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Infant Mortality by Hispanic Origin of Mother: 20 States, 1985–87 Birth Cohorts

October 1995



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Health Statistics



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Series 20:
Data From the National Vital Statistics System
No. 27

This report examines the mortality experience of infants born between 1985 and 1987 to mothers of Hispanic origin who resided in a study area of 20 States and the District of Columbia and compares it with that of non-Hispanic white infants. Infant mortality is analyzed for the 1985–87 birth cohort by birthweight, mother's age, prenatal care, and other characteristics.

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National Center for Health Statistics

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Symbols

- - - Data not available
 - . . . Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - * Figure does not meet standard of reliability or precision (estimate is based on fewer than 20 births or deaths in numerator or denominator)
-

Infant Mortality by Hispanic Origin of Mother: 20 States, 1985–87 Birth Cohorts

Lisa M. Pastore, MSPH, and Marian F. MacDorman, Ph.D., Division of Vital Statistics

Highlights

This report examines the mortality experience of infants born between 1985 and 1987 to mothers of Hispanic origin who resided in a study area of 20 States and the District of Columbia and compares it with that of non-Hispanic white infants. Maternal characteristics are also compared. For all Hispanic-origin mothers combined, the infant mortality rate (8.5) was very close to the non-Hispanic white rate (8.3). Among the Hispanic-origin subgroups, the rate for Puerto Rican mothers was higher (10.9) and the rate for Central and South American mothers lower (7.8) than the non-Hispanic white rate. The infant mortality rates of 8.2 for Mexicans and 7.6 for Cubans were not significantly different from the non-Hispanic white rate.

The infant mortality experience of the Hispanic-origin population has been termed an “epidemiological paradox,” because of their generally favorable birth outcomes despite a higher prevalence of socioeconomic and demographic risk factors. In general, a higher proportion of Hispanic than non-Hispanic white infants were born to mothers traditionally considered to be at elevated risk for infant mortality—teenagers, unmarried mothers, those who have not completed high school, and those beginning prenatal care after the first trimester or not at all. In general, infant mortality rates were higher for these high-risk groups among Hispanic as well as non-Hispanic white mothers. However, the difference in infant mortality rates between high-risk and low-risk groups for each of these maternal characteristics was less for some Hispanic-origin subgroups than for non-Hispanic whites.

The percent of infants born at low birthweight was lower for Hispanic mothers born outside the 50 States and the District of Columbia (5.5) than for those born in the 50 States and the District of Columbia (7.0). Infant mortality rates were significantly lower for Mexican and Cuban mothers born outside the 50 States and the District of Columbia than for those born inside the 50 States and the District of Columbia.

Low birthweight (a weight at birth of less than 2,500 grams) is an important risk factor for infant mortality. Among Hispanics in the study population, 58 percent of all infant deaths occurred to the 6.1 percent of births that were of low birthweight. The birthweight distributions of Mexican, Cuban, and Central and South American infants were similar to those for non-Hispanic white infants. In contrast, the percent low birthweight was about 50 percent higher for infants of Puerto Rican mothers.

For very low-birthweight babies (less than 1,500 grams), Mexicans, Puerto Ricans, and Central and South Americans had mortality rates that were lower than the non-Hispanic white rate. For moderately low-birthweight infants (1,500–2,499 grams), all of the specified Hispanic groups except Mexicans had mortality rates that were lower than the non-Hispanic white rate. Among normal birthweight infants, Puerto Ricans had the highest mortality rate, which was significantly higher than the non-Hispanic white rate. Infant mortality rates for normal birthweight infants for Mexicans, Cubans, and Central and South Americans were not significantly different from those for non-Hispanic white infants.

A higher percentage of Hispanic (10.9) than non-Hispanic white (8.0) infants were born preterm (less than 37 completed weeks of gestation). Among preterm births, the specified Hispanic-origin subgroups all had infant mortality rates that were lower than or similar to the non-Hispanic white rates. Among full-term infants (37–41 weeks gestation), the Puerto Rican infant mortality rate (5.3) was higher and the Cuban rate (3.1) lower than the non-Hispanic white rate of 3.9.

The higher mortality rate for Puerto Rican infants was due in part to a higher rate of early neonatal deaths (those under 7 days of age): 6.3 versus 4.3 for non-Hispanic white infants, although their postneonatal mortality rate was also somewhat elevated. The higher early neonatal mortality rate for Puerto Rican infants reflects in part the higher percentage of Puerto Rican infants born at low birthweight.

The four leading causes of death were the same in all race and Hispanic-origin groups studied, with some variation in the ranking of the four causes. Congenital anomalies was the leading cause of death for all specific Hispanic-origin groups and for non-Hispanic whites. Sudden infant death syndrome was the second leading cause of death for non-Hispanic white infants and ranked either third or fourth for the specific Hispanic-origin groups. Respiratory distress syndrome, the third leading cause of death for non-Hispanic white infants, ranked second for Mexicans, Puerto Ricans, and Central and

NOTES: This report was prepared in the Division of Vital Statistics. Betty L. Smith provided content review. Wilma Latta of the Technical Services Branch provided consultation to State vital statistics offices regarding collection of the linked birth and infant death data on which this report is based. The linked birth and infant death data system was designed and programmed by David P. Johnson of the Systems and Programming Branch. This report was edited by Gail V. Johnson and typeset by Zung Le of the Publications Branch, Division of Data Services.

South Americans. The remaining cause of death among the top four for all race and ethnic groups was Disorders relating to short gestation and unspecified low birthweight. Taken together, these four causes of death accounted for slightly more than one-half of all infant deaths to Hispanic-origin and to non-Hispanic white mothers.

In general, infant mortality rates from Congenital anomalies were roughly comparable between Hispanic and non-

Hispanic white infants. Rates from Respiratory distress syndrome and Disorders relating to short gestation and unspecified low birthweight were higher for Puerto Rican infants than for non-Hispanic white infants. The most notable finding in the cause-of-death analysis is the 29 percent lower infant mortality rate for sudden infant death syndrome for Hispanic than for non-Hispanic white infants.

Introduction

Infant mortality is an important indicator of the health status of a nation because it is associated with a variety of factors such as maternal health, quality and access to medical care, socioeconomic conditions, and public health practices (1–4). Infant mortality in the United States has declined substantially in recent years. The 1993 provisional infant mortality rate of 8.3 is less than one-third the rate of 26.0 in 1960 (5–6). However, the rate of decline in infant mortality has slowed since 1980 and has not kept pace with that of some other countries. Consequently, the international ranking of the U.S. infant mortality rate has slipped from 12th lowest in 1960 (7) to 24th lowest in 1990 (8).

The health of minorities and the health of infants have been identified as priority issues by the Public Health Service through the *Healthy People 2000* objectives (9). Racial and ethnic differences in various pregnancy outcomes and maternal characteristics have been documented. The *Healthy People 2000* objectives for infant mortality (objective 14.1) consistently target a larger percentage decline in black and Puerto Rican infant mortality rates in order to reduce the mortality for these groups to levels closer to the U.S. average. Objectives for the year 2000 include reducing the infant mortality rate to 7 deaths per 1,000 live births nationwide (from a 1987 baseline of 10.1) and to 8 for Puerto Rican infants (12.9 baseline).

Earlier research on Hispanic infant mortality generally focused on one or two States and/or one specific Hispanic-origin subgroup (10–15). Since the introduction in 1988 of the

first national linked birth-infant death data set for the 1983 birth cohort, researchers have been able to construct studies that are more comprehensive geographically, better able to distinguish patterns for specific Hispanic-origin subgroups, and able to analyze a wider array of variables relevant to infant mortality (16–18).

This report examines the mortality experience of infants born to mothers of Hispanic origin in the 1985–87 birth cohorts and compares their experience to that of infants born to non-Hispanic white mothers. Race and Hispanic-origin are defined by the characteristics of the mother. Therefore, when infants of a specific race or Hispanic origin are mentioned, this should be understood to mean infants of mothers of the specific race or Hispanic-origin group. Selected maternal and infant characteristics from birth and death certificates are analyzed for their impact on infant mortality rates. The cohort consists of all infants born in 1985, 1986, and 1987 to mothers who resided in a reporting area of 20 States and the District of Columbia, which reported Hispanic-origin information on the birth certificate, and for which the Hispanic-origin item was at least 90 percent complete on a place-of-occurrence basis. The data source for this study is the National Center for Health Statistics (NCHS) linked birth-infant death data set, which links the information from the birth certificate to the information from the death certificate for each infant who dies in the United States. (For a more detailed description of the data set and the study design, see the Technical notes.)

General characteristics of the study population

The total number of live births in the 20 States plus the District of Columbia used in this report during 1985–87 was 6,627,611 (table 1). This represents 59 percent of the total births to U.S. residents during this time period. About 17 percent of these births were to Hispanic mothers. In 1980, these 20 States and the District of Columbia included 86 percent of the total Hispanic-origin population of the United States, including 90 percent of the Mexican population, 82 percent of the Puerto Rican population, and 92 percent of the Cuban population (19). About 52 percent of the total non-Hispanic white population and 56 percent of the non-Hispanic black population were represented (19). Although only a little more

than half of the non-Hispanic white population was represented in the study area, States from every geographic region of the United States were included and the population was generally representative of the non-Hispanic white population of the United States. Data are shown for the black population for the purpose of completeness and for the convenience of the reader, but are not discussed in the text. Mortality patterns for black infants are quite different than those for the other groups studied and are analyzed in more detail in other reports (5,8,20).

The total number of deaths of infants under 1 year of age was 65,847, of which 15 percent were of Hispanic origin. The

Table A. Infant mortality rates by marital status, age, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates are per 1,000 live births in specified group.]

Marital status and age of mother	All origins ¹	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All ages	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
Under 15 years	21.9	16.9	16.1	*	*	*	*	23.3	19.8	25.2
15–19 years	14.2	10.5	9.9	13.1	11.7	10.3	11.3	15.2	13.2	18.6
20–24 years	10.6	8.3	7.8	10.5	9.1	7.8	9.5	11.0	9.1	17.7
25–29 years	8.5	7.4	7.3	9.8	5.8	7.0	7.3	8.6	7.2	17.1
30–34 years	8.4	8.0	8.0	9.5	7.0	7.4	8.2	8.3	6.9	17.8
35–39 years	9.5	9.4	9.1	13.2	*	8.9	9.5	9.4	8.0	18.2
40–44 years	12.6	12.6	13.7	*	*	*	*	12.6	10.9	20.3
45–49 years	19.9	*	*	*	*	*	*	19.9	*	*
Married	8.1	7.6	7.6	8.6	6.7	7.1	7.8	8.1	7.5	14.8
Under 15 years	18.4	*	*	*	*	*	*	*	*	*
15–19 years	11.8	9.1	8.9	10.3	*	10.2	10.1	12.6	12.0	18.6
20–24 years	8.7	7.5	7.4	8.6	7.6	7.3	8.2	8.9	8.2	14.9
25–29 years	7.3	6.7	6.8	7.5	5.4	6.2	7.0	7.3	6.7	13.7
30–34 years	7.4	7.5	7.7	8.3	6.8	6.7	7.3	7.3	6.6	14.7
35–39 years	8.7	8.6	8.5	11.3	*	9.7	6.7	8.6	7.8	16.5
40–44 years	11.7	11.3	12.4	*	*	*	*	11.7	10.5	18.6
45–49 years	18.6	*	*	*	*	*	*	18.0	*	*
Unmarried	15.6	10.5	9.9	13.1	12.6	9.0	11.7	16.8	13.7	19.7
Under 15 years	22.2	16.7	16.1	*	*	*	*	23.5	20.5	25.0
15–19 years	15.8	11.6	11.0	14.0	*	10.4	11.9	16.7	14.5	18.7
20–24 years	15.1	9.8	8.8	12.1	16.2	8.5	12.0	16.4	13.5	19.1
25–29 years	15.6	9.7	9.2	13.1	8.3	8.8	8.5	17.2	13.4	20.7
30–34 years	15.7	9.9	9.5	11.4	*	9.3	12.2	17.3	12.5	22.2
35–39 years	15.2	12.3	11.6	16.3	*	7.1	21.0	15.6	11.4	21.0
40–44 years	17.5	17.2	19.0	*	*	*	*	17.8	13.9	23.3
45–49 years	*	*	*	*	*	*	*	*	*	*

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

infant mortality rate was 8.5 for Hispanic-origin infants, slightly higher than the rate of 8.3 for non-Hispanic white infants. The mortality rate for Puerto Rican infants (10.9) was higher and the rate for Central and South American infants (7.8) was lower than for non-Hispanic white infants (table A and figure 1). Rates for Mexican (8.2) and Cuban (7.6) infants were slightly lower than the rate for non-Hispanic white infants, although the differences were not statistically significant.

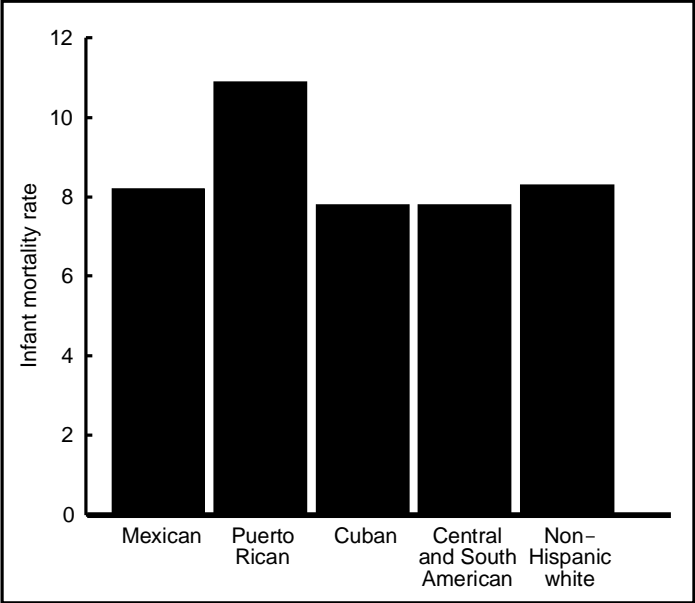


Figure 1. Infant mortality rates by Hispanic origin and race of mother: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Characteristics of the mother

Age

The percentage of infants born to teenage mothers was 16.3 percent for the Hispanic population overall compared with 9.4 percent for infants of non-Hispanic white mothers (tables B and 2). This percentage varied substantially between specific Hispanic-origin groups: 6.5 percent for Cubans, 8.1 percent for Central and South Americans, 17.4 percent for Mexi-

cans, and 20.6 percent for Puerto Ricans. The percentage of births to mothers 40 years of age and over was 1.2 percent for all Hispanics combined compared with 0.8 percent for infants of non-Hispanic white mothers. These findings were not appreciably affected by whether the mother was born inside or outside the 50 States and the District of Columbia (table 3).

There was a curvilinear relationship between infant mortality rates and maternal age for each of the race and Hispanic-

Table B. Percent of live births with selected maternal and infant characteristics, by Hispanic origin of mother and race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Characteristic	All origins ¹	Origin of mother								
		Total	Hispanic						Non-Hispanic	
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
Maternal age:										
Under 20 years	12.5	16.3	17.4	20.6	6.5	8.1	17.4	11.8	9.4	23.1
Over 39 years	0.9	1.2	1.2	1.0	1.2	1.5	0.8	0.9	0.8	0.7
Unmarried	24.2	31.3	27.6	52.2	15.7	36.8	32.5	22.8	13.4	63.1
Maternal educational attainment:										
0–11 years	20.9	44.1	58.8	45.2	19.5	35.6	34.6	18.9	15.1	32.8
12 years	41.4	35.2	28.0	36.2	36.5	40.9	40.5	42.0	42.1	42.5
13–15 years	20.8	14.1	10.0	13.5	27.8	15.1	15.8	21.5	22.5	17.9
16 years or more	16.9	6.5	3.2	5.0	16.3	8.4	9.0	17.7	20.2	6.8
Trimester of pregnancy prenatal care began:										
First trimester	74.5	61.0	59.7	57.7	82.6	59.4	68.7	77.3	81.8	60.0
Second trimester	18.7	26.3	27.3	25.7	13.4	27.3	23.5	17.1	14.2	28.6
Third trimester	4.4	7.7	8.3	7.3	2.5	7.5	5.6	3.8	2.9	6.9
No prenatal care	2.3	5.0	4.8	9.3	1.5	5.8	2.2	1.8	1.1	4.6
Live-birth order:										
1 or 2	73.8	66.1	62.8	71.2	80.4	71.3	71.9	75.3	77.2	68.6
5 or more	4.2	7.2	8.7	4.8	1.8	4.4	4.3	3.6	2.7	6.3
Place of birth of mother:										
Mother born in the 50 States and the District of Columbia	82.6	43.3	44.8	51.6	12.7	2.5	81.7	90.8	95.1	91.4
Mother born outside the 50 States and the District of Columbia	17.2	56.6	55.1	48.2	87.3	97.5	18.0	9.1	4.8	8.3
Birthweight:										
Less than 1,500 grams	1.2	1.0	1.0	1.5	1.1	1.0	1.1	1.2	0.9	2.7
1,500–2,499 grams	5.6	5.1	4.8	7.6	4.7	4.7	5.5	5.7	4.7	10.2
2,500 grams or more	93.1	93.9	94.3	90.9	94.3	94.3	93.4	93.0	94.4	87.1
Period of gestation:										
Under 28 weeks	0.8	0.7	0.6	0.9	0.6	0.6	0.7	0.8	0.5	1.9
28–36 weeks	9.4	10.2	10.2	11.7	8.5	9.6	10.0	9.2	7.5	16.2
37–41 weeks	76.3	75.8	75.5	75.3	78.6	77.6	75.5	76.4	77.7	70.3
42 weeks and over	13.5	13.3	13.6	12.2	12.3	12.2	13.8	13.6	14.2	11.6
Multiple births	2.1	1.8	1.8	2.0	2.1	1.7	1.8	2.2	2.2	2.5

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

origin groups studied. The lowest infant mortality rates generally occurred in the 25–29 year age group with higher rates for younger and older mothers (table A). However, beyond this general observation, there were substantial differences in the pattern of infant mortality by age for Hispanic infants compared with non-Hispanic white infants. For mothers 15–24 years of age, infant mortality rates were lower for Hispanic-origin mothers as a whole than for non-Hispanic white mothers, whereas for mothers 30–39 years of age, the reverse was true (table A).

When comparing infant mortality rates for teenage mothers to those for the 25–29-year-old age group, the ratio of the infant mortality rates was 2.0 for Cuban mothers and 1.9 for non-Hispanic white mothers. Ratios were much lower for Central and South American (1.5), Mexican (1.4), Puerto Rican (1.4), and non-Hispanic black (1.1) mothers. This seems to suggest that teenage childbearing is not as great a relative risk factor for infant mortality for these latter groups as it is for non-Hispanic white and Cuban mothers.

Marital status

Of non-Hispanic white mothers, 13 percent were unmarried versus 31 percent of Hispanic mothers. Within the specified Hispanic groups, the percentage of unmarried mothers ranged from 16 percent for Cuban mothers up to 52 percent for Puerto Rican mothers (table B).

For all race and Hispanic-origin groups, the infant mortality rate was significantly lower among married mothers than unmarried mothers (table A and figure 2). The ratio of infant mortality rates for unmarried versus married mothers was 1.9 for Cuban mothers and 1.8 for non-Hispanic white mothers. Ratios were much lower for Puerto Rican (1.5), Mexican (1.3), Central and South American (1.3), and non-Hispanic black (1.3) mothers. For these groups the relative disadvantage of being unmarried, at least as regard to infant mortality, seems to be less than for the non-Hispanic white and Cuban groups.

At younger ages, Hispanic mothers experience lower infant mortality rates than non-Hispanic white mothers, while the reverse is true at older ages (figure 2). Interestingly, the “crossover” point is different by marital status. For married mothers, the crossover point occurs in the 25–29-year-old age group, while the crossover point for unmarried women occurs closer to age 35.

Education

California and Texas do not report the educational attainment of the mother, therefore, this part of the report is restricted to 18 States and the District of Columbia. The exclusion of data for these two large border States from the 18-State reporting area reduces the coverage of the total U.S. Hispanic-origin population to 17 percent for the Mexican, 77 percent for the Puerto Rican, and 83 percent for the Cuban populations (19). While the data, particularly for Mexicans, apply only to a fraction of the total U.S. Hispanic-origin population, the relationships shown in the data are sufficiently

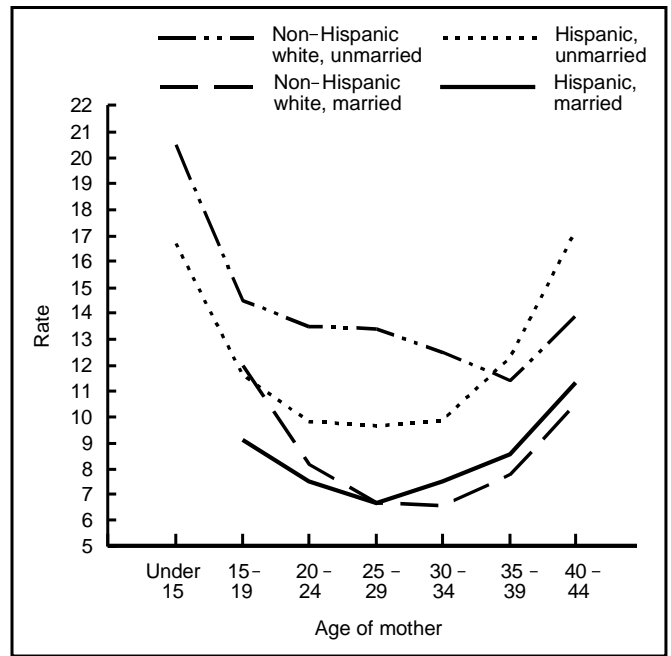


Figure 2. Infant mortality rates by age of mother and marital status for Hispanic and non-Hispanic white infants: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

plausible for the type of general analysis shown in this report. More complete data on the educational attainment of the Hispanic origin population will be available beginning with the linked file for the 1989 birth cohort.

The percentage of Hispanic mothers with less than a high school education varied from 20 percent (Cubans) to 59 percent (Mexicans) compared with 15 percent for non-Hispanic white mothers (tables B and 4). Among the specified Hispanic groups, only the Cubans came close to the non-Hispanic white percentage of mothers who completed 4 years of college (16 percent and 20 percent, respectively). Within the other specified Hispanic groups, between 3 percent and 9 percent of mothers had completed at least 4 years of college.

With few exceptions, infant mortality rates declined as maternal educational attainment increased in all specific Hispanic-origin groups and among non-Hispanic whites (table C). However, the relative disadvantage of not completing high school was much less for some Hispanic-origin subgroups than for the non-Hispanic white group. For the non-Hispanic white group the infant mortality rate for mothers who did not complete high school was 1.6 times the rate for those with 12 years of education. However, for Mexican, Puerto Rican, and Central and South American mothers the rates for those who did not complete high school were 1.2 times the rates for those with 12 years of education. These relationships persist when examined by age of mother (table C).

For every race and ethnic group studied, infant mortality rates were lower for women who attended college than for those who completed high school. For Hispanic mothers as a whole, the infant mortality rate for those who completed high school was 8.6 compared with 7.7 for those with some college education and 5.4 for college graduates.

Table C. Infant mortality rates by age and educational attainment of mother, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 18 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 1,000 live births in specified group.]

Age and educational attainment of mother	All origins ¹	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
Mothers of all ages ³	10.5	9.6	9.5	11.0	7.6	8.4	9.6	10.4	8.4	18.5
0–11 years	15.0	10.9	10.2	12.4	11.3	9.4	11.4	15.9	13.3	20.8
0–8 years	13.9	10.4	10.2	11.6	12.7	9.6	11.7	16.2	14.1	21.5
9–11 years	15.2	11.2	10.3	12.7	10.6	9.1	11.3	15.8	13.2	20.7
12 years	10.2	8.6	8.4	10.3	7.0	7.8	7.8	10.2	8.3	17.7
13 years and over	7.5	6.9	6.9	7.0	6.2	7.3	7.2	7.4	6.3	14.9
13–15 years	8.2	7.7	7.3	7.8	7.2	7.7	8.2	8.1	6.6	15.3
16 years and over	6.6	5.4	*	4.6	4.5	6.6	5.6	6.6	6.0	13.6
Mothers under 20 years of age ³	15.6	12.6	11.9	13.4	12.7	11.3	12.6	15.9	13.6	19.4
0–11 years	16.7	12.8	12.3	13.5	18.2	10.7	12.3	17.3	15.3	20.1
0–8 years	18.5	13.8	11.9	15.1	*	*	*	20.0	17.7	23.2
9–11 years	16.4	12.5	12.6	13.1	*	*	11.3	16.9	15.0	19.6
12 years	12.9	10.4	9.3	11.7	*	*	11.1	13.0	10.7	17.1
13 years and over	10.6	*	*	*	*	*	*	10.6	9.4	12.4
13–15 years	10.6	*	*	*	*	*	*	10.5	9.3	12.6
16 years and over	*	*	*	*	*	*	*	*	*	*
Mothers 20–34 years of age ³	9.7	8.8	8.8	10.0	7.2	7.9	8.6	9.6	7.8	18.2
0–11 years	13.8	9.9	9.3	11.2	9.2	9.2	10.6	14.9	12.2	21.3
0–8 years	11.7	9.2	9.4	8.6	*	8.7	9.0	13.8	12.2	20.0
9–11 years	14.3	10.4	9.1	12.0	*	9.7	11.1	15.0	12.1	21.5
12 years	9.8	8.2	8.3	9.9	7.0	7.3	7.1	9.9	8.1	17.7
13 years and over	7.3	6.7	6.9	6.8	6.4	6.9	6.7	7.3	6.2	14.8
13–15 years	8.0	7.5	7.5	7.5	7.2	7.3	7.7	8.0	6.5	15.4
16 years and over	6.4	5.2	*	4.9	*	6.1	*	6.3	5.8	13.1
Mothers 35 years and over ³	10.4	11.6	11.3	14.1	*	9.9	13.3	10.2	8.5	19.2
0–11 years	15.2	13.2	12.5	19.5	*	8.8	*	15.8	11.9	21.9
0–8 years	14.1	13.4	13.4	*	*	*	*	14.3	10.9	20.0
9–11 years	15.9	12.9	*	20.1	*	*	*	16.5	12.3	22.8
12 years	11.3	10.9	*	13.0	*	10.0	*	11.1	9.2	18.8
13 years and over	8.4	8.7	*	*	*	*	*	8.3	7.5	16.5
13–15 years	9.3	10.3	*	*	*	*	*	9.1	7.9	16.5
16 years and over	7.9	6.8	*	*	*	*	*	7.9	7.2	16.4

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

³Includes educational attainment of mother not stated.

Prenatal care

The distribution of mothers by trimester of pregnancy prenatal care began varied by race and ethnicity (tables B and 5). Only Cuban mothers began care in the first trimester at about the same level as non-Hispanic white mothers (82.6 percent and 81.8 percent, respectively). All the other specified Hispanic groups were about 20 percentage points less likely to initiate prenatal care in the first trimester.

While the percent of mothers who did not receive any prenatal care was low overall (2.3 percent), this also varied considerably by ethnicity. Cuban mothers (1.5 percent) were close to the non-Hispanic white level of 1.1 percent, followed by Mexican (4.8 percent) and Central and South American

mothers (5.8 percent). A higher percentage (9.3) of Puerto Rican mothers received no prenatal care during pregnancy.

Infant mortality rates for mothers initiating prenatal care in the first versus the second versus the third trimester of pregnancy did not follow the expected direct relationship (table D). For the Hispanic-origin population as a whole, mothers who started prenatal care in the third trimester had a lower infant mortality rate (6.1) than those who sought care earlier (7.6–7.8). For the non-Hispanic white population, mothers who sought care in the first trimester had the lowest rate (7.3), followed by the third trimester (8.9) and then the second trimester (9.7). These results are explained by the fact that women who began prenatal care in the third trimester had to have a period of gestation of at least 7 months, thereby

Table D. Infant mortality rates by trimester of pregnancy prenatal care began and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 1,000 live births in specified group.]

Trimester prenatal care began	All origins ¹	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All mothers ³	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
First trimester	8.5	7.8	7.8	9.1	6.6	7.4	7.7	8.6	7.3	16.0
Second and third trimester and no prenatal care	12.4	8.8	8.3	12.3	10.7	7.8	10.4	13.6	11.2	18.9
Second trimester	10.5	7.6	7.3	8.7	9.5	6.8	9.1	11.4	9.7	15.3
Third trimester	8.6	6.1	5.7	8.8	*	5.3	7.5	9.6	8.9	11.6
No prenatal care	35.0	19.8	18.4	25.0	22.2	15.8	30.7	43.1	36.0	52.4

¹Origin of mother not stated included in “all origins” but not distributed among origin categories.

²Includes races other than white and black.

³Includes trimester of pregnancy prenatal care began not stated.

reducing the probability that the infant would be born preterm or at low birthweight (21). To overcome this potential bias, the discussion of prenatal care in this report compares outcomes for two groups: an “early” care group of mothers who began prenatal care in the first trimester and a “later” care group of mothers who began prenatal care in the second or third trimesters or not at all.

Among the mothers who sought prenatal care in the first trimester, the infant mortality rates for each Hispanic-origin subgroup were similar to the non-Hispanic white rate of 7.3, except for Puerto Rican infants, for whom the rate of 9.1 was significantly higher. Among the mothers who began prenatal care later in pregnancy or not at all, the Mexican infant mortality rate (8.3) and the Central and South American rate (7.8) were lower than the non-Hispanic white rate (11.2). The Puerto Rican rate (12.3), in contrast, was higher than the non-Hispanic white rate.

Infant mortality rates were lower for Mexican, Puerto Rican, Cuban, and non-Hispanic white mothers who began prenatal care in the first trimester compared with the corresponding mothers who began care later in pregnancy or not at all. However, for Mexican and Central and South American mothers, the relative disadvantage of obtaining late or no prenatal care is less than that for non-Hispanic white mothers. For example, for Mexican mothers with late or no prenatal care, the infant mortality rate is 8.3, only 6 percent higher than the rate of 7.8 for those beginning care in the first trimester. A similar pattern is found for Central and South American mothers. In contrast, for non-Hispanic white mothers, the infant mortality rate for mothers with late or no prenatal care is 11.2, 1.5 times the rate of 7.3 for those beginning care in the first trimester. However, for Puerto Rican and Cuban mothers, the infant mortality rates were about 1.4 times and 1.6 times higher, respectively, for those with late or no prenatal care compared with those beginning care in the first trimester.

Live-birth order

“Live-birth order” refers to the number of children born to the mother prior to and including the current birth. Of

Hispanic births, 66 percent were first- or second-order births versus 77 percent of non-Hispanic white births (table B). The percentage of births that were fifth or higher order was 2.7 times larger for Hispanic mothers (7.2 percent) than for non-Hispanic white mothers (2.7 percent). Among the Hispanic-origin groups, Mexican mothers had the highest percentage of births that were fifth or higher order (8.7 percent).

Generally, infant mortality rates increased with increasing birth order, particularly for birth orders of four or more (table E). Mortality rates for Hispanic infants were slightly higher for first births than for second births, although this was not true for non-Hispanic white infants in these data.

Further differentiating the birth order distribution by age of mother shows that Hispanic and non-Hispanic white teenage mothers had the highest infant mortality rates at almost all levels of live-birth order. Hispanic and non-Hispanic white mothers under age 20 who had given birth to two or more children had the highest infant mortality rates of any age/parity group examined. Among teenage mothers, 26 percent of Hispanic and 19 percent of non-Hispanic white mothers had two or more births (table 6).

Among women 35 years of age and older, infant mortality was higher among first borns relative to subsequent births, although this difference was not statistically significant. The percentage of first born children among women in this age group was 11 percent for Hispanic mothers compared with 22 percent for non-Hispanic white mothers.

Place of birth

Slightly more than one-half (57 percent) of the Hispanic-origin mothers of infants born from 1985 to 1987 were born outside the 50 States and the District of Columbia. However, this percentage varied considerably between specified Hispanic-origin subgroups (table B). Cuban and Central and South American mothers were most likely to have been born outside the 50 States and the District of Columbia (87 percent and 98 percent, respectively). Slightly more than one-half (55 percent) of Mexican mothers were born outside the 50 States and the District of Columbia, and Puerto Rican mothers were

Table E. Infant mortality rates by age of mother, live-birth order, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates are per 1,000 live births in specified group.]

Age of mother and live-birth order	All origins ¹	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All mothers ³	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
First child	9.3	8.4	8.1	10.7	7.2	7.5	8.7	9.4	7.9	16.6
Second child	9.4	8.0	7.6	10.4	6.7	8.1	8.6	9.5	8.0	17.3
Third child	10.3	8.3	7.8	10.8	9.2	7.4	9.7	10.8	8.8	18.1
Fourth child	12.2	9.1	9.0	11.5	*	7.2	8.9	13.1	10.3	21.1
Fifth child	13.2	9.4	8.8	13.3	*	9.0	11.5	14.6	11.5	21.9
Sixth child or more	14.6	11.3	10.9	16.7	*	12.3	10.4	16.1	12.6	23.4
Mothers under 20 years of age ³	14.4	10.6	10.0	13.2	11.4	10.3	11.5	15.3	13.3	18.9
First child	12.4	9.6	9.1	11.2	12.1	10.1	10.0	13.1	11.5	16.1
Second child	19.7	12.9	12.0	17.4	*	11.5	15.4	21.8	19.9	24.2
Third child	24.9	15.5	13.8	25.2	*	*	*	28.1	26.2	29.7
Fourth child	28.9	18.7	*	*	*	*	*	32.8	28.2	35.9
Fifth child	39.8	*	*	*	*	*	*	*	*	*
Sixth child or more	*	*	*	*	*	*	*	*	*	*
Mothers 20–34 years of age ³	9.2	7.9	7.6	10.1	7.2	7.4	8.4	9.4	7.8	17.5
First child	8.3	7.7	7.4	10.3	6.6	7.0	7.9	8.2	7.0	16.6
Second child	8.6	7.3	6.9	9.0	6.4	7.9	7.8	8.7	7.4	15.9
Third child	10.0	7.8	7.4	9.6	9.8	7.2	9.3	10.5	8.7	17.3
Fourth child	12.4	8.9	8.9	10.5	*	6.5	9.0	13.4	10.6	21.2
Fifth child	13.9	9.2	8.7	14.2	*	*	11.0	15.7	12.5	22.5
Sixth child or more	16.3	11.8	11.0	19.1	*	*	*	18.2	14.4	24.7
Mothers 35 years of age and over ³	9.9	10.0	9.9	13.6	8.4	9.1	9.4	9.8	8.4	18.6
First child	10.7	11.4	13.5	*	*	8.4	*	10.5	9.0	27.2
Second child	8.7	9.5	9.2	14.3	*	8.7	*	8.5	7.8	15.7
Third child	8.9	9.6	9.4	14.1	*	8.1	*	8.7	7.7	16.1
Fourth child	10.0	9.6	8.8	*	*	9.8	*	10.1	8.4	17.0
Fifth child	10.4	9.9	9.3	*	*	*	*	10.6	8.6	16.5
Sixth child or more	12.2	10.6	10.8	*	*	*	*	13.0	10.5	20.2

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

³Includes live-birth order not stated.

about equally likely to be born in the 50 States and the District of Columbia or in Puerto Rico.

Infant mortality rates were lower for Mexican and Puerto Rican mothers born outside the 50 States and the District of Columbia than for the corresponding mothers born in the 50 States and the District of Columbia (tables F,7,8). Differences for Cuban and Central and South American groups were not statistically significant. Other studies have also identified more

favorable birth outcomes for mothers born outside the 50 States and the District of Columbia for some Hispanic-origin subgroups (16, 22–24). A lower percent of low-birthweight births together with lower infant mortality rates at normal birthweights may explain in part the lower infant mortality rates for Mexican mothers born outside the 50 States and the District of Columbia (tables F and 7).

Table F. Infant mortality rates by place of birth of mother, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 1,000 live births in specified group.]

Place of birth of mother and birthweight	All origins ¹	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All places of birth of mother ³	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
Less than 1,500 grams	361.0	346.6	353.6	322.6	376.1	331.7	347.0	361.3	371.8	347.8
1,500–2,499 grams	26.5	25.9	27.6	23.0	20.8	22.4	25.2	26.5	27.7	24.4
2,500 grams or more	4.0	3.6	3.5	4.3	2.7	3.3	3.9	4.1	3.7	6.2
Mother born in the 50 States and the District of Columbia	10.1	9.1	8.7	11.2	11.7	7.4	9.2	10.2	8.3	18.0
Less than 1,500 grams	357.9	341.1	342.7	316.0	⁴ 509.8	*	351.6	358.9	368.5	344.6
1,500–2,499 grams	26.5	24.3	24.8	21.6	*	*	25.3	26.6	27.7	24.4
2,500 grams or more	4.2	4.0	3.9	4.7	*	*	4.0	4.2	3.7	6.3
Mother born outside the 50 States and the District of Columbia	8.2	7.9	7.7	10.5	7.0	7.8	7.5	8.5	7.7	13.5
Less than 1,500 grams	350.3	348.1	361.7	326.1	351.4	333.8	288.3	349.5	375.6	338.9
1,500–2,499 grams	25.6	27.3	30.6	24.5	19.7	22.3	22.6	23.7	25.2	22.8
2,500 grams or more	3.3	3.3	3.2	3.9	2.6	3.3	3.4	3.4	3.1	4.5

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

³Includes place of birth of mother not stated.

⁴This infant mortality rate is based on only 51 births and 26 infant deaths and therefore is subject to considerable statistical variation (see Appendix).

Characteristics of the infant and the pregnancy

Birthweight

Birthweight is one of the most important predictor variables of the subsequent health and survival of an infant. Among Hispanic-origin infants in the study population, 58 percent of all infant deaths occurred to the 6.1 percent of infants born weighing less than 2,500 grams (table 9). For non-Hispanic white infants, 57 percent of all infant deaths occurred to the 5.6 percent of infants born weighing less than 2,500 grams.

Low birthweight is defined as a weight of less than 2,500 grams at birth. The low-birthweight group can be further divided into two subcategories: very low-birthweight infants, with a weight of less than 1,500 grams at birth, and moderately low-birthweight infants, with a weight of 1,500–2,499 grams at birth.

Overall, the birthweight distributions for infants of Mexican, Cuban, and Central and South American mothers were very similar to those for non-Hispanic white mothers, with 0.9–1.1 percent of births at very low birthweight, 4.7–4.8 percent at moderately low birthweight, and 94.3–

94.4 percent at normal birthweight (table B). In contrast, the percentages of very low and moderately low-birthweight infants were about 50 percent higher for infants of Puerto Rican mothers.

In general, infant mortality rates decline as birthweight increases (tables G and 9, figure 3). Among very low-birthweight infants, mortality rates were very high in all race and Hispanic-origin subgroups. More than one-third of babies in this weight range died within their first year of life. About 2–3 percent of moderately low-birthweight infants died within their first year.

For very low-birthweight infants, mortality rates were lower for Mexican, Puerto Rican, and Central and South American infants than for non-Hispanic white infants. For moderately low-birthweight infants, rates were lower for Puerto Rican, Cuban, and Central and South American infants than for non-Hispanic white infants.

Among normal weight births, infants of Puerto Rican mothers experienced mortality rates that were significantly higher (4.3) than the non-Hispanic white rate of 3.7 (table G). Cuban infants had the lowest rate (2.7), and the rates for the

Table G. Infant mortality rates by plurality of birth, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 1,000 live births in specified group.]

Plurality and birthweight	All origins ¹	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All deliveries	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
Less than 1,500 grams	361.0	346.6	353.6	322.6	376.1	331.7	347.0	361.3	371.8	347.8
1,500–2,499 grams	26.5	25.9	27.6	23.0	20.8	22.4	25.2	26.5	27.7	24.4
2,500 grams or more	4.0	3.6	3.5	4.3	2.7	3.3	3.9	4.1	3.7	6.2
Single deliveries	9.0	7.8	7.6	10.1	6.8	7.2	8.2	9.2	7.5	16.4
Less than 1,500 grams	357.7	343.0	351.9	323.2	364.3	329.5	329.1	358.4	368.0	346.8
1,500–2,499 grams	28.5	27.9	30.0	23.8	23.4	23.6	27.5	28.5	30.6	25.1
2,500 grams or more	4.0	3.6	3.5	4.2	2.7	3.2	3.9	4.1	3.6	6.1
Plural deliveries	51.2	44.4	42.8	49.6	44.0	39.6	55.6	51.4	45.2	74.5
Less than 1,500 grams	375.6	364.9	361.6	319.0	431.0	345.5	431.2	373.7	385.3	353.6
1,500–2,499 grams	15.3	14.1	14.5	16.9	*	*	*	15.5	14.4	19.2
2,500 grams or more	6.2	5.6	4.4	11.1	*	*	*	6.2	5.6	9.3

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

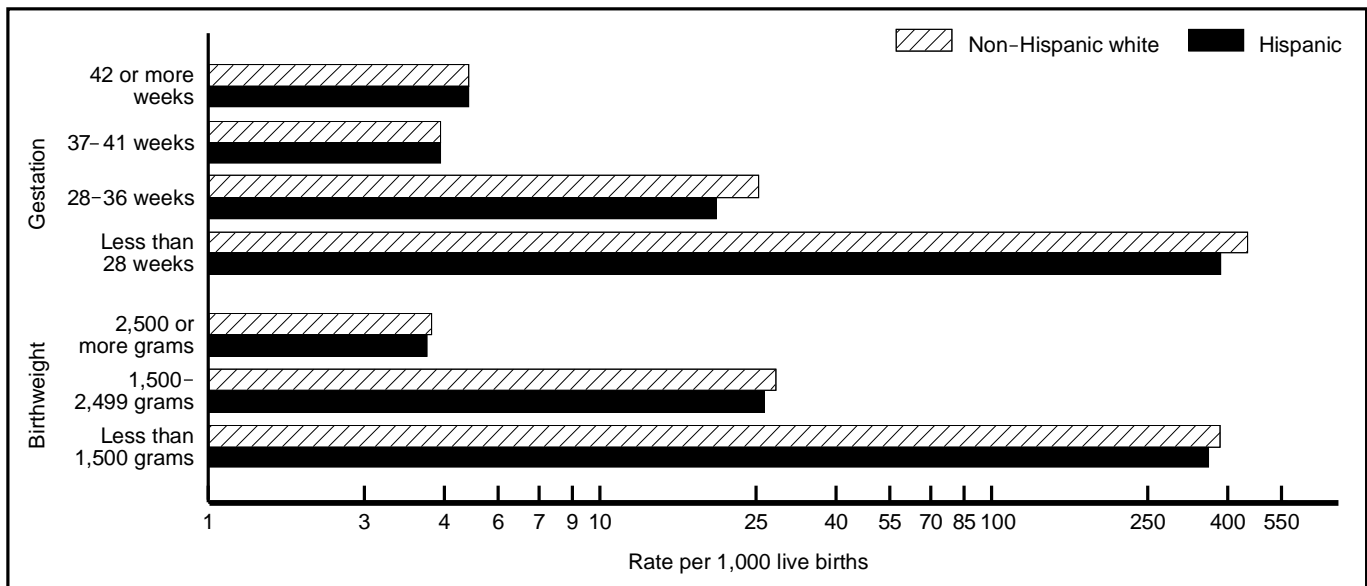


Figure 3. Infant mortality rates by birthweight and period of gestation for Hispanic and non-Hispanic white infants: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

other Hispanic-origin subgroups were similar to the non-Hispanic white rate. The results were similar when single births were examined separately (table G).

Period of gestation

Preterm delivery, defined as the delivery of an infant before 37 completed weeks of gestation, is another important predictor of the infant’s subsequent health and survival (figure 3). There is a close association of preterm delivery with low birthweight (table 10). Even within birthweight categories, infant mortality rates vary substantially according to period of gestation, with the infants with the shortest periods of gestation having higher infant mortality rates (table H).

The percentage of infants born preterm varied among the specific Hispanic-origin subgroups: 9.1 percent for Cuban infants, 10.2 percent for Central and South American infants, 10.8 percent for Mexican infants, and a high of 12.6 percent for Puerto Rican infants (table B). The percentages for all Hispanic-origin subgroups are significantly higher than the 8.0 percent of preterm births to non-Hispanic white mothers. Approximately three-quarters of all the infants born in 1985–87 had a normal period of gestation of 37–41 weeks. This percentage varied less than 3 percentage points among the specified Hispanic-origin groups. Post-term births comprised the remaining 12–14 percent of live births.

Infant mortality rates by period of gestation exhibited a curvilinear pattern: rates were highest for the shortest periods of gestation, lowest for term pregnancies, and moderately high for post-term pregnancies (table H). Among very early deliveries (under 28 weeks gestation), infant mortality rates for the specified Hispanic-origin groups were either about the same as (Cuban) or lower than (Mexican, Puerto Rican, Central and South American) the non-Hispanic white infant mortality rate of 434.7 deaths per 1,000 live births. Among moderately preterm deliveries (28–36 weeks gestation), this same relation-

ship held true. Among full term infants (37–41 weeks gestation), the Puerto Rican infant mortality rate (5.3) was higher and the Cuban rate (3.1) lower than the non-Hispanic white rate (3.9). Among the post-term deliveries (42 weeks gestation or longer), infant mortality rates for the specific Hispanic-origin groups were not statistically different from the non-Hispanic white rate of 4.6.

Multiple births

Multiple births are an important component of infant mortality analyses because infants born in multiple deliveries have a higher risk of infant death than singleton infants. Their elevated risk is related in part to a tendency of infants of multiple births to be born earlier and weigh less than those born singly. In this data set, the percent of multiple births among the specified Hispanic groups (table B) ranged from 1.7 percent for Central and South American births up to 2.1 percent for Cuban births compared with 2.2 percent for non-Hispanic white births.

The infant mortality rate among multiple births (table G) was about five times higher than for single births. Much of this elevated risk relates to the less favorable birthweight distribution of multiple births compared with singletons. For the study population as a whole, 51.0 percent of all infants of multiple deliveries were born at low birthweight compared with 5.9 percent for singletons (table 9). Differences in birthweight-specific infant mortality rates by plurality of birth are shown in table G. Notable among these is the significantly higher infant mortality rate for normal birthweight multiple births when compared with normal birthweight singletons. Among infants of multiple deliveries, infants of Central and South American mothers had the lowest infant mortality rate (39.6) among the specified Hispanic-origin groups; this rate was significantly different from the non-Hispanic white rate of 45.2.

Table H. Infant mortality rates by period of gestation, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 1,000 live births in specified group.]

Period of gestation and birthweight	Origin of mother									
	All origins ¹	Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All gestational periods ^{3,4}	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
Less than 1,500 grams	361.0	346.6	353.6	322.6	376.1	331.7	347.0	361.3	371.8	347.8
1,500–2,499 grams	26.5	25.9	27.6	23.0	20.8	22.4	25.2	26.5	27.7	24.4
2,500 grams or more	4.0	3.6	3.5	4.3	2.7	3.3	3.9	4.1	3.7	6.2
Less than 28 weeks ⁴	401.3	372.9	363.9	383.3	429.4	380.4	391.6	403.9	434.7	370.0
Less than 1,500 grams	574.5	563.8	568.4	529.6	570.3	546.2	597.0	575.1	610.1	533.7
1,500–2,499 grams	64.7	64.2	68.3	*	*	*	*	64.5	79.0	52.4
2,500 grams or more	32.0	35.1	27.5	*	*	*	*	30.7	30.2	32.8
28–36 weeks ⁴	23.6	19.5	18.9	22.1	21.0	19.0	20.6	24.4	25.0	23.9
Less than 1,500 grams	170.5	176.6	180.7	166.7	190.8	170.6	169.0	168.6	182.6	145.4
1,500–2,499 grams	28.1	27.0	27.5	25.4	*	24.8	30.4	28.2	29.7	25.4
2,500 grams or more	7.8	6.5	6.5	7.6	*	6.6	5.4	8.1	7.9	8.7
37–41 weeks ⁴	4.3	3.9	3.7	5.3	3.1	3.6	4.3	4.4	3.9	7.0
Less than 1,500 grams	208.3	192.6	167.0	235.8	*	229.4	*	209.3	198.0	221.0
1,500–2,499 grams	21.9	21.5	24.2	19.2	*	13.3	19.0	21.9	22.7	20.4
2,500 grams or more	3.5	3.1	3.0	3.9	2.3	2.8	3.7	3.6	3.2	5.5
42 weeks and over ⁴	5.1	4.6	4.5	5.2	*	4.7	4.4	5.2	4.6	8.3
Less than 1,500 grams	245.6	228.0	*	*	*	*	*	249.7	220.9	294.1
1,500–2,499 grams	29.6	30.3	30.5	*	*	*	*	29.0	30.3	26.6
2,500 grams or more	4.2	3.7	3.8	3.4	*	3.4	3.7	4.3	3.9	6.4

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

³Includes period of gestation not stated.

⁴Includes birthweight not stated.

Age at death

For the total population, 53 percent of the infant deaths occurred in the early neonatal period (under 7 days of age), 11 percent occurred in the late neonatal period (7–27 days of age), and 36 percent occurred in the postneonatal period (28 days through 11 months of age). The distribution of deaths by age was similar for most of the race and ethnic groups; however, an even higher percentage of deaths occurred in the early neonatal period for Puerto Rican (58 percent) and Cuban infants (61 percent), with correspondingly lower percentages of deaths occurring in the late neonatal and postneonatal periods (table 11).

Mortality rates by age at death for Mexican and Central and South American infants were very similar to those for non-Hispanic white infants (table J). The relatively higher infant mortality rate for Puerto Rican infants (10.9 compared with 8.3 for non-Hispanic white infants) was due primarily to an early neonatal mortality rate (6.3) that was 45 percent higher than the rate for non-Hispanic white infants (4.3). Infants of Cuban mothers experienced the lowest infant mortality rates, due primarily to a postneonatal mortality rate (2.2) that was 27 percent lower than the non-Hispanic white rate of 3.0.

Sex of infant

Fifty-one percent of the births were male in each specified Hispanic group and the non-Hispanic white group. The infant mortality rate for male babies is higher than for female babies in all specified Hispanic and non-Hispanic groups (table J). For Hispanic-origin infants overall, male infants had a 27 percent higher mortality rate than female infants. The corresponding figure for non-Hispanic white infants was 31 percent.

Underlying cause of death

The four leading causes of death were the same for all race and Hispanic-origin groups (tables K and 12), however the rankings were not identical. Congenital anomalies was the leading cause of death for all specified groups except non-Hispanic blacks, where it ranked second. Sudden Infant Death Syndrome (SIDS) was the leading cause of death for non-Hispanic black infants, the second leading cause for non-Hispanic white infants, and ranked either third or fourth for each of the specific Hispanic-origin groups. The remaining two causes among the top four for all race and Hispanic-origin groups were Respiratory distress syndrome and Disorders relating to short gestation and unspecified low birthweight.

Table J. Infant, neonatal, and postneonatal mortality rates and race ratios by sex, age at death, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 1,000 live births in specified group.]

Sex and age at death of infant	All origins ¹	Origin of mother								
		Total	Hispanic				Non-Hispanic			
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
Rates										
Both sexes	9.9	8.5	8.2	10.9	7.6	7.8	9.0	10.1	8.3	17.9
Neonatal	6.4	5.5	5.3	7.3	5.4	5.2	5.8	6.4	5.3	11.5
Early neonatal	5.3	4.5	4.2	6.3	4.6	4.3	4.9	5.3	4.3	9.8
Late neonatal	1.1	1.0	1.1	1.0	0.8	0.9	0.9	1.1	0.9	1.7
Postneonatal	3.5	3.0	3.0	3.6	2.2	2.6	3.3	3.7	3.0	6.4
Male	11.1	9.5	9.2	12.2	9.1	8.6	10.0	11.3	9.4	19.6
Neonatal	7.1	6.1	5.9	8.0	6.4	5.6	6.5	7.1	5.9	12.5
Early neonatal	5.9	5.0	4.7	6.9	5.4	4.5	5.4	5.9	4.9	10.8
Late neonatal	1.2	1.1	1.1	1.1	0.9	1.1	1.0	1.2	1.1	1.7
Postneonatal	4.0	3.4	3.3	4.2	2.8	3.0	3.6	4.2	3.5	7.0
Female	8.7	7.5	7.2	9.6	5.9	7.0	8.0	8.9	7.2	16.1
Neonatal	5.7	4.8	4.6	6.5	4.3	4.7	5.0	5.7	4.6	10.4
Early neonatal	4.7	3.9	3.6	5.7	3.7	4.0	4.3	4.7	3.8	8.7
Late neonatal	1.0	0.9	1.0	0.8	0.6	0.7	0.8	1.0	0.8	1.7
Postneonatal	3.1	2.6	2.6	3.1	1.6	2.2	2.9	3.2	2.6	5.7
Race ratios ³										
Both sexes	1.19	1.02	0.99	1.31	0.91	0.94	1.08	1.21	1.00	2.15
Neonatal	1.21	1.04	0.99	1.38	1.02	0.98	1.09	1.21	1.00	2.17
Early neonatal	1.22	1.03	0.96	1.45	1.06	0.98	1.12	1.23	1.00	2.25
Late neonatal	1.14	1.07	1.13	1.02	0.82	0.95	0.97	1.15	1.00	1.80
Postneonatal	1.17	0.99	0.98	1.21	0.73	0.87	1.08	1.22	1.00	2.12
Male	1.18	1.01	0.98	1.30	0.97	0.92	1.06	1.20	1.00	2.08
Neonatal	1.19	1.03	0.99	1.36	1.07	0.95	1.09	1.20	1.00	2.11
Early neonatal	1.21	1.03	0.97	1.43	1.11	0.93	1.12	1.22	1.00	2.23
Late neonatal	1.10	1.04	1.07	1.03	0.88	0.99	0.96	1.10	1.00	1.59
Postneonatal	1.15	0.97	0.95	1.20	0.80	0.86	1.02	1.20	1.00	2.03
Female	1.22	1.04	1.00	1.34	0.83	0.97	1.11	1.24	1.00	2.25
Neonatal	1.22	1.05	0.99	1.41	0.94	1.02	1.09	1.23	1.00	2.25
Early neonatal	1.23	1.03	0.94	1.49	0.98	1.05	1.12	1.24	1.00	2.28
Late neonatal	1.21	1.13	1.23	1.00	0.73	0.90	0.97	1.21	1.00	2.09
Postneonatal	1.20	1.02	1.02	1.21	0.63	0.87	1.15	1.25	1.00	2.25

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

³Relative to infant mortality rate for non-Hispanic white population.

The four leading causes of death taken together accounted for more than one-half of all infant deaths. In general, infant mortality rates from Congenital anomalies were roughly comparable between Hispanic and non-Hispanic white infants.

Infant mortality rates for all of the Hispanic-origin groups were substantially lower than for non-Hispanic whites for SIDS (12–53 percent lower) and Newborn affected by complications of placenta, cord, and membranes (26–51 percent lower) (table L). Infant mortality rates from Septicemia and Neonatal hemorrhage were 50 percent higher for Hispanic than for non-Hispanic white infants. Age-adjusted death rates

for adults, children, and infants combined have also indicated that Septicemia was a more frequent cause of death among the Hispanic-origin population than among the non-Hispanic white population in 1979–81 (25).

Infant mortality rates from Respiratory distress syndrome and Disorders relating to short gestation and unspecified low birthweight were higher for Puerto Rican than for non-Hispanic white infants. Since these two causes of death are closely associated with low birthweight, this may reflect the higher percentage of low birthweight infants born to Puerto Rican mothers.

Table K. Infant mortality rates and rankings for leading causes of infant death by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Rates per 100,000 live births in specified group.]

Causes of death Ninth Revision International Classification of Diseases, 1975	Origin of mother																			
	All origins ¹		Total		Mexican		Puerto Rican		Cuban		Central and South American		Other and unknown Hispanic		Total ²		White		Black	
	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate
All causes of death	993.5	...	849.4	...	820.5	...	1,093.6	...	758.4	...	780.3	...	902.3	...	1,010.8	...	832.2	...	1,788.5
Congenital anomalies 740–759	1	210.0	1	207.7	1	208.0	1	209.1	1	184.7	1	197.1	1	223.2	1	208.3	1	204.0	2	225.0
Sudden infant death syndrome 798.0	2	127.3	3	83.1	3	80.2	4	102.8	3	77.8	4	54.4	2	117.7	2	137.2	2	116.8	1	226.9
Respiratory distress syndrome 769	3	91.9	2	88.5	2	87.9	2	118.8	4	64.8	2	76.5	3	83.1	3	90.7	3	76.4	4	158.1
Disorders relating to short gestation and unspecified low birthweight 765	4	84.7	4	64.4	4	55.5	3	106.3	2	87.5	3	72.8	4	64.9	4	86.5	4	55.1	3	223.8
Newborn affected by maternal complications of pregnancy 761	5	31.9	7	18.6	9	16.4	5	21.4	*	*	6	16.2	6	24.2	5	33.5	5	27.7	5	61.5
Intrauterine hypoxia and birth asphyxia 768	6	23.8	5	21.6	6	22.2	5	21.4	*	*	7	15.4	5	26.0	6	24.0	8	18.7	6	47.1
Accidents and adverse effects E800-E949	7	23.3	6	20.9	5	24.8	7	18.8	*	*	*	*	*	*	7	23.9	6	20.5	9	38.7
Infections specific to the perinatal period 771	8	22.9	8	17.8	8	16.6	*	*	*	*	5	18.4	7	22.5	8	23.5	7	19.1	7	43.3
Newborn affected by complications of placenta, cord, and membranes 762	9	19.6	10	12.1	10	13.2	*	*	*	*	*	*	*	*	9	20.6	9	17.9	10	34.1
Pneumonia and influenza 480–487	10	19.5	9	16.8	7	17.8	8	17.9	*	*	*	*	*	*	10	20.1	10	14.6	8	42.0
Other leading causes in specific ethnic groups:																				
Neonatal hemorrhage 772	11	9.3	11	10.0	11	9.0	*	*	*	*	*	*	*	*	11	9.1	11	6.7	11	18.8
Septicemia 038	12	7.2	12	7.5	12	7.3	*	*	*	*	*	*	*	*	12	7.2	13	5.0	12	16.8
All other causes Residual	...	322.0	...	280.4	...	261.7	...	421.7	...	207.4	...	277.3	...	286.4	...	326.3	...	249.7	...	652.5

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table L. Infant mortality ratios for leading causes of infant death by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Ratios are computed by dividing the infant mortality rate of the specified group by the infant mortality rate of the non-Hispanic white group.]

Cause of death Ninth Revision International Classification of Diseases, 1975	All origins ¹	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
All causes of death	1.19	1.02	0.99	1.31	0.91	0.94	1.08	1.21	1.00	2.15
Congenital anomalies 740–759	1.03	1.02	1.02	1.03	0.91	0.97	1.09	1.02	1.00	1.10
Sudden infant death syndrome 798.0	1.09	0.71	0.69	0.88	0.67	0.47	1.01	1.17	1.00	1.94
Respiratory distress syndrome 769	1.20	1.16	1.15	1.56	0.85	1.00	1.09	1.19	1.00	2.07
Disorders relating to short gestation and unspecified low birthweight 765	1.54	1.17	1.01	1.93	1.59	1.32	1.18	1.57	1.00	4.06
Newborn affected by maternal complications of pregnancy 761	1.15	0.67	0.59	0.77	*	0.58	0.87	1.21	1.00	2.22
Intrauterine hypoxia and birth asphyxia 768	1.27	1.15	1.19	1.14	*	0.82	1.38	1.28	1.00	2.51
Accidents and adverse effects E800-E949	1.14	1.02	1.21	0.92	*	*	*	1.16	1.00	1.89
Infections specific to the perinatal period 771	1.20	0.93	0.87	*	*	0.96	1.18	1.23	1.00	2.27
Newborn affected by complications of placenta, cord, and membranes 762	1.10	0.68	0.74	*	*	*	*	1.15	1.00	1.91
Pneumonia and influenza 480–487	1.33	1.15	1.22	1.22	*	*	*	1.38	1.00	2.87
Other leading causes in specific ethnic groups:										
Neonatal hemorrhage 772	1.39	1.48	1.33	*	*	*	*	1.35	1.00	2.79
Septicemia 038	1.45	1.51	1.47	*	*	*	*	1.45	1.00	3.37
All other causes Residual	1.29	1.12	1.05	1.69	0.83	1.11	1.15	1.31	1.00	2.61

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Discussion

The infant mortality experience of the Hispanic-origin population of the United States has been called an “epidemiological paradox” because of their generally favorable birth outcomes despite their higher incidence of socioeconomic and demographic risk factors (16,26). Infant mortality rates for most Hispanic-origin subgroups were similar to those for non-Hispanic white mothers, despite the higher proportion of Hispanic-origin births to mothers in high-risk groups (table B). The exception was for Puerto Rican infants who had higher infant mortality rates and a higher proportion of births to mothers in high-risk groups than did non-Hispanic white infants.

One of the most interesting findings of this report was that characteristics of the mother traditionally identified as risk factors for infant mortality (teenage childbearing, unmarried childbearing, lower educational levels, and prenatal care initiated after the first trimester or not at all) elevate the relative risk of infant death less for some Hispanic-origin subgroups than for non-Hispanic white mothers (table M). For Mexican and Central and South American mothers, the ratios of infant mortality rates for “high” and “low” risk groups of selected maternal characteristics were all substantially lower than those for non-Hispanic white mothers. For Puerto Rican mothers, the picture was somewhat mixed, with the ratios for age, marital status, and educational attainment of the mother lower than those for non-Hispanic white mothers. The ratio for prenatal care was lower, but not significantly so, compared

with the non-Hispanic white ratio. In contrast, ratios for Cuban mothers were similar to those for non-Hispanic white mothers for each of the maternal characteristics studied.

There seemed to be a general association between the prevalence of the risk factor and the degree of disadvantage it exerted on infant mortality rates, although this relationship did not hold true in all cases. Compared with the other Hispanic-origin subgroups, Cuban mothers had a smaller percentage of their births in the “high” risk maternal categories; their overall childbearing pattern, at least in relation to the four maternal characteristics examined here, was more similar to that for non-Hispanic white mothers than to that for the other Hispanic-origin groups. The Cuban infant mortality rate (7.6) was the lowest of any of the race or Hispanic-origin groups.

Previous studies have related the generally favorable pregnancy outcomes for Hispanic mothers to their lower levels of smoking and alcohol use, and more favorable weight gain profiles (22,24,27), as well as to a greater degree of familial integration (28). A greater degree of familial integration may also lead to increased social supports for pregnant women and new mothers. The findings of lower infant mortality rates for Mexican and Puerto Rican mothers born outside the 50 States and the District of Columbia than for those born in the 50 States and the District of Columbia tend to support this hypothesis, as well as suggesting a gradual dilution of this traditional cultural framework with more time spent in the United States (23).

Table M. Infant mortality risk ratios for specified groups with selected maternal characteristics, by Hispanic origin of mother and race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

[Ratios are computed by dividing the infant mortality rate of the specified group in the high risk category by the infant mortality rate of the specified group in the low risk category]

Characteristic	All origins ¹	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
Mothers under the age of 20/mothers 25–29 years of age	1.69	1.43	1.37	1.35	1.97	1.47	1.58	1.78	1.85	1.11
Unmarried/married	1.93	1.38	1.30	1.52	1.88	1.25	1.50	2.07	1.83	1.33
Mothers completing less than 12 years of school/ mothers completing 12 years or more ³	1.47	1.27	1.21	1.20	1.61	1.21	1.46	1.56	1.60	1.18
Prenatal care began after first trimester or no care/care began in first trimester	1.46	1.13	1.06	1.35	1.62	1.05	1.35	1.58	1.53	1.18

¹Origin of mother not stated included in “all origins” but not distributed among origin categories.

²Includes races other than white and black.

³Data from 18 States and the District of Columbia.

For each Hispanic-origin subgroup, infant mortality rates by birthweight were lower than or similar to those for non-Hispanic whites. The exception was for Puerto Rican infants who weighed 2,500 grams or more at birth—this group had an infant mortality rate of 4.3 compared with 3.7 for non-Hispanic white infants. Puerto Rican mothers had about a 63 percent higher percentage of low-birthweight infants than non-Hispanic white mothers, while the percents of low-birthweight births for the other Hispanic-origin subgroups were similar to those for the non-Hispanic white group. Overall, the factors that most influenced the differences in overall infant mortality rates were differences in normal birthweight mortality and differences in birthweight distribution. Although a higher percentage of Hispanic than non-Hispanic white infants were born preterm, infant mortality rates for Hispanic preterm births were lower than or similar to the non-Hispanic white rates.

The cause-of-infant-death profile for Hispanic infants was different from that for non-Hispanic white infants, with lower infant mortality rates for SIDS and for Newborn affected by complications of placenta, cord, and membranes. Hispanic

infant mortality rates were higher than non-Hispanic white rates for Septicemia and Neonatal hemorrhage, while Puerto Rican infants had higher rates from low birthweight-associated causes such as Respiratory distress syndrome and Disorders relating to short gestation and unspecified low birthweight. More detailed investigation of these differences may lead to intervention strategies to improve outcomes for both Hispanic and non-Hispanic white groups.

In summary, infant mortality rates for Hispanic infants are low despite a higher incidence of recognized risk factors. The presence of selected maternal risk factors was associated with elevated infant mortality rates, although the differences in infant mortality rates between high- and low-risk groups were smaller for Mexican, Puerto Rican, and Central and South American infants than for non-Hispanic white and Cuban infants. The data suggest that interventions aimed at improving the access to and quality of prenatal and perinatal care, and reducing the percentage of births to high-risk women (perhaps through improved provision of family planning services) do have the potential to further lower Hispanic infant mortality rates.

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Table 1. Live births and infant deaths by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: 20 States and the District of Columbia, 1985–87 birth cohorts

State	Origin of mother										
	All origins ¹	Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	Not stated
Live births											
Arizona	183,596	42,473	40,461	288	62	189	1,473	140,483	114,932	6,358	640
Arkansas	104,182	602	417	41	10	30	104	102,307	77,609	23,877	1,273
California	1,456,915	472,383	357,994	4,599	2,608	54,359	52,823	972,872	707,969	123,789	11,660
Colorado	164,084	22,734	8,488	282	63	254	13,647	134,457	122,690	7,468	6,893
District of Columbia	30,128	2,019	266	245	10	1,361	137	24,742	3,583	20,796	3,367
Florida	506,561	54,901	7,635	6,763	20,762	8,590	11,151	445,892	324,351	115,877	5,768
Georgia	297,030	2,973	1,085	604	240	481	563	289,439	186,283	99,644	4,618
Hawaii	55,208	5,276	775	1,596	48	141	2,716	49,859	16,295	1,926	73
Illinois	538,154	52,213	35,334	8,973	751	3,242	3,913	473,402	351,368	111,712	12,539
Indiana	238,872	3,784	2,637	477	49	120	501	223,839	198,693	23,454	11,249
Kansas	117,465	4,094	3,198	208	45	175	468	103,242	92,052	8,408	10,129
Maine	50,464	290	74	31	48	25	112	47,261	46,622	149	2,913
Mississippi	126,612	358	120	35	15	47	141	124,524	65,039	58,152	1,730
Nebraska	73,799	1,784	1,571	28	8	38	139	68,603	63,819	3,646	3,412
New Jersey	327,769	39,240	1,070	19,971	3,202	9,862	5,135	255,430	190,563	56,485	33,099
New York	795,615	123,807	4,006	63,524	2,056	45,157	9,064	619,747	446,460	147,205	52,061
North Dakota	32,840	226	110	16	3	19	78	31,195	28,402	278	1,419
Ohio	476,351	6,005	2,436	2,051	123	328	1,067	449,855	380,824	64,751	20,491
Texas	917,239	289,943	265,823	2,030	715	11,430	9,945	623,874	484,780	120,646	3,422
Utah	109,190	4,839	2,746	135	34	105	1,819	103,496	98,856	510	855
Wyoming	25,537	1,501	859	22	3	21	596	21,429	20,336	180	2,607
Infant deaths											
Arizona	1,737	356	336	3	–	3	14	1,367	1,049	101	14
Arkansas	1,057	3	3	–	–	–	–	1,019	668	346	35
California	13,085	3,686	2,747	51	20	407	461	9,142	5,924	2,108	257
Colorado	1,510	200	64	3	2	2	129	1,236	1,070	125	74
District of Columbia	573	19	5	2	–	10	2	515	33	480	39
Florida	5,502	488	91	67	151	71	108	4,930	2,744	2,136	84
Georgia	3,739	27	14	4	1	3	5	3,622	1,773	1,816	90
Hawaii	491	47	6	20	–	1	20	444	119	33	–
Illinois	6,336	560	364	115	9	31	41	5,511	2,999	2,441	265
Indiana	2,468	44	33	6	–	–	5	2,288	1,818	456	136
Kansas	1,079	39	34	–	1	–	4	924	759	138	116
Maine	422	1	–	–	–	1	–	380	372	–	41
Mississippi	1,639	1	–	–	–	–	1	1,598	571	1,009	40
Nebraska	692	17	14	–	–	–	3	629	542	74	46
New Jersey	2,904	324	7	170	21	81	45	2,258	1,254	958	322
New York	8,243	1,294	36	750	24	383	101	6,231	3,324	2,750	718
North Dakota	281	4	3	–	–	1	–	263	227	1	14
Ohio	4,637	44	19	16	–	–	9	4,371	3,312	1,028	222
Texas	8,215	2,387	2,225	14	5	67	76	5,770	3,837	1,797	58
Utah	969	47	34	3	–	–	10	907	858	3	15
Wyoming	268	22	13	–	–	–	9	228	213	1	18

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 2. Live births and infant deaths by marital status, age, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Marital status and age of mother	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
All mothers	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
Under 15 years	18,238	3,853	2,727	493	40	163	430	14,010	3,882	9,720	375
15–19 years	811,502	180,581	125,464	22,580	1,974	10,863	19,700	611,959	372,929	220,394	18,962
20–24 years	1,928,407	371,771	246,405	39,115	9,271	39,614	37,366	1,507,214	1,113,592	333,645	49,422
25–29 years	2,101,236	316,859	200,841	28,251	10,947	44,260	32,560	1,723,372	1,379,112	248,161	61,005
30–34 years	1,283,319	176,898	110,185	14,568	6,131	27,803	18,211	1,063,564	854,531	131,097	42,857
35–39 years	423,559	68,384	42,821	5,813	2,112	11,295	6,343	339,740	263,729	45,141	15,435
40–44 years	58,934	12,494	8,251	1,059	357	1,885	942	44,379	32,726	6,840	2,061
45–49 years	2,416	605	411	40	23	91	40	1,710	1,025	313	101
Married	5,026,042	777,157	533,726	53,497	25,996	85,926	78,012	4,097,906	3,484,135	367,649	150,979
Under 15 years	1,518	734	611	29	5	30	59	764	562	116	20
15–19 years	317,909	83,292	65,349	5,544	1,197	4,200	7,002	227,208	199,315	20,210	7,409
20–24 years	1,360,205	248,383	175,291	18,180	7,663	22,881	24,368	1,075,793	922,256	108,167	36,029
25–29 years	1,789,846	241,766	159,957	16,474	9,618	30,010	25,707	1,494,768	1,279,394	128,213	53,312
30–34 years	1,136,252	139,654	90,642	9,110	5,410	19,484	15,008	957,893	807,030	78,305	38,705
35–39 years	368,725	53,223	34,864	3,537	1,792	7,928	5,102	301,831	245,189	28,081	13,671
40–44 years	49,595	9,637	6,673	601	293	1,335	735	38,205	29,498	4,354	1,753
45–49 years	1,992	468	339	22	18	58	31	1,444	891	203	80
Unmarried	1,601,569	354,288	203,379	58,422	4,859	50,048	37,580	1,208,042	537,391	627,662	39,239
Under 15 years	16,720	3,119	2,116	464	35	133	371	13,246	3,320	9,604	355
15–19 years	493,593	97,289	60,115	17,036	777	6,663	12,698	384,751	173,614	200,184	11,553
20–24 years	568,202	123,388	71,114	20,935	1,608	16,733	12,998	431,421	191,336	225,478	13,393
25–29 years	311,390	75,093	40,884	11,777	1,329	14,250	6,853	228,604	99,718	119,948	7,693
30–34 years	147,067	37,244	19,543	5,458	721	8,319	3,203	105,671	47,501	52,792	4,152
35–39 years	54,834	15,161	7,957	2,276	320	3,367	1,241	37,909	18,540	17,060	1,764
40–44 years	9,339	2,857	1,578	458	64	550	207	6,174	3,228	2,486	308
45–49 years	424	137	72	18	5	33	9	266	134	110	21
Infant deaths											
All mothers	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
Under 15 years	399	65	44	10	–	2	9	326	77	245	8
15–19 years	11,547	1,890	1,238	295	23	112	222	9,279	4,919	4,109	378
20–24 years	20,439	3,075	1,917	410	84	309	355	16,628	10,171	5,912	736
25–29 years	17,919	2,346	1,457	277	63	310	239	14,822	9,879	4,234	751
30–34 years	10,720	1,418	881	138	43	207	149	8,808	5,932	2,327	494
35–39 years	4,031	645	388	77	19	101	60	3,178	2,114	823	208
40–44 years	744	158	113	15	2	19	9	558	356	139	28
45–49 years	48	13	10	2	–	1	–	34	18	12	1
Married	40,919	5,892	4,042	459	173	613	605	33,355	26,099	5,453	1,672
Under 15 years	28	13	10	–	–	–	3	15	9	5	–
15–19 years	3,743	762	579	57	12	43	71	2,855	2,396	375	126
20–24 years	11,863	1,869	1,290	156	58	166	199	9,555	7,580	1,615	439
25–29 years	13,052	1,621	1,080	123	52	185	181	10,890	8,547	1,752	541
30–34 years	8,416	1,048	695	76	37	130	110	6,981	5,340	1,153	387
35–39 years	3,199	459	296	40	12	77	34	2,585	1,902	464	155
40–44 years	581	109	83	6	2	11	7	448	311	81	24
45–49 years	37	11	9	1	–	1	–	26	14	8	–
Unmarried	24,928	3,718	2,006	765	61	448	438	20,278	7,367	12,348	932
Under 15 years	371	52	34	10	–	2	6	311	68	240	8
15–19 years	7,804	1,128	659	238	11	69	151	6,424	2,523	3,734	252
20–24 years	8,576	1,206	627	254	26	143	156	7,073	2,591	4,297	297
25–29 years	4,867	725	377	154	11	125	58	3,932	1,332	2,482	210
30–34 years	2,304	370	186	62	6	77	39	1,827	592	1,174	107
35–39 years	832	186	92	37	7	24	26	593	212	359	53
40–44 years	163	49	30	9	–	8	2	110	45	58	4
45–49 years	11	2	1	1	–	–	–	8	4	4	1

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 3. Live births and infant deaths by place of birth, age, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Place of birth of mother and age of mother	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
All places of birth	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
Under 15 years	18,238	3,853	2,727	493	40	163	430	14,010	3,882	9,720	375
15–19 years	811,502	180,581	125,464	22,580	1,974	10,863	19,700	611,959	372,929	220,394	18,962
20–24 years	1,928,407	371,771	246,405	39,115	9,271	39,614	37,366	1,507,214	1,113,592	333,645	49,422
25–29 years	2,101,236	316,859	200,841	28,251	10,947	44,260	32,560	1,723,372	1,379,112	248,161	61,005
30–34 years	1,283,319	176,898	110,185	14,568	6,131	27,803	18,211	1,063,564	854,531	131,097	42,857
35–39 years	423,559	68,384	42,821	5,813	2,112	11,295	6,343	339,740	263,729	45,141	15,435
40–44 years	58,934	12,494	8,251	1,059	357	1,885	942	44,379	32,726	6,840	2,061
45–49 years	2,416	605	411	40	23	91	40	1,710	1,025	313	101
Mother born in the 50 States and the District of Columbia	5,475,452	489,779	330,235	57,752	3,915	3,400	94,477	4,815,154	3,824,440	909,826	170,519
Under 15 years	16,816	2,856	2,027	369	21	30	409	13,617	3,810	9,574	343
15–19 years	714,959	107,751	73,020	14,883	727	837	18,284	589,451	364,106	214,315	17,757
20–24 years	1,621,054	168,508	112,728	21,386	1,642	1,141	31,611	1,407,325	1,070,351	313,453	45,221
25–29 years	1,731,810	125,122	83,417	14,178	1,029	832	25,666	1,552,090	1,310,001	219,629	54,598
30–34 years	1,030,561	62,079	42,086	5,672	383	412	13,526	930,676	803,606	110,426	37,806
35–39 years	318,820	20,303	14,553	1,173	103	132	4,342	285,490	242,400	36,929	13,027
40–44 years	40,079	3,040	2,313	86	10	16	615	35,354	29,274	5,267	1,685
45–49 years	1,353	120	91	5	–	–	24	1,151	892	233	82
Mother born outside the 50 States and the District of Columbia	1,140,509	640,392	406,158	53,961	26,930	132,531	20,812	482,588	192,252	82,345	17,529
Under 15 years	1,315	988	692	124	19	133	20	311	50	86	16
15–19 years	93,974	72,553	52,279	7,650	1,246	10,022	1,356	20,656	7,841	5,236	765
20–24 years	303,462	202,793	133,430	17,631	7,624	38,461	5,647	97,128	41,645	19,087	3,541
25–29 years	366,591	191,443	117,253	14,038	9,915	43,412	6,825	169,277	67,870	27,849	5,871
30–34 years	251,213	114,672	68,014	8,881	5,747	27,385	4,645	131,848	50,244	20,344	4,693
35–39 years	104,149	48,013	28,235	4,632	2,009	11,159	1,978	53,864	21,071	8,110	2,272
40–44 years	18,755	9,446	5,936	970	347	1,868	325	8,953	3,403	1,554	356
45–49 years	1,050	484	319	35	23	91	16	551	128	79	15
Not stated	11,650	1,274	712	206	10	43	303	8,206	4,834	3,140	2,170
Under 15 years	107	9	8	–	–	–	1	82	22	60	16
15–19 years	2,569	277	165	47	1	4	60	1,852	982	843	440
20–24 years	3,891	470	247	98	5	12	108	2,761	1,596	1,105	660
25–29 years	2,835	294	171	35	3	16	69	2,005	1,241	683	536
30–34 years	1,545	147	85	15	1	6	40	1,040	681	327	358
35–39 years	590	68	33	8	–	4	23	386	258	102	136
40–44 years	100	8	2	3	–	1	2	72	49	19	20
45–49 years	13	1	1	–	–	–	–	8	5	1	4
Infant deaths											
All places of birth	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
Under 15 years	399	65	44	10	–	2	9	326	77	245	8
15–19 years	11,547	1,890	1,238	295	23	112	222	9,279	4,919	4,109	378
20–24 years	20,439	3,075	1,917	410	84	309	355	16,628	10,171	5,912	736
25–29 years	17,919	2,346	1,457	277	63	310	239	14,822	9,879	4,234	751
30–34 years	10,720	1,418	881	138	43	207	149	8,808	5,932	2,327	494
35–39 years	4,031	645	388	77	19	101	60	3,178	2,114	823	208
40–44 years	744	158	113	15	2	19	9	558	356	139	28
45–49 years	48	13	10	2	–	1	–	34	18	12	1
Mother born in the 50 States and the District of Columbia	55,424	4,470	2,885	649	46	25	865	48,884	31,641	16,394	2,070
Under 15 years	362	41	25	7	–	1	8	315	75	237	6
15–19 years	10,378	1,166	752	193	12	6	203	8,891	4,770	3,965	321
20–24 years	17,737	1,547	965	233	27	10	312	15,584	9,746	5,584	606
25–29 years	14,856	977	630	148	3	6	190	13,303	9,275	3,796	576
30–34 years	8,558	511	340	53	–	2	116	7,659	5,521	2,001	388
35–39 years	3,009	198	148	12	4	–	34	2,660	1,919	688	151
40–44 years	500	27	23	2	–	–	2	452	321	117	21
45–49 years	24	3	2	1	–	–	–	20	14	6	1

Table 3. Live births and infant deaths by place of birth, age, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts—Con.

Place of birth of mother and age of mother	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Infant deaths											
Mother born outside the 50 States and the District of Columbia	9,381	5,076	3,132	565	188	1,035	156	4,086	1,471	1,113	219
Under 15 years	26	24	19	3	1	1	2	1			
15–19 years	978	708	481	98	11	106	12	261	82	86	9
20–24 years	2,401	1,508	941	174	57	299	37	846	314	244	47
25–29 years	2,790	1,352	816	128	60	304	44	1,359	523	362	79
30–34 years	1,981	903	539	84	43	205	32	1,032	344	279	46
35–39 years	948	442	239	65	15	100	23	473	171	117	33
40–44 years	236	129	89	12	2	19	7	102	34	19	5
45–49 years	21	10	8	1	–	1	–	11	2	6	–
Not stated	1,042	64	31	10	–	1	22	663	354	294	315
Under 15 years	11	–	–	–	–	–	–	9	1	8	2
15–19 years	191	16	5	4	–	–	7	127	67	58	48
20–24 years	301	20	11	3	–	–	6	198	111	84	83
25–29 years	273	17	11	1	–	–	5	160	81	76	96
30–34 years	181	4	2	1	–	–	1	117	67	47	60
35–39 years	74	5	1	–	–	1	3	45	24	18	24
40–44 years	8	2	1	1	–	–	–	4	1	3	2
45–49 years	3	–	–	–	–	–	–	3	2	–	–

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 4. Live births and infant deaths by age and educational attainment of mother, by Hispanic origin of mother, and by race of mother for mothers of non-Hispanic origin: Total of 18 States and the District of Columbia, 1985–87 birth cohorts

Age and years of school completed by mother	All origins ¹	Origin of mother									
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	Not stated
Live births											
All ages	4,253,457	369,119	113,288	105,290	27,532	70,185	52,824	3,709,202	2,828,777	750,876	175,136
0–8 years	164,995	64,357	36,436	10,198	1,657	11,870	4,196	97,188	56,509	32,413	3,450
9–11 years	714,453	95,737	29,355	36,321	3,672	12,616	13,773	596,915	368,476	210,680	21,801
12 years	1,737,404	127,735	31,271	37,289	9,981	28,168	21,026	1,543,641	1,183,746	314,426	66,028
13–15 years	872,570	51,286	11,177	13,929	7,605	10,372	8,203	789,456	633,458	132,467	31,828
16 years and over	710,906	23,683	3,564	5,187	4,463	5,800	4,669	650,207	567,963	50,638	37,016
Not stated	53,129	6,321	1,485	2,366	154	1,359	957	31,795	18,625	10,252	15,013
Under 20 years	531,912	57,534	20,241	22,144	1,818	4,763	8,568	456,695	267,741	178,217	17,683
0–8 years	49,183	10,941	5,642	3,119	245	941	994	37,108	20,414	15,656	1,134
9–11 years	281,812	31,156	9,912	13,266	962	2,054	4,962	242,175	138,192	98,697	8,481
12 years	174,425	12,972	3,959	4,779	529	1,453	2,252	155,499	96,632	55,210	5,954
13–15 years	18,535	1,398	420	516	68	198	196	16,500	9,801	6,208	637
16 years and over	202	35	9	13	2	8	3	156	88	58	11
Not stated	7,755	1,032	299	451	12	109	161	5,257	2,614	2,388	1,466
20–34 years	3,418,539	284,241	85,861	76,642	23,480	57,748	40,510	2,993,003	2,356,244	531,886	141,295
0–8 years	100,737	46,393	27,287	6,061	1,140	9,224	2,681	52,332	32,599	13,752	2,012
9–11 years	412,433	60,695	18,554	21,763	2,547	9,542	8,289	339,028	221,923	105,524	12,710
12 years	1,473,447	105,598	25,749	30,039	8,682	23,718	17,410	1,311,528	1,029,440	243,879	56,321
13–15 years	790,971	46,287	10,041	12,578	7,055	9,254	7,359	716,005	577,152	118,138	28,679
16 years and over	601,530	20,565	3,155	4,505	3,943	4,926	4,036	550,502	480,973	43,445	30,463
Not stated	39,421	4,703	1,075	1,696	113	1,084	735	23,608	14,157	7,148	11,110
35 years and over	303,006	27,344	7,186	6,504	2,234	7,674	3,746	259,504	204,792	40,773	16,158
0–8 years	15,075	7,023	3,507	1,018	272	1,705	521	7,748	3,496	3,005	304
9–11 years	20,208	3,886	889	1,292	163	1,020	522	15,712	8,361	6,459	610
12 years	89,532	9,165	1,563	2,471	770	2,997	1,364	76,614	57,674	15,337	3,753
13–15 years	63,064	3,601	716	835	482	920	648	56,951	46,505	8,121	2,512
16 years and over	109,174	3,083	400	669	518	866	630	99,549	86,902	7,135	6,542
Not stated	5,953	586	111	219	29	166	61	2,930	1,854	716	2,437
Infant deaths											
All ages	44,547	3,537	1,076	1,159	209	587	506	38,721	23,705	13,896	2,289
0–8 years	2,300	672	370	118	21	114	49	1,575	799	698	53
9–11 years	10,857	1,073	302	461	39	115	156	9,442	4,868	4,354	342
12 years	17,683	1,103	264	384	70	220	165	15,816	9,856	5,556	764
13–15 years	7,130	393	82	109	55	80	67	6,413	4,194	2,032	324
16 years and over	4,682	127	19	24	20	38	26	4,284	3,413	688	271
Not stated	1,895	169	39	63	4	20	43	1,191	575	568	535
Under 20 years	8,321	723	241	297	23	54	108	7,247	3,645	3,453	351
0–8 years	908	151	67	47	4	16	17	741	362	363	16
9–11 years	4,631	389	125	174	18	16	56	4,084	2,070	1,937	158
12 years	2,248	135	37	56	1	16	25	2,021	1,033	945	92
13–15 years	196	11	3	5	–	3	–	174	91	78	11
16 years and over	2	–	–	–	–	–	–	2	2	–	–
Not stated	336	37	9	15	–	3	10	225	87	130	74
20–34 years	33,064	2,497	754	770	168	457	348	28,834	18,326	9,662	1,733
0–8 years	1,179	427	256	52	15	80	24	723	399	275	29
9–11 years	5,904	634	169	261	19	93	92	5,098	2,695	2,270	172
12 years	14,426	868	213	296	61	174	124	12,944	8,293	4,323	614
13–15 years	6,349	345	75	94	51	68	57	5,721	3,736	1,820	283
16 years and over	3,822	106	16	22	19	30	19	3,494	2,784	571	222
Not stated	1,384	117	25	45	3	12	32	854	419	403	413
35 years and over	3,162	317	81	92	18	76	50	2,640	1,734	781	205
0–8 years	213	94	47	19	2	18	8	111	38	60	8
9–11 years	322	50	8	26	2	6	8	260	103	147	12
12 years	1,009	100	14	32	8	30	16	851	530	288	58
13–15 years	585	37	4	10	4	9	10	518	367	134	30
16 years and over	858	21	3	2	1	8	7	788	627	117	49
Not stated	175	15	5	3	1	5	1	112	69	35	48

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 5. Live births and infant deaths by month of pregnancy prenatal care began, number of prenatal visits, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Trimester prenatal care began and number of visits	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
Total	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
No visits	151,752	54,711	34,218	9,921	450	7,610	2,512	93,137	43,946	44,195	3,904
1–4 visits	281,040	68,197	46,704	9,446	815	6,572	4,660	203,209	104,378	88,088	9,634
5–8 visits	888,600	159,947	95,394	27,017	4,457	20,137	12,942	698,038	460,104	204,997	30,615
9–12 visits	2,384,917	250,162	134,524	41,111	13,207	31,949	29,371	2,053,655	1,648,088	340,472	81,100
13–16 visits	1,114,192	90,107	49,654	12,243	7,113	11,370	9,727	986,655	838,186	121,345	37,430
17 visits or more	229,421	21,049	11,865	2,572	1,867	2,453	2,292	201,951	163,013	34,230	6,421
Not stated	1,577,689	487,272	364,746	9,609	2,946	55,883	54,088	1,069,303	763,811	161,984	21,114
No prenatal care	151,752	54,711	34,218	9,921	450	7,610	2,512	93,137	43,946	44,195	3,904
First trimester	4,836,464	671,163	427,997	61,827	25,260	78,424	77,655	4,025,727	3,243,716	576,527	139,574
1–4 visits	61,596	14,921	10,827	1,902	167	1,198	827	43,885	22,835	19,016	2,790
5–8 visits	433,255	67,706	38,363	12,648	3,061	8,310	5,324	349,032	246,615	86,679	16,517
9–12 visits	1,973,315	183,931	98,352	30,151	10,967	22,143	22,318	1,720,070	1,422,258	245,529	69,314
13–16 visits	1,032,157	78,288	42,563	10,482	6,899	9,655	8,689	918,749	790,514	103,356	35,120
17 visits or more	210,400	18,315	9,992	2,284	1,832	2,144	2,063	186,115	152,942	28,824	5,970
Not stated	1,125,741	308,002	227,900	4,360	2,334	34,974	38,434	807,876	608,552	93,123	9,863
Second trimester	1,210,808	289,615	195,395	27,512	4,105	36,092	26,511	891,965	562,862	274,428	29,228
1–4 visits	98,418	22,480	14,957	3,446	332	2,044	1,701	72,886	34,706	34,659	3,052
5–8 visits	359,891	70,067	43,242	11,192	1,083	8,698	5,852	278,636	169,639	95,582	11,188
9–12 visits	379,309	60,350	33,124	9,777	2,148	8,704	6,597	308,508	208,603	88,320	10,451
13–16 visits	75,253	10,911	6,632	1,562	194	1,555	968	62,407	43,537	16,851	1,935
17 visits or more	17,325	2,518	1,754	247	33	276	208	14,450	9,098	5,031	357
Not stated	280,612	123,289	95,686	1,288	315	14,815	11,185	155,078	97,279	33,985	2,245
Third trimester	288,689	84,137	59,267	7,868	751	9,943	6,308	197,238	116,382	66,050	7,314
1–4 visits	114,844	29,361	20,099	3,790	310	3,172	1,990	82,039	44,776	32,367	3,444
5–8 visits	88,138	20,704	13,089	2,813	294	2,840	1,668	64,964	40,624	20,964	2,470
9–12 visits	21,922	4,477	2,583	786	70	688	350	16,793	11,030	4,997	652
13–16 visits	3,059	554	305	101	11	91	46	2,389	1,636	650	116
17 visits or more	758	130	81	21	–	19	9	599	361	220	29
Not stated	59,968	28,911	23,110	357	66	3,133	2,245	30,454	17,955	6,852	603
Not stated	139,898	31,819	20,228	4,791	289	3,905	2,606	97,881	54,620	34,111	10,198
1–4 visits	6,182	1,435	821	308	6	158	142	4,399	2,061	2,046	348
5–8 visits	7,316	1,470	700	364	19	289	98	5,406	3,226	1,772	440
9–12 visits	10,371	1,404	465	397	22	414	106	8,284	6,197	1,626	683
13–16 visits	3,723	354	154	98	9	69	24	3,110	2,499	488	259
17 visits or more	938	86	38	20	2	14	12	787	612	155	65
Not stated	111,368	27,070	18,050	3,604	231	2,961	2,224	75,895	40,025	28,024	8,403
Infant deaths											
Total	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
No visits	5,309	1,086	631	248	10	120	77	4,018	1,582	2,317	205
1–4 visits	10,312	1,297	769	241	41	140	106	8,587	4,297	4,050	428
5–8 visits	13,848	1,515	865	283	54	159	154	11,735	7,420	3,949	598
9–12 visits	13,541	1,278	673	228	61	155	161	11,745	8,394	3,004	518
13–16 visits	4,948	374	211	47	31	47	38	4,433	3,406	912	141
17 visits or more	1,518	131	77	13	7	16	18	1,327	1,026	282	60
Not stated	16,371	3,929	2,822	164	30	424	489	11,788	7,341	3,287	654
No prenatal care	5,309	1,086	631	248	10	120	77	4,018	1,582	2,317	205
First trimester	41,240	5,240	3,331	561	167	582	599	34,545	23,795	9,241	1,455
1–4 visits	5,236	553	328	100	28	58	39	4,437	2,333	2,006	246
5–8 visits	9,728	915	510	177	40	97	91	8,359	5,567	2,554	454
9–12 visits	10,952	971	514	179	46	116	116	9,536	7,094	2,180	445
13–16 visits	4,457	306	165	40	29	40	32	4,019	3,145	766	132
17 visits or more	1,383	115	63	13	7	15	17	1,214	952	243	54
Not stated	9,484	2,380	1,751	52	17	256	304	6,980	4,704	1,492	124

Table 6. Live births and infant deaths by age of mother, live-birth order, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Age of mother and live-birth order	All origins ¹	Origin of mother									Not stated
		Total	Hispanic					Non-Hispanic			
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
All ages	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
First child	2,723,291	414,666	252,609	46,014	13,814	54,598	47,631	2,228,536	1,720,991	387,915	80,089
Second child	2,146,368	331,532	209,792	33,327	10,962	42,146	35,305	1,754,718	1,371,172	292,837	60,118
Third child	1,052,457	205,272	138,965	18,820	4,328	23,601	19,558	819,745	607,443	170,392	27,440
Fourth child	402,052	97,005	70,651	7,906	1,153	9,421	7,874	295,508	198,939	78,788	9,539
Fifth child	151,684	42,318	32,387	3,073	355	3,554	2,949	105,831	63,525	33,910	3,535
Sixth child or more	125,348	38,470	31,590	2,282	208	2,365	2,025	83,809	45,230	28,805	3,069
Not stated	26,411	2,182	1,111	497	35	289	250	17,801	14,226	2,664	6,428
Under 20 years	829,740	184,434	128,191	23,073	2,014	11,026	20,130	625,969	376,811	230,114	19,337
First child	635,738	137,045	93,894	17,164	1,654	8,909	15,424	484,016	305,307	164,213	14,677
Second child	155,774	38,252	27,676	4,607	304	1,827	3,838	114,383	60,743	50,145	3,139
Third child	29,112	7,556	5,560	992	42	246	716	21,024	7,927	12,300	532
Fourth child	4,319	1,070	800	143	9	18	100	3,175	817	2,199	74
Fifth child	553	115	84	20	1	3	7	428	82	325	10
Sixth child or more	96	18	12	5	–	–	1	77	19	54	1
Not stated	4,148	378	165	142	4	23	44	2,866	1,916	878	904
20–34 years	5,312,962	865,528	557,431	81,934	26,349	111,677	88,137	4,294,150	3,347,235	712,903	153,284
First child	1,994,724	268,661	154,866	27,798	11,652	43,304	31,041	1,665,473	1,351,180	216,796	60,590
Second child	1,858,936	278,913	175,253	27,181	9,749	36,989	29,741	1,527,819	1,220,202	231,264	52,204
Third child	915,336	180,133	123,171	16,197	3,665	20,022	17,078	711,729	531,604	146,564	23,474
Fourth child	333,725	81,541	60,178	6,576	875	7,353	6,559	244,496	162,194	68,230	7,688
Fifth child	116,247	32,489	25,095	2,393	245	2,485	2,271	81,097	46,558	28,242	2,661
Sixth child or more	73,733	22,159	18,016	1,464	133	1,289	1,257	49,820	24,150	20,171	1,754
Not stated	20,261	1,632	852	325	30	235	190	13,716	11,347	1,636	4,913
35 years or more	484,909	81,483	51,483	6,912	2,492	13,271	7,325	385,829	297,480	52,294	17,597
First child	92,829	8,960	3,849	1,052	508	2,385	1,166	79,047	64,504	6,906	4,822
Second child	131,658	14,367	6,863	1,539	909	3,330	1,726	112,516	90,227	11,428	4,775
Third child	108,009	17,583	10,234	1,631	621	3,333	1,764	86,992	67,912	11,528	3,434
Fourth child	64,008	14,394	9,673	1,187	269	2,050	1,215	47,837	35,928	8,359	1,777
Fifth child	34,884	9,714	7,208	660	109	1,066	671	24,306	16,885	5,343	864
Sixth child or more	51,519	16,293	13,562	813	75	1,076	767	33,912	21,061	8,580	1,314
Not stated	2,002	172	94	30	1	31	16	1,219	963	150	611
Infant deaths											
All ages	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
First child	25,379	3,468	2,050	492	100	411	415	20,893	13,573	6,430	1,018
Second child	20,124	2,665	1,598	347	73	342	305	16,726	10,959	5,062	733
Third child	10,837	1,696	1,089	203	40	174	190	8,833	5,345	3,091	308
Fourth child	4,894	882	637	91	16	68	70	3,873	2,045	1,665	139
Fifth child	1,998	397	286	41	4	32	34	1,549	731	741	52
Sixth child or more	1,833	434	345	38	1	29	21	1,352	570	673	47
Not stated	782	68	43	12	–	5	8	407	243	139	307
Under 20 years	11,946	1,955	1,282	305	23	114	231	9,605	4,996	4,354	386
First child	7,895	1,309	852	192	20	90	155	6,333	3,511	2,652	253
Second child	3,067	494	332	80	2	21	59	2,491	1,211	1,216	82
Third child	724	117	77	25	–	2	13	590	208	365	17
Fourth child	125	20	15	3	1	–	1	104	23	79	1
Fifth child	22	2	1	1	–	–	–	19	2	17	1
Sixth child or more	3	–	–	–	–	–	–	3	1	2	–
Not stated	110	13	5	4	–	1	3	65	40	23	32
20–34 years	49,078	6,839	4,255	825	190	826	743	40,258	25,982	12,473	1,981
First child	16,488	2,057	1,146	287	77	301	246	13,727	9,484	3,590	704
Second child	15,909	2,035	1,203	245	62	292	233	13,277	9,047	3,667	597
Third child	9,147	1,411	916	155	36	145	159	7,485	4,616	2,540	251
Fourth child	4,127	724	537	69	11	48	59	3,288	1,720	1,444	115
Fifth child	1,613	299	218	34	3	19	25	1,273	584	636	41
Sixth child or more	1,200	261	199	28	1	17	16	909	347	498	30
Not stated	594	52	36	7	–	4	5	299	184	98	243

Table 7. Live births and infant deaths by place of birth of mother, birthweight , and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Place of birth of mother and birthweight	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
All places of birth	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
Less than 500 grams	8,202	984	618	111	34	115	106	6,795	3,483	3,066	423
500–999 grams	31,331	4,469	2,679	655	121	557	457	25,561	13,606	11,063	1,301
1,000–1,499 grams	41,261	6,268	3,807	886	172	724	679	33,457	19,309	12,806	1,536
1,500–1,999 grams	86,767	13,209	8,055	1,948	334	1,418	1,454	70,631	42,482	24,949	2,927
2,000–2,499 grams	286,999	44,465	26,963	6,569	1,111	4,934	4,888	234,146	145,577	76,084	8,388
2,500–2,999 grams	1,073,493	183,449	113,719	23,595	4,364	21,791	19,980	860,600	562,611	239,316	29,444
3,000–3,499 grams	2,454,690	439,793	284,913	44,088	11,784	54,000	45,008	1,945,888	1,445,146	379,845	69,009
3,500–3,999 grams	1,930,060	326,917	219,183	26,597	9,511	39,527	32,099	1,547,560	1,280,102	196,451	55,583
4,000–4,499 grams	587,655	92,002	63,101	6,212	2,864	10,742	9,083	478,355	419,009	42,424	17,298
4,500–4,999 grams	106,180	16,321	11,560	990	471	1,783	1,517	86,687	77,163	6,747	3,172
5,000 grams or more	14,030	2,430	1,804	123	67	220	216	11,209	9,733	1,062	391
Not stated	6,943	1,138	703	145	22	163	105	5,059	3,305	1,498	746
Mother born in the 50 States and the District of Columbia	5,475,452	489,779	330,235	57,752	3,915	3,400	94,477	4,815,154	3,824,440	909,826	170,519
Less than 500 grams	6,885	462	323	49	8	–	82	6,127	3,251	2,792	296
500–999 grams	26,308	2,027	1,285	332	18	14	378	23,205	12,751	10,144	1,076
1,000–1,499 grams	34,977	2,949	1,873	486	25	21	544	30,687	18,320	11,960	1,341
1,500–1,999 grams	74,019	6,537	4,161	1,062	59	52	1,203	64,853	40,446	23,460	2,629
2,000–2,499 grams	243,335	22,136	14,165	3,518	167	143	4,143	213,700	138,772	71,542	7,499
2,500–2,999 grams	883,469	86,422	56,233	12,452	628	593	16,515	771,015	534,271	222,380	26,032
3,000–3,499 grams	2,003,879	192,263	129,946	22,813	1,528	1,307	36,669	1,750,116	1,371,804	346,794	61,500
3,500–3,999 grams	1,600,964	134,348	92,747	13,464	1,105	965	26,067	1,416,226	1,218,429	175,593	50,390
4,000–4,499 grams	494,877	35,350	24,420	2,998	319	250	7,363	443,656	400,298	37,058	15,871
4,500–4,999 grams	89,660	5,980	4,190	450	50	45	1,245	80,750	73,757	5,857	2,930
5,000 grams or more	11,598	891	648	52	6	3	182	10,341	9,289	912	366
Not stated	5,481	414	244	76	2	6	86	4,478	3,052	1,334	589
Mother born outside the 50 States and the District of Columbia	1,140,509	640,392	406,158	53,961	26,930	132,531	20,812	482,588	192,252	82,345	17,529
Less than 500 grams	1,025	509	289	61	26	115	18	487	145	186	29
500–999 grams	4,600	2,417	1,380	319	103	542	73	2,057	703	776	126
1,000–1,499 grams	6,028	3,300	1,920	399	147	703	131	2,589	893	764	139
1,500–1,999 grams	12,446	6,647	3,881	880	275	1,365	246	5,561	1,922	1,390	238
2,000–2,499 grams	42,921	22,267	12,769	3,038	944	4,788	728	19,921	6,533	4,300	733
2,500–2,999 grams	187,758	96,800	57,366	11,100	3,736	21,193	3,405	87,941	27,524	16,155	3,017
3,000–3,499 grams	446,851	247,004	154,669	21,185	10,250	52,677	8,223	192,993	71,695	32,009	6,854
3,500–3,999 grams	326,656	192,291	126,277	13,100	8,402	38,550	5,962	129,591	60,484	20,352	4,774
4,000–4,499 grams	92,171	56,584	38,640	3,206	2,545	10,489	1,704	34,263	18,383	5,274	1,324
4,500–4,999 grams	16,420	10,326	7,361	538	421	1,735	271	5,869	3,346	883	225
5,000 grams or more	2,412	1,537	1,155	70	61	217	34	854	434	147	21
Not stated	1,221	710	451	65	20	157	17	462	190	109	49
Place of birth of mother not stated	11,650	1,274	712	206	10	43	303	8,206	4,834	3,140	2,170
Less than 500 grams	292	13	6	1	–	–	6	181	87	88	98
500–999 grams	423	25	14	4	–	1	6	299	152	143	99
1,000–1,499 grams	256	19	14	1	–	–	4	181	96	82	56
1,500–1,999 grams	302	25	13	6	–	1	5	217	114	99	60
2,000–2,499 grams	743	62	29	13	–	3	17	525	272	242	156
2,500–2,999 grams	2,266	227	120	43	–	4	60	1,644	816	781	395
3,000–3,499 grams	3,960	526	298	90	6	16	116	2,779	1,647	1,042	655
3,500–3,999 grams	2,440	278	159	33	4	12	70	1,743	1,189	506	419
4,000–4,499 grams	607	68	41	8	–	3	16	436	328	92	103
4,500–4,999 grams	100	15	9	2	–	3	1	68	60	7	17
5,000 grams or more	20	2	1	1	–	–	–	14	10	3	4
Not stated	241	14	8	4	–	–	2	119	63	55	108

Table 7. Live births and infant deaths by place of birth of mother, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts—Con.

Place of birth of mother and birthweight	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Infant deaths											
All places of birth	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
Less than 500 grams	7,223	803	496	91	31	89	96	6,037	3,123	2,692	383
500–999 grams	16,615	2,424	1,475	347	64	293	245	13,459	7,590	5,409	732
1,000–1,499 grams	5,330	835	541	95	28	81	90	4,281	2,818	1,267	214
1,500–1,999 grams	4,337	626	414	68	9	58	77	3,537	2,327	1,035	174
2,000–2,499 grams	5,566	870	554	128	21	84	83	4,539	2,883	1,430	157
2,500–2,999 grams	7,845	1,202	730	170	19	143	140	6,399	4,014	2,069	244
3,000–3,499 grams	9,655	1,419	918	159	32	145	165	7,945	5,445	2,095	291
3,500–3,999 grams	5,302	827	543	73	25	90	96	4,334	3,200	910	141
4,000–4,499 grams	1,503	258	176	28	2	33	19	1,199	955	189	46
4,500–4,999 grams	361	62	47	4	1	8	2	286	225	45	13
5,000 grams or more	179	25	19	3	–	–	3	145	96	45	9
Not stated	1,931	259	135	58	2	37	27	1,472	790	615	200
Mother born in the 50 States and the District of Columbia	55,424	4,470	2,885	649	46	25	865	48,884	31,641	16,394	2,070
Less than 500 grams	6,085	383	258	41	8	–	76	5,440	2,913	2,449	262
500–999 grams	13,848	1,082	678	177	13	7	207	12,195	7,071	4,955	571
1,000–1,499 grams	4,466	390	257	56	5	2	70	3,904	2,663	1,174	172
1,500–1,999 grams	3,675	289	187	30	4	1	67	3,243	2,214	978	143
2,000–2,499 grams	4,720	409	267	69	2	3	68	4,170	2,743	1,341	141
2,500–2,999 grams	6,694	594	361	105	3	5	120	5,891	3,847	1,937	209
3,000–3,499 grams	8,235	675	446	78	6	2	143	7,310	5,204	1,955	250
3,500–3,999 grams	4,510	402	280	41	5	2	74	3,983	3,055	841	125
4,000–4,499 grams	1,238	107	74	16	–	2	15	1,091	904	166	40
4,500–4,999 grams	292	20	16	3	–	–	1	259	216	37	13
5,000 grams or more	156	14	10	1	–	–	3	133	90	42	9
Not stated	1,505	105	51	32	–	1	21	1,265	721	519	135
Mother born outside the 50 States and the District of Columbia	9,381	5,076	3,132	565	188	1,035	156	4,086	1,471	1,113	219
Less than 500 grams	860	407	232	49	23	89	14	426	127	160	27
500–999 grams	2,435	1,320	785	166	51	286	32	1,038	399	351	77
1,000–1,499 grams	787	440	281	39	23	79	18	330	128	74	17
1,500–1,999 grams	618	335	225	38	5	57	10	267	92	52	16
2,000–2,499 grams	798	454	285	58	19	80	12	337	121	78	7
2,500–2,999 grams	1,101	607	369	65	16	138	19	468	146	115	26
3,000–3,499 grams	1,362	741	471	81	26	143	20	596	217	125	25
3,500–3,999 grams	773	424	262	32	20	88	22	338	138	64	11
4,000–4,499 grams	258	151	102	12	2	31	4	103	46	23	4
4,500–4,999 grams	66	42	31	1	1	8	1	24	7	7	–
5,000 grams or more	22	11	9	2	–	–	–	11	5	3	–
Not stated	301	144	80	22	2	36	4	148	45	61	9
Place of birth of mother not stated	1,042	64	31	10	–	1	22	663	354	294	315
Less than 500 grams	278	13	6	1	–	–	6	171	83	83	94
500–999 grams	332	22	12	4	–	–	6	226	120	103	84
1,000–1,499 grams	77	5	3	–	–	–	2	47	27	19	25
1,500–1,999 grams	44	2	2	–	–	–	–	27	21	5	15
2,000–2,499 grams	48	7	2	1	–	1	3	32	19	11	9
2,500–2,999 grams	50	1	–	–	–	–	1	40	21	17	9
3,000–3,499 grams	58	3	1	–	–	–	2	39	24	15	16
3,500–3,999 grams	19	1	1	–	–	–	–	13	7	5	5
4,000–4,499 grams	7	–	–	–	–	–	–	5	5	–	2
4,500–4,999 grams	3	–	–	–	–	–	–	3	2	1	–
5,000 grams or more	1	–	–	–	–	–	–	1	1	–	–
Not stated	125	10	4	4	–	–	2	59	24	35	56

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 8. Live births and infant deaths by place of birth of mother, trimester of pregnancy prenatal care began, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Place of birth of mother and trimester prenatal care began	All origins ¹	Origin of mother									Not stated
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
All places of birth of mother	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
No prenatal care	151,752	54,711	34,218	9,921	450	7,610	2,512	93,137	43,946	44,195	3,904
First trimester	4,836,464	671,163	427,997	61,827	25,260	78,424	77,655	4,025,727	3,243,716	576,527	139,574
Second trimester	1,210,808	289,615	195,395	27,512	4,105	36,092	26,511	891,965	562,862	274,428	29,228
Third trimester	288,689	84,137	59,267	7,868	751	9,943	6,308	197,238	116,382	66,050	7,314
Not stated	139,898	31,819	20,228	4,791	289	3,905	2,606	97,881	54,620	34,111	10,198
Mother born in the 50 States and the District of Columbia	5,475,452	489,779	330,235	57,752	3,915	3,400	94,477	4,815,154	3,824,440	909,826	170,519
No prenatal care	104,502	19,341	11,919	5,223	79	147	1,973	82,147	40,914	39,599	3,014
First trimester	4,103,251	302,166	201,716	31,591	2,927	2,199	63,733	3,673,146	3,089,591	528,447	127,939
Second trimester	952,244	121,805	84,242	14,436	718	728	21,681	804,847	535,042	252,594	25,592
Third trimester	214,090	33,410	23,726	4,126	150	231	5,177	174,344	108,994	60,391	6,336
Not stated	101,365	13,057	8,632	2,376	41	95	1,913	80,670	49,899	28,795	7,638
Mother born outside the 50 States and the District of Columbia	1,140,509	640,392	406,158	53,961	26,930	132,531	20,812	482,588	192,252	82,345	17,529
No prenatal care	46,350	35,248	22,223	4,681	371	7,461	512	10,485	2,769	4,362	617
First trimester	728,449	368,490	226,023	30,150	22,327	76,197	13,793	348,900	151,698	46,949	11,059
Second trimester	256,310	167,517	110,989	13,021	3,385	35,357	4,765	85,493	26,958	21,118	3,300
Third trimester	73,616	50,587	35,448	3,726	601	9,708	1,104	22,235	6,961	5,445	794
Not stated	35,784	18,550	11,475	2,383	246	3,808	638	15,475	3,866	4,471	1,759
Place of birth of mother not stated	11,650	1,274	712	206	10	43	303	8,206	4,834	3,140	2,170
No prenatal care	900	122	76	17	—	2	27	505	263	234	273
First trimester	4,764	507	258	86	6	28	129	3,681	2,427	1,131	576
Second trimester	2,254	293	164	55	2	7	65	1,625	862	716	336
Third trimester	983	140	93	16	—	4	27	659	427	214	184
Not stated	2,749	212	121	32	2	2	55	1,736	855	845	801
Infant deaths											
All places of birth of mother	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
No prenatal care	5,309	1,086	631	248	10	120	77	4,018	1,582	2,317	205
First trimester	41,240	5,240	3,331	561	167	582	599	34,545	23,795	9,241	1,455
Second trimester	12,669	2,189	1,422	240	39	246	242	10,138	5,455	4,192	342
Third trimester	2,472	514	337	69	8	53	47	1,889	1,033	765	69
Not stated	4,157	581	327	106	10	60	78	3,043	1,601	1,286	533
Mother born in the 50 States and the District of Columbia	55,424	4,470	2,885	649	46	25	865	48,884	31,641	16,394	2,070
No prenatal care	4,316	511	297	141	3	4	66	3,673	1,484	2,128	132
First trimester	35,374	2,397	1,586	291	26	16	478	31,684	22,602	8,598	1,293
Second trimester	10,714	1,077	703	141	12	1	220	9,338	5,202	3,927	299
Third trimester	2,019	230	145	40	4	1	40	1,735	983	708	54
Not stated	3,001	255	154	36	1	3	61	2,454	1,370	1,033	292
Mother born outside the 50 States and the District of Columbia	9,381	5,076	3,132	565	188	1,035	156	4,086	1,471	1,113	219
No prenatal care	844	568	333	103	7	116	9	249	59	133	27
First trimester	5,607	2,824	1,735	268	141	566	114	2,677	1,082	577	106
Second trimester	1,866	1,104	715	98	27	245	19	733	217	236	29
Third trimester	428	282	191	29	4	52	6	139	47	45	7
Not stated	636	298	158	67	9	56	8	288	66	122	50
Place of birth of mother not stated	1,042	64	31	10	—	1	22	663	354	294	315
No prenatal care	149	7	1	4	—	—	2	96	39	56	46
First trimester	259	19	10	2	—	—	7	184	111	66	56
Second trimester	89	8	4	1	—	—	3	67	36	29	14
Third trimester	25	2	1	—	—	—	1	15	3	12	8
Not stated	520	28	15	3	—	1	9	301	165	131	191

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 9. Live births and infant deaths by plurality of birth, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Plurality and birthweight	All origins ¹	Origin of mother									Not stated
		Total	Hispanic					Non-Hispanic			
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
All deliveries	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
Less than 500 grams	8,202	984	618	111	34	115	106	6,795	3,483	3,066	423
500–999 grams	31,331	4,469	2,679	655	121	557	457	25,561	13,606	11,063	1,301
1,000–1,499 grams	41,261	6,268	3,807	886	172	724	679	33,457	19,309	12,806	1,536
1,500–1,999 grams	86,767	13,209	8,055	1,948	334	1,418	1,454	70,631	42,482	24,949	2,927
2,000–2,499 grams	286,999	44,465	26,963	6,569	1,111	4,934	4,888	234,146	145,577	76,084	8,388
2,500–2,999 grams	1,073,493	183,449	113,719	23,595	4,364	21,791	19,980	860,600	562,611	239,316	29,444
3,000–3,499 grams	2,454,690	439,793	284,913	44,088	11,784	54,000	45,008	1,945,888	1,445,146	379,845	69,009
3,500–3,999 grams	1,930,060	326,917	219,183	26,597	9,511	39,527	32,099	1,547,560	1,280,102	196,451	55,583
4,000–4,499 grams	587,655	92,002	63,101	6,212	2,864	10,742	9,083	478,355	419,009	42,424	17,298
4,500–4,999 grams	106,180	16,321	11,560	990	471	1,783	1,517	86,687	77,163	6,747	3,172
5,000 grams or more	14,030	2,430	1,804	123	67	220	216	11,209	9,733	1,062	391
Not stated	6,943	1,138	703	145	22	163	105	5,059	3,305	1,498	746
Single deliveries	6,485,922	1,110,605	723,585	109,679	30,196	133,623	113,522	5,189,498	3,934,782	970,106	185,819
Less than 500 grams	6,475	812	515	100	22	93	82	5,333	2,623	2,503	330
500–999 grams	25,922	3,766	2,221	574	105	484	382	21,086	10,848	9,471	1,070
1,000–1,499 grams	33,457	5,219	3,143	746	142	628	560	27,008	15,039	10,832	1,230
1,500–1,999 grams	68,614	10,599	6,407	1,610	254	1,120	1,208	55,683	32,249	20,826	2,332
2,000–2,499 grams	247,776	38,712	23,216	5,900	942	4,343	4,311	201,816	122,096	68,666	7,248
2,500–2,999 grams	1,030,169	176,668	109,300	22,954	4,157	20,996	19,261	825,268	535,115	232,896	28,233
3,000–3,499 grams	2,433,625	436,711	282,895	43,794	11,672	53,607	44,743	1,928,561	1,430,875	377,376	68,353
3,500–3,999 grams	1,926,104	326,365	218,810	26,551	9,480	39,460	32,064	1,544,259	1,277,297	196,031	55,480
4,000–4,499 grams	587,273	91,946	63,063	6,206	2,862	10,737	9,078	478,046	418,735	42,399	17,281
4,500–4,999 grams	106,140	16,316	11,555	990	471	1,783	1,517	86,653	77,136	6,743	3,171
5,000 grams or more	14,002	2,428	1,802	123	67	220	216	11,184	9,719	1,052	390
Not stated	6,365	1,063	658	131	22	152	100	4,601	3,050	1,311	701
Multiple deliveries	141,689	20,840	13,520	2,240	659	2,351	2,070	116,450	86,744	25,205	4,399
Less than 500 grams	1,727	172	103	11	12	22	24	1,462	860	563	93
500–999 grams	5,409	703	458	81	16	73	75	4,475	2,758	1,592	231
1,000–1,499 grams	7,804	1,049	664	140	30	96	119	6,449	4,270	1,974	306
1,500–1,999 grams	18,153	2,610	1,648	338	80	298	246	14,948	10,233	4,123	595
2,000–2,499 grams	39,223	5,753	3,747	669	169	591	577	32,330	23,481	7,418	1,140
2,500–2,999 grams	43,324	6,781	4,419	641	207	795	719	35,332	27,496	6,420	1,211
3,000–3,499 grams	21,065	3,082	2,018	294	112	393	265	17,327	14,271	2,469	656
3,500–3,999 grams	3,956	552	373	46	31	67	35	3,301	2,805	420	103
4,000–4,499 grams	382	56	38	6	2	5	5	309	274	25	17
4,500–4,999 grams	40	5	5	–	–	–	–	34	27	4	1
5,000 grams or more	28	2	2	–	–	–	–	25	14	10	1
Not stated	578	75	45	14	–	11	5	458	255	187	45
Infant deaths											
All deliveries	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
Less than 500 grams	7,223	803	496	91	31	89	96	6,037	3,123	2,692	383
500–999 grams	16,615	2,424	1,475	347	64	293	245	13,459	7,590	5,409	732
1,000–1,499 grams	5,330	835	541	95	28	81	90	4,281	2,818	1,267	214
1,500–1,999 grams	4,337	626	414	68	9	58	77	3,537	2,327	1,035	174
2,000–2,499 grams	5,566	870	554	128	21	84	83	4,539	2,883	1,430	157
2,500–2,999 grams	7,845	1,202	730	170	19	143	140	6,399	4,014	2,069	244
3,000–3,499 grams	9,655	1,419	918	159	32	145	165	7,945	5,445	2,095	291
3,500–3,999 grams	5,302	827	543	73	25	90	96	4,334	3,200	910	141
4,000–4,499 grams	1,503	258	176	28	2	33	19	1,199	955	189	46
4,500–4,999 grams	361	62	47	4	1	8	2	286	225	45	13
5,000 grams or more	179	25	19	3	–	–	3	145	96	45	9
Not stated	1,931	259	135	58	2	37	27	1,472	790	615	200

Table 10. Live births and infant deaths by period of gestation, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Period of gestation and birthweight	All origins ¹	Origin of mother									
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	Not stated
Live births											
All periods of gestation	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
Less than 500 grams	8,202	984	618	111	34	115	106	6,795	3,483	3,066	423
500–999 grams	31,331	4,469	2,679	655	121	557	457	25,561	13,606	11,063	1,301
1,000–1,499 grams	41,261	6,268	3,807	886	172	724	679	33,457	19,309	12,806	1,536
1,500–1,999 grams	86,767	13,209	8,055	1,948	334	1,418	1,454	70,631	42,482	24,949	2,927
2,000–2,499 grams	286,999	44,465	26,963	6,569	1,111	4,934	4,888	234,146	145,577	76,084	8,388
2,500–2,999 grams	1,073,493	183,449	113,719	23,595	4,364	21,791	19,980	860,600	562,611	239,316	29,444
3,000–3,499 grams	2,454,690	439,793	284,913	44,088	11,784	54,000	45,008	1,945,888	1,445,146	379,845	69,009
3,500–3,999 grams	1,930,060	326,917	219,183	26,597	9,511	39,527	32,099	1,547,560	1,280,102	196,451	55,583
4,000–4,499 grams	587,655	92,002	63,101	6,212	2,864	10,742	9,083	478,355	419,009	42,424	17,298
4,500–4,999 grams	106,180	16,321	11,560	990	471	1,783	1,517	86,687	77,163	6,747	3,172
5,000 grams or more	14,030	2,430	1,804	123	67	220	216	11,209	9,733	1,062	391
Not stated	6,943	1,138	703	145	22	163	105	5,059	3,305	1,498	746
Under 28 weeks	49,271	7,163	4,487	947	177	786	766	40,348	20,894	18,080	1,760
Less than 500 grams	6,179	690	445	74	23	70	78	5,238	2,724	2,341	251
500–999 grams	19,226	2,654	1,607	365	79	322	281	15,832	8,500	6,835	740
1,000–1,499 grams	6,386	982	610	135	26	106	105	5,176	2,667	2,327	228
1,500–1,999 grams	2,579	426	281	50	8	39	48	2,091	780	1,222	62
2,000–2,499 grams	2,425	368	246	50	9	32	31	1,986	878	1,047	71
2,500–2,999 grams	3,540	569	361	75	9	58	66	2,865	1,261	1,502	106
3,000–3,499 grams	4,595	797	516	103	8	77	93	3,661	1,944	1,577	137
3,500–3,999 grams	2,474	418	278	42	9	47	42	1,976	1,273	622	80
4,000–4,499 grams	599	89	63	7	3	7	9	492	343	137	18
4,500–4,999 grams	138	25	14	5	1	4	1	108	79	28	5
5,000 grams or more	95	10	6	2	–	1	1	80	39	39	5
Not stated	1,035	135	60	39	2	23	11	843	406	403	57
28–36 weeks	600,096	110,595	71,550	12,772	2,575	12,607	11,091	473,247	292,402	154,420	16,254
Less than 500 grams	377	54	32	5	2	6	9	302	153	140	21
500–999 grams	6,995	993	578	162	29	113	111	5,745	3,100	2,431	257
1,000–1,499 grams	27,461	3,994	2,417	535	121	473	448	22,506	13,436	8,206	961
1,500–1,999 grams	58,914	8,622	5,222	1,200	222	983	995	48,395	29,757	16,534	1,897
2,000–2,499 grams	119,137	18,018	11,048	2,534	511	1,962	1,963	97,746	61,399	31,622	3,373
2,500–2,999 grams	163,432	28,479	17,901	3,643	731	3,300	2,904	130,779	80,288	43,064	4,174
3,000–3,499 grams	143,089	30,577	20,415	3,115	602	3,574	2,871	108,925	65,366	36,231	3,587
3,500–3,999 grams	62,617	15,311	10,700	1,266	274	1,690	1,381	45,796	29,666	13,169	1,510
4,000–4,499 grams	14,355	3,622	2,575	236	72	418	321	10,390	7,421	2,333	343
4,500–4,999 grams	2,312	651	473	46	7	62	63	1,589	1,185	305	72
5,000 grams or more	445	113	90	8	1	3	11	322	218	77	10
Not stated	962	161	99	22	3	23	14	752	413	308	49
37–41 weeks	4,876,305	820,853	528,509	82,338	23,771	102,438	83,797	3,919,457	3,031,585	671,467	135,995
Less than 500 grams	295	55	25	8	1	16	5	222	132	80	18
500–999 grams	1,286	248	102	64	4	64	14	971	436	481	67
1,000–1,499 grams	3,144	611	310	140	14	90	57	2,400	1,321	955	133
1,500–1,999 grams	17,258	2,777	1,592	523	69	301	292	13,945	8,331	4,939	536
2,000–2,499 grams	135,218	20,926	12,291	3,383	486	2,477	2,289	110,494	68,918	35,170	3,798
2,500–2,999 grams	765,417	129,272	78,759	17,118	3,171	15,973	14,251	615,487	409,170	162,761	20,658
3,000–3,499 grams	1,921,360	337,073	215,203	34,746	9,649	42,822	34,653	1,531,390	1,153,199	282,685	52,897
3,500–3,999 grams	1,504,537	248,788	164,918	20,828	7,713	31,036	24,293	1,213,185	1,010,771	147,174	42,564
4,000–4,499 grams	440,089	67,443	45,747	4,678	2,243	8,071	6,704	359,973	316,245	31,261	12,673
4,500–4,999 grams	75,389	11,444	7,996	714	358	1,332	1,044	61,766	54,946	4,853	2,179
5,000 grams or more	9,459	1,709	1,254	85	51	168	151	7,490	6,501	707	260
Not stated	2,853	507	312	51	12	88	44	2,134	1,615	401	212

Table 10. Live births and infant deaths by period of gestation, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts—Con.

Period of gestation and birthweight	All origins ¹	Origin of mother									
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	Not stated
Live births											
42 weeks and over	864,653	143,866	95,369	13,345	3,737	16,100	15,315	696,219	555,414	110,840	24,568
Less than 500 grams	67	15	7	5	—	3	—	51	27	22	1
500–999 grams	294	55	24	13	1	14	3	224	114	105	15
1,000–1,499 grams	661	123	62	29	4	15	13	510	271	213	28
1,500–1,999 grams	2,224	353	193	85	15	26	34	1,770	1,057	640	101
2,000–2,499 grams	15,883	2,519	1,479	407	69	256	308	12,906	8,143	4,249	458
2,500–2,999 grams	98,461	16,835	10,546	2,219	364	1,777	1,929	79,032	52,786	21,889	2,594
3,000–3,499 grams	302,125	53,251	35,022	5,212	1,324	5,996	5,697	240,403	182,834	45,643	8,471
3,500–3,999 grams	300,855	49,486	33,313	3,966	1,351	5,657	5,199	242,795	204,302	29,073	8,574
4,000–4,499 grams	115,017	17,205	11,835	1,166	499	1,963	1,742	94,394	84,026	7,387	3,418
4,500–4,999 grams	24,934	3,451	2,481	209	91	339	331	20,727	18,823	1,337	756
5,000 grams or more	3,557	484	355	27	15	41	46	2,980	2,705	196	93
Not stated	575	89	52	7	4	13	13	427	326	86	59
Not stated	237,286	48,968	37,190	2,517	595	4,043	4,623	176,677	121,231	40,504	11,641
Less than 500 grams	1,284	170	109	19	8	20	14	982	447	483	132
500–999 grams	3,530	519	368	51	8	44	48	2,789	1,456	1,211	222
1,000–1,499 grams	3,609	558	408	47	7	40	56	2,865	1,614	1,105	186
1,500–1,999 grams	5,792	1,031	767	90	20	69	85	4,430	2,557	1,614	331
2,000–2,499 grams	14,336	2,634	1,899	195	36	207	297	11,014	6,239	3,996	688
2,500–2,999 grams	42,643	8,294	6,152	540	89	683	830	32,437	19,106	10,100	1,912
3,000–3,499 grams	83,521	18,095	13,757	912	201	1,531	1,694	61,509	41,803	13,709	3,917
3,500–3,999 grams	59,577	12,914	9,974	495	164	1,097	1,184	43,808	34,090	6,413	2,855
4,000–4,499 grams	17,595	3,643	2,881	125	47	283	307	13,106	10,974	1,306	846
4,500–4,999 grams	3,407	750	596	16	14	46	78	2,497	2,130	224	160
5,000 grams or more	474	114	99	1	—	7	7	337	270	43	23
Not stated	1,518	246	180	26	1	16	23	903	545	300	369
Infant deaths											
All periods of gestation	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
Less than 500 grams	7,223	803	496	91	31	89	96	6,037	3,123	2,692	383
500–999 grams	16,615	2,424	1,475	347	64	293	245	13,459	7,590	5,409	732
1,000–1,499 grams	5,330	835	541	95	28	81	90	4,281	2,818	1,267	214
1,500–1,999 grams	4,337	626	414	68	9	58	77	3,537	2,327	1,035	174
2,000–2,499 grams	5,566	870	554	128	21	84	83	4,539	2,883	1,430	157
2,500–2,999 grams	7,845	1,202	730	170	19	143	140	6,399	4,014	2,069	244
3,000–3,499 grams	9,655	1,419	918	159	32	145	165	7,945	5,445	2,095	291
3,500–3,999 grams	5,302	827	543	73	25	90	96	4,334	3,200	910	141
4,000–4,499 grams	1,503	258	176	28	2	33	19	1,199	955	189	46
4,500–4,999 grams	361	62	47	4	1	8	2	286	225	45	13
5,000 grams or more	179	25	19	3	—	—	3	145	96	45	9
Not stated	1,931	259	135	58	2	37	27	1,472	790	615	200
Under 28 weeks	19,771	2,671	1,633	363	76	299	300	16,297	9,083	6,689	803
Less than 500 grams	5,649	605	382	65	20	64	74	4,815	2,553	2,100	229
500–999 grams	11,376	1,632	1,000	216	49	190	177	9,287	5,294	3,708	457
1,000–1,499 grams	1,238	202	131	23	4	18	26	993	628	331	43
1,500–1,999 grams	215	36	25	4	—	3	4	172	89	74	7
2,000–2,499 grams	109	15	11	4	—	—	—	91	42	45	3
2,500–2,999 grams	81	21	13	6	—	—	2	55	25	29	5
3,000–3,499 grams	103	23	13	4	—	2	4	75	38	35	5
3,500–3,999 grams	59	7	4	1	1	1	—	50	32	18	2
4,000–4,499 grams	32	5	—	2	—	2	1	27	16	11	—
4,500–4,999 grams	36	7	3	1	1	2	—	27	15	12	2
5,000 grams or more	55	4	1	2	—	—	1	48	23	23	3
Not stated	818	114	50	35	1	17	11	657	328	303	47

Table 10. Live births and infant deaths by period of gestation, birthweight, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts—Con.

Period of gestation and birthweight	All origins ¹	Origin of mother									
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	Not stated
Infant deaths											
28–36 weeks	14,175	2,159	1,354	282	54	240	229	11,524	7,319	3,686	492
Less than 500 grams	297	38	20	3	2	6	7	241	128	106	18
500–999 grams	2,572	387	226	68	10	48	35	2,081	1,208	790	104
1,000–1,499 grams	3,071	465	301	46	17	47	54	2,491	1,711	671	115
1,500–1,999 grams	2,706	374	242	36	5	38	53	2,233	1,487	644	99
2,000–2,499 grams	2,292	344	205	59	8	35	37	1,888	1,218	581	60
2,500–2,999 grams	1,628	264	166	34	6	33	25	1,318	792	466	46
3,000–3,499 grams	900	147	98	19	4	17	9	733	453	241	20
3,500–3,999 grams	352	74	51	7	2	7	7	267	153	96	11
4,000–4,499 grams	79	19	15	2	–	2	–	56	39	16	4
4,500–4,999 grams	16	6	4	1	–	1	–	10	10	–	–
5,000 grams or more	27	3	3	–	–	–	–	23	16	6	1
Not stated	235	38	23	7	–	6	2	183	104	69	14
37–41 weeks	21,208	3,206	1,971	437	73	367	358	17,348	11,779	4,667	654
Less than 500 grams	110	15	3	6	1	3	2	82	33	45	13
500–999 grams	493	86	29	29	1	23	4	380	167	196	27
1,000–1,499 grams	381	75	41	15	4	13	2	290	174	94	16
1,500–1,999 grams	964	145	96	21	2	9	17	779	525	208	40
2,000–2,499 grams	2,369	365	240	54	11	28	32	1,949	1,230	612	55
2,500–2,999 grams	4,843	738	428	122	11	87	90	3,953	2,506	1,255	152
3,000–3,499 grams	6,758	966	607	103	23	110	123	5,596	3,892	1,418	196
3,500–3,999 grams	3,736	560	355	56	18	61	70	3,079	2,292	621	97
4,000–4,499 grams	1,021	174	117	20	2	22	13	815	656	117	32
4,500–4,999 grams	205	31	26	2	–	3	–	168	131	25	6
5,000 grams or more	45	12	10	1	–	–	1	31	23	8	2
Not stated	283	39	19	8	–	8	4	226	150	68	18
42 weeks and over	4,407	655	429	69	14	75	68	3,619	2,531	921	133
Less than 500 grams	36	5	–	3	–	2	–	30	9	20	1
500–999 grams	128	23	11	6	–	5	1	100	47	51	5
1,000–1,499 grams	87	16	8	4	1	1	2	66	35	29	5
1,500–1,999 grams	131	20	10	5	–	4	1	103	60	38	8
2,000–2,499 grams	405	67	41	8	1	9	8	323	219	92	15
2,500–2,999 grams	842	109	72	5	2	14	16	716	469	206	17
3,000–3,499 grams	1,378	199	137	26	5	13	18	1,138	792	291	41
3,500–3,999 grams	919	149	101	8	4	19	17	752	583	135	18
4,000–4,499 grams	312	49	34	4	–	6	5	254	208	37	9
4,500–4,999 grams	77	10	9	–	–	1	–	63	54	6	4
5,000 grams or more	24	3	3	–	–	–	–	21	17	3	–
Not stated	68	5	3	–	1	1	–	53	38	13	10
Not stated	6,286	919	661	73	17	80	88	4,845	2,754	1,838	522
Less than 500 grams	1,131	140	91	14	8	14	13	869	400	421	122
500–999 grams	2,046	296	209	28	4	27	28	1,611	874	664	139
1,000–1,499 grams	553	77	60	7	2	2	6	441	270	142	35
1,500–1,999 grams	321	51	41	2	2	4	2	250	166	71	20
2,000–2,499 grams	391	79	57	3	1	12	6	288	174	100	24
2,500–2,999 grams	451	70	51	3	–	9	7	357	222	113	24
3,000–3,499 grams	516	84	63	7	–	3	11	403	270	110	29
3,500–3,999 grams	236	37	32	1	–	2	2	186	140	40	13
4,000–4,499 grams	59	11	10	–	–	1	–	47	36	8	1
4,500–4,999 grams	27	8	5	–	–	1	2	18	15	2	1
5,000 grams or more	28	3	2	–	–	–	1	22	17	5	3
Not stated	527	63	40	8	–	5	10	353	170	162	111

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 11. Live births and infant deaths by sex, age at death, and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Sex and age at death of infant	Origin of mother										
	All origins ¹	Hispanic						Non-Hispanic			Not stated
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Live births											
Both sexes	6,627,611	1,131,445	737,105	111,919	30,855	135,974	115,592	5,305,948	4,021,526	995,311	190,218
Male	3,395,758	578,091	376,601	57,167	15,873	69,322	59,128	2,720,348	2,065,425	505,673	97,319
Female	3,231,853	553,354	360,504	54,752	14,982	66,652	56,464	2,585,600	1,956,101	489,638	92,899
Infant deaths											
Both sexes	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801	2,604
Early neonatal	35,138	5,072	3,079	708	142	582	561	28,348	17,489	9,732	1,718
Late neonatal	7,201	1,154	793	108	24	123	106	5,778	3,820	1,701	269
Postneonatal	23,508	3,384	2,176	408	68	356	376	19,507	12,157	6,368	617
Male	37,630	5,487	3,454	699	145	597	592	30,677	19,425	9,896	1,466
Early neonatal	20,030	2,901	1,782	397	86	315	321	16,165	10,041	5,479	964
Late neonatal	4,009	644	431	63	15	74	61	3,219	2,218	861	146
Postneonatal	13,591	1,942	1,241	239	44	208	210	11,293	7,166	3,556	356
Female	28,217	4,123	2,594	525	89	464	451	22,956	14,041	7,905	1,138
Early neonatal	15,108	2,171	1,297	311	56	267	240	12,183	7,448	4,253	754
Late neonatal	3,192	510	362	45	9	49	45	2,559	1,602	840	123
Postneonatal	9,917	1,442	935	169	24	148	166	8,214	4,991	2,812	261

¹Origin of mother not stated included in "all origins" but not distributed among origin categories.

²Includes races other than white and black.

Table 12. Infant deaths from 61 selected causes by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts

Cause of death Ninth Revision International Classification of Diseases, 1975	All origins ¹	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black
Infant deaths										
All causes	65,847	9,610	6,048	1,224	234	1,061	1,043	53,633	33,466	17,801
Certain intestinal infections 008–009	196	36	19	4	2	8	3	158	61	87
Whooping cough 033	5	–	–	–	–	–	–	5	2	2
Meningococcal infection 036	109	16	6	2	–	5	3	86	68	14
Septicemia 038	479	85	54	13	2	14	2	382	200	167
Viral diseases 045–079	209	32	25	1	1	2	3	169	108	46
Congenital syphilis 090	20	11	8	–	2	1	–	8	1	7
Remainder of infectious and parasitic diseases 001–007,010–032,034–035,037, 039–041,080–088,091–139	291	53	26	12	1	6	8	233	105	120
Malignant neoplasms including neoplasms of lymphatic and hematopoietic tissues 140–208	166	20	14	3	1	1	1	144	105	29
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature 210–239	110	26	15	4	–	5	2	77	62	9
Diseases of thymus gland 254	8	–	–	–	–	–	–	8	6	2
Cystic fibrosis 277.0	21	1	1	–	–	–	–	19	19	–
Diseases of blood and blood-forming organs 280–289	109	18	12	–	–	4	2	87	40	36
Meningitis 320–322	376	68	48	3	–	8	9	303	141	140
Other diseases of nervous system and sense organs 323–389	745	102	72	7	2	9	12	623	444	148
Acute upper respiratory infections 460–465	69	5	3	–	–	1	1	62	36	21
Bronchitis and bronchiolitis 466,490–491	181	35	24	3	1	6	1	142	100	35
Pneumonia and influenza 480–487	1,293	190	131	20	2	19	18	1,067	588	418
Pneumonia 480–486	1,278	188	129	20	2	19	18	1,054	583	414
Influenza 487	15	2	2	–	–	–	–	13	5	4
Remainder of diseases of respiratory system 470–478,492–519	832	101	60	13	2	12	14	716	410	268
Hernia of abdominal cavity and intestinal obstruction without mention of hernia 550–553,560	168	21	11	7	–	2	1	139	77	53
Gastritis, duodenitis, and noninfective enteritis and colitis 535,555–558	176	39	28	2	1	5	3	136	60	66
Remainder of diseases of digestive system 520–534,536–543,562–579	359	50	33	3	2	6	6	302	189	104
Congenital anomalies 740–759	13,920	2,350	1,533	234	57	268	258	11,051	8,203	2,239
Anencephalus and similar anomalies 740	1,077	242	171	24	2	23	22	795	626	113
Spina bifida 741	123	27	19	1	–	4	3	94	68	24
Congenital hydrocephalus 742.3	325	61	39	3	4	8	7	250	171	66
Other anomalies of central nervous system and eye 742.0–742.2,742.4–742.9,743	508	100	68	9	1	8	14	393	286	84
Congenital anomalies of heart 745–746	4,141	646	413	76	13	69	75	3,362	2,509	674
Other congenital anomalies of circulatory system 747	1,122	191	121	21	4	24	21	893	588	255
Congenital anomalies of respiratory system 748	1,846	255	166	22	7	31	29	1,512	1,121	315
Congenital anomalies of digestive system 749–751	214	31	23	1	–	5	2	173	122	40
Congenital anomalies of genitourinary system 752–753	831	105	66	12	4	10	13	701	563	111
Congenital anomalies of musculoskeletal system 754–756	1,016	179	112	21	4	23	19	791	625	138
Down's syndrome 758.0	157	33	24	2	–	6	1	118	83	30
Other chromosomal anomalies 758.1–758.9	1,315	238	162	15	10	27	24	1,023	759	190
All other and unspecified congenital anomalies 744,757,759	1,245	242	149	27	8	30	28	946	682	199
Certain conditions originating in the perinatal period 760–779	30,855	4,420	2,694	640	113	515	458	24,927	14,414	9,601
Newborn affected by maternal conditions which may be unrelated to present pregnancy 760	178	33	18	9	–	3	3	137	78	48
Newborn affected by maternal complications of pregnancy 761	2,114	210	121	24	15	22	28	1,776	1,114	612

Table 12. Infant deaths from 61 selected causes by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 20 States and the District of Columbia, 1985–87 birth cohorts—Con.

Cause of death Ninth Revision International Classification of Diseases, 1975	All origins ¹	Origin of mother									
		Hispanic						Non-Hispanic			
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total ²	White	Black	
Newborn affected by complications of placenta, cord, and membranes	762	1,300	137	97	12	4	12	12	1,095	719	339
Newborn affected by other complications of labor and delivery	763	135	17	7	5	–	3	2	110	70	38
Slow fetal growth and fetal malnutrition	764	36	4	2	1	–	1	–	30	19	11
Disorders relating to short gestation and unspecified low birthweight	765	5,611	729	409	119	27	99	75	4,588	2,216	2,228
Disorders relating to long gestation and high birthweight	766	1	–	–	–	–	–	–	1	1	–
Birth trauma	767	468	73	46	9	1	10	7	376	235	126
Intrauterine hypoxia and birth asphyxia	768	1,579	244	164	24	5	21	30	1,274	754	469
Fetal distress in liveborn infant 768.2–768.4	317	53	41	1	2	–	6	3	249	168	66
Birth asphyxia 768.5–768.9	1,262	191	123	23	3	–	15	27	1,025	586	403
Respiratory distress syndrome	769	6,094	1,001	648	133	20	104	96	4,810	3,072	1,574
Other respiratory conditions of newborn	770	6,070	905	562	139	18	85	101	4,881	2,914	1,768
Infections specific to the perinatal period	771	1,515	201	122	19	9	25	26	1,248	767	431
Neonatal hemorrhage	772	619	113	66	18	1	16	12	484	271	187
Hemolytic disease of newborn, due to isoimmunization and other perinatal jaundice 773–774	73	10	8	1	–	–	–	1	58	40	15
Syndrome of “infant of a diabetic mother” and neonatal diabetes mellitus 775.0–775.1	11	2	2	–	–	–	–	–	9	5	4
Hemorrhagic disease of newborn 776.0	5	1	–	1	–	–	–	–	4	3	1
All other and ill-defined conditions originating in the perinatal period 775.2–775.9,776.1–779	5,046	740	422	126	13	–	114	65	4,046	2,136	1,750
Symptoms, signs, and ill-defined conditions 780–799	10,068	1,162	698	175	32	–	101	156	8,636	5,427	2,833
Sudden infant death syndrome 798.0	8,440	940	591	115	24	–	74	136	7,281	4,697	2,258
Symptoms, signs, and all other ill-defined conditions 780–797,798.1–799	1,628	222	107	60	8	–	27	20	1,355	730	575
Accidents and adverse effects E800–E949	1,542	237	183	21	4	–	10	19	1,266	824	385
Inhalation and ingestion of food or other object causing obstruction of respiratory tract or suffocation E911–E912	249	35	30	1	–	–	3	1	209	132	64
Accidental mechanical suffocation E913	307	33	20	5	1	–	2	5	268	188	70
Other accidental causes and adverse effects E800–E910,E914–E949	986	169	133	15	3	–	5	13	789	504	251
Homicide E960–E969	406	53	29	9	–	–	6	9	336	169	153
Child battering and other maltreatment E967	150	21	11	3	–	–	3	4	126	64	58
Other homicide E960–E966,E968–E969	256	32	18	6	–	–	3	5	210	105	95
All other causes Residual	3,134	479	321	48	9	–	47	54	2,551	1,607	818

¹Origin of mother not stated included in “all origins” but not distributed among origin categories.

²Includes races other than white and black.

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Appendix

Technical notes on methods

Nature and sources of data

Data shown in this report are based on information from birth and death certificates filed in the 50 States and the District of Columbia. Mortality statistics are based on information coded by the National Center for Health Statistics (NCHS) from copies of original birth and death certificates received from the State registration offices and on State-coded data provided to NCHS through the Vital Statistics Cooperative Program (VSCP). These data are compiled by NCHS and provided to researchers through various public-use computer data tapes. This report was based on the U.S. Linked Birth/Infant Death Data Set for 1985, 1986, and 1987.

Concurrent with the 1978 revision of the U.S. Standard Certificates of Birth and Death, NCHS recommended that States add items to identify the ethnic origin of the decedent. All reporting States selected one of two basic formats. The first format was an open-ended item. The second format specifically asked if the decedent was of Hispanic origin and, if so, the specific origin (Mexican, Puerto Rican, etc.) was to be indicated.

The Linked Birth/Infant Death Data Set

The Linked Birth/Infant Death Data Set is an important resource for studying infant mortality patterns in the United States. In this data set, the death certificate is linked with the corresponding birth certificate for each infant who dies in the United States (20). The purpose of this linkage is to utilize the many additional variables available from the birth certificate in infant mortality analysis, as well as to utilize the more accurate race and ethnic data from the birth certificate in analyzing mortality differentials by race and ethnicity. Information on all of the approximately 4 million live births in the United States each year is included in the data set to enable researchers to compare deaths with survivors and to facilitate the computation of rates. Linked files are currently available for the 1983–91 birth cohorts.

The linked file is constructed as a birth cohort file, with a one-to-one match of birth and death records from the NCHS annual Natality and Mortality files. The linked file itself consists of two separate files. The first, the numerator file, is made up of the matched birth and death records of all deceased infants from a given cohort; the second, the denominator file, consists of the natality file for a given year plus a few late-filed birth records needed to match with infant death

records. For the 1985–87 birth cohorts, approximately 2 percent of the death certificates could not be linked to their corresponding birth certificates, resulting in an underestimate of infant mortality by about 2 percent compared with the main vital statistics mortality file.

The linked file resulted from a joint endeavor by NCHS, the States, and the Association of Vital Records and Health Statistics. After an initial feasibility project in 1985 that linked 1982 births with their corresponding infant death records in nine States, State and national linked files for the 1983–86 birth cohorts were created and evaluated. Beginning with the 1987 birth cohort, linked files are now produced on an annual basis by NCHS as a part of the annual VSCP.

Vital statistics natality and mortality data on which the linked file is based have been coded according to uniform coding specifications, have met NCHS quality control standards, have been edited and reviewed, and are published in *Vital Statistics of the United States, Vol. I, Natality*, and *Vol. II Mortality* (29).

While the national linked file includes linked statistical records for births and deaths that occurred in the United States to U.S. residents and nonresidents, only data for U.S. residents are analyzed and presented in this report. Residence is determined by the mother's usual place of residence at the time of the infant's birth. Excluded from the linked file are deaths that occurred outside the 50 States and the District of Columbia to infants born in the 50 States and the District of Columbia, deaths that occurred in the 50 States and the District of Columbia to infants born outside the 50 States and the District of Columbia, and births and deaths that occurred outside the 50 States and the District of Columbia to residents of the 50 States and the District of Columbia.

For 1986 only, the births in this report are undercounted by less than 0.01 percent relative to those presented in *Vital Statistics of the United States, Part I, Natality*, due to a data tape inconsistency. Since the undercount occurred randomly among the States and specific race and Hispanic-origin groups, its effect on the infant mortality rates presented here is negligible.

Ethnicity and race classification

Infants were tabulated according to the race and Hispanic origin of the mother as reported on the birth certificate. When the Hispanic origin of the mother was not stated, it was imputed as either Mexican, Cuban, or Puerto Rican if the place of birth of the mother was Mexico, Cuba, or Puerto Rico

as reported on the birth certificate. The addition of these mothers born in Mexico, Cuba, and Puerto Rico resulted in a shift of 0.12–0.15 percent of births from the Other and unknown Hispanic and Not stated categories into the Mexican, Puerto Rican, or Cuban groups. This imputation was done for the purposes of this report to minimize the number of infants with the Hispanic origin of the mother not stated and differs from the procedures used in *Vital Statistics of the United States, Vol. I, Natality* (29).

Selection of States

This report utilizes mortality data from the 20 States plus the District of Columbia where the following three conditions were met:

- an item on Hispanic or ethnic origin of the mother was reported on the birth certificate
- the reporting of Hispanic origin from the birth certificate was at least 90 percent complete over the 1985–87 time period based on the State of occurrence, and
- the wording of the ethnicity question on the death certificate was comparable among the States.

The States included in the study are: Arizona, Arkansas, California, Colorado, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Maine, Mississippi, Nebraska, New Jersey, New York, North Dakota, Ohio, Texas, Utah, and Wyoming. Two States, California and Texas, did not obtain information on maternal education on the birth certificate, so they are excluded from the educational attainment analysis (tables C and 4).

Computation of rates

In computing infant mortality rates, deaths of unknown (“not stated”) origin were not distributed among the specific Hispanic and non-Hispanic groups. Because the percent of infant deaths of unknown origin was 4.0 percent and the percent of live births of unknown origin was 2.9 percent, infant mortality rates by specified Hispanic origin and race for non-Hispanic origin may underestimate the true rates by about 1.1 percent due to the exclusion of not stated births and deaths.

Birth cohort infant mortality rates are calculated by dividing the number of infant deaths to the birth cohort by the number of live births in the cohort and are presented as rates per 1,000 live births in the cohort. In contrast, period infant mortality rates based on annual data are calculated by dividing the number of infant deaths in a calendar year by the number of live births registered for the same period and are also presented as rates per 1,000 live births. Cohort rates more accurately measure mortality risk than period rates because the denominator includes the actual population of infants at risk of death (30). Therefore, infant mortality rates in this report are computed on a cohort basis only.

Cause-of-death classification

The mortality statistics presented in this report were compiled in accordance with World Health Organization (WHO)

regulations, which specify the classification system used by member nations for classifying causes of death, the form of the medical certifications used to collect cause-of-death data, and the procedures used in coding cause-of-death data.

This report classified the cause of death according to the *Ninth Revision International Classification of Diseases* (31) and data are based solely on the underlying cause of death. The underlying cause was defined by WHO as the disease or injury that initiated the train of events leading directly to death or as the circumstances of the accident or violence that produced the fatal injury. The underlying cause was selected from the conditions entered by the physician in the cause-of-death section of the death certificate. When more than one cause or condition was entered by the physician, the underlying cause was determined by the sequence of conditions on the certificate, provisions of the International Classification of Diseases (ICD), and associated selection rules.

Cause-of-death data presented in this publication were coded by procedures outlined in issues of Part 2a of the *NCHS Instruction Manual* (32).

Random variation

Although the mortality data in this report are not subject to sampling error, they may be affected by random variation in the number of deaths involved. When the number of events is small (perhaps less than 100) and the probability of such an event is small, considerable caution must be observed in interpreting the data. Such infrequent events may be assumed to follow a Poisson probability distribution. For this distribution, a simple approximation may be used to estimate the confidence interval, as follows:

If N is the number of registered deaths in the population and R is the corresponding rate, the chances are 19 in 20 (approximate 95-percent confidence interval) that

$$1. \quad N-2 \sqrt{N} \quad \text{and} \quad N+2 \sqrt{N}$$

covers the “true” number of events.

$$2. \quad R-2 \frac{R}{\sqrt{N}} \quad \text{and} \quad R+2 \frac{R}{\sqrt{N}}$$

covers the “true” rate.

If the rate R_1 corresponding to N_1 events is compared with the rate R_2 corresponding to N_2 events, the difference between the two rates may be regarded as statistically significant if it exceeds

$$3. \quad 2 \sqrt{\frac{R_1^2}{N_1} + \frac{R_2^2}{N_2}}$$

Additional information on random variation may be found in the Technical appendix of *Vital Statistics of the United States, Volume II, Mortality, Part A* (29).

Rates and ratios

An asterisk is shown in place of a rate based on fewer than 20 deaths. These rates have a relative standard error of 23 percent or more and are, therefore, considered statistically unreliable.

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