

Mothers Who Smoke While Pregnant

Headline

The percentage of births to women who reported smoking during pregnancy has dropped substantially since the 1990s, from 19.5 percent in 1989 to 10.2 percent in 2004. ([Figure 1](#))

Importance

Smoking during pregnancy is associated with many adverse outcomes for children, such as premature birth, low birthweight, intrauterine growth retardation, stillbirth and infant mortality, as well as negative consequences for child health and development.^{1,2} Mothers who are exposed to second-hand smoke are also more likely to have lower weight babies, putting them at risk for many health problems.³ Infants whose mothers smoke during pregnancy are three times more likely to die from Sudden Infant Death Syndrome as babies whose mothers do not smoke during pregnancy.⁴ Children born to mothers who smoked while pregnant, and possibly children whose grandmothers smoked while pregnant, have a higher risk of developing childhood asthma.^{5,6,7} In addition, maternal smoking during pregnancy is a risk factor for early childhood obesity.⁸

Smoking during pregnancy is also associated with later problem behaviors for the child. For example, smoking by the mother during pregnancy has been found associated with substance abuse and criminal behavior in both male and female children when they reach adulthood.⁹

Trends

Between 1989 and 2004, the percentage of births to mothers who smoked during pregnancy decreased by about half, from 19.5 percent to 10.2 percent (preliminary estimate for 2004). Among teen mothers ages 15 to 19, the percentage who smoked during pregnancy increased modestly between 1994 and 1999 but then declined in to a new low of 14.2 percent in 2004. ([Figure 1](#))

Differences by Race and Ethnicity

American Indian/Alaska Native women were the most likely to smoke during pregnancy, followed by non-Hispanic white women and non-Hispanic black women. In 2004, 18.2 percent of American Indian or Alaska Native births, 13.8 percent of non-Hispanic white births, and 8.4 percent of non-Hispanic black births were to women who smoked during pregnancy (based on preliminary estimates). ([Figure 2](#)) In contrast, very few Hispanic or Asian or Pacific Islander women smoked during pregnancy. In 2004, 2.2 percent of Asian or Pacific Islander births and 2.6 percent of Hispanic births were to women who smoked during pregnancy.

There were substantial variations in smoking rates among subgroups within both the Hispanic and Asian or Pacific Islander categories. Among Hispanics, the percentage of women who smoked during pregnancy ranged from 1.2 percent for Central and South American mothers to 8.5 percent for Puerto Rican mothers in 2004. Similarly, among Asian or Pacific Islanders, the percentages ranged from 0.5 percent for Chinese mothers to 13.7 percent for Hawaiian and part-Hawaiian mothers in 2002, the latest year in which these estimates are available. ([Table 1](#))

Differences by Age

Young women ages 15 to 24 were much more likely than older women to smoke during pregnancy. In 2004, 14.2 percent of births to teens ages 15 to 19 and 15.5 percent of births to women ages 20 to 24 were to women who smoked during pregnancy, compared with less than 10 percent of births to women ages 25 and older. ([Figure 3](#))

Differences by Mother's Education¹⁰

Among women ages 20 and older, those with a college degree were the least likely to smoke during pregnancy. In 2004, less than two percent of births to college graduates were to women who smoked during pregnancy. In contrast, 23.7 percent of women with 9 to 11 years of education smoked during pregnancy. Women with fewer than nine years of education were also relatively unlikely to smoke (5.5 percent). ([Figure 4](#)) In part, this is because Hispanic women, many of whom are immigrants, and who have low rates of smoking during pregnancy, account for a high percentage of women with less than nine years of education.

State and Local Estimates

2004 state estimates of the percentage of births to mothers who smoked during pregnancy are available at http://www.kidscount.org/datacenter/compare_results.jsp?i=45

International Estimates

None available

National Goals

Healthy People 2010 has set a goal to increase the percent of pregnant women who do not smoke during pregnancy from 87 percent in 1998 to 99 percent by 2010.

More information is available at:

<http://www.health.gov/healthypeople/document/html/objectives/16-17.htm>

(Goal 16-17-c)

Definition

Women were considered to be smokers if they reported smoking at least one cigarette daily during pregnancy.

Data Source

Data for 1970-1999: Eberhardt MS, Ingram DD, Makuc DM, et al. *Urban and Rural Health Chartbook. Health, United States, 2001*. Hyattsville, Maryland: National Center for Health Statistics. Table 11 <http://www.cdc.gov/nchs/data/hus/hus01.pdf>

Data for 2000-2001: National Center for Health Statistics. *Health United States 2003 with Chartbook on Trends in the Health of Americans*. Hyattsville, Maryland: 2003. Table 11. <http://www.cdc.gov/nchs/data/hus/tables/2003/03hus011.pdf>

Data for education of mother 2002: National Center for Health Statistics. (2005). "Health, United States, 2004 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 11. <http://www.cdc.gov/nchs/data/hus/hus01.pdf>

All other 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. Table 31. http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_10.pdf

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 and 30. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_02.pdf.

Data for education of mother 2003: National Center for Health Statistics. (2005). "Health, United States, 2005 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/hus/hus05.pdf>.

Preliminary data for 2004: National Center for Health Statistics. (2007). "Health, United States, 2007 With Chartbook on Trends in the health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/hus/hus07.pdf>

Raw Data Source

Birth Data, National Vital Statistics System
<http://www.cdc.gov/nchs/nvss.htm>

Approximate Date of Next Update

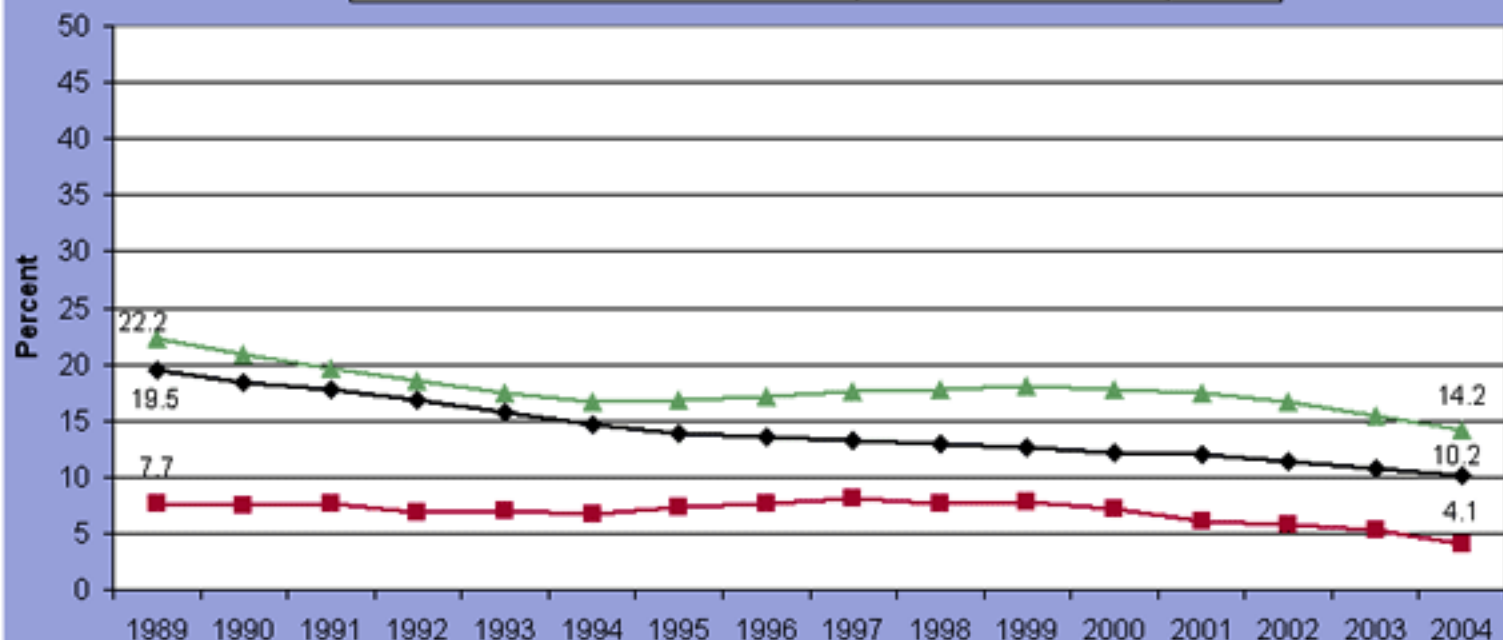
Winter 2008

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- ¹ Center for Disease Control and Prevention: Tobacco Use and Pregnancy Website. <http://www.cdc.gov/reproductivehealth/TobaccoUsePregnancy/index.htm> Mathews, T.J. "Smoking During Pregnancy in the 1990s," *National Vital Statistics Reports*, Vol 49, No. 7. Hyattsville, MD: National Center for Health Statistics, 2001. http://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_07.pdf
- ² US Department of Health and Human Services. The 2004 Surgeon General's Report: The Health Consequences of Smoking. http://www.cdc.gov/tobacco/sgr/sgr_2004/consumerpiece/SGR2004_Whatitmeanstoyou.pdf
- ³ The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. (2006). U.S. Department of Health and Human Services. <http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet2.html>
- ⁴ Ibid.
- ⁵ Jakakkola, Jouni J. K. and Gissler, Mika. (2004). "Maternal Smoking in Pregnancy, Fetal Development, and Childhood Asthma." *American Journal of Public Health*, 94(1):136-140.
- ⁶ Lee, William and Galant, Stanley. (2002). "Effects of Maternal Smoking During Pregnancy and Environmental Tobacco Smoke on Asthma and Wheezing in Children." *Pediatrics*, 110(2):445-446.
- ⁷ LI, Y.F., Langholz, B., Salam, M.T., and Gilliland, F.T. (2005). "Maternal and grandmaternal smoking patterns are associated with early childhood asthma." *Chest*, 127(4):1232-41.
- ⁸ Salsberry, Pamela J. and Reagan, Patricia B. (2005). "Dynamics of Early Childhood Overweight". *Pediatrics*, 116(4): 1329-1338. Abstract available at: <http://pediatrics.aappublications.org/cgi/content/abstract/116/6/1329>.
- ⁹ Brennan, P.A., Grekin, E.R., Mortensen, E.L., Mednick, S.A., "Relationship of Maternal Smoking During Pregnancy with Criminal Arrest and Hospitalization for Substance Abuse in Male and Female Adult Offspring," *American Journal of Psychiatry*, Vol. 159, No. 1, pp. 48-54, 2002.
- ¹⁰ Estimates for mothers who smoke while pregnant by maternal education only include mothers aged 20 or older.

Figure 1

Percent of Births to Mothers Who Smoked During Pregnancy, and Total Births by Age of Young Mothers: 1989-2004

◆ All Births ■ Under 15 years ▲ 15-19 years

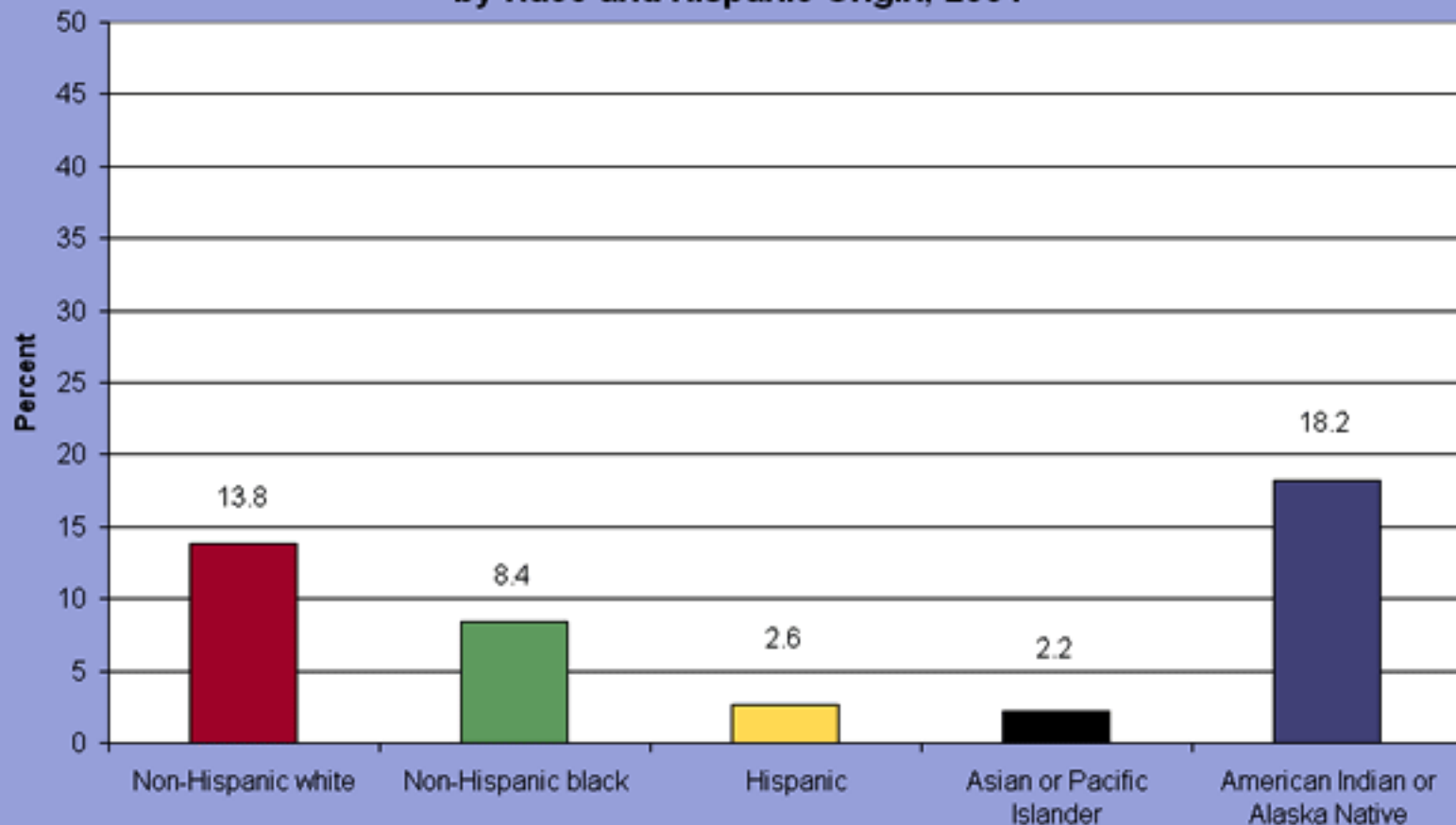


Source: Data for 1970-1999: Eberhardt MS, Ingram DD, Makuc DM, et al. *Urban and Rural Health Chartbook. Health, United States, 2001*. Hyattsville, Maryland: National Center for Health Statistics. 2001: Table 11; Data for 2000-2001: National Center for Health Statistics. *Health United States 2003 with Chartbook on Trends in the Health of Americans*. Hyattsville, Maryland: 2003. Table 11. 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. 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 and 30.

http://www.cdc.gov/nchs/data/invr/invr54/invr54_02.pdf. Data for 2004: National Center for Health Statistics. (2007). "Health, United States, 2007 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/ihus/ihus07.pdf>

Figure 2

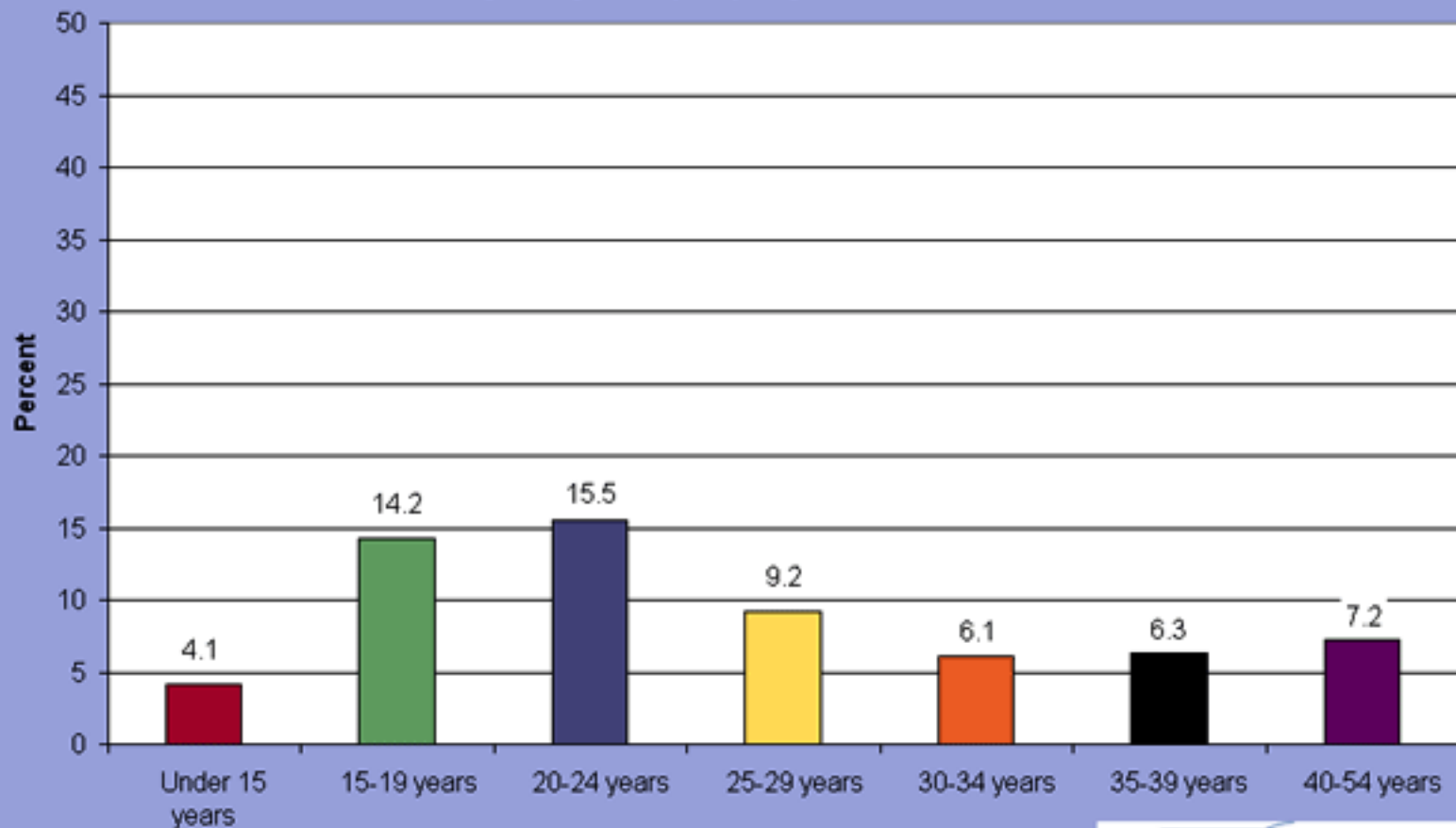
Percentage of Total Births to Mothers Who Smoked During Pregnancy, by Race and Hispanic Origin, 2004



Source: National Center for Health Statistics. (2007). "Health, United States, 2007 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/atus/atus07.pdf>

Figure 3

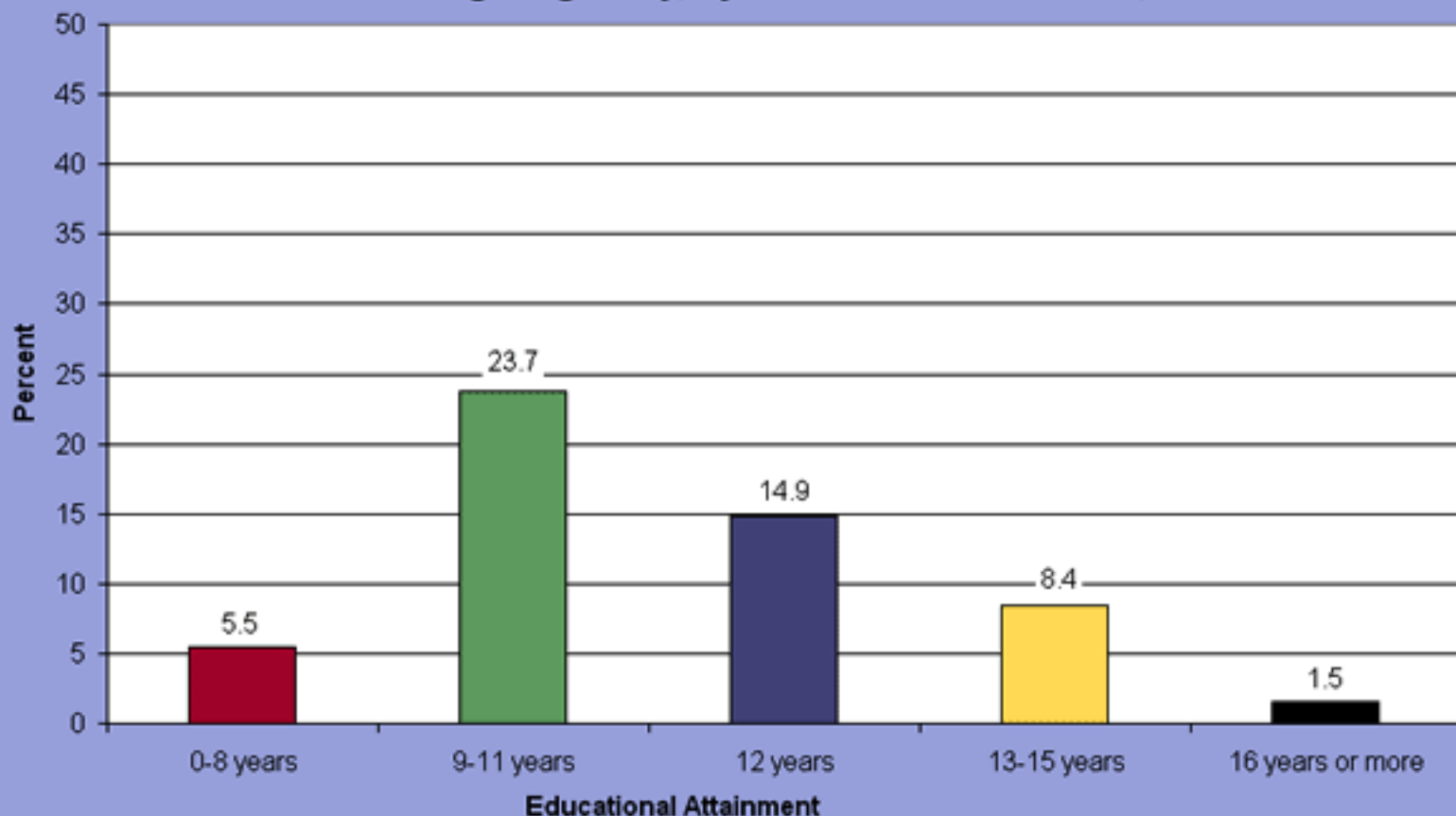
Among Total Births, Percent to Mothers Who Smoked During Pregnancy, by Age of Mother, 2004



Source: National Center for Health Statistics. (2007). "Health, United States, 2007 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/hus/hus07.pdf>

Figure 4

Among Total Births, Percent of Mothers Who Smoked During Pregnancy, by Educational Attainment, 2004



Note: Estimates for mothers who smoke while pregnant by maternal education only include mothers aged 20 or older.

Source: National Center for Health Statistics. (2007). "Health, United States, 2007 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/hus/hus07.pdf>

Table 1

Percent of Total Births to Mothers Who Smoked During Pregnancy, by Mother's Detailed Race, Hispanic Origin, Age, and Education: Selected States, 1989-2004*

	Percent of mothers who smoked ¹															
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
All Births	19.5	18.4	17.8	16.9	15.8	14.6	13.9	13.6	13.2	12.9	12.6	12.2	12.0	11.4	10.7	10.2
Age																
Under 15 years	7.7	7.5	7.6	6.9	7.0	6.7	7.3	7.7	8.1	7.7	7.8	7.1	6.0	5.8	5.3	4.1
15-19 years	22.2	20.8	19.7	18.6	17.5	16.7	16.8	17.2	17.6	17.8	18.1	17.8	17.5	16.7	15.4	14.2
15-17 years	19.0	17.6	16.6	15.6	14.8	14.4	14.6	15.4	15.5	15.5	15.0	14.4	13.4	11.9	10.5	
18-19 years	23.9	22.5	21.5	20.3	19.1	18.1	18.1	18.3	18.8	19.2	19.5	19.2	19.0	18.2	17.1	16.0
20-24 years	23.5	22.1	21.2	20.3	19.2	17.8	17.1	16.8	16.6	16.5	16.7	16.8	17.0	16.7	16.1	15.5
25-29 years	19.0	18.0	17.2	16.1	14.8	13.5	12.8	12.3	11.8	11.4	11.0	10.5	10.3	9.9	9.4	9.2
30-34 years	15.7	15.3	15.1	14.5	13.4	12.3	11.4	10.9	10.0	9.3	8.6	8.0	7.6	7.1	6.5	6.1
35-39 years	13.6	13.3	13.3	13.4	12.8	12.2	12.0	11.7	11.1	10.6	9.9	9.1	8.6	7.8	6.8	6.3
40-54 years ⁴	13.2	12.3	11.9	11.6	11.0	10.3	10.1	10.1	10.1	10.0	9.5	9.5	9.3	8.4	8.0	7.2
Race and Hispanic Origin of Mother																
White non-Hispanic ³	21.7	21.0	20.5	19.7	18.6	17.7	17.1	16.9	16.5	16.2	15.9	15.6	15.5	15.0	14.3	13.8
Black non-Hispanic ³	17.2	15.9	14.6	13.8	12.7	11.5	10.6	10.3	9.8	9.6	9.4	9.2	9.1	8.8	8.3	8.4
Asian or Pacific Islander ²	5.7	5.5	5.2	4.8	4.3	3.6	3.4	3.3	3.2	3.1	2.9	2.8	2.8	2.5	2.2	2.2
Chinese	2.7	2.0	1.9	1.7	1.1	0.9	0.8	0.7	1.0	0.8	0.5	0.6	0.7	0.5	-	-
Japanese	8.2	8.0	7.5	6.6	6.7	5.4	5.2	4.8	4.7	4.8	4.5	4.2	3.8	4.0	-	-
Filipino	5.1	5.3	5.3	4.8	4.3	3.7	3.4	3.5	3.4	3.3	3.3	3.2	3.2	2.9	-	-
Hawaiian and part Hawaiian	19.3	21.0	19.4	18.5	17.2	16.0	15.9	15.3	15.8	16.8	14.7	14.4	14.8	13.7	-	-
Other Asian or Pacific Islander	4.2	3.8	3.8	3.6	3.2	2.9	2.7	2.7	2.5	2.4	2.3	2.3	2.3	2.1	-	-
American Indian or Alaska Native	23.0	22.4	22.6	22.5	21.6	21.0	20.9	21.3	20.8	20.2	20.2	20.0	19.9	19.7	18.1	18.2
Hispanic ³	8.0	6.7	6.3	5.8	5.0	4.6	4.3	4.3	4.1	4.0	3.7	3.5	3.2	3.0	2.7	2.6
Mexican	6.3	5.3	4.8	4.3	3.7	3.4	3.1	3.1	2.9	2.8	2.6	2.4	2.4	2.2	2.0	2.0
Puerto Rican	14.5	13.6	13.2	12.7	11.2	10.9	10.4	11.0	11.0	10.7	10.5	10.3	9.7	9.0	7.9	8.5
Cuban	6.9	6.4	6.2	5.9	5.0	4.8	4.1	4.7	4.2	3.7	3.3	3.3	3.0	2.8	2.4	6.4
Central and South American	3.6	3.0	2.8	2.6	2.3	1.8	1.8	1.8	1.8	1.5	1.4	1.5	1.3	1.3	1.1	1.2
Other and unknown Hispanic	12.1	10.8	10.7	10.1	9.3	8.1	8.2	9.1	8.5	8.0	7.7	7.4	6.8	6.5	6.6	6.4
Education of mother⁵																
Percent of mothers 20 years of age and over who smoked ²																
0-8 years	18.9	17.5	16.8	15.5	13.9	12.1	11.0	10.3	9.9	9.5	8.9	7.9	7.2	6.8	6.2	5.5
9-11 years	42.2	40.5	39.1	37.8	36.1	33.6	32.0	31.1	30.2	29.3	29.0	28.2	27.6	26.8	25.5	23.7
12 years	22.8	21.9	21.2	20.7	19.9	18.7	18.3	18.0	17.5	17.1	16.9	16.6	16.5	16.0	15.2	14.9
13-15 years	13.7	12.8	12.5	12.1	11.4	10.8	10.6	10.4	9.9	9.6	9.4	9.1	9.2	8.8	8.5	8.4
16 years or more	5.0	4.5	4.2	3.9	3.1	2.8	2.7	2.6	2.4	2.2	2.1	2.0	1.9	1.7	1.6	1.5

*2004 data are based on preliminary estimates.

¹Excludes live births for whom smoking status of mother is unknown.²Maternal tobacco use during pregnancy was not reported on the birth certificates of California, which in 1999 accounted for 32 percent of the births to Asian or Pacific Islander mothers.³Includes data for 42 States and DC in 1989, 44 States and DC in 1990, 45 States and DC in 1991-92, 46 States and DC in 1993, 46 States, DC, and NYC in 1994-98, and 48 States, DC, and NYC in 1999. Excludes data for California, and South Dakota (1989-99), New Hampshire (1989-92), Oklahoma (1989-90), Louisiana and Nebraska (1989), NYC (1989-93), and Indiana and NY (1989-98), which did not require the reporting of either Hispanic origin of mother or tobacco use during pregnancy on the birth certificate.⁴Prior to 1997 data are for live births to mothers 45-49 years of age.⁵Includes data for 42 States and DC in 1989, 44 States and DC in 1990, 45 States and DC in 1991, 46 States and DC in 1992-93, 46 States, DC, and NYC in 1994-98 and 48 States, DC, and NYC in 1999. Excludes data for California and South Dakota (1989-99), Washington (1989-91), Oklahoma (1989-90), Louisiana and Nebraska (1989), NYC (1989-93), and Indiana and NY (1989-98), which did not require the reporting of either mother's education or tobacco use during pregnancy on the birth certificate.

Notes: Unless otherwise specified, 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. All data based on the National Vital Statistics System.

Source: Data for 1970-1999: Eberhardt MS, Ingram DD, Makuc DM, et al. Urban and Rural Health Chartbook. Health, United States, 2001. Hyattsville, Maryland: National Center for Health Statistics, 2001: Table 11; Data for 2000-2001: National Center for Health Statistics, Health United States 2003 with Chartbook on Trends in the Health of Americans. Hyattsville, Maryland: 2003. Table 11. Data for education of mother 2002: National Center for Health Statistics. (2005). "Health, United States, 2005 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 11. <http://www.cdc.gov/nchs/data/hus/hus04trend.pdf>

All other 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. 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. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_02.pdf. Data for education of mother 2004: National Center for Health Statistics. (2005). "Health, United States, 2005 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/hus/hus05.pdf>. Data for 2004: National Center for Health Statistics. (2007). "Health, United States, 2007 With Chartbook on Trends in the Health of Americans." Hyattsville, Maryland: Table 12. <http://www.cdc.gov/nchs/data/hus/hus07.pdf>

