

Trends in Twin and Triplet Births: 1980–97

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Abstract

This report presents data from U.S. birth certificates on the numbers and rates of twin and triplet and other higher order multiple births for 1980–97. Over the study period, the number of twin births rose 52 percent (from 68,339 to 104,137) and triplet and other higher order multiple births (heretofore referred to as “triplet/+”) climbed 404 percent (from 1,337 to 6,737 births). Comparable but less pronounced rises were observed in twin and triplet/+ birth rates.

Growth in twin and triplet/+ birth rates was most marked among women aged 30 years and over. Between 1980–82 and 1995–97, the twin rate rose 63 percent for women aged 40–44 years, and soared nearly 1,000 percent for women 45–49 years. (As one result, there were more twins born to women 45–49 years of age in 1997, than during the entire decade of the 1980’s.) The triplet/+ birth rate rose nearly 400 percent for women in their thirties and exploded by more than 1,000 percent for women in their forties. The extraordinary rise in multiple births resulted in a shift in age-specific patterns, and the highest twin and triplet/+ birth rates now are for women 45–49 years of age.

Historical differences in twinning rates between non-Hispanic white and black mothers have been largely eliminated (28.8 per 1,000 non-Hispanic white compared with 30.0 for black women). Non-Hispanic white women were more than twice as likely as non-Hispanic black or Hispanic women to have a triplet/+ birth.

Rates of low birthweight, very low birthweight, and infant mortality were 4 to 33 times higher for twins and triplet/+ compared with singleton births. The risk for these adverse outcomes was lowest for twins and triplet/+ born to women 35–44 years of age.

Twin birth rates for Massachusetts and Connecticut were at least 25 percent higher than the U.S. rate; triplet/+ rates for Nebraska and New Jersey were twice the national level.

Keywords: twin births • triplet births • infant mortality

Acknowledgments

This report was prepared in the Division of Vital Statistics (DVS). The authors thank Anjani Chandra, Reproductive Statistics Branch (RSB), for data from the Survey of Family Growth and Stephanie J. Ventura and Ken Keppel, Acting Chief, RSB, DVS, for their helpful comments. The report was edited by Patricia Keaton-Williams, typeset by Jacqueline M. Davis, and graphics were produced by Gail Ogburn of the Publications Branch, Division of Data Services.

Introduction

The number and rate of twin and triplet and other higher order multiple births have climbed at an unprecedented pace over the last two decades. Between 1980 and 1997, the number of live births in twin deliveries rose 52 percent and the number of live births in triplet and other higher order multiple deliveries soared 404 percent. Singleton births, in contrast, rose 6 percent. During the 1990’s twin births rose 11 percent and triplet and other higher order multiple births

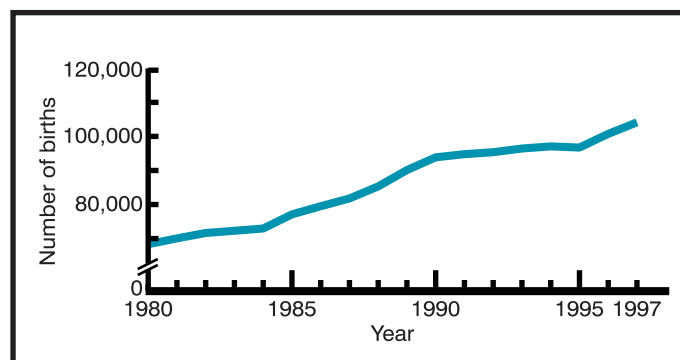


Figure 1. Number of twin births: United States, 1980–97

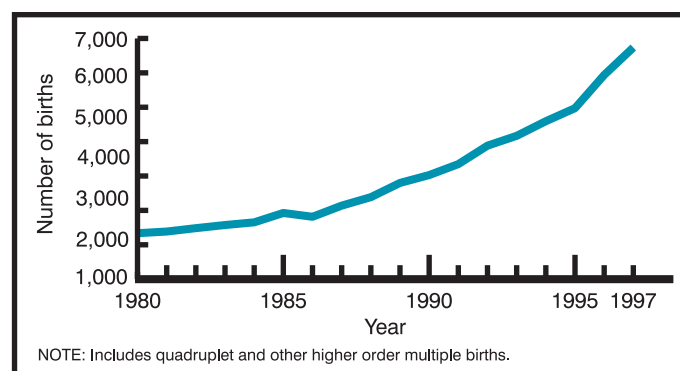


Figure 2. Number of triplet/+ births: United States, 1980–97

more than doubled. In the last several years, a new aspect of this trend has emerged, a remarkable leap in multiples born to women 45–49 years of age, among whom these births had been comparatively rare.

The extraordinary rise in the incidence of multiple pregnancies is a public health concern because of the heightened risk to the mother and child; infants born in multiple deliveries are born earlier and smaller than singletons, are less likely to survive the first year of life, and are more likely to suffer life-long disability when they do survive (1,2,3). Accordingly, multiple births are exerting growing influence over important indicators of infant health such as low birthweight and preterm birth rates (4,5,6).

Data presented in this report are derived from U.S. certificates of live birth from the National Center for Health Statistics' (NCHS) National Vital Statistics System. Twin and triplet and other higher order multiple births are **individual live births** in twin, triplet, quadruplet, etc., deliveries rather than **sets** of twins or triplets. The term "multiple birth" denotes births in twin, triplet, quadruplet, quintuplet, and other higher order multiple deliveries.

For brevity, triplet, quadruplet, and quintuplet and other higher order multiples are referred to collectively as "triplet/+", and the triplet and other higher order multiple birth rate is shortened to the "triplet/+ birth rate." Triplet births comprise the overwhelming majority of all triplet, quadruplet, and quintuplet and other higher order multiple births (90 to 91 percent for 1989–97) and, thus, the category "triplet/+" or the "triplet/+ birth rate" primarily represents triplets. (Triplet, quadruplet, and other higher order multiple births were not differentiated in vital statistics until 1989.)

Because of large differences between twin and triplet/+ births in trend and outcome, this report examines twin births separately from triplet/+ births. Where appropriate in the following discussion, 3 years of data for the periods 1980–82, 1989–91, and 1995–97 were combined to generate statistically reliable rates.

Twin births rise by 52 percent; triplet/+ births climb 404 percent between 1980 and 1997

Between 1980 and 1997, the number of infants born in multiple deliveries rose at a remarkable pace. Most multiples were twins (94 percent in 1997), and twin births rose substantially, but the number of triplet/+ births skyrocketed. Since 1980 twin births have risen 52 percent, from 68,339 to 104,137 births, and the number of triplet/+ births has quadrupled, climbing from 1,337 to 6,737 births (table 1, figures 1 and 2). Increases in birth rates for twins (the number of births in twin deliveries per 1,000 live births) and triplet/+ (the number of births in triplet and other higher order multiple deliveries per 100,000 live births) are similar to, but slightly smaller than increases in the numbers of twin and triplet/+ births. Between 1980 and 1997, the twin birth rate increased 42 percent (from 18.9 to 26.8 per 1,000 births or from 1.9 to 2.7 percent of all births), and the triplet/+ birth rate more than quadrupled, climbing from 37.0 to 173.6 per 100,000 births (from 0.04 to 0.17 percent).

Triplet births rising faster than quadruplet and quintuplet and other higher order multiples

Within the category of triplet/+, the number of triplet births has increased at a slightly greater pace (142 percent) than the number of

quadruplet (123 percent) or quintuplet and other higher order births (98 percent) between 1989–97 (see table A). Moreover, births in triplet deliveries have consistently increased annually, while births in quadruplet and quintuplet and other higher order births have shown occasional decline. However, the trend in quadruplet and quintuplet and other higher order multiples has been generally upward during the 1990's and the number of these births has doubled since 1989 (from 269 to 589 births).

More twins born to women 45–49 years of age in 1997 than during the entire decade of the 1980's

Twinning rates have risen for all age groups between 1980 and 1997, but increases were most pronounced among women 30 years of age and over. See table 2 and figure 3. Between 1980–82 and 1995–97, twin birth rates rose by 12 percent for teenaged mothers, by 41 percent for women in their thirties, by 63 percent for women 40–44 years, and by nearly 1,000 percent among women 45–49 years of age (figure 4).

Most of the increase in twin birth rates to mothers 45–49 years of age occurred during the 1990's (from 17.8 to 114.0 per 1,000 births between 1989–91 and 1995–97) (table 3). In 1990 only 39 twins were born to women in this age group; by 1997 there were 444 (table 2). For the years 1980–92, less than 3 percent of births to women 45–49 years were twins compared with 13 percent in 1997. Indeed, there were

Table A. Numbers of twin, triplet, quadruplet, and quintuplet and other higher order multiple births: United States, 1989–97

Year	Twin	Triplet	Quadruplet	Quintuplet and other higher order multiple ¹
1997	104,137	6,148	510	79
1996	100,750	5,298	560	81
1995	96,736	4,551	365	57
1994	97,064	4,233	315	46
1993	96,445	3,834	277	57
1992	95,372	3,547	310	26
1991	94,779	3,121	203	22
1990	93,865	2,830	185	13
1989	90,118	2,529	229	40

¹Quintuplets, sextuplets, and higher order multiple births are not differentiated in the national data set.

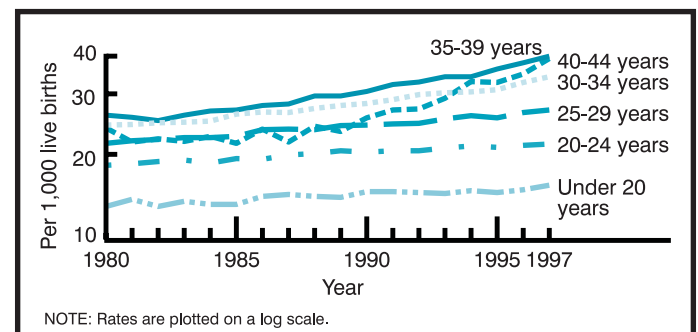


Figure 3. Twin birth rates by age of mother, 1980–97

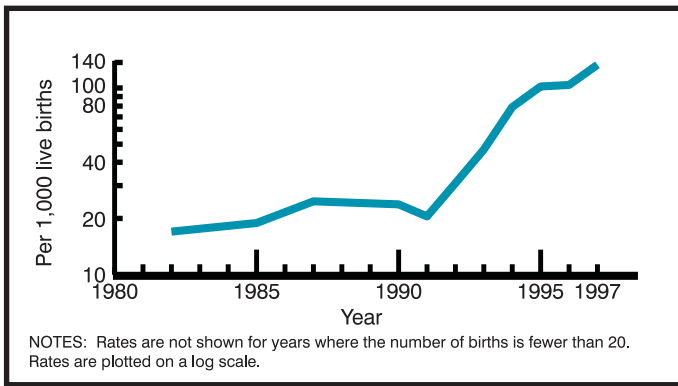


Figure 4. Twin birth rates for women 45–49 years of age, 1980–97

many more twins born to women aged 45–49 years in 1997 (444) than during the entire decade of the 1980's (174).

The early 1990's mark an important shift in age-specific twin birth patterns

Historically, age-specific twin birth rates (the number of twin births per 1,000 births to women in a specified age group) have risen steadily through the age group 35–39 years and declined for women in their forties. However, the extraordinary surge in twin births to women 45–49 years of age has brought about a shift in this long observed trend. Beginning with 1992, and continuing through the current year, age-specific twin birth rates rose steadily for the age group 35–39 years, were slightly lower for women aged 40–44 years, but then were dramatically higher than any other age group for women aged 45–49 years (table 2, figures 3 and 4). In 1997 the twin birth rate for women aged 45–49 years (133.2 per 1,000 births) was more than 3 times as high as that for women aged 35–39 years (39.3).

Beginning with data year 1997, information on births to women aged 50–54 years became available (see Technical notes). Of the 144 births to women aged 50–54 years, 1 of every 3 (34.7 percent) was reported to have been born in a twin delivery. Thus, for 1997, women 50–54 years of age were most likely to have a twin birth.

It is important to note that despite the recent remarkable rise in twinning among women 45–54 years, in general, these women are less likely to give birth than their younger counterparts. Thus, twins born to women aged 45 years and over comprise only a small proportion of all twin births (0.5 percent for 1997); the majority of twins, 71 percent, are born to women aged 25–39 years.

Triplet/+ rates up 400 percent for women in their thirties and 1,000 percent for women in their forties

Over the study period, the growth in triplet/+ birth rates and for women aged 30 years of age was remarkable. Rates for women in their thirties rose nearly 400 percent (from 59.3 per 100,000 for 1980–82 to 286.0 for 1995–97), while levels for women in their forties increased more than 1,000 percent (from 28.1 to 346.9) (table 3, figure 5). In contrast, triplet/+ birth rates for mothers under age 20 years rose only 13 percent (from 15.9 to 18.0) between 1980–82 and 1995–97. (There were too few triplet/+ births to women 45–49 years of age during the 1980's for trends in these births to be analyzed.)

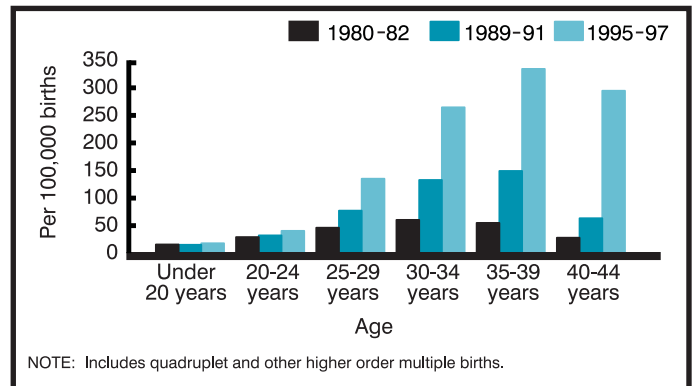


Figure 5. Triplet/+ birth rates by age of mother: 1980–82, 1989–91, 1995–97

Age-specific birth rates for triplets/+ follow a pattern similar to that for twins except that the differentials between younger and older women are much wider. For 1997 the triplet/+ birth rate for mothers aged 45–49 years (2,100.2 per 100,000) was 100 times higher than that for teenaged mothers (20.7) and 4 times higher than that for women aged 35–39 years (403.2) (table 2). Indeed, women 45–54 years of age were more likely to have a triplet/+ birth (2.4 percent) than women under 30 years were to have a twin birth (2.2 percent).

Historical differences in twin birth rates between white and black mothers now largely erased

Although twinning levels have risen substantially among white and black women for 1980–97, rates have increased more rapidly among white mothers (48 compared with 25 percent). As a result differences in twin birth rates between white and black mothers evident in earlier years (in 1980, 18.1 and 24.0 per 1,000 births, respectively) have been largely erased; for 1997 twin birth rates were similar for the two groups (28.8 for non-Hispanic white and 30.0 for black mothers). See table 1 and figure 6.

The twin birth rate for Hispanic women rose 7 percent during 1989–97 compared with increases of 28 and 13 percent for non-Hispanic white, and non-Hispanic black women (table 1). Accordingly, women of Hispanic origin continued to be substantially less likely than non-Hispanic white or black mothers to have a twin birth (in 1997, 19.5 compared with 28.8 and 30.0 per 1,000 births, respectively).

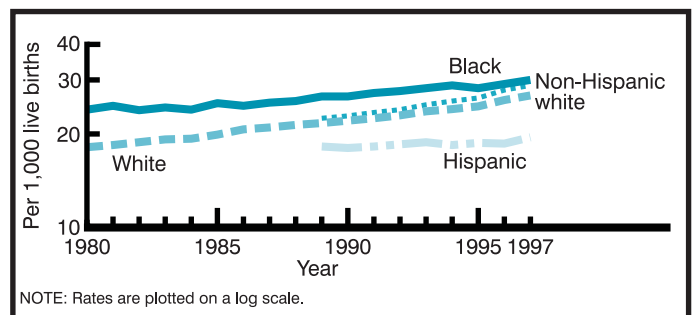


Figure 6. Twin birth rates by race and Hispanic origin of mother, 1980–97

The overall rise in twinning among women in their mid-to-late forties is primarily attributable to increases among non-Hispanic white mothers among whom the rate jumped more than sevenfold between 1989–91 and 1995–97 (from 20.2 to 149.8 per 1,000 births) (table 3). Non-Hispanic white mothers accounted for 85 percent of all twin births to women in this age group for the most current 3-year period.

Non-Hispanic white mothers more than twice as likely to have a triplet/+ birth

In the early 1980's triplet/+ birth rates for white and black mothers were essentially the same (37.6 and 37.1 per 100,000 births for 1980), but by 1988 the rate for white births had doubled while the rate among black mothers had risen only 21 percent. Steep rises for 1989–97 were observed for the three major racial/ethnic groups (168 percent for non-Hispanic white, 124 percent for non-Hispanic black, and 105 percent for Hispanic mothers). However, in 1997 non-Hispanic white mothers were more than twice as likely as non-Hispanic black and Hispanic mothers to have a triplet/+ birth (230.8 compared with 90.0 and 72.7, respectively) (table 1).

Triplet/+ birth rates for women under 25 years of age continue to be very comparable among the three groups, but wide differences emerge at older ages. For 1995–97 among women aged 30 years and over, triplet/+ birth rates for non-Hispanic white were more than twice those of non-Hispanic black or Hispanic mothers. For example, the rate for non-Hispanic white mothers aged 40–49 years was 439.1 per 100,000 births compared with levels of 181.6 for non-Hispanic black and 143.2 for Hispanic mothers. See table 3 and figure 7.

The peak age group for triplet/+ childbearing among non-Hispanic white mothers was 45–49 years compared with a peak at 40–44 years for non-Hispanic black and 35–39 years for Hispanic women. This later peak among non-Hispanic white mothers represents a change from earlier years when the highest age-specific triplet/+ birth rate for non-Hispanic white occurred at 35–39 years of age. In 1997, 3.4 percent of all births to non-Hispanic white mothers aged 45–54 years were triplet/+ births (77 total triplet/+ births); there were no triplet/+ births to black mothers of this age group and only six triplet/+ were born to Hispanic mothers.

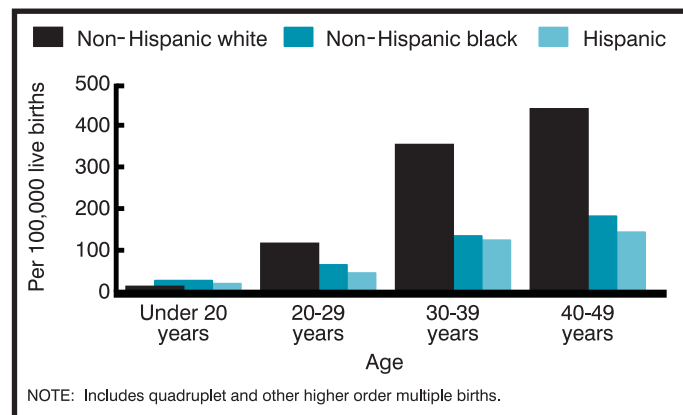


Figure 7. Triplet/+ birth rates by race and Hispanic origin of mother: 1995–97

Twin and triplet/+ rates of very low birthweight and low birthweight were lowest for women aged 35–44 years

Twins are 8 times and triplet/+ 33 times more likely than singletons to be born at a weight of less than 1,500 grams or very low birthweight (VLBW). More than one-half of all twins and nearly all triplet/+, compared with only 6 percent of singletons, are born low birthweight (LBW) (less than 2,500 grams). See table 4 and figure 8. LBW, and especially VLBW births, are at greater risk of early death and life-long morbidity than heavier infants (7).

For 1995–97 the risk of having an LBW or VLBW twin or triplet/+ was highest for mothers under age 20 years and lowest among mothers aged 35–44 years. Rates of VLBW and LBW for women 45–49 years of age were lower than or similar to those of women in their twenties. Low birthweight patterns by maternal age were quite different among singletons; levels were lowest among mothers aged 25–34 years and highest among mothers under ages 20 and 45–49 years. Age-specific infant mortality rates were also lowest for twins and triplet/+ born to women aged 35–44 years; the number of infant deaths to women aged 45–49 years was too small to compute a reliable rate. See table B.

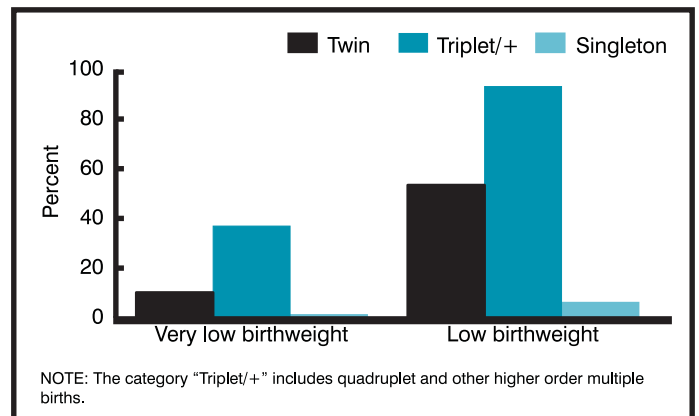


Figure 8. Percent very low and low birthweight by plurality: United States, 1995–97

Table B. Infant mortality rates by plurality and age of mother: United States, 1995–97

Age of mother	Twin	Triplet/+ ¹	Singleton
Infant deaths per 1,000 live births			
All ages	32.0	71.8	6.6
Under 20 years	63.1	172.2	9.8
20–24 years	42.0	133.8	7.4
25–29 years	30.1	96.4	5.5
30–34 years	25.2	60.7	5.2
35–39 years	22.6	46.7	6.2
40–44 years	20.4	38.5	8.1
45–49 years ²	*	*	10.0

* Figure does not meet standards of reliability or precision.
¹Includes quadruplets and other higher order multiple births.
²For 1997, births to women aged 50–54 years were not included in the calculation of rates.
 See Technical notes.

NOTE: Unpublished data from the linked birth/infant death data set, 1995, 1996, and 1997 birth cohorts.

The only statistically significant change in VLBW or LBW between 1980–82 and 1995–97 was for triplet/+ births, among whom the LBW rate increased from 87.98 to 93.08 percent (table 4). This rise may be at least partly explained by an increased proportion of quadruplet and other higher order multiples (LBW risk rises with plurality). Unfortunately, it is not possible to directly measure this influence because quadruplets, quintuplets, and other higher order multiples were not differentiated from triplet births in vital statistics data before 1989.

Although the rise in twin LBW was not statistically significant, it is important to note that the increase in multiple births has not only influenced overall LBW rates but has had a large impact on the numbers of at-risk infants born each year (4,5,6). For example, had twin and triplet/+ rates not risen from levels reported for 1980, there would have been at least 20,000 fewer LBW infants born in 1997.

Nebraska and New Jersey triplet/+ birth rates were twice the national rate

Twin and triplet/+ birth rates for the 50 States and the District of Columbia for 1995–97 ranged widely; the twin birth rate for Massachusetts and Connecticut (32.6 per 1,000 births), was at least 25 percent higher than the rate for the entire United States, and 75 percent higher than that for Hawaii (18.4) (table 5, figure 9). Triplet/+ birth rates for Nebraska (323.6 per 100,000 births) and New Jersey (306.6) were twice the U.S. level (151.2). See table 5 and figure 10. (For State-specific twin and triplet/+ birth rates for 1992–94, see *State-Specific Variation in Rates of Twin Birth—United States 1992–1994* (8) and *Triplet Births: Trends and Outcomes, 1971–94* (9).)

Among the factors influencing variation in State twin and triplet/+ birth rates are State differences in maternal age distributions, racial and ethnic compositions, and access to fertility therapies. For example, the States with the highest triplet/+ birth rates were also among the States with the highest proportions of births to older, non-Hispanic white women; fertility clinics are found throughout the United States, but are concentrated mostly in the North East where twin and triplet/+ birth rates tend to be higher (10,11).

The steep climb in multiple births coincides with two overlapping and related trends: Older age at childbearing and the increasing use of fertility enhancing therapies

Two overlapping and related trends have been associated with the rise in twin and triplet/+ births: Older age at childbearing (older women are physiologically more likely to have a multiple birth) and the increasing availability and use of fertility enhancing therapies (e.g., fertility drugs such as Clomid and Pergonal and assisted reproductive technologies such as in-vitro fertilization), which more often result in a plural pregnancy (12). An estimated one-third of the increase in multiple births since the late 1970's and early 1980's has been attributed to the shift in the maternal age distribution; the remainder is likely the result of these therapies (9,12,13,14). If this estimate is reliable, it translates to more than 225,000 multiple births associated with fertility therapy over this study period (1980–97).

Older women are also more likely to avail themselves of fertility treatment (15,16). According to data from the NCHS' National Survey of Family Growth (NSFG), among fecundity-impaired women aged 15–44 years, the overall prevalence of fertility drug treatment

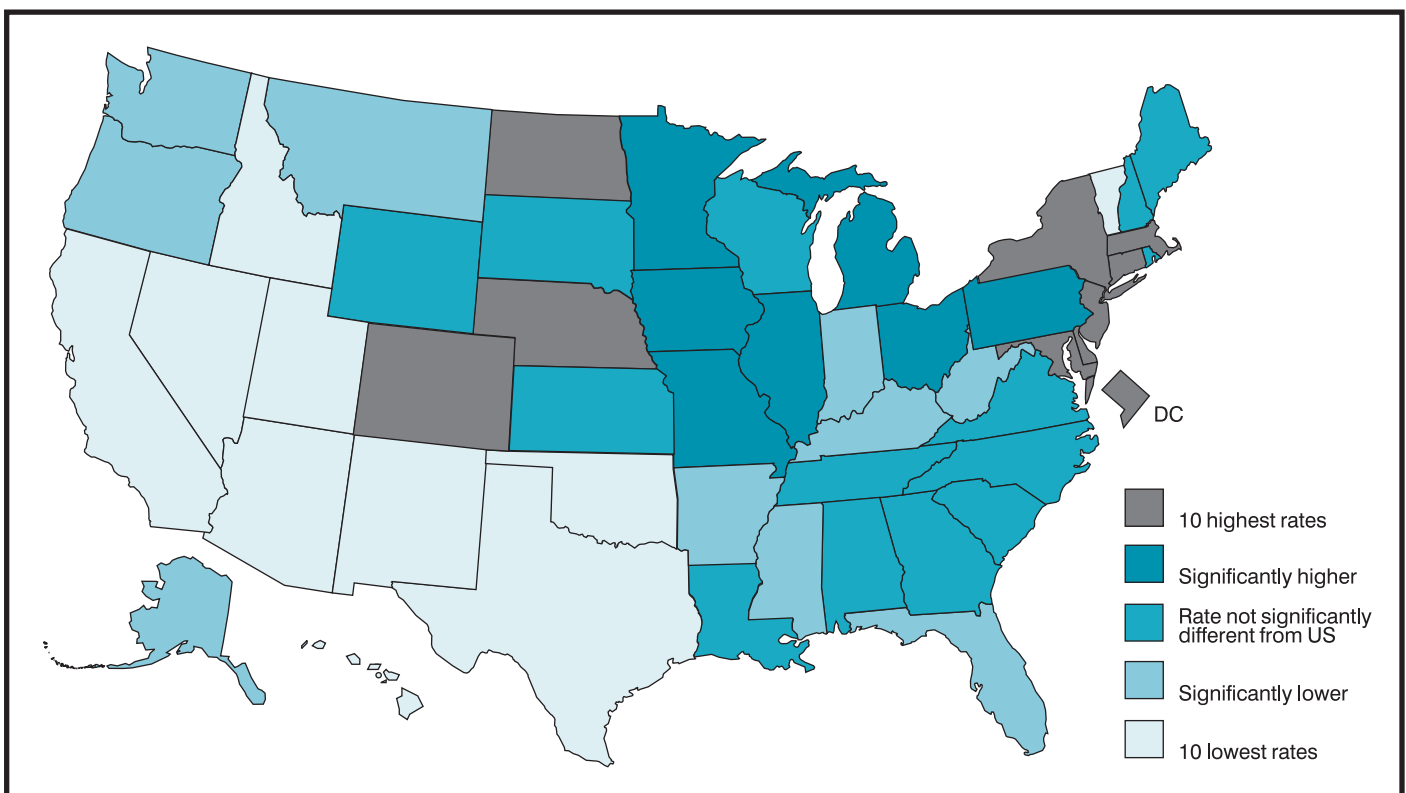


Figure 9. Twin birth rates by State, 1995–97

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List of detailed tables

1. Number and rate of twin and triplet/+ births by race and Hispanic origin of mother, United States, 1980–97	8
2. Number and rate of twin and triplet/+ births by age of mother, 1980–97.	10
3. Twin and triplet/+ birth rates by age, race, and Hispanic origin of mother: United States, 1980–82, 1989–91, 1995–97	12
4. Percent very low and low birthweight by plurality and age of mother: United States, 1980–82 and 1995–97	14
5. Twin and triplet/+ birth rates by State: United States and each State, 1995–97	15

Table 1. Number and rate of twin and triplet/+ births by race and Hispanic origin of mother, United States, 1980–97

Race, Hispanic origin, and year	Total births	Twin	Triplet/+ ¹	Twin	Triplet/+ ¹
				Rate per 1,000 live births	Rate per 100,000 live births
All races ²					
1997	3,880,894	104,137	6,737	26.8	173.6
1996	3,891,494	100,750	5,939	25.9	152.6
1995	3,899,589	96,736	4,973	24.8	127.5
1994	3,952,767	97,064	4,594	24.6	116.2
1993	4,000,240	96,445	4,168	24.1	104.2
1992	4,065,014	95,372	3,883	23.5	95.5
1991	4,110,907	94,779	3,346	23.1	81.4
1990	4,158,212	93,865	3,028	22.6	72.8
1989	4,040,958	90,118	2,798	22.3	69.2
1988	3,909,510	85,315	2,385	21.8	61.0
1987	3,809,394	81,778	2,139	21.5	56.2
1986	3,756,547	79,485	1,814	21.2	48.3
1985	3,760,561	77,102	1,925	20.5	51.2
1984	3,669,141	72,949	1,653	19.9	45.1
1983	3,638,933	72,287	1,575	19.9	43.3
1982	3,680,537	71,631	1,484	19.5	40.3
1981	3,629,238	70,049	1,385	19.3	38.2
1980	3,612,258	68,339	1,337	18.9	37.0
White, total ³					
1997	3,072,640	82,090	6,018	26.7	195.9
1996	3,093,057	79,677	5,383	25.8	174.0
1995	3,098,885	76,196	4,505	24.6	145.4
1994	3,121,004	75,318	4,127	24.1	132.2
1993	3,149,833	74,643	3,748	23.7	119.0
1992	3,201,678	73,547	3,444	23.0	107.6
1991	3,241,273	73,045	2,905	22.5	89.6
1990	3,290,273	72,617	2,639	22.1	80.2
1989	3,192,355	69,373	2,483	21.7	77.8
1988	3,102,083	66,383	2,048	21.4	66.0
1987	3,043,828	64,005	1,821	21.0	59.8
1986	3,019,175	62,396	1,585	20.7	52.5
1985	3,037,913	60,351	1,648	19.9	54.2
1984	2,967,100	57,274	1,416	19.3	47.7
1983	2,946,468	56,604	1,319	19.2	44.8
1982	2,984,817	56,035	1,199	18.8	40.2
1981	2,947,679	54,341	1,188	18.4	40.3
1980	2,936,351	53,104	1,104	18.1	37.6
Non-Hispanic white					
1997	2,333,363	67,191	5,386	28.8	230.8
1996	2,358,989	65,523	4,885	27.8	207.1
1995	2,382,638	62,370	4,050	26.2	170.0
1994	2,438,855	62,476	3,721	25.6	152.6
1993	2,472,031	61,525	3,360	24.9	135.9
1992 ⁴	2,527,207	60,640	3,115	24.0	123.3
1991 ⁴	2,589,878	60,904	2,612	23.5	100.9
1990 ⁵	2,626,500	60,210	2,358	22.9	89.8
1989 ⁶	2,526,367	56,798	2,172	22.5	86.0

See footnotes at end of table.

Table 1. Number and rate of twin and triplet/+ births by race and Hispanic origin of mother, United States, 1980–97—Con.

Race, Hispanic origin, and year	Total births	Twin	Triplet/+ ¹	Twin	Triplet/+ ¹
				Rate per 1,000 live births	Rate per 100,000 live births
Black, total³					
1997	599,913	17,989	530	30.0	88.3
1996	594,781	17,285	439	29.1	73.8
1995	603,139	17,000	352	28.2	58.4
1994	617,689	18,344	358	28.8	56.3
1993	658,875	18,551	327	28.2	49.6
1992	673,633	18,619	361	27.6	53.6
1991	682,602	18,593	368	27.2	53.9
1990	684,336	18,164	321	26.5	46.9
1989	673,124	17,844	262	26.5	38.9
1988	638,562	16,334	286	25.6	44.8
1987	611,173	15,450	246	25.3	40.3
1986	592,910	14,662	199	24.7	33.6
1985	581,824	14,646	240	25.2	41.2
1984	568,138	13,616	195	24.0	34.3
1983	562,624	13,711	216	24.4	38.4
1982	568,506	13,592	240	23.9	42.2
1981	564,955	13,928	172	24.7	30.4
1980	568,080	13,638	211	24.0	37.1
Non-Hispanic black					
1997	581,431	17,472	523	30.0	90.0
1996	578,099	16,873	425	29.2	73.5
1995	587,781	16,622	340	28.3	57.8
1994	619,198	17,934	357	29.0	57.7
1993	641,273	18,115	314	28.2	49.0
1992 ⁴	657,450	18,294	346	27.8	52.6
1991 ⁴	666,758	18,243	367	27.4	55.0
1990 ⁵	661,701	17,646	306	26.7	46.2
1989 ⁶	611,269	16,266	246	26.6	40.2
Hispanic					
1997	709,767	13,821	516	19.5	72.7
1996	701,339	13,014	409	18.6	58.3
1995	679,768	12,685	355	18.7	52.2
1994	665,026	12,206	348	18.4	52.3
1993	654,418	12,294	321	18.8	49.1
1992 ⁴	643,271	11,932	239	18.5	37.2
1991 ⁴	623,085	11,356	235	18.2	37.7
1990 ⁵	595,073	10,713	235	18.0	39.5
1989 ⁶	532,249	9,701	189	18.2	35.5

¹Includes quadruplets and other higher order multiple births.²Includes races other than white and black and origin not stated.³Includes births to women of Hispanic origin.⁴Excludes data for New Hampshire, which did not report Hispanic origin.⁵Excludes data for New Hampshire and Oklahoma, which did not report Hispanic origin.⁶Excludes data for Louisiana, New Hampshire, and Oklahoma, which did not report Hispanic origin.

NOTES: Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race.

Table 2. Number and rate of twin and triplet/+ births by age of mother, 1980-97

Plurality and year	All ages	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years
Twin									
	Number								
1997	104,137	7,415	19,188	28,083	29,905	16,113	2,939	444	50
1996	100,750	7,300	19,134	27,612	28,963	14,958	2,467	316	---
1995	96,736	7,273	19,235	26,385	27,699	13,693	2,173	278	---
1994	97,064	7,483	20,106	27,418	27,275	12,523	2,061	198	---
1993	96,445	7,252	20,599	27,788	26,957	12,042	1,698	109	---
1992	95,372	7,361	20,790	28,089	26,434	11,159	1,477	62	---
1991	94,779	7,618	21,171	28,909	25,156	10,522	1,368	35	---
1990	93,865	7,605	20,945	30,020	24,466	9,587	1,203	39	---
1989	90,118	7,082	20,928	29,564	22,891	8,572	1,067	14	---
1988	85,315	6,742	20,258	28,156	21,388	7,870	882	19	---
1987	81,778	6,625	20,265	27,707	19,603	6,823	721	34	---
1986	79,485	6,507	20,044	27,268	18,709	6,260	680	17	---
1985	77,102	6,212	20,931	25,969	17,750	5,638	580	22	---
1984	72,949	6,228	20,211	24,890	15,920	5,106	581	13	---
1983	72,287	6,625	20,951	24,597	14,995	4,564	539	16	---
1982	71,631	6,717	21,530	24,300	14,459	4,082	522	21	---
1981	70,049	7,265	21,320	23,610	13,718	3,644	482	10	---
1980	68,339	7,212	21,374	22,712	12,944	3,559	530	8	---
	Rate per 1,000 live births in specified group								
1997	26.8	15.0	20.4	26.3	33.7	39.3	38.6	133.2	347.2
1996	25.9	14.5	20.2	25.8	32.3	37.4	34.4	103.8	---
1995	24.8	14.2	19.9	24.8	30.6	35.7	32.3	101.9	---
1994	24.6	14.4	20.1	25.2	30.1	33.7	32.5	79.0	---
1993	24.1	14.1	19.8	24.6	29.9	33.7	28.7	46.8	---
1992	23.5	14.2	19.4	23.8	29.5	32.4	26.5	30.9	---
1991	23.1	14.3	19.4	23.7	28.4	31.8	26.3	20.5	---
1990	22.6	14.3	19.2	23.5	27.6	30.2	24.7	23.8	---
1989	22.3	13.7	19.4	23.4	27.2	29.2	24.0	*	---
1988	21.8	13.8	19.0	22.7	26.6	29.2	22.4	*	---
1987	21.5	14.0	18.8	22.8	25.8	27.5	20.7	24.7	---
1986	21.2	13.8	18.2	22.7	25.9	27.2	22.8	*	---
1985	20.5	13.0	18.3	21.6	25.5	26.3	20.5	18.9	---
1984	19.9	13.0	17.7	21.4	24.2	26.1	21.6	*	---
1983	19.9	13.3	18.1	21.4	24.0	25.3	20.8	*	---
1982	19.5	12.8	17.9	21.1	23.9	24.3	21.2	17.0	---
1981	19.3	13.5	17.6	20.9	23.6	24.9	20.7	*	---
1980	18.9	12.8	17.4	20.5	23.5	25.3	23.0	*	---
Triplet/+ ¹									
	Number								
1997	6,737	102	441	1,615	2,604	1,652	240	70	13
1996	5,939	80	372	1,455	2,546	1,242	210	34	---
1995	4,973	90	341	1,258	1,965	1,095	184	40	---
1994	4,594	76	335	1,223	1,913	874	143	30	---
1993	4,168	81	364	1,031	1,858	714	113	7	---
1992	3,883	74	412	1,118	1,462	731	77	9	---
1991	3,346	82	400	1,019	1,262	555	28	—	---
1990	3,028	85	354	944	1,119	498	28	—	---
1989	2,798	76	299	938	1,089	353	36	7	---
1988	2,385	48	356	862	740	346	33	—	---
1987	2,139	69	312	876	665	196	21	—	---
1986	1,814	68	282	718	582	158	6	—	---
1985	1,925	66	400	797	496	150	16	—	---
1984	1,653	55	365	589	480	152	11	1	---
1983	1,575	91	336	624	410	114	—	—	---
1982	1,484	79	369	524	406	103	3	—	---
1981	1,385	96	309	566	323	80	11	—	---
1980	1,337	83	385	474	321	67	6	1	---

See footnotes at end of table.

Table 2. Number and rate of twin and triplet/+ births by age of mother, 1980–97—Con.

Plurality and year	All ages	Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–44 years	45–49 years	50–54 years
Triplet/+ ¹ —Con.	Rate per 100,000 live births in specified group								
1997	173.6	20.7	46.8	151.0	293.6	403.2	315.4	2,100.2	*
1996	152.6	15.9	39.4	135.8	283.5	310.9	292.5	1,116.6	---
1995	127.5	17.6	35.3	118.3	217.2	285.3	273.6	1,466.8	---
1994	116.2	14.7	33.5	112.3	211.0	235.2	225.2	1,196.6	---
1993	104.2	15.8	35.1	91.3	206.2	200.0	191.3	*	---
1992	95.5	14.3	38.5	94.8	163.3	212.1	138.2	*	---
1991	81.4	15.4	36.7	83.5	142.6	167.7	53.7	*	---
1990	72.8	15.9	32.4	73.9	126.3	156.8	57.6	*	---
1989	69.2	14.7	27.7	74.3	129.3	120.1	81.1	*	---
1988	61.0	9.8	33.3	69.6	92.1	128.4	83.9	*	---
1987	56.2	14.6	29.0	72.0	87.4	79.0	60.4	*	---
1986	48.3	14.4	25.6	59.9	80.7	68.6	*	*	---
1985	51.2	13.8	35.0	66.3	71.2	70.0	*	*	---
1984	45.1	11.5	32.0	50.5	72.9	77.6	*	*	---
1983	43.3	18.2	29.0	54.4	65.7	63.2	*	*	---
1982	40.3	15.1	30.6	45.5	67.1	61.3	*	*	---
1981	38.2	17.9	25.5	50.2	55.6	54.8	*	*	---
1980	37.0	14.8	31.4	42.8	58.3	47.6	*	*	---

* Figure does not meet standards of reliability or precision.

--- Data not available.

- Quantity zero.

¹Includes births in quadruplet and quintuplet and other higher order multiple births.

Table 3. Twin and triplet/+ birth rates by age, race, and Hispanic origin of mother: United States, 1980–82, 1989–91, and 1995–97

Plurality and age	1995–97 ¹	1989–91	1980–82	Percent change 1989–91 to 1995–97	Percent change 1980–82 to 1995–97
Twin					
Rate per 1,000 live births in specified group					
All races ² :					
All ages.	25.8	22.6	19.2	14	34
Under 20 years	14.6	14.1	13.1	3	12
20–29 years	23.1	21.6	19.2	7	20
20–24.	20.2	19.3	17.6	4	14
25–29.	25.6	23.5	20.8	9	23
30–39 years	33.8	28.5	23.9	19	41
30–34.	32.2	27.7	23.7	16	36
35–39.	37.5	30.4	24.8	23	51
40–49 years	38.4	24.8	21.1	55	82
40–44.	35.2	25.1	21.6	41	63
45–49.	114.0	17.8	10.8	541	960
White, total:					
All ages.	25.7	22.1	18.4	16	39
Under 20 years	13.1	12.6	11.9	3	10
20–29 years	22.0	20.5	18.2	7	21
20–24.	18.5	17.7	16.4	4	12
25–29.	24.9	22.8	20.0	9	25
30–39 years	34.4	28.4	23.2	21	48
30–34.	32.5	27.6	23.0	18	41
35–39.	38.8	30.7	24.1	26	61
40–49 years	41.6	25.4	20.9	63	98
40–44.	37.9	25.7	21.6	48	76
45–49.	130.1	18.1	8.0	619	1,526
Non-Hispanic white:					
All ages.	27.6	23.0	...	20	...
Under 20 years	13.4	13.0	...	3	...
20–29 years	23.3	21.2	...	10	...
20–24.	19.3	18.1	...	7	...
25–29.	26.2	23.4	...	12	...
30–39 years	36.0	29.0	...	24	...
30–34.	34.0	28.3	...	20	...
35–39.	40.6	31.3	...	30	...
40–49 years	45.0	26.3	...	71	...
40–44.	40.6	26.5	...	53	...
45–49.	149.8	20.2	...	642	...
Black, total:					
All ages.	29.1	26.8	24.2	9	20
Under 20 years	18.7	17.5	16.1	7	16
20–29 years	30.5	28.1	25.9	8	18
20–24.	28.0	26.3	24.0	6	17
25–29.	33.8	30.5	28.7	11	18
30–39 years	36.3	33.8	31.7	7	14
30–34.	36.6	33.5	31.7	9	15
35–39.	35.6	34.7	31.7	3	12
40–49 years	26.2	24.8	24.4	5	7
40–44.	25.8	25.3	24.8	2	4
45–49.	36.5	*	*	*	*
Non-Hispanic black:					
All ages.	29.2	26.9	...	8	...
Under 20 years	18.8	17.6	...	7	...
20–29 years	30.6	28.3	...	8	...
20–24.	28.1	26.5	...	6	...
25–29.	33.9	30.6	...	11	...
30–39 years	36.5	34.0	...	7	...
30–34.	36.7	33.6	...	9	...
35–39.	35.9	35.0	...	2	...
40–49 years	26.1	25.2	...	3	...
40–44.	25.6	25.7	...	-0	...
45–49.	38.3	*	...	*	...

See footnotes at end of table.

Table 3. Twin and triplet/+ birth rates by age, race, and Hispanic origin of mother: United States, 1980–82, 1989–91, and 1995–97—Con.

Plurality and age	1995–97 ¹	1989–91	1980–82	Percent change 1989–91 to 1995–97	Percent change 1980–82 to 1995–97
Twin—Con.					
Rate per 1,000 live births in specified group					
Hispanic:					
All ages.	18.9	18.2	...	4	...
Under 20 years	12.6	11.8	...	7	...
20–29 years	17.9	17.8	...	1	...
20–24.	16.2	16.4	...	-1	...
25–29.	19.9	19.4	...	3	...
30–39 years	25.4	23.8	...	7	...
30–34.	24.5	22.7	...	8	...
35–39.	27.6	26.5	...	4	...
40–49 years	23.8	21.3	...	12	...
40–44.	23.4	21.7	...	8	...
45–49.	32.8	*	...	*	...
Triplet/+³					
Rate per 100,000 live births in specified group					
All races ² :					
All ages.	151.2	74.5	38.5	103	293
Under 20 years	18.0	15.3	15.9	17	13
20–29 years	90.5	56.3	37.4	61	142
20–24.	40.5	32.3	29.2	25	39
25–29.	135.1	77.2	46.2	75	192
30–39 years	286.0	137.1	59.3	109	382
30–34.	264.6	132.8	60.4	99	338
35–39.	334.4	149.2	55.0	124	508
40–49 years	346.9	66.0	28.1	426	1,135
40–44.	294.7	63.4	28.1	365	949
45–49.	1,581.5	*	*	*	*
White, total:					
All ages.	171.7	82.5	39.4	108	336
Under 20 years	14.7	12.1	14.6	22	1
20–29 years	99.1	59.6	37.5	66	164
20–24.	41.0	31.0	28.7	32	43
25–29.	147.6	82.7	46.5	78	217
30–39 years	318.6	151.8	61.3	110	420
30–34.	297.5	147.2	62.3	102	378
35–39.	366.4	164.8	57.4	122	538
40–49 years	392.3	68.9	*	469	*
40–44.	325.8	65.0	*	401	*
45–49.	1,980.2	*	*	*	*
Non-Hispanic white:					
All ages.	202.4	90.0	...	125	...
Under 20 years	12.9	11.7	...	10	...
20–29 years	116.1	70.0	...	66	...
20–24.	46.9	30.0	...	56	...
25–29.	168.3	90.0	...	87	...
30–39 years	353.4	160.0	...	121	...
30–34.	330.3	160.0	...	106	...
35–39.	405.5	180.0	...	125	...
40–49 years	439.1	80.0	...	449	...
40–44.	359.5	80.0	...	349	...
45–49.	2,352.1	*	...	*	...
Black, total:					
All ages.	73.5	46.6	36.6	58	101
Under 20 years	27.9	23.5	16.5	19	69
20–29 years	63.4	46.6	40.2	36	58
20–24.	42.4	32.3	34.4	31	23
25–29.	92.0	77.2	48.9	19	88
30–39 years	134.9	72.8	57.3	85	135
30–34.	113.5	62.9	60.0	80	89
35–39.	181.3	100.2	48.3	81	275
40–49 years	175.0	*	*	*	*
40–44.	181.4	*	*	*	*
45–49.	-	-	-	-	-

See footnotes at end of table.

Table 3. Twin and triplet/+ birth rates by age, race, and Hispanic origin of mother: United States, 1980–82, 1989–91, and 1995–97—Con.

Plurality and age	1995–97 ¹	1989–91	1980–82	Percent change 1989–91 to 1995–97	Percent change 1980–82 to 1995–97
Triplet/+ ³ —Con.					
Rate per 100,000 live births in specified group					
Non-Hispanic black:					
All ages	73.7	50.0	...	47	...
Under 20 years	27.0	24.6	...	10	...
20–29 years	64.7	50.0	...	29	...
20–24	43.1	40.0	...	8	...
25–29	94.2	60.0	...	57	...
30–39 years	134.1	70.0	...	92	...
30–34	115.0	60.0	...	92	...
35–39	175.6	110.0	...	60	...
40–49 years	181.6	*	...	*	...
40–44	188.2	*	...	*	...
45–49	–	–	...	–	...
Hispanic:					
All ages	61.2	40.0	...	53	...
Under 20 years	19.8	12.8	...	54	...
20–29 years	45.2	30.0	...	51	...
20–24	25.1	20.0	...	26	...
25–29	68.4	50.0	...	37	...
30–39 years	124.0	70.0	...	77	...
30–34	114.5	70.0	...	64	...
35–39	146.9	60.0	...	145	...
40–49 years	143.2	*	...	*	...
40–44	128.9	–	...	–	...
45–49	*	*	...	*	...

... Category not applicable.

* Figure does not meet standards of reliability or precision.

– Quantity zero.

¹For 1997, births to women aged 50–54 years are not included in the calculation of rates for 1995–97. See Technical notes.

²Includes races other than white and black.

³Includes births in quadruplet and quintuplet and other higher order multiple births.

NOTES: Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race.

Table 4. Percent very low and low birthweight by plurality and age of mother: United States, 1980–82 and 1995–97

Age and race of mother	Twin		Triplet /+ ¹		Singleton	
	1995–97	1980–82	1995–97	1980–82	1995–97	1980–82
Very low birthweight ²						
All ages	10.20	10.36	36.92	36.42	1.09	0.97
Under 20 years	16.96	17.64	55.35	50.40	1.54	1.51
20–24 years	11.91	11.84	47.07	46.33	1.10	0.94
25–29 years	9.93	8.86	42.39	35.60	0.92	0.79
30–34 years	8.76	7.82	35.15	26.46	0.94	0.84
35–39 years	8.34	7.56	31.44	29.20	1.22	1.02
40–44 years	8.02	6.85	27.17	*	1.57	1.18
45–49 years	8.49	*	40.14	*	1.71	1.65
Low birthweight ³						
All ages	53.44	50.80	93.08	87.98	6.05	5.91
Under 20 years	68.08	65.07	96.31	93.55	8.59	8.74
20–24 years	58.72	55.82	95.37	91.40	6.29	6.02
25–29 years	53.16	47.34	94.72	88.46	5.17	4.89
30–34 years	49.33	43.80	92.90	83.70	5.16	4.89
35–39 years	48.65	43.73	91.31	82.80	6.30	5.99
40–44 years	49.24	43.80	89.57	*	7.81	7.58
45–49 years	54.19	*	93.66	*	9.18	9.59

* Figure does not meet standards of reliability or precision.

¹Includes quadruplet and other higher order multiple births.

²Very low birthweight is less than 1,500 grams.

³Low birthweight is less than 2,500 grams.

NOTES: For 1997, births to women aged 50–54 years are not included in the calculation of rates for 1995–97. See Technical notes.

Table 5. Twin and triplet/+ birth rates by State: United States and each State, 1995-97

State	Twin				State	Triplet/+ ¹			
	Number	Rate per 1,000 live births	95-percent confidence limits			Number	Rate per 100,000 live births	95-percent confidence limits	
			Lower	Upper				Lower	Upper
United States	301,623	25.8	25.7	25.9	United States	17,649	151.2	149.0	153.4
Alabama	4,643	25.5	24.8	26.3	Alabama	266	146.4	128.8	164.0
Alaska	722	23.9	22.1	25.6	Alaska	27	89.3	58.9	130.0
Arizona	5,134	23.0	22.3	23.6	Arizona	327	146.3	130.4	162.2
Arkansas	2,608	24.1	23.2	25.1	Arkansas	98	90.7	73.7	110.6
California	37,938	23.5	23.2	23.7	California	1,677	103.8	98.8	108.7
Colorado	4,733	28.4	27.6	29.2	Colorado	373	223.8	201.1	246.5
Connecticut	4,294	32.6	31.6	33.5	Connecticut	323	244.9	218.1	271.6
Delaware	898	29.3	27.3	31.2	Delaware	69	224.9	175.0	284.7
District of Columbia	714	28.2	26.0	30.3	District of Columbia	34	134.2	93.0	187.6
Florida	14,115	24.7	24.3	25.2	Florida	861	150.9	140.8	161.0
Georgia	8,798	25.5	25.0	26.1	Georgia	497	144.2	131.6	156.9
Hawaii	1,000	18.4	17.2	19.5	Hawaii	36	66.2	46.4	91.6
Idaho	1,185	21.5	20.2	22.7	Idaho	45	81.5	59.4	109.0
Illinois	15,447	28.1	27.6	28.5	Illinois	1,160	211.0	198.8	223.1
Indiana	6,273	25.1	24.5	25.7	Indiana	419	167.7	151.7	183.8
Iowa	3,022	27.3	26.3	28.3	Iowa	215	194.4	168.4	220.4
Kansas	2,902	26.1	25.1	27.1	Kansas	140	126.0	105.1	146.8
Kentucky	3,828	24.2	23.4	25.0	Kentucky	221	139.6	121.2	158.0
Louisiana	5,207	26.4	25.7	27.2	Louisiana	192	97.5	83.7	111.3
Maine	1,118	27.0	25.4	28.7	Maine	59	142.7	108.7	184.1
Maryland	6,211	29.0	28.3	29.7	Maryland	423	197.5	178.7	216.4
Massachusetts	7,904	32.6	31.9	33.4	Massachusetts	666	274.9	254.0	295.8
Michigan	11,071	27.6	27.0	28.1	Michigan	708	176.2	163.2	189.2
Minnesota	5,296	27.7	26.9	28.4	Minnesota	476	248.6	226.3	271.0
Mississippi	2,911	23.5	22.6	24.4	Mississippi	81	65.4	51.9	81.3
Missouri	5,886	26.6	26.0	27.3	Missouri	220	99.6	86.4	112.8
Montana	771	23.5	21.8	25.1	Montana	17	51.8	30.2	82.9
Nebraska	2,114	30.3	29.0	31.6	Nebraska	226	323.6	281.3	365.8
Nevada	1,754	22.5	21.4	23.5	Nevada	111	142.1	115.7	168.6
New Hampshire	1,159	26.6	25.1	28.2	New Hampshire	60	137.9	105.3	177.6
New Jersey	10,683	31.2	30.6	31.8	New Jersey	1,050	306.6	288.1	325.2
New Mexico	1,681	20.7	19.7	21.8	New Mexico	58	71.6	54.4	92.5
New York	22,729	28.7	28.3	29.1	New York	1,566	197.6	187.8	207.4
North Carolina	8,135	26.0	25.4	26.6	North Carolina	378	120.7	108.6	132.9
North Dakota	714	28.4	26.3	30.5	North Dakota	46	182.7	133.8	243.7
Ohio	12,214	26.7	26.2	27.2	Ohio	750	163.8	152.1	175.6
Oklahoma	3,112	22.2	21.4	23.0	Oklahoma	129	92.1	76.2	107.9
Oregon	3,069	23.6	22.7	24.4	Oregon	135	103.6	86.1	121.1
Pennsylvania	12,114	27.3	26.8	27.8	Pennsylvania	745	167.6	155.6	179.7
Rhode Island	1,020	26.9	25.3	28.6	Rhode Island	64	168.9	130.1	215.7
South Carolina	3,918	25.4	24.6	26.2	South Carolina	157	101.8	85.8	117.7
South Dakota	796	25.6	23.8	27.4	South Dakota	36	115.7	81.0	160.2
Tennessee	5,607	25.3	24.7	26.0	Tennessee	245	110.7	96.8	124.5
Texas	22,940	23.2	22.9	23.5	Texas	1,212	122.8	115.9	129.7
Utah	2,878	23.1	22.2	23.9	Utah	130	104.2	86.3	122.2
Vermont	437	21.7	19.6	23.7	Vermont	8	39.7	17.1	78.2
Virginia	7,213	26.1	25.4	26.7	Virginia	357	129.0	115.6	142.4
Washington	5,570	23.9	23.2	24.5	Washington	196	84.0	72.2	95.8
West Virginia	1,477	23.6	22.4	24.8	West Virginia	51	81.4	60.6	107.1
Wisconsin	5,171	25.7	25.0	26.4	Wisconsin	294	146.2	129.4	162.9
Wyoming	489	25.8	23.5	28.1	Wyoming	15	79.2	44.3	130.7
Puerto Rico	3,208	16.8	16.2	17.4	Puerto Rico	108	56.6	46.0	67.3
Virgin Islands	100	16.7	13.4	20.0	Virgin Islands	4	66.8	18.2	171.1
Guam	149	11.7	9.8	13.6	Guam	2	15.7	1.9	56.7

¹Includes quadruplet and quintuplet and other higher order multiple births.

Technical notes

Data for this report are based on 100 percent of birth certificates registered to U.S. residents for 1980–97. Tabulations by State include Puerto Rico, the Virgin Islands, and Guam but the totals for the United States do not include these areas. Data by plurality for American Samoa were not available.

For 1997 the editing procedures for maternal age were changed to include ages 50–54 years. For 1963–96 mother's age was edited for ages 10–49 years; births reported to have occurred to mothers younger than 10 and older than 49 were imputed according to the age of the mother from the previous record with the same race and total birth order. The number of births to women aged 50–54 years in 1997 was small (144) and, thus, this change results in essentially no discontinuity in age-specific birth rates for women aged 10–49 years (10).

Maternal race and Hispanic origin are reported separately on the birth certificate. Although most Hispanic births (97 percent) are to white mothers, there are important differences in twin and triplet/+ birth rates between Hispanic and non-Hispanic white women. Therefore, starting with data year 1989 when information for the vast majority of the Hispanic origin reporting area became available, data are shown separately for these groups.

Except where accompanied by 95-percent confidence limits (table 5), rates are not computed if fewer than 20 events occurred in the numerator or the denominator. Information on the calculation of random variation and relative standard error is provided in earlier reports (7,10).

Contents

Abstract	1
Introduction	1
Twin births rise 52 percent; triplet/+ births 404 percent.	2
Triplet births rise faster than quadruplets and other higher order multiples	2
More twins born to women 45–49 in 1997 than during the decade of the 1980's	2
Early 1990's marks shift in age-specific twin births	3
Triplet/+ rates rise 400 percent for women in their 30's; 1,000 percent for women in their 40's	3
Historic differences in white and black twin birth rates erased	3
Non-Hispanic white mothers more likely to have a triplet/+ birth	4
Twin and triplet/+ rates of very low birthweight and low birthweight lowest for women 35–44 years	4
Nebraska and New Jersey triplet/+ rates twice the national	5
Rise in multiples coincides with older childbearing and fertility therapies	5
References	6
List of detailed tables	7
Technical notes	16

Suggested citation

Martin JA, Park MM. Trends in twin and triplet births: 1980–97. National vital statistics reports; vol 47 no. 24. Hyattsville, Maryland: National Center for Health Statistics. 1999.

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DHHS Publication No. (PHS) 99-1120
9-0701 (9/99)

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