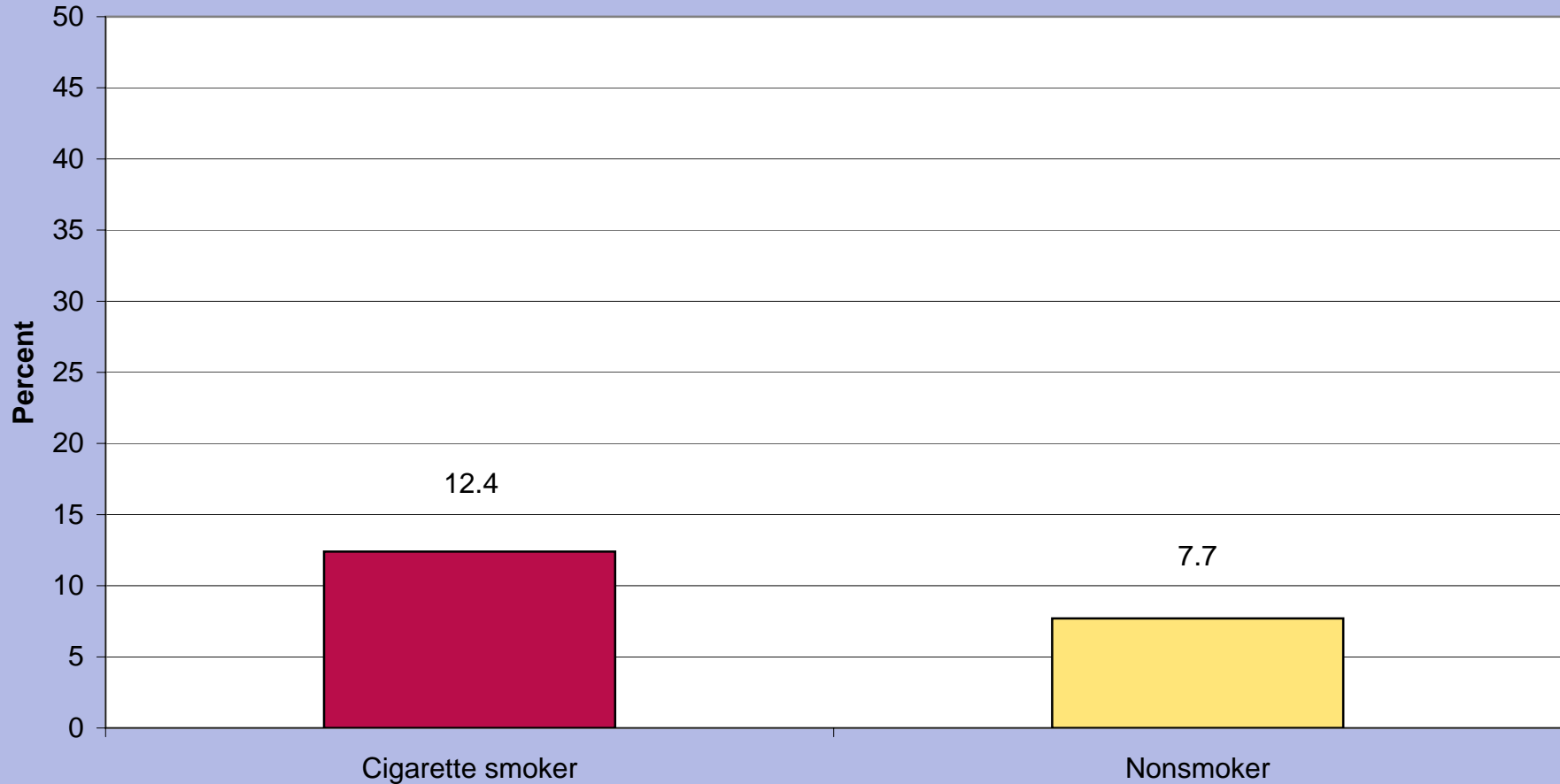
*Note: Data for 2005 are based on preliminary estimates.

Source: Hamilton BE, Martin JA, and Ventura SJ. (2006). "Births: Preliminary data for 2005." *National vital statistics reports*; vol 55. Hyattsville, MD: National Center for Health Statistics. Table 4.

<http://www.cdc.gov/nchs/products/pubs/pubd/hestats/prelimbirths05/prelimbirths05.htm#ref02>.

Figure 3

Percentage of Infants Born at a Low Birthweight, by Mother's Smoking Status During Pregnancy, 2003



Source: Martin JA, Hamilton BE, Sutton PD, et al. (2005). "Births: Final data for 2003." *National Vital Statistics Reports*, 54(2). Hyattsville, MD: National Center for Health Statistics. Tables 24, 25, and 32. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_02.pdf.

Table 1

Percentage of Infants Born at a Low and Very Low Birthweight, According to Mother's Detailed Race, Hispanic Origin, and Smoking Status, Selected Years 1970-2005*

	Percent of live births ¹															
	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005*
Low birthweight (less than 2,500 grams)	7.9	7.4	6.8	6.8	7.0	7.3	7.4	7.5	7.6	7.6	7.6	7.7	7.8	7.9	8.1	8.2
White	6.9	6.3	5.7	5.7	5.7	6.2	6.3	6.5	6.5	6.6	6.6	6.7	6.8	6.9	7.1	-
White, non-Hispanic ²	-	-	5.7	5.6	5.6	6.2	6.4	6.5	6.6	6.6	6.6	6.8	6.9	7.0	7.2	7.3
Black	13.9	13.2	12.7	12.7	13.3	13.1	13.0	13.0	13.1	13.1	13.0	13.0	13.3	13.4	13.4	-
Black, non-Hispanic ²	-	-	12.7	12.6	13.3	13.2	13.1	13.1	13.2	13.2	13.1	13.1	13.4	13.6	13.7	14.0
Hispanic origin ^{2,3}	-	-	6.1	6.2	6.1	6.3	6.3	6.4	6.4	6.4	6.4	6.5	6.5	6.7	6.8	6.9
Mexican	-	-	5.6	5.8	5.6	5.8	5.9	6.0	6.0	5.9	6.0	6.1	6.2	6.3	6.4	-
Puerto Rican	-	-	9.0	8.7	9.0	9.4	9.2	9.4	9.7	9.3	9.3	9.3	9.7	10.0	9.8	-
Cuban	-	-	5.6	6.0	5.7	6.5	6.5	6.8	6.5	6.8	6.5	6.5	6.5	7.0	7.7	-
Central and South American	-	-	5.8	5.7	5.8	6.2	6.0	6.3	6.5	6.4	6.3	6.5	6.5	6.7	6.7	-
Other and unknown	-	-	7.0	6.8	6.9	7.6	7.7	7.9	7.6	7.6	7.8	8.0	7.9	8.0	7.8	-
Hispanic	-	-	7.0	6.8	6.9	7.6	7.7	7.9	7.6	7.6	7.8	8.0	7.9	8.0	7.8	-
Asian or Pacific Islander	-	-	6.7	6.2	6.5	6.9	7.1	7.2	7.4	7.5	7.3	7.5	7.8	7.8	7.9	8.0
Chinese	6.7	5.3	5.2	5.0	4.7	5.3	5.0	5.1	5.3	5.2	5.1	5.3	5.5	-	-	-
Japanese	9.0	7.5	6.6	6.2	6.2	7.3	7.3	6.8	7.5	8.0	7.1	7.3	7.6	-	-	-
Filipino	10.0	8.1	7.4	7.0	7.3	7.8	7.9	8.3	8.2	8.3	8.5	8.7	8.6	-	-	-
Hawaiian and part	-	-	7.2	6.5	7.2	6.8	6.8	7.2	7.2	7.7	6.8	7.9	8.1	-	-	-
Hawaiian	-	-	7.2	6.5	7.2	6.8	6.8	7.2	7.2	7.7	6.8	7.9	8.1	-	-	-
Other Asian or Pacific Islander	-	-	6.8	6.2	6.7	7.1	7.4	7.5	7.8	7.8	7.7	7.8	8.2	-	-	-
American Indian or Alaska Native	8.0	6.4	6.4	5.9	6.1	6.6	6.5	6.8	6.8	7.2	6.8	7.3	7.2	7.4	7.5	7.4
Cigarette smoker ⁴	-	-	-	-	11.3	12.2	12.1	12.1	12.0	12.1	11.9	11.9	12.2	12.4	-	-
Nonsmoker ⁴	-	-	-	-	6.1	6.8	6.9	7.1	7.2	7.2	7.2	7.3	7.5	7.7	-	-
Very low birthweight (less than 1,500 grams)	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.4	1.4	1.5	1.4	1.5	1.5
White	1.0	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.2	1.2	-
White, non-Hispanic ²	-	-	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.2
Black	2.4	2.4	2.5	2.7	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.0	3.1	3.1	3.1	-
Black, non-Hispanic ²	-	-	2.5	2.7	2.9	3.0	3.0	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.3
Hispanic origin ^{2,3}	-	-	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Mexican	-	-	0.9	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	-
Puerto Rican	-	-	1.3	1.3	1.6	1.8	1.7	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	-
Cuban	-	-	1.0	1.2	1.2	1.2	1.4	1.4	1.3	1.5	1.2	1.3	1.2	1.4	1.3	-
Central and South American	-	-	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	-
Other and unknown	-	-	1.0	1.0	1.1	1.3	1.5	1.4	1.4	1.3	1.4	1.3	1.4	1.3	1.3	-
Hispanic	-	-	1.0	1.0	1.1	1.3	1.5	1.4	1.4	1.3	1.4	1.3	1.4	1.3	1.3	-
Asian or Pacific Islander	-	-	0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1
Chinese	0.8	0.5	0.7	0.6	0.5	0.7	0.6	0.7	0.8	0.7	0.8	0.7	0.7	-	-	-
Japanese	1.5	0.9	0.9	0.8	0.7	0.9	0.8	0.8	0.8	0.9	0.8	0.7	1.0	-	-	-
Filipino	1.1	0.9	1.0	0.9	1.1	1.1	1.2	1.3	1.4	1.4	1.4	1.2	1.3	-	-	-
Hawaiian and part	-	-	1.1	1.0	1.0	0.9	1.0	1.4	1.5	1.4	1.4	1.5	1.6	-	-	-
Hawaiian	-	-	1.1	1.0	1.0	0.9	1.0	1.4	1.5	1.4	1.4	1.5	1.6	-	-	-
Other Asian or Pacific Islander	-	-	1.0	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.0	1.1	1.2	-	-	-
American Indian or Alaska Native	1.0	1.0	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.2
Cigarette smoker ⁴	-	-	-	-	1.7	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	-	-
Nonsmoker ⁴	-	-	-	-	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	-	-

“-” Indicates data not available.

*Data for 2005 are based on preliminary estimates.

Notes: Data for 2000 and later years are based on decennial census 2000 data. The race groups, white, black, American Indian or Alaska Native, and Asian or Pacific Islander, include persons of Hispanic and non-Hispanic origin. Conversely, persons of Hispanic origin may be of any race. Data are based on the National Vital Statistics System.

¹Excludes live births with unknown birthweight. Percent based on live births with known birthweight.

²Trend data for Hispanics and non-Hispanics are affected by expansion of the reporting area for an Hispanic-origin item on the birth certificate and by immigration. These two factors affect numbers of events, composition of the Hispanic population, and maternal and infant health characteristics. The number of States in the reporting area increased from 22 in 1980, to 23 and the District of Columbia (DC) in 1983-87, 30 and DC in 1988, 47 and DC in 1989, 48 and DC in 1990, 49 and DC in 1991-92, and 50 and DC in 1993 and later years.

³Includes mothers of all races.

⁴Percent based on live births with known smoking status of mother and known birthweight. Includes data for 43 States and the District of Columbia (DC) in 1989, 45 States and DC in 1990, 46 States and DC in 1991-93, 46 States, DC, and New York City (NYC) in 1994-98, and 48 States, DC, and New York City (NYC) in 1999. Excludes data for California and South Dakota (1989-99), Indiana and New York (1989-98), New York City (1989-93), Oklahoma (1989-90), and Louisiana and Nebraska (1989), which did not require the reporting of mother's tobacco use during pregnancy on the birth certificate. Sources: Data for 1970-2001: National Center for Health Statistics. Health United States 2003 with Chartbook on Trends in the Health of Americans. Hyattsville, Maryland: 2003. Table 12. Data for 2002 from: Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Munson ML. Births: Final data for 2002. National vital statistics reports; vol 52 no 10. Hyattsville, Maryland: National Center for Health Statistics. 2003. Data for 2003: Martin JA, Hamilton BE, Sutton PD, et al. (2005). "Births: Final data for 2003." National Vital Statistics Reports, 54(2). Hyattsville, MD: National Center for Health Statistics. Tables 24, 25, and 32. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_02.pdf. Data for very low birthweight, smoking status, National Center for Health Statistics. (2005). "Health, United States, 2005 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 13. <http://www.cdc.gov/nchs/data/hsr/hsr05.pdf>. Data for 2004: Hamilton, BE, Martin, JA, Ventura, SJ, Sutton, PD, and Menacker, F. (2006). "Births: Preliminary Data for 2004." National Vital Statistics Reports, 54(8). Hyattsville, MD: National Center for Health Statistics. Table F. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_08.pdf. Data for 2005: Martin JA, Hamilton BE, Sutton PD, et al. (2006). "Births: Final data for 2004." National Vital Statistics Reports, 55(1). Hyattsville, MD: National Center for Health Statistics. Tables 23, 24. http://www.cdc.gov/nchs/data/nvsr/nvsr55/nvsr55_01.pdf. Preliminary Data for 2005: Hamilton BE, Martin JA, and Ventura SJ. (2006). "Births: Preliminary data for 2005." National Vital Statistics Reports; vol 55. Hyattsville, MD: National Center for Health Statistics. Table 4. <http://www.cdc.gov/nchs/products/pubs/pubd/hestat5/prelimbirths05/prelimbirths05.htm#ref02>.