User Guide to the 2006 Natality Public Use File

2006 Natality Detail Data Set

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Introduction:

User Guide to the 2006 Natality Public Use File

Introduction

United States birth data available in this file represent all births registered in the 50 States, the District of Columbia, and New York City. The Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS) receives these data as electronic files, prepared from individual records processed by each registration area, through the Vital Statistics Cooperative Program.

Birth data for the U.S. are limited to births occurring within the United States to U.S. residents and nonresidents. Births to nonresidents of the Unites States are excluded from all tabulations by place of residence. Births occurring to U.S. citizens outside of the United States are not included in this file. For more detailed information on the 2006 Natality file see the *Detailed Technical Notes - natality: United States, 2006.*

Availability of Geographic Detail

Beginning with the 2005 data year, the U.S. micro-data natality file no longer includes geographic detail (e.g., mother's state of residence). Tabulations of birth data by residence of mother for states and for counties with populations of 100,000 or more are available using the VitalStats online data access tool described below. Certain geographic level data may also be available upon request: See "NCHS Data Release and Access Policy for Microdata and Compressed Vital Statistics Files, 2007," available at: http://www.cdc.gov/nchs/about/major/dvs/NCHS_DataRelease.htm.

The possessions file, which includes data on births occurring in Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Marianas Islands, includes limited geographic detail. Information identifying individual possessions and counties (or their equivalent) with populations of 100,000 or more by place of occurrence and residence are available in this file.

VitalStats

VitalStats is an online data access tool which provides access to a collection of interactive pre-built tables, and the ability to build tables from over 100 public use birth

variables. Interactive charting and mapping tools are a key part of the system, and provide powerful options for visualizing and manipulating tabulated data. Tabulated data can be exported to Excel for further analysis. VitalStats is available at: http://www.cdc.gov/nchs/VitalStats.htm.

The 1989 and 2003 Revisions of the U.S. Certificate of Live Birth

This data file includes data based on both the 1989 Revision of the U.S. Standard Certificate of Live Birth (unrevised) and the 2003 revision of the U.S. Standard Certificate of Live Birth in 2003 (revised). The 2003 revision is described in detail elsewhere. (See the 2003 Revision website at: http://www.cdc.gov/nchs/vital_certs_rev.htm). Nineteen states, California (selected items only with full implementation in 2007), Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming, and Puerto Rico implemented the revised birth certificate as of January 1, 2006. The 19 revised states (excluding Puerto Rico) represent 49 percent of all U.S. births. Where comparable, revised data are combined with data from the remaining 31 states, the District of Columbia, and New York City. (Revised data are denoted by "R;" unrevised data are denoted by "U" in the "Rev" column of the file layout.) Where data for the 1989 and 2003 certificate revisions are not comparable (e.g., educational attainment of the mother), unrevised and revised data are shown in separate fields in the data file. Also see discussion of reporting flags. Selected items new to the 2003 Revision are included in this data file; see tables R-1- R-6. A recent report "*Expanded Health Data from the New Birth Certificate, 2005"* presented 2005 data for these items; a forthcoming report will present 2006 data for these items. (1). For further information please contact us at births@cdc.gov or (301) 458-4111.

Incomplete National Reporting: Selecting Reporting Areas for the 2006 natality file

The use of reporting flags

As a result of the delayed, phased transition to the 2003 Standard Certificate of Live Birth, the 2006 natality file includes data for reporting areas that use the 2003 revision of

the U.S. Standard Certificate of Live Birth (revised) and data for reporting areas that use the 1989 Standard Certificate of Live Birth (unrevised). Although many data items are comparable across certificate revisions and are available for the entire United States, many items have more limited reporting areas. For example, information on pre-pregnancy and gestational diabetes, a revised data item, is available for 19 States for 2006; information on amniocentesis, an unrevised item not included on the revised certificate, is available for 31 States, the District of Columbia, and New York City. Reporting flags were developed to help the user more readily identify reporting areas for items with less than national reporting. The national reporting area is defined as the 50 States, the District of Columbia, and New York City; (NYC is an independent reporting area from New York State). Reporting flags are available for most items on the file. Positions for reporting flags are noted along with each data item in the file layout.

Translating "blanks"

In the 2006 natality file, for data items which are not common or comparable across certificate revisions, births to residents of a revised state occurring in an unrevised state, and births to residents in an unrevised state occurring in a revised state, are represented by "blanks." Blanks should be treated as "unknowns" for tabulations.

In sum, the correct use of reporting flags and translation of blanks will result in an accurate tally of births for items with incomplete national reporting. For an example of SAS code that may be used to incorporate the correct use of reporting flags and the translation of blanks see below.

Example of SAS code using reporting flags (and translating blanks)

The example below is for the revised prenatal care item. Prenatal care data based on the revised certificate are not considered comparable to data based on the unrevised certificate, and are presented separately (see also Births: Final Data for 2006). Accordingly, use of the reporting flag for this item will produce 2006 data for the month prenatal care began for the 19 revised States which had implemented the revised Certificate as of January 1, 2006.

Sample SAS program

```
01   DATA work;
02        INFILE 'c:nat06us.dat' LRECL=775;
03        INPUT
04             restatus 138
05             precare 245-246
06             f_mpcb 668;
07
08        /*Exclude foreign residents*/
09        IF restatus NE 4;
10        /*Select reporting area*/
11        IF f_mpcb=1;
12        /*Convert blanks to unknown*/
13        IF precare=. THEN precare=99;
14
15   PROC FREQ;
16        TABLE precare;
17   RUN;
```

In this example, "restatus" is used to exclude births to foreign residents (this is standard practice for all NCHS tabulations). Also in this example, blanks are represented by numeric values SAS code = (.). However, for some items in the file, e.g., obstetric procedures, blanks are represented by character values for which the SAS code is empty quotes (' ').

References

1. Menacker F, Martin JA. Expanded health data from the new birth certificate, 2005. National vital statistics reports; vol 56 no 13. Hyattsville, MD: National Center for Health Statistics.

2006 Natality
Machine / File / Data Characteristics

All Files:

Record format: Blocked, Fixed Format

Code scheme: Numeric/Alphabetic/Blank

Record length: 775

Block size: 27000

	United States	Possessions
Record count:	4,273,225	56,784
All Births:		
Record count:	4,273,225	56,784
By occurrence:	4,273,225	56,784
By residence:	4,265,555	56,539
To foreign residents:	7,670	245

2006 LIST OF DATA ELEMENTS AND LOCATIONS

Data Items	Locations
1. General	
a) Data year	15-18
b) Resident status	138
2. Prenatal Care	
a) Month began	256-257
b) Number of visits	270-271
3. Child	
a) Sex	437
b) Number at delivery	423
c) Birthweight	463-466
d) Apgar score	415-416
e) Gestation	451-457
f) Month/year of birth	15-20
g) Day of week of birth	29
4. Mother	
a) Age	89-93
b) Race	139-144
c) Marital status	153
d) Education	155-158
e) Hispanic Origin	148-149
5. Pregnancy History	
a) Born alive, now living	204-205
b) Born alive, now dead	206-207
c) Other terminations	208-209
d) Total birth order	217
e) Live birth order	212
6. Father	
a) Age	184-187
b) Race	188-191, 199-200
c) Hispanic origin	195-196
7. Other Items	
a) Residence reporting flags	569-773
b) Attendant at birth	410
c) Place of delivery	42

LIST OF DATA ELEMENTS AND LOCATIONS

Data Items	Locations
8. Medical and Health Data	
a) Method of delivery	390-403
b) Medical risk factors	313-344
c) Other risk factors	
Tobacco	284-294
Alcohol	295-298
Weight gain during pregnancy	276-278
d) Obstetric procedures	351-361
e) Complications/characteristics of labor and/or delivery	365-389
f) Abnormal conditions of the newborn	476-491
g) Congenital anomalies	492-525

2006
Public Use –Natality File Record Layout

Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
1-6	6	FILLER	**Filler**			Blank	
7	1	REVISION	**Revision**		U,R	A	Data based on the 2003 revision of the US Standard Birth Certificate (Revised)
						S	Data based on the 1989 revision of the US Standard Birth Certificate (Unrevised)
8-14	7	FILLER	**Filler**			Blank	
15-18	4	DOB_YY	**Birth Year**		U,R	2006	Year of birth
19-20	2	DOB_MM	**Birth Month**		U,R	01	January
						02	February
						03	March
						04	April
						05	May
						06	June
						07	July
						08	August
						09	September
						10	October
						11	November
						12	December
21-28	8	FILLER	**Filler**			Blank	
29	1	DOB_WK	**Weekday**		U,R	1	Sunday
						2	Monday
						3	Tuesday
						4	Wednesday
						5	Thursday
						6	Friday
						7	Saturday
30-31	2	OTERR	**Occurrence Territory/Possession** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R		
			Outlying Areas of the United States			AS	American Samoa
						GU	Guam

*U,R Includes data based on both the 1989 Revision of the U.S. Certificate of Live Birth (unrevised), and the 2003 Revision of the U.S. Certificate of Live Birth (revised).

U Includes data based on the 1989 Revision of the U.S. Certificate of Live Birth; excludes data based on the 2003 Revision.

R Includes data based on the 2003 Revision of the U.S. Certificate of Live Birth; excludes data based on the 1989 Revision.

Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						MP	Northern Marianas
						PR	Puerto Rico
						VI	Virgin Islands
32-36	5	FILLER	**Filler**			Blank	
37-39	3	OCNTY	**Occurrence County** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R		
			Puerto Rico			021	Bayamo'n
						025	Caguas
						031	Carolina
						097	Mayaguez
						113	Ponce
						127	San Juan
						999	County of less than 100,000
			Other Outlying Areas of the United States			000	No county level geography
						999	County of less than 100,000
40	1	OCNTYPOP	**Occurrence County Pop** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R	0	County of 1,000,000 or more
						1	County of 500,000 to 1,000,000
						2	County of 250,000 to 500,000
						3	County of 100,000 to 250,000
						9	County less than 100,000
41	1	BFACIL	**Birth Place**		R	1	Hospital
						2	Freestanding Birthing Center
						3	Home (intended)
						4	Home (not intended)
						5	Home (unknown if intended)
						6	Clinic / Doctor's Office
						7	Other
						9	Unknown
						Blank	Not on certificate
42	1	UBFACIL	**Birth Place**		U,R	1	Hospital
						2	Freestanding Birthing Center

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						3	Clinic / Doctor's Office
						4	Residence
						5	Other
						9	Unknown
43-58	16	FILLER	**Filler**			Blank	
59	1	BFACIL3	**Birth Place Recode**		U,R	1	In Hospital
						2	Not in Hospital
						3	Unknown or Not Stated
60-86	27	FILLER	**Filler**			Blank	
87	1	MAGE_IMPFLG	**Mother's Age Imputed**		U,R	Blank	Age not imputed
						1	Age imputed
88	1	MAGE_REPFLG	**Reported Age of Mother Flag**		U,R	Blank	Reported age not used
						1	Reported age used
89-90	2	MAGER	**Mother's Single Year of Age**		U,R	12	10-12 years
						13	13 years
						14	14 years
						15	15 years
						16	16 years
						17	17 years
						18	18 years
						19	19 years
						20	20 years
						21	21 years
						22	22 years
						23	23 years
						24	24 years
						25	25 years
						26	26 years
						27	27 years
						28	28 years
						29	29 years
						30	30 years
						31	31 years
						32	32 years

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						33	33 years
						34	34 years
						35	35 years
						36	36 years
						37	37 years
						38	38 years
						39	39 years
						40	40 years
						41	41 years
						42	42 years
						43	43 years
						44	44 years
						45	45 years
						46	46 years
						47	47 years
						48	48 years
						49	49 years
						50	50-54 years
91-92	2	MAGER14	**Mother's Age Recode 14**		U,R	01	Under 15 Years
						03	15 years
						04	16 years
						05	17 years
						06	18 years
						07	19 years
						08	20-24 years
						09	25-29 years
						10	30-34 years
						11	35-39 years
						12	40-44 years
						13	45-49 years
						14	50-54 years
93	1	MAGER9	**Mother's Age Recode 9**		U,R	1	Under 15 years
						2	15-19 years
						3	20-24 years
						4	25-29 years
						5	30-34 years
						6	35-39 years
						7	40-44 years

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						8	45-49 years
						9	50-54 years
94-95	2	MBCNTRY	**Mother's Birth Country** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		R**	AA-ZZ	A complete list of countries is shown in the Geographic Code Outline, which follows the record layout.
	** Also includes unrevised territories/possessions that use new geographic coding						
96-108	13	FILLER	**Filler**			Blank	
109-110	2	MRTERR	**Mother's Residence Territory/Possession** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R		
			Outlying Areas of the United States			AS	American Samoa
						GU	Guam
						MP	Northern Marianas
						PR	Puerto Rico
						VI	Virgin Islands
			Foreign			CC	Canada
						CU	Cuba
						MX	Mexico
						XX	Not Applicable
						ZZ	Not Classifiable
111-113	3	FILLER	**Filler**			Blank	
114-116	3	MRCNTY	**Mother's County of Residence** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R		
			Puerto Rico			021	Bayamo'n
						025	Caguas
						031	Carolina
						097	Mayaguez
						113	Ponce
						127	San Juan

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						999	County of less than 100,000 population or foreign resident
			Other Outlying Areas of the United States			000	No county level geography
						999	County of less than 100,000 population or foreign resident
117-131	15	FILLER	**Filler**			Blank	
132	1	RCNTY_POP	**Population of Residence County** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R	0 1 2 3 9 Z	County of 1,000,000 or more County of 500,000 to 1,000,000 County of 250,000 to 500,000 County of 100,000 to 250,000 County less than 100,000 Foreign resident
133-136	4	FILLER	**Filler**			Blank	
137	1	RECTYPE	**Record Type** *(This item is available in the territory/possession file only, geographic codes are not available in the U.S. file)*		U,R	1 2	RESIDENT: Territory/Possession and county of occurrence and residence are the same. NONRESIDENT: Territory/Possession and county of occurrence and residence are different.
138	1	RESTATUS	**Residence Status**		U,R		
			United States			1	RESIDENT: State and county of occurrence and residence are the same.
						2	INTRASTATE NONRESIDENT: State of occurrence and residence are the same but county is different.
						3	INTERSTATE NONRESIDENT: State of occurrence and residence are different but both are one of the 50 US states or District of Columbia.
						4	FOREIGN RESIDENT: The state of residence is not one of the 50 US states or District of Columbia.
			Outlying Areas of the United States			1	RESIDENT: State and county of occurrence and residence are the same. (Unique to Guam, all US residents are considered residents of Guam and thus are assigned 1.)
						2	INTRATERRITORY NONRESIDENT: Territory of occurrence and residence are the same but county is different.

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						2	INTERTERRITORY RESIDENT: Territory of occurrence and residence are different but both are US Territories.
						3	FOREIGN RESIDENT: The residence is not a US Territory.
139-140	2	MBRACE	**Mother's Bridged Race** Includes only states reporting multiple race. Codes 01-14 used for individuals reporting only one race. Codes 21-24 used for individuals reporting more than one race that have been bridged to a single race. Code 24 also used for individuals reporting more than one Asian/Pacific Islander group; see "Technical Appendix." ** Also includes unrevised states that report multiple race.		R**	01 02 03 04 05 06 07 08 09 10 11 12 13 14 21 22 23 24 Blank	White – single race Black – single race American Indian / Alaskan Native – single race Asian Indian – single race Chinese – single race Filipino – single race Japanese – single race Korean – single race Vietnamese – single race Other Asian – single race Hawaiian – single race Guamanian – single race Samoan – single race Other Pacific Islander – single race White – bridged multiple race Black – bridged multiple race American Indian / Alaskan Native – bridged multiple race Asian / Pacific Islander – bridged multiple race Not on certificate
141-142	2	MRACE	**Mother's Race** Includes only states exclusively reporting single race. Some areas report additional Asian or Pacific Islander (API) codes for race. Codes 18-68 replace old code 08 for these areas. Code 78 replaces old code 08 for all other areas. See reporting flag at pos.650 for expanded API reporting area.		U		
			United States			01 02 03 04 05 06	White Black American Indian / Alaskan Native Chinese Japanese Hawaiian (includes part Hawaiian)

*U,R Includes data based on both the 1989 Revision of the U.S. Certificate of Live Birth (unrevised), and the 2003 Revision of the U.S. Certificate of Live Birth (revised).

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						07	Filipino
						18	Asian Indian
						28	Korean
						38	Samoan
						48	Vietnamese
						58	Guamanian
						68	Other Asian / Pacific Islander in areas reporting codes 18-58.
						78	Combined other Asian / Pacific Islander, includes 18-68 for areas that do not report them separately.
						Blank	Not on certificate
			Puerto Rico			01	White
						02	Black
						00	Other races
						Blank	Not on certificate
			Guam			01	White
						02	Black
						03	American Indian / Alaskan Native
						04	Chinese
						05	Japanese
						06	Hawaiian (includes part Hawaiian)
						07	Filipino
						08	Other Asian or Pacific Islander
						58	Gumanian
						Blank	Not on certificate
			All other Outlying Areas of the United States			01	White
						02	Black
						03	American Indian / Alaskan Native
						04	Chinese
						05	Japanese
						06	Hawaiian (includes part Hawaiian)
						07	Filipino
						08	Other Asian or Pacific Islander
						Blank	Not on certificate
143		1	MRACEREC	**Mother's Race Recode**	U,R		

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R Includes data based on the 2003 Revision of the U.S. Certificate of Live Birth; excludes data based on the 1989 Revision.

Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
			Includes individuals reporting only one race and individuals reporting more than one race bridged to a single race.				
			United States and all Outlying Areas of the United States except Puerto Rico			1	White
						2	Black
						3	American Indian / Alaskan Native
						4	Asian / Pacific Islander
			Puerto Rico			1	White
						2	Black
						0	Other (not classified as White or Black)
144	1	MRACEIMP	**Mother's Race Imputed Flag**		U,R	Blank	Mother's race not imputed
						1	Unknown race imputed
						2	All other races, formerly coded 09, imputed.
145-147	3	FILLER	**Filler**			Blank	
148	1	UMHISP	**Mother's Hispanic Origin**				
				569	U,R	0	Non-Hispanic
						1	Mexican
						2	Puerto Rican
						3	Cuban
						4	Central or South American
						5	Other and Unknown Hispanic
						9	Origin unknown or not stated
149	1	MRACEHISP	**Mother's Race/Hispanic Origin**				
				569	U,R	1	Mexican
						2	Puerto Rican
						3	Cuban
						4	Central or South American
						5	Other and Unknown Hispanic
						6	Non-Hispanic White
						7	Non-Hispanic Black
						8	Non-Hispanic Other Races
						9	Origin unknown or not stated
150-152	3	FILLER	**Filler**			Blank	

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
153	1	MAR	**Mother's Marital Status**		U,R		
			United States and all Outlying Areas of the United States except Puerto Rico			1	Yes
						2	No
						9	Unknown or not Stated
			Puerto Rico			1	Yes
						2	Unmarried parents living together
						3	Unmarried parents not living together
						9	Unknown or not stated
154	1	MAR_IMP	**Mother's Marital Status Imputed Flag**		U,R	Blank	Marital Status not imputed
						1	Marital Status imputed
155	1	MEDUC	**Mother's Education**	571	R	1	8th grade or less
						2	9th through 12th grade with no diploma
						3	High school graduate or GED completed
						4	Some college credit, but not a degree
						5	Associate degree (AA, AS)
						6	Bachelor's degree (BA, AB, BS)
						7	Master's degree (MA, MS)
						8	Doctorate (PHD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)
						9	Unknown
						Blank	Not on certificate
156-157	2	DMEDUC	**Mother's Education**	647	U	00	No formal education
						01-08	Years of elementary school
						09	1 year of high school
						10	2 years of high school
						11	3 years of high school
						12	4 years of high school
						13	1 year of college
						14	2 years of college
						15	3 years of college
						16	4 years of college
						17	5 or more years of college
						99	Not stated
						Blank	Not on certificate

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U Includes data based on the 1989 Revision of the U.S. Certificate of Live Birth; excludes data based on the 2003 Revision.

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
158	1	MEDUC_REC	**Mother's Education Recode**				
				647	U	1	0 – 8 years
						2	9 – 11 years
						3	12 years
						4	13 – 15 years
						5	16 years and over
						6	Not stated
						Blank	Not on certificate
159-174	16	FILLER	**Filler**			Blank	
175	1	FAGERPT_FLG	**Father's Reported Age Used**		U,R	Blank	Father's reported age not used
						1	Father's reported age used
176-181	6	FILLER	**Filler**			Blank	
182-183	2	FAGECOMB	**Father's Combined Age (Revised)**		R	09-98	Father's combined age in years
						99	Unknown or not stated
						Blank	Not on certificate
184-185	2	UFAGECOMB	**Father's Combined Age**		U,R	10-98	Father's combined age in years
						99	Unknown or not stated
186-187	2	FAGEREC11	**Father's Age Recode 11**		U,R	01	Under 15 years
						02	15-19 years
						03	20-24 years
						04	25-29 years
						05	30-34 years
						06	35-39 years
						07	40-44 years
						08	45-49 years
						09	50-54 years
						10	55-98 years
						11	Not stated
188-189	2	FBRACE	**Father's Bridged Race**		R**	01	White – single race
			Includes only states reporting multiple race. Codes			02	Black – single race
			01-14 used for individuals reporting only one race.			03	American Indian / Alaskan Native – single race
			Codes 21-24 used for individuals reporting more than			04	Asian Indian – single race
			one race that have been bridged to a single race.			05	Chinese – single race

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
			Code 24 also used for individuals reporting more than one Asian/Pacific Islander group; see "Technical Appendix."			06	Filipino – single race
						07	Japanese – single race
						08	Korean – single race
						09	Vietnamese – single race
			** Also includes unrevised states that report multiple race.			10	Other Asian – single race
						11	Hawaiian – single race
						12	Guamanian – single race
						13	Samoan – single race
						14	Other Pacific Islander – single race
						21	White – bridged multiple race
						22	Black – bridged multiple race
						23	American Indian / Alaskan Native – bridged multiple race
						24	Asian / Pacific Islander – bridged multiple race
						99	Unknown or not stated, also includes states not reporting multiple race.
						Blank	Not on certificate
190	1	FILLER	**Filler**			Blank	
191	1	FRACEREC	**Father's Race Recode** Includes individuals reporting only one race and individuals reporting more than one race bridged to a single race.		U,R		
			United States and all Outlying Areas of the United States except Puerto Rico			1	White
						2	Black
						3	American Indian / Alaskan Native
						4	Asian / Pacific Islander
						9	Unknown or not stated
			Puerto Rico			1	White
						2	Black
						9	Unknown or not stated
						0	Other (not classified as White or Black)
192-194	3	FILLER	**Filler**			Blank	
195	1	UFHISP	**Father's Hispanic Origin**	570	U,R	0	Non-Hispanic
						1	Mexican

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						2	Puerto Rican
						3	Cuban
						4	Central American
						5	Other and Unknown Hispanic
						9	Origin unknown or not stated
196	1	FRACEHISP	**Father's Race/Hisp Origin**				
				570	U,R	1	Mexican
						2	Puerto Rican
						3	Cuban
						4	Central or South American
						5	Other and Unknown Hispanic
						6	Non-Hispanic White
						7	Non-Hispanic Black
						8	Non-Hispanic Other Races
						9	Origin unknown or not stated
197-198	2	FILLER	**Filler**			Blank	
199-200	2	FRACE	**Father's Race**		U		
			United States			01	White
						02	Black
						03	American Indian / Alaskan Native
						04	Chinese
						05	Japanese
						06	Hawaiian (includes part Hawaiian)
						07	Filipino
						18	Asian Indian
						28	Korean
						38	Samoan
						48	Vietnamese
						58	Guamanian
						68	Other Asian / Pacific Islander in areas reporting codes 18-58.
						78	Combined other Asian / Pacific Islander, includes 18-68 for areas that do not report them separately.
						99	Unknown or not stated
						Blank	Not on certificate
			Puerto Rico			01	White

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						02	Black
						00	Other races
						99	Unknown or not stated
						Blank	Not on certificate
			Guam			01	White
						02	Black
						03	American Indian / Alaskan Native
						04	Chinese
						05	Japanese
						06	Hawaiian (includes part Hawaiian)
						07	Filipino
						08	Other Asian or Pacific Islander
						58	Gumanian
						99	Unknown or not stated
						Blank	Not on certificate
			All other Outlying Areas of the United States			01	White
						02	Black
						03	American Indian / Alaskan Native
						04	Chinese
						05	Japanese
						06	Hawaiian (includes part Hawaiian)
						07	Filipino
						08	Other Asian or Pacific Islander
						99	Unknown or not stated
						Blank	Not on certificate
201-211	11	FILLER	**Filler**			Blank	
212	1	LBO_REC	**Live Birth Order Recode**		U,R	1-7	Live birth order
						8	Live birth order of 8 or more
						9	Unknown or not stated
213-216	4	FILLER	**Filler**			Blank	
217	1	TBO_REC	**Total Birth Order Recode**		U,R	1-7	Total birth order
						8	Total birth order of 8 or more
						9	Unknown or not stated

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
218-219	2	FILLER	**Filler**			Blank	
220-221	2	DLLB_MM	**Date of Last Live Birth - Month**		R	01	January
						02	February
						03	March
						04	April
						05	May
						06	June
						07	July
						08	August
						09	September
						10	October
						11	November
						12	December
						88	Not applicable
						99	Unknown or not stated
222-225	4	DLLB_YY	**Date of Last Live Birth - Year**		R	nnnn	Year of last live birth
						8888	Not applicable
						9999	Unknown or not stated
226-244	19	FILLER	**Filler**			Blank	
245-246	2	PRECARE	**Month Prenatal Care Began**				
				668	R	00	No prenatal care
						01-10	Month prenatal care began
						99	Unknown or not stated
						Blank	Not on certificate
247	1	PRECARE_REC	**Moth Prenatal Care Began Recode**				
				668	R	1	1st to 3rd month
						2	4th to 6th month
						3	7th to final month
						4	No prenatal care
						5	Unknown or not stated
						Blank	Not on certificate
248-255	8	FILLER	**Filler**			Blank	
256-257	2	MPCB	**Month Prenatal Care Began**				

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
				669	U	00	No prenatal care
						01-10	Month prenatal care began
						99	Unknown or not stated
						Blank	Not on certificate
258	1	MPCB_REC6	**Month Prenatal Care Began Recode 6**				
				669	U	1	1st to 2nd month
						2	3rd month
						3	4th to 6th month
						4	7th to final month
						5	No prenatal care
						6	Unknown or not stated
						Blank	Not on certificate
259	1	MPCB_REC5	**Month Prenatal Care Began Recode 5**				
				669	U	1	1st trimester (1st to 3rd month)
						2	2nd trimester (4th to 6th month)
						3	3rd trimester (7th to final month)
						4	No prenatal care
						5	Unknown or not stated
						Blank	Not on certificate
260-269	10	FILLER	**Filler**			Blank	
270-271	2	UPREVIS	**Number of Prenatal Visits**		U,R	00-49	Number of prenatal visits
						99	Unknown or not stated
272-273	2	PREVIS_REC	**Number of Prenatal Visits Recode**		U,R	01	No visits
						02	1 to 2 visits
						03	3 to 4 visits
						04	5 to 6 visits
						05	7 to 8 visits
						06	9 to 10 visits
						07	11 to 12 visits
						08	13 to 14 visits
						09	15 to 16 visits
						10	17 to 18 visits
						11	19 or more visits
						12	Unknown or not stated

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
274	1	FILLER	**Filler**			Blank	
275	1	APNCU	**Adequacy of Prenatal Care Utilization Index**				
				668	R	1	Inadequate
						2	Intermediate
						3	Adequate
						4	Adequate +
						5	Unknown
						Blank	Not on certificate
276-277	2	WTGAIN	**Weight Gain**	648	U,R	00-97	Weight gain in pounds
						98	98 pounds and over
						99	Unknown or not stated
278	1	WTGAIN_REC	**Weight Gain Recode**	648	U,R	1	Less than 16 pounds
						2	16 to 20 pounds
						3	21 to 25 pounds
						4	26 to 30 pounds
						5	31 to 35 pounds
						6	36 to 40 pounds
						7	41 to 45 pounds
						8	46 or more pounds
						9	Unknown or not stated
279	1	U_APNCU	**Adequacy of Prenatal Care Utilization Index**				
				669	U	1	Inadequate
						2	Intermediate
						3	Adequate
						4	Adequate +
						5	Unknown
						Blank	Not on certificate
280	1	DFPC_IMP	**Day of Date First Prenatal Care Imputed**		R	Blank	Day of date first prenatal care not imputed
						1	Day of date first prenatal care imputed
281-283	3	FILLER	**Filler**			Blank	
284-285	2	CIG_1	**Cigarettes 1st Trimester**	575	R	00-97	Number of cigarettes daily
						98	98 or more cigarettes daily

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						99	Unknown or not stated
						Blank	Not on certificate
286-287	2	CIG_2	**Cigarettes 2nd Trimester**	575	R	00-97	Number of cigarettes daily
						98	98 or more cigarettes daily
						99	Unknown or not stated
						Blank	Not on certificate
288-289	2	CIG_3	**Cigarettes 3rd Trimester**	575	R	00-97	Number of cigarettes daily
						98	98 or more cigarettes daily
						99	Unknown or not stated
						Blank	Not on certificate
290	1	TOBUSE	**Tobacco Use**	667	U	1	Yes
						2	No
						9	Unknown or not stated
						Blank	Not on certificate
291-292	2	CIGS	**Cigarettes per Day**		U	00-97	Number of cigarettes daily
						98	98 or more cigarettes daily
						99	Unknown or not stated
						Blank	Not on certificate
293	1	CIG_REC6	**Cigarette Recode**		U	0	Non-smoker
						1	1 to 5 cigarettes daily
						2	6 to 10 cigarettes daily
						3	11 to 20 cigarettes daily
						4	21 to 40 cigarettes daily
						5	41 or more cigarettes daily
						6	Unknown or not stated
						Blank	Not on certificate
294	1	CIG_REC	**Cigarette Recode**	575	R	Y	Yes
						N	No
						U	Unknown or not stated
						Blank	Not on certificate
295	1	ALCOHOL	**Alcohol Use**	649	U	1	Yes
						2	No
						9	Unknown or not stated

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						Blank	Not on certificate
296-297	2	DRINKS	**Drinks per Week**	649	U	00-97	Number of drinks weekly
						98	98 or more drinks weekly
						99	Unknown or not stated
						Blank	Not on certificate
298	1	DRINKS_REC	**Drinks Recode**	649	U	0	Non drinker
						1	1 drink per week
						2	2 drinks per week
						3	3-4 drinks per week
						4	5 or more drinks per week
						5	Unknown or not stated
						Blank	Not on certificate
299-312	14	FILLER	**Filler**			Blank	
313-319	9	**Risk Factors (Revised)**					
		The checkbox items below follow this code structure:				Y	Yes
						N	No
						U	Unknown or not stated
						Blank	Not on certificate
313	1	RF_DIAB	**Prepregnancy Diabetes**	582	R		
314	1	RF_GEST	**Gestational Diabetes**	583	R		
315	1	RF_PHYP	**Prepregnancy Hypertension**	584	R		
316	1	RF_GHYP	**Gestational Hypertension**	585	R		
317	1	RF_ECLAM	**Eclampsia**	586	R		
318	1	RF_PPTERM	**Previous Preterm Birth**	587	R		
319	1	RF_PPOUTC	**Poor Pregnancy Outcome**	588	R		
320-323	4	FILLER	**Filler**			Blank	
324	1	RF_CESAR	**Previous Cesarean Deliveries**	593	R	Y	Yes
						N	No
						U	Unknown or not stated
						Blank	Not on certificate

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
325-326	2	RF_CESARN	**Number of Previous Cesarean Deliveries**				
				594	R	00	None
						01-30	Number of previous cesareans
						99	Unknown or not stated
						Blank	Not on certificate
327	1	FILLER	**Filler**			Blank	
328-344	17	**Risk Factors**					
		The checkbox items below follow this structure:				1	Yes
		The version is all 1989 Standard unless otherwise noted.				2	No
						9	Unknown
						Blank	Not on certificate
328	1	URF_ANEMIA	**Anemia**	681	U		
329	1	URF_CARDC	**Cardiac**	682	U		
330	1	URF_LUNG	**Acute or Chronic Lung Disease**				
				683	U		
331	1	URF_DIAB	**Diabetes**	684	U,R		
332	1	URF_GEN	**Genital Herpes**	685	U		
333	1	URF_HYDR	**Hydramnios / Oligohydramnios**				
				686	U		
334	1	URF_HEMO	**Hemoglobinopathy**	687	U		
335	1	URF_CHYPER	**Chronic Hypertension**	688	U,R		
336	1	URF_PHYPER	**Pregnancy Associated Hypertension**				
				689	U,R		
337	1	URF_ECLAM	**Eclampsia**	690	U,R		
338	1	URF_INCERV	**Incompetent Cervix**	691	U		
339	1	URF_PRE4000	**Previous Infant 4000+ Grams**				
				692	U		
340	1	URF_PRETERM	**Previous Preterm Small for Gestation**				
				693	U		
341	1	URF_RENAL	**Renal Disease**	694	U		
342	1	URF_RH	**Rh Sensitization**	695	U		
343	1	URF_UTERINE	**Uterine Bleeding**	696	U		
344	1	URF_OTHER	**Other medical risk factors**	697	U		
345-350	6	FILLER	**Filler**			Blank	
351-354	4	**Obstetric Procedures (Revised)**					

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
		The checkbox items below follow this structure:				Y	Yes
						N	No
						U	Unknown or not stated
						Blank	Not on certificate
351	1	OP_CERV	**Cervical Cerclage**	601	R		
352	1	OP_TOCOL	**Tocolysis**	602	R		
353	1	OP_ECVS	**Successful External Cephalic Version**	603	R		
354	1	OP_ECVF	**Failed External Cephalic Version**	604	R		
355-361	7	**Obstetric Procedures**					
		The checkbox items below follow this structure:				1	Yes
		The version is all 1989 Standard unless otherwise noted.				2	No
						9	Unknown or not stated
						Blank	Not on certificate
355	1	UOP_AMNIO	**Amniocentesis**	701	U		
356	1	UOP_MONIT	**Electronic Fetal Monitoring**	702	U		
357	1	UOP_INDUC	**Induction of Labor**	703	U,R		
358	1	UOP_STIML	**Stimulation of Labor**	704	U		
359	1	UOP_TOCOL	**Tocolysis**	705	U,R		
360	1	UOP_ULTRA	**Ultrasound**	706	U		
361	1	UOP_OTHER	**Other Obstetric Procedures**	707	U		
362-364	3	**Onset of Labor**				Y	Yes
		The checkbox items below follow this structure:				N	No
						U	Unknown or not stated
						Blank	Not on certificate
362	1	ON_RUPTR	**Premature Rupture of Membrane**	605	R		
363	1	ON_PRECIP	**Precipitous Labor**	606	R		
364	1	ON_PROL	**Prolonged Labor**	607	R		
365-373	9	**Characteristics of Labor and Delivery (Revised)**					
		The checkbox items below follow this structure:				Y	Yes

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						N	No
						U	Unknown or not stated
						Blank	Not on certificate
365	1	LD_INDL	**Induction of Labor**	608	R		
366	1	LD_AUGM	**Augmentation of Labor**	609	R		
367	1	LD_NVPR	**Non-Vertex Presentation**	610	R		
368	1	LD_STER	**Steroids**	611	R		
369	1	LD_ANTI	**Antibiotics**	612	R		
370	1	LD_CHOR	**Chorioamnionitis**	613	R		
371	1	LD_MECS	**Meconium Staining**	614	R		
372	1	LD_FINT	**Fetal Intolerance**	615	R		
373	1	LD_ANES	**Anesthesia**	616	R		
374-389	16	**Complications of Labor and Delivery**					
		The checkbox items below follow this structure:				1	Yes
		The version is all 1989 Standard unless otherwise noted.				2	No
						9	Unknown or not stated
						Blank	Not on certificate
374	1	ULD_FEBR	**Febrile**	711	U		
375	1	ULD_MECO	**Meconium**	712	U,R		
376	1	ULD_RUPTR	**Premature Rupture of Membrane**	713	U		
377	1	ULD_ABRUP	**Abruptio Placenta**	714	U		
378	1	ULD_PREPLA	**Placenta Previa**	715	U		
379	1	ULD_EXCBL	**Other Excessive Bleeding**	716	U		
380	1	ULD_SEIZ	**Seizures During Labor**	717	U		
381	1	ULD_PRECIP	**Precipitous Labor**	718	U,R		
382	1	ULD_PROLG	**Prolonged Labor**	719	U		
383	1	ULD_DYSFN	**Dysfunctional Labor**	720	U		
384	1	ULD_BREECH	**Breech**	721	U,R		
385	1	ULD_CEPHAL	**Cephalopelvic Disproportion**	722	U		
386	1	ULD_CORD	**Cord Prolapse**	723	U		
387	1	ULD_ANEST	**Anesthetic Complications**	724	U		
388	1	ULD_DISTR	**Fetal Distress**	725	U		
389	1	ULD_OTHER	**Other Complications**	726	U		
390-394	5	**Method of Delivery (Revised)**					
390	1	ME_ATTF	**Attempted Forceps**	617	R	Y	Yes
						N	No

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						U	Unknown
						Blank	Not on certificate
391	1	ME_ATTV	**Attempted Vacuum**	618	R	Y	Yes
						N	No
						U	Unknown
						Blank	Not on certificate
392	1	ME_PRES	**Fetal Presentation**	619	R	1	Cephalic
						2	Breech
						3	Other
						9	Unknown or not stated
						Blank	Not on certificate
393	1	ME_ROUT	**Route & Method of Delivery**				
				620	R	1	Spontaneous
						2	Forceps
						3	Vacuum
						4	Cesarean
						9	Unknown or not stated
						Blank	Not on certificate
394	1	ME_TRIAL	**Trial of Labor Attempted**	621	R	Y	Yes
						N	No
						X	Not applicable
						U	Unknown or not stated
						Blank	Not on certificate
395-400	6	**Method of Delivery (Unrevised)**					
			The checkbox items indented below follow this structure:			1	Yes
						2	No
						9	Unknown or not stated
395	1	UME_VAG	Vaginal	730	U		
396	1	UME_VBAC	Vaginal after C-Section	731	U		
397	1	UME_PRIMC	Primary C-Section	732	U		
398	1	UME_REPEC	Repeat C-Section	733	U		
399	1	UME_FORCP	Forceps	734	U,R		
400	1	UME_VAC	Vacuum	735	U,R		
401	1	RDMETH_REC	**Delivery Method Recode (Revised)**		R	1	Vaginal (excludes vaginal after

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
							previous C-section)
						2	Vaginal after previous c-section
						3	Primary C-section
						4	Repeat C-section
						5	Vaginal (unknown if previous c-section) (2003 Standard only)
						6	C-section (unknown if previous c-section) (2003 Standard Only
						9	Not stated
402	1	UDMETH_REC	**Delivery Method Recode (Unrevised)**		U	1	Vaginal (excludes vaginal after previous C-section)
						2	Vaginal after previous c-section
						3	Primary C-section
						4	Repeat C-section
						9	Not stated
403	1	DMETH_REC			U,R	1	Vaginal
						2	C-Section
						9	Unknown
404-409	6	FILLER	**Filler**			Blan	
410	1	ATTEND	**Attendant**		U,R	1	Doctor of Medicine (MD)
						2	Doctor of Osteopathy (DO)
						3	Certified Nurse Midwife (CNM)
						4	Other Midwife
						5	Other
						9	Unknown or not stated
411-414	4	FILLER	**Filler**			Blank	
415-416	2	APGAR5	**Five Minute APGAR Score**				
				574	U,R	00-10	A score of 0-10
						99	Unknown or not stated
417	1	APGAR5R	**Five Minute APGAR Recode**				
				574	U,R	1	A score of 0-3
						2	A score of 4-6

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						3	A score of 7-8
						4	A score of 9-10
						5	Unknown or not stated
418-422	5	FILLER	**Filler**			Blank	
423	1	DPLURAL	**Plurality Recode**		U,R	1	Single
						2	Twin
						3	Triplet
						4	Quadruplet
						5	Quintuplet or higher
424	1	FILLER	**Filler**			Blank	
425	1	IMP_PLUR	**Plurality Imputed**		U,R	Blank	Plurality is not imputed
						1	Plurality is imputed
426-435	10	FILLER	**Filler**			Blank	
436	1	SEX	**Sex of Infant**		U,R	M	Male
						F	Female
437	1	IMP_SEX	**Imputed Sex**		U,R	Blank	Infant Sex not Imputed
						1	Infant Sex is Imputed
438-439	2	DLMP_MM	**Last Normal Menses - Month**		U,R	01	January
						02	February
						03	March
						04	April
						05	May
						06	June
						07	July
						08	August
						09	September
						10	October
						11	November
						12	December
						99	Unknown or not stated
440-441	2	DLMP_DD	**Last Normal Menses - Day**		U,R	01-31	As applicable to month of LMP

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						99	Unknown or not stated
442-445	4	DLMP_YY	**Last Normal Menses - Year**		U,R	nnnn	Year of last normal menses
						9999	Unknown or not stated
446-447	2	ESTGEST	**Obstetric/Clinical Gestation Est.**				
				573	U,R	00-98	0 through 98th week of gestation
						99	Unknown or not stated
448-450	3	FILLER	**Filler**			Blank	
451-452	2	COMBGEST	**Gestation – Detail in Weeks**		U,R	17-47	17th through 47th week of Gestation
						99	Unknown
453-454	2	GESTREC10	**Gestation Recode 10**		U,R	01	Under 20 weeks
						02	20-27 weeks
						03	28-31 weeks
						04	32-33 weeks
						05	34-36 weeks
						06	37-39 weeks
						07	40 weeks
						08	41 weeks
						09	42 weeks and over
						10	Unknown
455	1	GESTREC3	**Gestation Recode 3**		U,R	1	Under 37 weeks
						2	37 weeks and over
						3	Not stated
456	1	OBGEST_FLG	**Clinical Estimate of Gestation Used Flag**		U,R	Blank	Clinical Estimate is not used
						1	Clinical Estimate is used
457	1	GEST_IMP	**Gestation Imputed Flag**		U,R	Blank	Gestation is not imputed
						1	Gestation is imputed
458-462	5	FILLER	**Filler**			Blank	
463-466	4	DBWT	**Birth Weight – Detail in Grams**		U,R	0227-8165	Number of grams
467-470	4	FILLER	**Filler**			Blank	

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471-472	2	BWTR12	**Birth Weight Recode 12**		U,R	01	499 grams or less
						02	500 – 999 grams
						03	1000 - 1499 grams
						04	1500 – 1999 grams
						05	2000 – 2499 grams
						06	2500 – 2999 grams
						07	3000 – 3400 grams
						08	3500 – 3999 grams
						09	4000 – 4499 grams
						10	4500 – 4999 grams
						11	5000 – 8165 grams
						12	Not Stated
473	1	BWTR4	**Birth Weight Recode 4**		U,R	1	1499 grams or less
						2	1500 – 2499 grams
						3	2500 grams or more
						4	Unknown or not stated
474-475	2	FILLER	**Filler**			Blank	
476-482	7	**Abnormal Conditions of the Newborn (Revised)**					
		The checkbox items below follow this structure:				Y	Yes, Complication reported
						N	No Complication reported
						U	Unknown or not stated
						Blank	Not on certificate
476	1	AB_AVEN1	**Assisted Ventilation**	628	R		
477	1	AB_AVEN6	**Assisted Ventilation > 6 hrs**	629	R		
478	1	AB_NICU	**Admission to NICU**	630	R		
479	1	AB_SURF	**Surfactant**	631	R		
480	1	AB_ANTI	**Antibiotics**	632	R		
481	1	AB_SEIZ	**Seizures**	633	R		
482	1	AB_BINJ	**Birth Injury**	634	R		
483-491	9	**Abnormal Conditions of the Newborn**					
		The checkbox items below follow this structure:				1	Complication reported
						2	Complication not reported
						9	Complication not classifiable
						Blank	Not on certificate
483	1	UAB_ANEM	**Anemia**	740	U		
484	1	UAB_INJURY	**Birth Injury**	741	U		

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
485	1	UAB_ALCOH	**Fetal Alcohol Syndrome**	742	U		
486	1	UAB_HYAL	**Hyaline Membrane Disease**	743	U		
487	1	UAB_MECON	**Meconium Aspiration Syndrome**	744	U		
488	1	UAB_VENL30	**Assisted Ventilation < 30 min**	745	U		
489	1	UAB_VEN30M	**Assisted Ventilation >= 30 min**	746	U		
490	1	UAB_NSEIZ	**Seizures**	747	U		
491	1	UAB_OTHER	**Other Abnormal Cond.**	748	U		
492-503	12	**Congenital Anomalies of the Newborn (Revised)**					
		The checkbox items below follow this structure:				Y	Yes, anomaly reported
						N	No, anomaly not reported
						U	Unknown
						Blank	Not on certificate
492	1	CA_ANEN	**Anencephaly**	635	R		
493	1	CA_MNSB	**Meningomyelocele / Spina Bifida**	636	R		
494	1	CA_CCHD	**Cyanotic Congenital Heart Disease**	637	R		
495	1	CA_CDH	**Congenital Diaphragmatic Hernia**	638	R		
496	1	CA_OMPH	**Omphalocele**	639	R		
497	1	CA_GAST	**Gastroschisis**	640	R		
498	1	CA_LIMB	**Limb Reduction Defect**	641	R		
499	1	CA_CLEFT	**Cleft Lip w/ or w/o Cleft Palate**	642	R		
500	1	CA_CLPAL	**Cleft Palate alone**	643	R		
501	1	CA_DOWN	**Downs Syndrome**	644	R	C	Confirmed
						P	Pending
						N	No
						U	Unknown
						Blank	Not on certificate
502	1	CA_DISOR	**Suspected Chromosomal Disorder**	645	R	C	Confirmed
						P	Pending
						N	No

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Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
						U	Unknown
						Blank	Not on certificate
503	1	CA_HYPO	**Hypospadias**	646	R	Y	Yes, anomaly reported
						N	No, anomaly not reported
						U	Unknown
						Blank	Not on certificate
504-525	22	**Congenital Anomalies of the Newborn**					
		The checkbox items below follow this structure:			1	Anomaly reported	
		The version is all 1989 Standard unless otherwise noted.				2	Anomaly not reported
						9	Anomaly not classifiable
						Blank	Not on certificate
504	1	UCA_ANEN	**Anencephalus**	752	U,R		
505	1	UCA_SPINA	**Spina Bifida / Meningocele**	753	U,R		
506	1	UCA_HYDRO	**Hydrocephalus**	754	U		
507	1	UCA_MICRO	**Microciphalus**	755	U		
508	1	UCA_NERV	**Other Central Nervous System Anomalies**				
				756	U		
509	1	UCA_HEART	**Heart Malformations**	757	U		
510	1	UCA_CIRC	**Other Circulatory / Respiration Anomalies**				
				758	U		
511	1	UCA_RECTAL	**Rectal Atrseia / Stenosis**	759	U		
512	1	UCA_TRACH	**Tracheo-Esophageal Fistula**				
				760	U		
513	1	UCA_OMPHA	**Omphalocele / Gastroschisis**				
				761	U,R		
514	1	UCA_GASTRO	**Other Gastrointestinal Anomalies**				
				762	U		
515	1	UCA_GENITAL	**Malformed Genitalia**	763	U		
516	1	UCA_RENAL	**Renal Agenesis**	764	U		
517	1	UCA_UROGEN	**Other Urogenital Anomalies**				
				765	U		
518	1	UCA_CELFTLP	**Cleft Lip / Palate**	766	U,R		
519	1	UCA_ADACTY	**Polydactyly / Syndactyly / Adactyly**				
				767	U		
520	1	UCA_CLUBFT	**Club Foot**	768	U		
521	1	UCA_HERNIA	**Diaphramatic Hernia**	769	U		
522	1	UCA_MUSCU	**Other Musculoskeletal Anomalies**				
				770	U		

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523	1	UCA_DOWNS	**Down Syndrome**	771	U,R		
524	1	UCA_CHROM	**Other Chromosomal Anomalies**	772	U		
525	1	UCA_OTHER	**Other Congenital Anomalies**	773	U		
526-568	43	FILLER	**Filler**			Blank	
569-773	101	**Flag File for Reporting Flags**					
			The reporting flags below follow this coding structure:			0	Not reporting
						1	Reporting
569	1	F_MORIGIN	**Origin of Mother**		U,R		
570	1	F_FORIGIN	**Origin of Father**		U,R		
571	1	F_MEDUC	**Education of Mother**		R		
572	1	FILLER	**Filler**			Blank	
573	1	F_CLINEST	**Clinical Estimate of Gestation**		U,R		
574	1	F_APGAR5	**Five minute APGAR**		U,R		
575	1	F_TOBACO	**Tobacco use**		R		
576-581	6	FILLER	**Filler**			Blank	
582	1	F_RF_PDIAB	**Prepregnancy Diabetes**		R		
583	1	F_RF_GDIAB	**Gestational Diabetes**		R		
584	1	F_RF_PHYPER	**Prepregnancy Hypertension**		R		
585	1	F_RF_GHYPER	**Gestational Hypertension**		R		
586	1	F_RF_ECLAMP	**Eclampsia**		R		
587	1	F_RF_PPB	**Previous Preterm Birth**		R		
588	1	F_RF_PPO	**Poor Pregnancy outcomes**		R		
589-592	4	FILLER	**Filler**			Blank	
593	1	F_RF_CESAR	**Previous Cesarean**		R		
594	1	F_RF_NCESAR	**Number of Previous Cesareans**		R		
595-600	6	FILLER	**Filler**			Blank	
601	1	F_OB_CERVIC	**Cervical Cerclage**		R		
602	1	F_OB_TOCO	**Tocolysis**		R		
603	1	F_OB_SUCC	**Successful External Cephalic Version**		R		
604	1	F_OB_FAIL	**Failed External Cephalic Version**		R		
605	1	F_OL_RUPTURE	**Premature Rupture of the Membranes**		R		
606	1	F_OL_PRECIP	**Precipitous Labor**		R		
607	1	F_OL_PROLONG	**Prolonged Labor**		R		
608	1	F_LD_INDUCT	**Induction of Labor**		R		
609	1	F_LD_AUGMENT	**Augmentation of Labor**		R		
610	1	F_LD_NVRTX	**Non-Vertex Presentation**		R		

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611	1	F_LD_STERIODS	**Steroids**		R		
612	1	F_LD_ANTIBIO	**Antibiotics**		R		
613	1	F_LD_CHORIO	**Chorioamnionitis**		R		
614	1	F_LD_MECON	**Meconium Staining**		R		
615	1	F_LD_FINTOL	**Fetal Intolerance**		R		
616	1	F_LD_ANESTH	**Anesthesia**		R		
617	1	F_MD_ATTFOR	**Attempted Forceps**		R		
618	1	F_MD_ATTVAC	**Attempted Vacuum**		R		
619	1	F_MD_PRESENT	**Fetal Presentation**		R		
620	1	F_MD_ROUTE	**Final Route and Method of Delivery**		R		
621	1	F_MD_TRIAL	**Trial of Labor Attempted**		R		
622-627	6	FILLER	**Filler**			Blank	
628	1	F_AB_VENT	**Assisted Ventilation**		R		
629	1	F_AB_VENT6	**Assisted Ventilation >6 hrs**		R		
630	1	F_AB_NIUC	**Admission to NICU**		R		
631	1	F_AB_SURFAC	**Surfactant**		R		
632	1	F_AB_ANTIBIO	**Antibiotics**		R		
633	1	F_AB_SEIZ	**Seizures**		R		
634	1	F_AB_INJ	**Birth Injury**		R		
635	1	F_CA_ANEN	**Anencephaly**		R		
636	1	F_CA_MENIN	**Meningomyelocele/Spina Bifida**		R		
637	1	F_CA_HEART	**Cyanotic Congenital Heart Disease**		R		
638	1	F_CA_HERNIA	**Congenital Diaphragmatic Hernia**		R		
639	1	F_CA_OMPHA	**Omphalocele**		R		
640	1	F_CA_GASTRO	**Gastroschisis**		R		
641	1	F_CA_LIMB	**Limb Reduction Defect**		R		
642	1	F_CA_CLEFTLP	**Cleft Lip with or without Cleft Palate**		R		
643	1	F_CA_CLEFT	**Cleft Plate Alone**		R		
644	1	F_CA_DOWNS	**Down Syndrome**		R		
645	1	F_CA_CHROM	**Suspected Chromosomal Disorder**		R		
646	1	F_CA_HYPOS	**Hypospadias**		R		
647	1	F_MED	**Mother's Education**		U		
648	1	F_WTGAIN	**Weight Gain**		U,R		
649	1	F_ALCOL	**Alcohol use**		U		
650	1	F_API	**API Codes**		U		
651-666	16	FILLER	**Filler**			Blank	
667	1	F_TOBAC	**Tobacco Use**		U		
668	1	F_MPCB	**Month Prenatal Care Began**		R		
669	1	F_MPCB_U	**Month Prenatal Care Began**		U		
670-680	11	FILLER	**Filler**			Blank	

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681	1	F_URF_ANEMIA	**Anemia**		U		
682	1	F_URF_CARDIAC	**Cardiac**		U		
683	1	F_URF_LUNG	**Acute or Chronic Lung Disease**		U		
684	1	F_URF_DIABETES	**Diabetes**		U		
685	1	F_URF_HERPES	**Genital Herpes**		U		
686	1	F_URF_HYDRA	**Hydramnios / Oligohydramnios**		U		
687	1	F_URF_HEMO	**Hemoglobinopathy**		U		
688	1	F_URF_CHYPER	**Chronic Hypertension**		U		
689	1	F_URF_PHYPER	**Pregnancy Associated Hypertension**		U		
690	1	F_URF_ECLAMP	**Eclampsia**		U		
691	1	F_URF_INCERVIX	**Incompetent Cervix**		U		
692	1	F_URF_PRE4000	**Previous Infant 4000+ Grams**		U		
693	1	F_URF_PRETERM	**Previous Preterm Small for Gestation**		U		
694	1	F_URF_RENAL	**Renal Disease**		U		
695	1	F_URF_RH	**Rh Sensitization**		U		
696	1	F_URF_UTERINE	**Uterine Bleeding**		U		
697	1	F_URF_OTHERMR	**Other Medical Risk Factors**		U		
698-700	3	FILLER	**Filler**			Blank	
701	1	F_UOB_AMNIO	**Amniocentesis**		U		
702	1	F_UOB_MONITOR	**Electronic Fetal Monitor**		U		
703	1	F_UOB_INDUCT	**Induction of Labor**		U		
704	1	F_UOB_STIMUL	**Stimulation of Labor**		U		
705	1	F_UOB_TOCOL	**Tocolysis**		U		
706	1	F_UOB_ULTRAS	**Ultrasound**		U		
707	1	F_UOB_OTHEROB	**Other Obstetric Procedures**		U		
708-710	3	FILLER	**Filler**			Blank	
711	1	F_ULD_FEBRILE	**Febrile**		U		
712	1	F_ULD_MECONIUM	**Meconium**		U		
713	1	F_ULD_RUPTURE	**Premature Rupture of Membrane**		U		
714	1	F_ULD_ABRUPTIO	**Abruption Placenta**		U		
715	1	F_ULD_PREPLACE	**Placenta Previa**		U		
716	1	F_ULD_EXCEBLD	**Other Excessive Bleeding**		U		
717	1	F_ULD_SEIZURE	**Seizures During Labor**		U		
718	1	F_ULD_PRECIP	**Precipitous Labor**		U		
719	1	F_ULD_PROLONG	**Prolonged Labor**		U		
720	1	F_ULD_DYSFUNC	**Dysfunctional Labor**		U		
721	1	F_ULD_BREECH	**Breech**		U		
722	1	F_ULD_CEPHALO	**Cephalopelvic Disproportion**		U		
723	1	F_ULD_CORD	**Cord Prolapse**		U		
724	1	F_ULD_ANESTHE	**Anesthetic Complications**		U		

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725	1	F_ULD_DISTRESS	**Fetal Distress**		U		
726	1	F_ULD_OTHERLD	**Other Complications**		U		
727-729	3	FILLER	**Filler**			Blank	
730	1	F_U_VAGINAL	**Vaginal**		U		
731	1	F_U_VBAC	**Vaginal after C-Section**		U		
732	1	F_U_PRIMAC	**Primary C-Section**		U		
733	1	F_U_REPEAC	**Repeat C-Section**		U		
734	1	F_U_FORCEP	**Forceps**		U		
735	1	F_U_VACUUM	**Vacuum**		U		
736-739	4	FILLER	**Filler**			Blank	
740	1	F_UAB_ANEMIA	**Anemia**		U		
741	1	F_UAB_INJURY	**Birth Injury**		U		
742	1	F_UAB_ALCOSYN	**Fetal Alcohol Syndrome**		U		
743	1	F_UAB_HYALINE	**Hyaline Membrane Disease**		U		
744	1	F_UAB_MECONSYN	**Meconium Aspiration Syndrome**		U		
745	1	F_UAB_VENL30	**Assisted Ventilation < 30 min**		U		
746	1	F_UAB_VEN30M	**Assisted Ventilation >= 30 min**		U		
747	1	F_UAB_NSEIZ	**Seizures**		U		
748	1	F_UAB_OTHERAB	**Other Abnormal Conditions**		U		
749-751	3	FILLER	**Filler**			Blank	
752	1	F_UCA_ANEN	**Anencephalus**		U		
753	1	F_UCA_SPINA	**Spina Bifida / Meningocele**		U		
754	1	F_UCA_HYDRO	**Hydrocephalus**		U		
755	1	F_UCA_MICROCE	**Microciphalus**		U		
756	1	F_UCA_NERVOUS	**Other Central Nervous System Anomalies**		U		
757	1	F_UCA_HEART	**Heart Malformations**		U		
758	1	F_UCA_CIRCUL	**Other Circulatory / Respiration Anomalies**		U		
759	1	F_UCA_RECTAL	**Rectal Atrseia / Stenosis**		U		
760	1	F_UCA_TRACHEO	**Tracheo-Esophageal Fistula**		U		
761	1	F_UCA_OMPHALO	**Omphalocele / Gastroschisis**		U		
762	1	F_UCA_GASTRO	**Other Gastrointestinal Anomalies**		U		
763	1	F_UCA_GENITAL	**Malformed Genitalia**		U		
764	1	F_UCA_RENALAG	**Renal Agenesis**		U		
765	1	F_UCA_UROGEN	**Other Urogenital Anomalies**		U		
766	1	F_UCA_CLEFTLP	**Cleft Lip / Palate**		U		
767	1	F_UCA_ADACTYL	**Polydactyly / Syndactyly / Adactyly**		U		
768	1	F_UCA_CLUB	**Club Foot**		U		
769	1	F_UCA_HERNIA	**Diaphramatic Hernia**		U		
770	1	F_UCA_MUSCULO	**Other Muscloskeletal Anomalies**		U		
771	1	F_UCA_DOWNS	**Downs Syndrome**		U		

*U,R Includes data based on both the 1989 Revision of the U.S. Certificate of Live Birth (unrevised), and the 2003 Revision of the U.S. Certificate of Live Birth (revised).

U Includes data based on the 1989 Revision of the U.S. Certificate of Live Birth; excludes data based on the 2003 Revision.

R Includes data based on the 2003 Revision of the U.S. Certificate of Live Birth; excludes data based on the 1989 Revision.

Position	Len	Field	Description	Reporting Flag Position	Rev*	Values	Definition
772	1	F_UCA_CHROMO	**Other Chromosomal Anomalies**		U		
773	1	F_UCA_OTHRCON	**Other Congenital Anomalies**		U		
774-775	2	FILLER	**Filler**			Blank	

*U,R Includes data based on both the 1989 Revision of the U.S. Certificate of Live Birth (unrevised), and the 2003 Revision of the U.S. Certificate of Live Birth (revised).
U Includes data based on the 1989 Revision of the U.S. Certificate of Live Birth; excludes data based on the 2003 Revision.
R Includes data based on the 2003 Revision of the U.S. Certificate of Live Birth; excludes data based on the 1989 Revision.

Country Codes
(Alphabetical by Code)

Code	Geopolitical Entity
AA	ARUBA
AC	ANTIGUA AND BARBUDA
AE	UNITED ARAB EMIRATES
AF	AFGHANISTAN
AG	ALGERIA
AJ	AZERBAIJAN
AL	ALBANIA
AM	ARMENIA
AN	ANDORRA
AO	ANGOLA
AQ	AMERICAN SAMOA
AR	ARGENTINA
AS	AUSTRALIA
AT	ASHMORE AND CARTIER ISLANDS
AU	AUSTRIA
AV	ANGUILLA
AY	ANTARCTICA
BA	BAHRAIN
BB	BARBADOS
BC	BOTSWANA
BD	BERMUDA
BE	BELGIUM
BF	BAHAMAS, THE
BG	BANGLADESH
BH	BELIZE
BK	BOSNIA AND HERZEGOVINA
BL	BOLIVIA
BM	BURMA
BN	BENIN
BO	BELARUS
BP	SOLOMON ISLANDS
BR	BRAZIL
BS	BASSAS DA INDIA
BT	BHUTAN
BU	BULGARIA
BV	BOUVET ISLAND
BX	BRUNEI
BY	BURUNDI
CA	CANADA
CB	CAMBODIA
CD	CHAD
CE	SRI LANKA
CF	CONGO
CG	CONGO
CH	CHINA
CI	CHILE
CJ	CAYMAN ISLANDS
CK	COCOS (KEELING) ISLANDS
CL	CENTRAL AND SOUTHERN LINE ISLANDS
CM	CAMEROON
CN	COMOROS
CO	COLOMBIA
CQ	NORTHERN MARIANAS ISLANDS
CR	CORAL SEA ISLANDS

CS COSTA RICA
CT CENTRAL AFRICAN REPUBLIC
CU CUBA
CV CAPE VERDE
CW COOK ISLANDS
CY CYPRUS
CZ CZECHOSLOVAKIA
DA DENMARK
DJ DJIBOUTI
DM DAHOMEY [BENIN]
DO DOMINICA
DQ JARVIS ISLAND
DR DOMINICAN REPUBLIC
EB EAST BERLIN
EC ECUADOR
EG EGYPT
EI IRELAND
EK EQUATORIAL GUINEA
EN ESTONIA
EQ CANTON AND ENDERBERRY ISLANDS
ER ERITREA
ES EL SALVADOR
ET ETHIOPIA
EU EUROPA ISLAND
EZ CZECH REPUBLIC
FG FRENCH GUIANA
FI FINLAND
FJ FIJI
FK FALKLAND ISLANDS
FM MICRONESIA, FEDERATED STATES OF
FO FAROE ISLANDS
FP FRENCH POLYNESIA
FR FRANCE
FS FRENCH SOUTHERN AND ANTARCTIC LANDS
FT FRENCH TERRITORY OF THE AFFARS AND ISSAS
GA GAMBIA, THE
GB GABON
GC EAST GERMANY (GERMAN DEMOCRATIC REPUBLIC)
GE WEST GERMANY (FEDERAL REPUBLIC OF GERMANY)
GG GEORGIA
GH GHANA
GI GIBRALTAR
GJ GRENADA
GK GUERNSEY
GL GREENLAND
GM GERMANY
GN GILBERT AND ELLICE ISLANDS
GO GLORIOSO ISLANDS
GP GUADELOUPE
GQ GUAM
GR GREECE
GS GILBERT ISLANDS
GT GUATEMALA
GV GUINEA
GY GUYANA
GZ GAZA STRIP
HA HAITI
HK HONG KONG
HM HEARD ISLAND AND MCDONALD ISLANDS

HO	HONDURAS
HQ	HOWLAND ISLAND
HR	CROATIA
HU	HUNGARY
IC	ICELAND
ID	INDONESIA
IM	ISLE OF MAN
IN	INDIA
IO	BRITISH INDIAN OCEAN TERRITORY
IP	CLIPPERTON ISLAND
IQ	US MISCELLANEOUS PACIFIC ISLANDS
IR	IRAN
IS	ISRAEL
IT	ITALY
IU	ISRAEL-SYRIA DEMILITARIZED ZONE
IV	COTE D' IVOIRE
IW	ISRAEL-JORDAN DEMILITARIZED ZONE
IY	IRAQ-SAUDI ARABIA NEUTRAL ZONE
IZ	IRAQ
JA	JAPAN
JE	JERSEY
JM	JAMAICA
JN	JAN MAYEN
JO	JORDAN
JQ	JOHNSTON ISLAND
JS	SVALBARD AND JAN MAYEN
JU	JUAN DE NOVA ISLAND
KE	KENYA
KG	KYRGYZSTAN
KN	NORTH KOREA
KR	KIRIBATI
KS	SOUTH KOREA
KT	CHRISTMAS ISLAND
KU	KUWAIT
KZ	KAZAKHSTAN
LA	LAOS
LE	LEBANON
LG	LATVIA
LH	LITHUANIA
LI	LIBERIA
LO	SLOVAKIA
LQ	PALMYRA ATOLL
LS	LIECHTENSTEIN
LT	LESOTHO
LU	LUXEMBOURG
LY	LIBYA
MA	MADAGASCAR
MB	MARTINIQUE
MC	MACAU
MD	MOLDOVA
ME	SPANISH NORTH AFRICA
MF	MAYOTTE
MG	MONGOLIA
MH	MONTSERRAT
MI	MALAWI
MK	MACEDONIA, F.Y.R.O.
ML	MALI
MN	MONACO
MO	MOROCCO

MP	MAURITIUS
MQ	MIDWAY ISLAND
MR	MAURITANIA
MT	MALTA
MU	OMAN
MV	MALDIVES
MX	MEXICO
MY	MALAYSIA
MZ	MOZAMBIQUE
NA	NETHERLANDS ANTILLES
NC	NEW CALEDONIA
NE	NIUE
NF	NORFOLK ISLAND
NG	NIGER
NH	VANUATU
NI	NIGERIA
NL	NETHERLANDS
NO	NORWAY
NP	NEPAL
NR	NAURU
NS	SURINAME
NT	NETHERLANDS ANTILLES
NU	NICARAGUA
NZ	NEW ZEALAND
PA	PARAGUAY
PC	PITCAIRN ISLAND
PE	PERU
PF	PARACEL ISLANDS
PG	SPRATLY ISLANDS
PK	PAKISTAN
PL	POLAND
PM	PANAMA
PN	PANAMA
PO	PORTUGAL
PP	PAPUA NEW GUINEA
PQ	PANAMA CANAL ZONE
PS	PALAU
PT	TIMOR
PU	GUINEA-BISSAU
QA	QATAR
RE	REUNION
RH	SOUTHERN RHODESIA
RM	MARSHALL ISLANDS
RO	ROMANIA
RP	PHILIPPINES
RQ	PUERTO RICO
RS	RUSSIA
RW	RWANDA
SA	SAUDI ARABIA
SB	SAINT PIERRE AND MIQUELON
SC	SAINT KITTS AND NEVIS
SE	SEYCHELLES
SF	SOUTH AFRICA
SG	SENEGAL
SH	SAINT HELENA
SI	SLOVENIA
SK	SIKKIM
SL	SIERRA LEONE
SM	SAN MARINO

SN	SINGAPORE
SO	SOMALIA
SP	SPAIN
SQ	SWAN ISLANDS
SS	SPANISH SAHARA
ST	SAINT LUCIA
SU	SUDAN
SV	SVALBARD
SW	SWEDEN
SX	SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS
SY	SYRIA
SZ	SWITZERLAND
TC	UNITED ARAB EMIRATES
TD	TRINIDAD AND TOBAGO
TE	TROMELIN ISLAND
TH	THAILAND
TI	TAJIKISTAN
TK	TURKS AND CAICOS ISLANDS
TL	TOKELAU
TN	TONGA
TO	TOGO
TP	SAO TOME AND PRINCIPE
TQ	TRUST TERRITORY OF THE PACIFIC ISLANDS
TS	TUNISIA
TT	EAST TIMOR
TU	TURKEY
TV	TUVALU
TW	TAIWAN
TX	TURKMENISTAN
TZ	TANZANIA
UG	UGANDA
UK	UNITED KINGDOM
UP	UKRAINE
UR	UNION OF SOVIET SOCIALIST REPUBLICS
US	UNITED STATES
UV	BURKINA FASO
UY	URUGUAY
UZ	UZBEKISTAN
VC	SAINT VINCENT AND THE GRENADINES
VE	VENEZUELA
VI	BRITISH VIRGIN ISLANDS
VM	VIETNAM
VN	NORTH VIETNAM
VQ	UNITED STATES VIRGIN ISLANDS
VS	SOUTH VIETNAM
VT	HOLY SEE (VATICAN CITY)
WA	NAMIBIA
WB	WEST BERLIN
WE	WEST BANK
WF	WALLIS AND FUTUNA
WI	WESTERN SAHARA
WQ	WAKE ISLAND
WS	SAMOA
WZ	SWAZILAND
YE	YEMEN (SANA'A)
YI	YUGOSLAVIA
YM	YEMEN
YO	YUGOSLAVIA
YQ	RYUKYU ISLANDS, SOUTHERN

YS YEMEN (ADEN)
ZA ZAMBIA
ZI ZIMBABWE

DETAILED TECHNICAL NOTES *

UNITED STATES

2006

NATALITY

**U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES**

**CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR HEALTH STATISTICS**
Hyattsville, Maryland: 2008

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Introduction

These Detailed Technical Notes, published by the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS), supplement the "Technical Notes" section of "Births: Final Data for 2006" [1], and are for use with the 2006 Natality public use data [2]. The 2006 natality micro-data file may be downloaded at: http://www.cdc.gov/nchs/about/major/dvs/Vitalstatsonline.htm#Downloadable [3]. and is available on CD-ROM by request. These Technical Notes also provide additional documentation for VitalStats http://www.cdc.gov/nchs/VitalStats.htm, a new data access and analysis tool. VitalStats includes interactive pre-built tables and the ability to create tables and graphics using more than 100 demographic and health variables from the 1990-2006 natality public-use files.

Beginning with the 2005 data year, the micro-data natality file no longer includes geographic detail (e.g., state or county of birth). Information on the NCHS data release policy is available at: http://www.cdc.gov/nchs/about/major/dvs/NCHS_DataRelease.htm [4]. Tabulations of birth data by state and for counties with populations of 100,000 or more may be made using VitalStats as described above. Procedures for requesting micro-data files with geographic detail are provided in the NCHS data release policy.

Definition of Live Birth

Every product of conception that gives a sign of life after birth, regardless of the length of the pregnancy, is considered a live birth. This concept is included in the definition set forth by the World Health Organization in 1950 as described in a United Nation's Handbook [5]. A slightly expanded definition of live birth was recommended by the 1992 revision of the Model State Vital Statistics Act and Regulations [6], based on recommendations of a 1988 working group formed by the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists [7] and is consistent with that currently used by the WHO in the ICD-10 [8] and the United Nations**:**

> "Live birth" means the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy, which, after such expulsion or extraction, breathes, or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps.

This definition distinguishes in precise terms a live birth from a fetal death [9,10]. The vast majority of registration areas use definitions of live births similar to this definition [9]. All states require the reporting of live births regardless of length of gestation or birth weight.

The Birth-Registration Area

Currently the birth-registration system of the United States includes the 50 states, the District of Columbia, the independent registration area of New York City, and Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (referred to as Northern Marianas). However, in the statistical tabulations, "United States" refers only to the aggregate of the 50 states (including New York City) and the District of Columbia. Information on the history and development of the birth-registration area is available elsewhere [11,12].

Since 1985, natality statistics for all states and the District of Columbia have been based on information from the total file of records, that is, all births registered in the reporting areas. The information is received on electronic files consisting of individual records processed by the states, the District of Columbia, New York City, Puerto Rico, the Virgin Islands, American Samoa, and the Northern Marianas. NCHS receives these files from the registration offices of all states, the two cities and four territories through the Vital Statistics Cooperative Program. Information for Guam is obtained from paper copies of original birth certificates which are coded and keyed by NCHS. Data from American Samoa first became available in 1997; data from the Northern Marianas in

1998.

U.S. natality data are limited to births occurring within the United States, including those occurring to U.S. residents and nonresidents. Births to nonresidents of the United States have been excluded from most published tabulations by place of residence beginning in 1970 (for further discussion see "Classification by occurrence and residence"). Births occurring to U.S. citizens outside the United States are not included in the natality file. Data for Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Marianas are limited to births registered in these areas.

Classification of births by occurrence and residence

In tabulations by place of residence, births occurring within the United States to U.S. citizens and to resident aliens are allocated to the usual place of residence of the mother in the United States, as reported on the birth certificate. Births to U.S. residents occurring outside this country are not included in tabulations by place of residence or place of occurrence.

The total count of births for the United States by place of residence and by place of occurrence will not be identical. Births to nonresidents of the United States are included in data by place of occurrence but excluded from data by place of residence, as previously indicated. See **Table A** for the number of births by residence and occurrence for the 50 states and the District of Columbia for 2006.

Residence error— According to a 1950 test (which has not been repeated), errors in residence reporting for the country as a whole tend to overstate the number of births to residents of urban areas and to understate the number of births to residents of other areas [13]. Recent experience based on anecdotal evidence from the states, suggests that this is still a concern. This tendency has assumed special importance because of a concomitant development—the increased utilization of hospitals in cities by residents of nearby places—with the result that a number of births are erroneously reported as having occurred to residents of urban areas. Another factor that contributes to this overstatement of urban births is the customary practice of using city addresses for persons living outside the city limits. Residence error should be taken into particular consideration in interpreting tabulated data for small areas. Both birth and infant mortality patterns can be

affected.

Information on the completeness of reporting of birth certificate data is shown in **Table B**, which presents a listing of items and the percentage of records that were not stated for each state, plus Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Marianas.

Population based rates -- One of the principal values of vital statistics data is realized through the presentation of rates that are computed by relating the vital events of a class to the population of a similarly defined class (e.g., 2006 births to women aged 20-24 years and the 2006 population of women aged 20-24). Vital statistics and population statistics, therefore, must be tabulated in comparable groups. Even when the variables common to both, such as geographic area, age, race, and sex, have been similarly classified and tabulated, significant discrepancies may result from differences between the enumeration method of obtaining population data and the registration method of obtaining vital statistics data [14].

Geographic classification

The geographic code structure for the 2006 natality file is given in two NCHS manuals, "Vital Records Geographic Classification, 2003," and "Vital Records Geographic Classification, 2004, Federal Information Processing Standards (FIPS)." [15,16]. The geographic code structure on the 2006 file is based on results of the 2000 Census of Population.

Standard Certificates of Live Birth

The U.S. Standard Certificate of Live Birth, issued by the U.S. Department of Health and Human Services, has served for many years as the principal means for attaining uniformity in the content of the documents used to collect information on births in the United States. The U.S. Standard Certificate of Live Birth is revised every 10-15 years. Most state certificates conform closely in content to the standard certificate, but are modified to the extent required by the particular state's needs or by special provisions of the state's vital statistics law.

The 2003 revision — In 2003, a revised U.S. Standard Certificate of Live Birth was adopted **(Figure 1**). The 2003 birth certificate replaces the previous 1989 U.S. Standard Certificate of Live Birth **(Figure 2)** [17,18]. Implementation of the 2003 U.S. Standard Certificate of Live Birth (revised) by the states and independent reporting areas is being phased in over several years. Initial implementation of the revised certificate began in 2003 with two states; Pennsylvania and Washington. Five states, Idaho, Kentucky, New York (excluding New York City), South Carolina, and Tennessee implemented the revised birth certificate as of January 1, 2004, with Florida and New Hampshire doing so later in 2004. Three states, Kansas, Nebraska and Texas, plus Puerto Rico implemented the revised birth certificate January 1, 2005; Vermont implemented the revised certificate after January 1, 2005. Six states, California, (selected items only) Delaware, North Dakota, Ohio, South Dakota and Wyoming implemented the revised certificate as of January 1, 2006. Births to residents of the 19 states which revised as of January 1, 2006 represent 49 percent of all births to United States residents in 2006.

The 2003 Revision of the U.S. Standard Certificate of live birth introduced sweeping changes to data content and quality. Many key data items are common between revisions, however, a number of items were substantively modified. The 2003 revision also includes many new items never before collected on the Standard Certificate [17, 18].

A key aspect of the 2003 revision of the U.S. Standard Certificate of Live Birth has been the re-engineering of the data collection and transmission system. The intent of the re-engineering is to improve data quality, speed of data collection and transmission, and to enhance standardization of data [17,19]. To encourage collection of data from the best sources, two worksheets have been developed: the "Mother's Worksheet" and the "Facility Worksheet." In the mother's worksheet, data are directly obtained from the mother and include items such as race, Hispanic origin and educational attainment. For the facility worksheet, data are obtained directly from the medical records of the mother and infant for items such as date of last normal menses, pregnancy risk factors, and method of delivery. To assist hospital staff in completing the facility worksheet, a comprehensive instruction manual was developed: *Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 Revision)* [20]. Details of the nature and content of the 1989 revision are available elsewhere

[11,12].

Comparability of data between the 1989 and 2003 Revisions of the United States Standard Certificates of Live Birth

Many data items (e.g., maternal age, birth order, marital status, attendant at birth, birthweight, gestational age) are common to both the 1989 and 2003 standard birth certificates and are considered directly comparable between revisions. Several key items, however (i.e., educational attainment, tobacco use during pregnancy, month prenatal care began and type of vaginal or cesarean delivery), although collected on both certificate revisions, were substantively modified. Data for these items are not considered comparable between revisions and are not combined in tabulations or in the data files. See "Births: Final Data for 2006" [1] for selected key non-comparable data items from both revised and unrevised reporting areas. Additionally, although the checkbox items: Risk factors in this pregnancy, Obstetric procedures, Characteristics of labor and delivery, Method of delivery, Abnormal conditions of the newborn, and Congenital anomalies of the newborn are included on both the 1989 and the 2003 U.S. Standard Certificate of Live Birth, many of the specific checkboxes under these items were modified, or are entirely new to the 2003 certificate. **Table C** lists 2003 revision-based items and indicates whether the item is considered comparable with a 1989 revision-based item. "Births: Final Data for 2006." presents information for specific checkboxes for which data *are* comparable across revisions [1]. The report "Expanded Health Data from the New Birth Certificate, 2005," presented 2003 revision-based information for selected specific checkbox items included under the checkbox categories listed above [21]; an earlier report presented these data for 2004 [22]. Tabulations based on the 1989 standard certificate checkbox items are available at: http://www.cdc.gov/nchs/ab/major/dvs/Vitalstatsonline.htm#Downloadable.

Table B presents a listing of items and the percentage of records that were not stated for each state and the District of Columbia, plus Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Marianas. Births to residents of revised states which occur in unrevised states are classified as unknowns for non-comparable items (such as educational attainment, tobacco use, and prenatal care). Births to residents of

non-revised states are similarly classified.

The 2003 revision also includes a number of items which are new *and* exclusive to the 2003 revised certificate (e.g., Maternal morbidity, Breastfeeding and the Receipt of WIC food for the pregnancy) (**Figure 1)**; these data are not currently available in tabulations or the public use files.

Natality data files

Micro-data files -- Natality micro-data files for data years 1968-2006 may be downloaded at: http://www.cdc.gov/nchs/about/major/dvs/Vitalstatsonline.htm#Downloadable. Natality micro-data files for data years 1968-2006 are also available on CD-ROM upon request [2]. The general rules used to classify characteristics of live births are presented in several NCHS manuals [15,16,19,23]. These instructions are for states to use to collect and code the data items; they do not include NCHS recodes.

The 2003-2006 natality micro-data files include data items common to both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth. The files also include items exclusive to the 1989 revision and selected items exclusive to the 2003 revision. Data items considered comparable between revisions are combined in the same data field(s); items which are not comparable, or are exclusive to either revision, are captured in separate fields. See file layout [2]. Certain data items new to the 2003 revised certificate (e.g., Maternal morbidity) are not available on the file. See **Figure 1** for information on items included in the file. For a listing of specific data items included in the 2006 natality public use file and the comparability of each item see **Table C.**

Beginning with the 2005 data year, the public release micro-data natality file no longer includes geographic detail (e.g., state or county of birth). Information on the new data use policy is available at: http://www.cdc.gov/nchs/about/major/dvs/NCHS_DataRelease.htm [4]. However, tabulations of birth data by state and for counties with populations of 100,000 or more may be made using the new interactive data tool VitalStats, described below.

Reporting flags – The 2006 public use micro-data file includes extensive reporting flags to assist in the accurate exclusion of records from non-reporting areas

when tabulating data by mother's place of residence. Reporting flags should be used to generate accurate numbers by residence for items which are not reported by all states. More information on the use of reporting flags can be found in the introduction to the 2006 file documentation [2]. Identification of individual state level data, however, is not possible with the public-use file for 2006 [4].

VitalStats -- VitalStats is an online data access tool which gives users access to a collection of interactive pre-built tables, and the ability to build their own tables choosing from over 100 public use birth variables for natality data files for 1990-2006. Interactive charting and mapping tools are a key part of the system, and provide powerful options for visualizing and manipulating tabulated data at the national, state, and county level (for counties of 100,000 population or more). Additionally, users can export tabulated data to Excel for further analysis. VitalStats is available at: http://www.cdc.gov/nchs/VitalStats.htm

Demographic Characteristics

Hispanic origin and race

Hispanic origin—Hispanic origin and race are reported separately on the birth certificate. Data for Hispanic subgroups are shown in most cases for five specific groups: Mexican, Puerto Rican, Cuban, Central and South American, and "other and unknown Hispanic." In tabulations of birth data by race and Hispanic origin, data for persons of Hispanic origin are not further classified by race because the vast majority of births to Hispanic women are reported as white. In tabulations of birth data by race only, data for persons of Hispanic origin are included in the data for each race group according to the mother's reported race. In tabulations that include Hispanic origin, data for non-Hispanic persons are classified according to the race of the mother because there are substantial differences in fertility and maternal and infant health between Hispanic and non-Hispanic white women. A recode variable is available that provides cross tabulations of race by Hispanic origin.

Items asking for the Hispanic origin of the mother and the father have been included on the birth certificates of all states and the District of Columbia, the Virgin Islands, and Guam since 1993, and on the birth certificate of Puerto Rico starting in 2005

[1]. American Samoa and the Northern Marianas do not collect this information. The Hispanic origin question on the 2003 revised certificate asks respondents to select only one response, but does not preclude selecting more than one response (**Figure 1**). (In comparison, the *race* question explicitly asks respondents to select one or more race categories -- see section on *Single, Multiple and "Bridged" race of mother and father*.) If more than one Hispanic origin box is checked, or if there is a literal entry and one or more boxes are checked, the code for "Multiple Hispanic" is applied. These records are classified as "Other Hispanic" in NCHS data. The 19 revised states using the 2003 revision plus Minnesota, which used the 1989 revision but also allowed reporting of multiple Hispanic groups, accounted for 63 percent of Hispanic births in the United States in 2006.

Changes in the reporting of Hispanic origin in the 2003 certificate, including the reporting of more than one Hispanic origin, may have some influence on the distribution of births among specified Hispanic groups, since records for which multiple Hispanic origins are reported are coded as "Other and unknown Hispanic" in lieu of a specified Hispanic origin category. Between 2005 and 2006, births to "Other and unknown Hispanic" women in the U.S. increased from 61,703 to 71,742. "Other Hispanic" births have increased 46 percent since 2004 (49,044).

The percentage of records for which Hispanic origin of the parents was not reported in 2006 is shown by state in **Table B** of these Detailed Notes.

Single, Multiple and "Bridged" race of mother and father—In 1997, the Office of Management and Budget (OMB) issued ''Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity'' which revised the ''1977 Statistical Policy Directive 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting'' [24-26]. These documents specify guidelines for the collection, tabulation, and presentation of race and ethnicity data within the Federal statistical system. The 1997 revised standards incorporated two major changes designed to reflect the changing racial profile of the United States. First, the revision increased from four to five the minimum set of categories to be used by federal agencies for identification of race. The 1977 standards required federal agencies to report race-specific tabulations using a minimum set of four single-race categories: American Indian

or Alaska Native (AIAN), Asian or Pacific Islander (API), Black, and White. The five categories for race specified in the 1997 standards are: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. The revised standards called for reporting of Asians separately from Native Hawaiians or Other Pacific Islanders. Collection of additional detail on race and ethnicity is permitted, as before, so long as the additional categories can be aggregated into the minimum five categories. The revised standards also require federal data collection programs to allow respondents to select *one or more race categories*.

For the 2000 decennial census, the U.S. Census Bureau collected race and ethnicity data in accordance with the 1997 revised standards. However, the National Vital Statistics System, which is based on data collected by the states, will not be fully compliant with the new standards until all of the states revise their birth certificates to reflect the new standards. Thus, beginning with the 2000 data year, the numerators (births) for birth rates are incompatible with the denominators (populations) (see "Population denominators"). In order to compute rates, it is necessary to ''bridge'' population data for multiple-race persons to single-race categories. This has been done for birth rates by race presented in this report. Once all states revise their birth registration systems to be compliant with the 1997 OMB standards, the use of ''bridged'' populations can be discontinued.

For the 2006 data year, multiple-race was reported by the 19 states which had implemented the revised certificate by January 1, as well as by Hawaii, Michigan (for births at selected facilities only), Minnesota, and Utah, which used the 1989 revision of the U.S. Standard Certificate of Live Birth. The 23 states which reported multiple-race for all births for all of 2006 accounted for 55 percent of U.S. births in 2006 and reported 1.6 percent of mothers as multiracial, with levels varying from less than 0.1 percent (North Dakota) to 34.8 percent (Hawaii). Prior to 2006, the multiple-race reporting states varied, with 6 states reporting more than one race in 2003, 15 in 2004 and 19 in 2005. Data for 2006 from the vital records of the remaining 27 states, New York City, and the District of Columbia followed the 1977 OMB standards in which a single race is reported [24]. In addition, these areas also report the minimum set of four races as stipulated in

the 1977 standards [24], compared with the minimum of five races for the 1997 [25] standards.

In order to provide uniformity and comparability of the data during the transition period, before multiple-race data are available for all reporting areas, it is necessary to "bridge" the responses of those who reported more than one race to a single-race. The bridging procedure for multiple-race mothers and fathers is based on the procedure used to bridge the multiracial population estimates (see "Population denominators") [26, 27]. Multiple-race is imputed to a single race (one of the following: AIAN, API, Black, or White) according to the combination of races, Hispanic origin, sex, and age indicated on the birth certificate of the mother or father. The imputation procedure is described in detail elsewhere [28, 29].

As noted previously, the bridging procedure imputes multiple-race of mothers to one of the four minimum races stipulated in the 1977 OMB standards, that is, AIAN, API, Black, or White. Mothers reporting a specified Asian or Pacific Islander subgroup (that is, Chinese, Japanese, Hawaiian, or Filipino) in combination with another race (that is, AIAN, Black, and/or White) or another API subgroup, cannot be imputed to an API subgroup, only to the total API group. API mothers are slightly over represented in the 23 states with complete reporting of multiple-race for 2006 (6.3 percent in 2006), compared with the remaining 27 states, New York City, and the District of Columbia (4.8 percent). For reports "Births: Final Data for 2003" through "Births: Final Data for 2006," data are not shown for the specified API subgroups because the bridging technique cannot be applied in this detail [1, 26, 27,30,31,32]. However, data for the API subgroups, reported alone or in combination with other races and/or API subgroups, are available in the 2003-2006 natality public-use micro-data files. A previous report [33] describes characteristics of births in 2003 to single and multiple-race women.

Race of mother is reported as single race only in 27 states, the District of Columbia and New York City under at least eight single-race categories: White, Black, American Indian or Alaska Native, Chinese, Japanese, Hawaiian, Filipino, and "other Asian or Pacific Islander" (API). Of these 27 states, five states (Illinois, Missouri, New Jersey, Virginia, and West Virginia) and New York City also report data on the expanded API subgroups included in the "other API category" (Asian Indian, Korean,

Samoan, Vietnamese, Guamanian, and remaining API). Finally, the twenty-three states which report multiple-race data – for all or part of 2006 (California, Delaware, Florida, Hawaii, Idaho, Kansas, Kentucky, Michigan, Minnesota, Nebraska, New Hampshire, New York State (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Washington and Wyoming) report a minimum of fourteen categories (White, Black, American Indian or Alaska Native, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian, Hawaiian, Guamanian, Samoan, and other Pacific Islander). For this report, as discussed above, the multiple-race combinations (for example, White and AIAN or Black and Chinese) were bridged to one of four broad categories (bridged White, bridged Black, bridged AIAN, and bridged API). Detailed data on race (single or multiple) are available on the 2006 natality micro-data file.

Unknown race of mother -- Among states reporting race based on the 1977 OMB standard (single race) in 2006, race of mother was unknown or reported as "other" race (not reported in a standard race category, see above) for 1.6 percent of all 2006 records. This percentage does not take into account records for which race was unknown and was assigned or imputed by the state in which the birth occurred *prior to transmission to NCHS*. Specifically, for the single-race reporting area (27 states, DC and NYC) for mothers of Hispanic origin with unknown race, race of mother was imputed to 'white' prior to transmission to NCHS.

Among states reporting race based on the 1997 OMB standard (multiple-race) in 2006, race was unknown or reported as "other" (not reported in a standard category, **see Figure 1**) for 7.3 percent of all records. Race was *not* imputed by any of these states prior to NCHS transmission.

For both the single-race reporting areas (race of mother unknown for 1.6 percent of records) and the multiple-race reporting areas (race of mother unknown for 7.3 percent of records) where race of mother was unknown and the race of the father was known, the race of the father was assigned (at NCHS) to the mother. When information was not available for either parent, the race of the mother was imputed according to the specific race of the mother on the preceding record with a known race of mother. (See also discussion on imputation of race for Hispanic women below.) For the single-race

reporting area, imputation of race of mother based on a previous record was necessary for 0.6 percent of records. For the areas reporting multiple-race of mother, 6.3 percent of records were imputed based on a previous record; of these 90 percent were for mothers of Hispanic origin. (See below for imputation procedures.)

Modification in Imputation of Race for Hispanic women--Starting with the 2006 data year for the multiple-race reporting area, the race edit was modified slightly to take into account differences in the race distribution for births to Hispanic women compared with all births. For women of unknown race who report to be of Hispanic origin, race of mother is imputed according to the race of father, or, if race of father is unknown, according to the specific race of the mother on the preceding record of a Hispanic woman with a known race of mother. Previously, for Hispanic women where race of father was unknown, unknown race of mother was imputed according to the preceding record of any woman, regardless of Hispanic origin.

Between 2005 and 2006, the increase in the number of births to total white women may be slightly overstated and the increase in the number of births to total black women may be slightly understated because of the changes in the race edit procedure introduced in 2006 (data for *non-Hispanic white* and *non-Hispanic black women are not affected*). It is estimated that if the editing change were not made, there would be 0.2 percent fewer births classified as white, and 0.9 more births classified as black. These estimates exclude data for Texas which imputed race differently before 2006; see discussion below. As a result of this change in the race edit procedure, comparisons of data for total white and total black births between 2005-2006 for individual states should take changes in the method of imputing unknown race into account.

Texas births -- The impact of this editing change for Texas (which has a large Hispanic population) was different from that for other revised states because of the non-standard imputation procedure used by the state in 2005. For Texas in 2005, the race of *all* Hispanic mothers who reported their race as unknown was imputed as white prior to transmission to NCHS. This imputation procedure was discontinued by the state beginning in 2006, and for 2006, Texas data were processed by NCHS as for other revised states as described above. (That is, for Hispanic women of unknown race, race of mother is imputed according to the race of father. If race of father is unknown, race of

the mother is imputed according to the specific race of mother on the preceding record of a Hispanic woman with a known race of mother.) If the 2006 data had been processed according to the procedure used in 2005, there would have been 0.8 more births classified as white, and 4.6 fewer births classified as black in Texas in 2006.

Race of mother/race of child--Beginning with the 1989 data year, NCHS started tabulating its birth data primarily by race of the mother. In 1988 and prior years, births were tabulated by the race of the child, which was determined from the race of the parents as entered on the birth certificate. The reasons for this change are summarized in the 1999 Technical Appendix [11]. Trend data by race of mother are shown in "Births: Final Data for 2006" [1] for all years beginning with the 1980 data year. Text references to white births and white mothers or black births and black mothers are used interchangeably for ease in writing.

Age of mother

Beginning with the 1989 U.S. Standard Certificate of Live Birth, a "Date of birth" item replaced the "Age (at time of this birth)" item. Not all states revised this item, and, therefore, the age of mother either is derived from the reported month and year of birth or coded as stated on the certificate. In 2006 age of mother was reported directly by two states (Nevada and Virginia) and American Samoa.

From 1964 to 1996, births reported to occur to mothers younger than age 10 or older than age 49 years had age imputed according to the age of mother from the previous record with the same race and total birth order (total of live births and fetal deaths). Beginning in 1997, age of mother is imputed for ages 9 years or under and 55 years and over. A review and verification of unedited birth data for 1996 showed that the vast majority of births reported as occurring to women aged 50 years and older were to women aged 50-54 years. Because of the small number of births to women aged 50-54 years, these births have been included with births to women aged 45-49 years for computing birth rates [11].

Age–specific birth rates are based on populations of women by age, prepared by the U.S. Census Bureau. In census years the decennial census counts are used. In

intercensal years, estimates of the population of women by age are published by the U.S. Census Bureau in *Current Population Reports*. The 2000 Census of Population derived age in completed years as of April 1, 2000, from responses to questions on age at last birthday and month and year of birth, with the latter given preference. In the 1960, 1970, 1980, and 1990 Census of Population, age was also derived from month and year of birth. Age in completed years was asked in censuses before 1960. This was nearly the equivalent of the question of the pre-1989 birth certificates, which the 1950 test of matched birth and census records confirmed, by showing a high degree of consistency in reporting age in these two sources [14]. More recently, reporting of maternal age on the birth certificate was compared with reporting of age in a survey of women who had recently given birth. Reporting of age was very consistent between the two sources [34].

Median and mean age of mother—Median age is the value that divides an age distribution into two equal parts, one-half of the values being less and one-half being greater. Median ages of mothers for 1960 to the present have been computed from birth rates for 5–year age groups rather than from birth frequencies. This method eliminates the effects of changes in the age composition of the childbearing population over time. Changes in the median ages from year to year can thus be attributed solely to changes in the age–specific birth rates. Trend data on the median age are shown in **Table 1-5** of "Vital Statistics of the United States, 2003, Volume 1, Natality" [35], which is available at**:**
http://www.cdc.gov/nchs/datawh/statab/unpubd/natality/natab2003.htm,

Trend data on the mean age of mother, derived directly from frequencies of births by age, are shown in **Table 1-6** of "Vital Statistics of the United States, 2003, Volume 1, Natality" available at:
http://www.cdc.gov/nchs/datawh/statab/unpubd/natality/natab2003.htm, and for recent years, in "Births: Final Data for 2006." [1]

Not stated age or date of birth of mother— In 2006, age of mother was not reported on 0.01 percent of the records. Beginning in 1964, birth records with date of birth of mother and/or age of mother not stated have had age imputed according to the age of mother from the previous birth record of the same race and total-birth order (total of fetal deaths and live births). (See *NCHS Instruction Manuals*, Part 12) [36,37]. Editing

procedures for 1963 and earlier years are described elsewhere [11].

Age of father

Age of father is derived from the reported date of birth or coded as stated on the birth certificate. If the age is under 10 years, it is considered not stated and grouped with those cases for which age is not stated on the certificate. Information on age of father is often missing on birth certificates of children born to unmarried mothers, greatly inflating the number in the "Not stated" category in all tabulations by age of father. In computing birth rates by age of father, births tabulated as age of father not stated are distributed in the same proportions as births with known age within each 5–year-age classification of the mother. This procedure is followed because, while father's age is missing on 14.5. percent of the birth certificates in 2006, one-quarter of these were on records where the mother is a teenager. This distribution procedure is done separately by race. The resulting distributions are summed to form a composite frequency distribution that is the basis for computing birth rates by age of father. This procedure avoids the distortion in rates that would result if the relationship between age of mother and age of father were disregarded. Births with age of father not stated are distributed only for rates, not for frequency tabulations.

Live-birth order and parity

Live-birth order and parity classifications refer to the total number of live births the mother has had including the 2006 birth. Fetal deaths are excluded.

Live-birth order indicates what number the present birth represents; for example, a baby born to a mother who has had two previous live births (even if one or both are not now living) has a live-birth order of three. Parity indicates how many live births a mother has had. Before delivery, a mother having her first baby has a parity of zero, and a mother having her third baby has a parity of two. After delivery the mother of a baby who is a first live birth has a parity of one, and the mother of a baby who is a third live birth has a parity of three.

Live-birth order and parity are determined from two items on the birth certificate, "Live births now living" and "Live births now dead." Editing procedures for live birth

order are summarized elsewhere [36, 37].

Not stated birth order—All births tabulated in the "Not stated birth order" category are excluded from the computation of percentages. In computing birth rates by live-birth order, births tabulated as birth order not stated are distributed in the same proportion as births of known live-birth order.

Marital status

National estimates of births to unmarried women are based on two methods of determining marital status. For 1994 through 1996, birth certificates in 45 states and the District of Columbia included a question about the mother's marital status. For the other states, marital status is inferred from information on the birth certificate. Beginning in 1997, the marital status of women giving birth in California and Nevada was determined by a direct question in the birth registration process. New York City also changed its procedures for inferring marital status in 1997 to the same procedures in effect in New York State, a separate registration area. Beginning June 15, 1998, Connecticut discontinued inferring the mother's marital status and added a direct question on mother's marital status to the state's birth certificate.

In 2006, inferential procedures were used to compile birth statistics by marital status in full or in part for New York and Michigan respectively. Michigan added a direct question in 2005 to the birth registration process, but uses inferential procedures to update information collected using the direct question.

In these two states (Michigan and New York) which continued to use inferential procedures to compile birth statistics by marital status in 2006, a birth is inferred as nonmarital if either of these factors, listed in priority-of-use order, is present: a paternity acknowledgment was received or the father's name is missing. In recent years, a number of states have extended their efforts to identify the fathers when the parents are not married in order to enforce child support obligations. The presence of a paternity acknowledgment, therefore, is the most reliable indicator that the birth is nonmarital in the states not reporting this information directly; this is now the key indicator in the nonreporting states. Details of the changes in reporting procedures and the impact of the procedures on the data are described in previous reports [38, 39].

The mother's marital status was not reported in 2006 on 0.04 percent of the birth records in the 48 states and the District of Columbia where this information is obtained by a direct question. Marital status was imputed for these records. If status was unknown and the father's age was known, then the mother was considered married. If the status was unknown, and the father's age unknown, then the mother was considered unmarried. This represents a change from the procedures in effect for 2002 and previous years. Prior to 2003, marital status for all records with marital status not reported was imputed as "married." Because of the small number of records affected (1,627 births in 2006), the change in imputation procedures had essentially no impact on measures of nonmarital births.

When births to unmarried women are reported as second or higher order births, it is not known whether the mother was married or unmarried when the previous deliveries occurred because her marital status at the time of these earlier births is not available from the current birth record.

Educational attainment

Information on educational attainment is reported on both the 2003 and 1989 U.S. Standard Certificates of Live Birth. However, the format of the education item on the 2003 revised standard certificate differs substantively from that of the 1989 unrevised standard certificate. The 1989 certificate asks for the number of years of school completed by the mother. (Additional information on the unrevised 1989 education question is found in the earlier year Technical Appendix [11].) In contrast, the revised 2003 certificate item asks for the highest degree or level of school completed at the time of the birth (e.g., high school diploma, some college credit but no degree, bachelor's degree, etc.).

Education data for the states that have implemented the revised 2003 certificate are not directly comparable with data for the states that are not yet using the revised certificate. Accordingly, revised and unrevised educational attainment data are not combined for tabulations [1] and in the natality data files. For all of 2006, revised data are available for 19 states. Unrevised data are available for 31 states, New York City and the District of Columbia.

Data on educational attainment are currently available only for the mother [11]. Beginning in 1995, NCHS discontinued collecting information on the educational attainment of the father.

Maternal and Infant Health Characteristics

Weight gain during pregnancy

Information on weight gain during pregnancy is available from both the 2003 and the 1989 U.S. Standard Certificate of Live Birth. The item was modified, however, between revisions. The 1989 certificate asks for "weight gained during pregnancy ____ lbs," whereas the revised 2003 item which asks for the mother's pre-pregnancy weight and weight at delivery from which total weight gain during pregnancy is derived. Information on weight gain is considered comparable between revisions and, accordingly, data are combined for tabulations and in the natality data files. California did not report weight gain during pregnancy in either format for 2006.

Weight gain during pregnancy is reported in pounds. A reported loss of weight is recorded as zero gain. See NCHS manuals for detailed descriptions of editing and computation of the weight gain item [36,37].

Tobacco use during pregnancy

Information on smoking during pregnancy is reported on both the 1989 and the 2003 U.S. Standard Certificates of Live Birth. The item was substantively modified for the 2003 certificate, however, and data based on the revised item are not comparable with those based on the unrevised 1989 item. The revised 2003 question asks for the number of cigarettes smoked at different intervals before and during the pregnancy. If the mother reports smoking in any of the three trimesters of pregnancy she is classified as a smoker. In comparison, the unrevised 1989 item asks a "yes/no" question on tobacco use during pregnancy and the average number of cigarettes per day with no specificity on timing during the pregnancy.

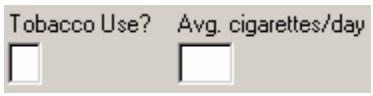
Data based on the 2003 revised item are available for all of 2006 for seventeen states and Puerto Rico. The seventeen states are Delaware, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio,

Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming. The tobacco use item for Florida, which implemented the revised birth certificate as of January 1, 2004, does not follow the standard format. As a result, tobacco use data for Florida are not comparable with either the 2003 revised or 1989 unrevised data (see below) and are not included in the 2006 data files. [40].

Data based on the unrevised 1989 certificate are available for all of 2006 for 31 States, New York City, and the District of Columbia. California did not report tobacco use in either the revised or unrevised format for 2006 [1].

The Florida tobacco use item: Response categories on the revised Florida birth certificate include Yes, No, Quit, and Unknown. The question however, does not collect information by trimester, an important enhancement of the smoking question in the 2003 revision. This, plus the additional response of "quit", makes Florida tobacco use data not comparable with data for either the unrevised or revised reporting areas, and Florida data on tobacco use are not included in the 2006 data file.

(Florida Question) Mother Used Tobacco During Pregnancy?



Tobacco Use?

Enter "Y", "N", "Q", or "U".

Average number cigarettes/day :

This may not be **00**. Valid entries are **01** though **98** .

Alcohol use during pregnancy

Data on alcohol use during pregnancy are available for 31 states and the District of Columbia and New York City, which used the 1989 Standard Certificate of Live Birth for all of 2006. (An item on alcohol use was not included on the 2003 revised birth certificate). Although alcohol use during pregnancy is a major, independent risk factor for poor pregnancy outcome and is implicated in delayed infant and child development, [41,42] it has been shown to be substantially underreported on the birth certificate. The underreporting of alcohol use on the birth certificate is likely due to question wording as well as the stigma attached to maternal alcohol use [43,44].

Pregnancy risk factors

Both the 2003 and 1989 standard birth certificates collect pregnancy risk information in a checkbox format. Ten risk factors are separately identified on the revised 2003 certificate (**Figure 1)**; sixteen are identified on the 1989 Certificate (**Figure 2)**. Four risk factors; diabetes, pre-pregnancy hypertension, gestational hypertension, and eclampsia are comparable across revisions [1], see **Table C**. Selected risk factors new to the revised certificate were presented in a recent report based on 2005 data [21]; 2006 data will be presented in a forthcoming report.

Both the revised and unrevised formats allow for the reporting of more than one risk factor and include a choice of "None" (or "None of the above" in the case of the revised certificate). Accordingly, if the item is not completed, it is classified as not stated. Levels of reporting completeness by state for pregnancy risk factors are shown in **Table B.**

For detailed instructions and definitions for the pregnancy risk factors included on the revised 2003 certificate see: *Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 Revision)* [20].
Definitions for the 1989 certificate items are also available [30].

Prenatal care

Information on the timing of prenatal care is available for both the 2003 revised and 1989 unrevised Certificates of Live Birth. However, the 2003 revision introduced substantive changes in item wording and also to the sources of prenatal information. The wording of the prenatal care item was modified to "Date of first prenatal visit" from "Month prenatal care began." In addition, the 2003 revision process resulted in recommendations that the prenatal care information be gathered from the prenatal care or medical records, whereas the 1989 revision did not include a recommended source for these data. Accordingly, prenatal care data for the two revisions are not directly comparable and are shown separately in tabulations [1] and in the data file. For the full 2006 data year, revised prenatal care data are available for 18 states; data based on the 1989 unrevised certificate are available for 32 states, New York City, and the District of

Columbia.

California births—California implemented a partial revision of the revised birth certificate for 2006; the revised prenatal care item was not included in 2006, but was implemented in 2007.

Levels of utilization of prenatal care based on revised data are substantially lower than those based on unrevised data. For the first year revised certificates are implemented, the percentage of women reported to begin care in the first trimester typically falls in a state by at least 10 percentage points [1, 32]. For example, unrevised 2005 data for Ohio indicated that 87.1 of residents began care in the first trimester of pregnancy. This compares with a level of 72.9 percent for 2006 based on Ohio revised data. Much, if not all of the difference between 2005 and 2006 for Ohio and other revised states, is related to changes in reporting and not to changes in prenatal care utilization.

The 2006 natality data file also includes an alternative measure of prenatal care utilization, the Adequacy of Prenatal Care Index (APNCU). The APNCU is based on recommendations from the American College of Obstetricians and Gynecologists and takes into account the month care began, the number of prenatal care visits and the gestational age of the newborn as reported on the birth certificate [45, 46].

Obstetric procedures

Both the 2003 and the 1989 Standard Certificates of Live Birth collect information on obstetric procedures in a checkbox format (**Figures 1** and **2**). Three procedures are separately identified on the revised 2003 certificate; six procedures are separately identified on the 1989 certificate. Two procedures, induction of labor (captured under the "Characteristics of labor and delivery" section of the revised 2003 certificate) and tocolysis are comparable across revisions [1], see **Table C**. Obstetric procedures new to the revised certificate were presented in a recent report based on 2005 data [21]; 2006 data will be presented in a forthcoming report.

Both the revised and unrevised certificate formats allow for the reporting of more than one procedure and include a choice of "None" (or "None of the above" in the case of the revised certificate). Accordingly, if the item is not completed, it is classified as "not

stated." Reporting completeness for obstetric procedures by state is shown in **Table B.**

Detailed instructions and definitions for the obstetric procedures based on the revised 2003 certificate are presented in the *Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 Revision)* [20]. Definitions for the 1989 certificate items are also available [30].

Characteristics of labor and delivery

Both the 2003 and the 1989 standard birth certificates collect characteristics of labor and delivery in a checkbox format (**Figures 1** and **2**). The 2003 Standard Certificate of Live Birth includes nine specific characteristics of labor and delivery; fifteen characteristics are included on the 1989 certificate. Three characteristics, Meconium, Breech/malpresentation (collected under the "Method of delivery" item on the 2003 Certificate), and Precipitous labor (collected under "Onset of labor" on the 2003 certificate) are comparable across revisions [1], see **Table C**. Characteristics of labor and delivery new to the revised certificate were presented in a recent report based on 2005 data [21]; 2006 data will be presented in a forthcoming report.

Both the revised and unrevised certificate formats allow for the reporting of more than one characteristic and include a choice of "None" (or "None of the above" in the case of the revised certificate). If the item is not completed, it is classified as "not stated." The percent of records for which characteristics of labor and delivery items were not stated is shown in **Table B**.

Detailed instructions and definitions for the characteristics of labor and delivery collected on the revised 2003 certificate are presented in the *Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 Revision)* [20]. Definitions for the 1989 certificate items are also available [30].

Place of delivery and attendant at birth

Both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth include separate categories for hospitals, freestanding birthing centers, residence, and clinic or doctor's office as the place of birth. In addition, the 2003 certificate queries whether the home birth was planned to be a home delivery.

For both the revised and unrevised certificates, four professional categories of attendants are medical doctors, doctors of osteopathy, certified nurse midwives, and other midwives. There is evidence that the number of live births attended by certified nurse midwives [CNM] is understated [47], largely due to difficulty in correctly identifying the birth attendant when more than one provider is present at the birth. (Anecdotal evidence suggests that some hospitals require that a physician be reported as the attendant even where no physician is physically present at midwife-attended births.)

Additional information on births occurring outside of hospitals, and on birth attendants, can be found in "Technical appendix. Vital statistics of the United States: 1999, vol I, natality [11].

Method of delivery

Several rates are computed for "Method of delivery." The overall cesarean delivery rate or total cesarean rate is computed as the percent of all births delivered by cesarean. The primary cesarean rate relates the number of women having a first cesarean delivery to all women giving birth who have never had a cesarean delivery. The denominator for this rate includes the sum of primary cesareans and vaginal births without previous cesarean. The rate of vaginal birth after previous cesarean (VBAC) delivery is computed by relating all VBAC deliveries to the sum of VBAC and repeat cesarean deliveries, that is, to women with a previous cesarean delivery.

Information on method of delivery is reported on both the 2003 and 1989 Standard Certificates of Live Birth. However, the format and wording of the method of delivery item on the revised certificate differs from that of the unrevised certificate. The unrevised item asks a direct question on whether the birth was vaginal, VBAC or a primary or repeat cesarean delivery. In contrast, the revised method of delivery item asks if the final route of delivery was a vaginal (with or without forceps or vacuum assistance) or a cesarean delivery. Information on the type of vaginal (vaginal or VBAC) or type of cesarean delivery (primary or repeat) is calculated from the response to a question under a different item, "Risk factors in this pregnancy" which asks if the mother had a previous cesarean delivery.

As a result of these changes, although data on total cesarean deliveries appear to

be very comparable between revisions, information on type of vaginal or cesarean delivery is not. Rates based on data from the revised certificates are substantially higher for VBACs and primary cesareans, and lower for repeat cesareans, than rates based on data from unrevised certificates [48]. Accordingly, data on VBAC, primary, and repeat cesarean deliveries are not directly comparable between revisions, and beginning with the 2005 data year, are presented separately in tabulations [1] and in the data file.

Information on forceps and vacuum delivery is also available from both the 2003 revised and 1989 unrevised birth certificates; these data appear to be comparable between revisions. The 2003 revision item was also expanded to include questions on whether attempted forceps or vacuum deliveries were successful, and whether a trial of labor was attempted prior to cesarean delivery. Method of delivery items new to the revised certificate were presented in a recent report based on 2005 data [21]; 2006 data will be presented in a forthcoming report.

Period of gestation

The period of gestation is defined as beginning with the first day of the last normal menstrual period (LMP) and ending with the day of the birth. The LMP is used as the initial date because it can be more accurately determined than the date of conception, which usually occurs 2 weeks after the LMP. LMP measurement is subject to error for several reasons, including imperfect maternal recall or misidentification of the LMP because of post-conception bleeding, delayed ovulation, or intervening early miscarriage.

Births occurring before 37 completed weeks of gestation are considered to be preterm for purposes of classification. At 37–41 weeks gestation, births are considered to be term, and at 42 completed weeks and over, post-term. These distinctions are consistent with the ICD–9 and ICD–10 [8] definitions.

Before 1981, the period of gestation was computed only when there was a valid month, day, and year of LMP. However, length of gestation could not be determined from a substantial number of live-birth certificates each year because the day of LMP was missing. Beginning in 1981, weeks of gestation have been imputed for records with missing day of LMP when there is a valid month and year. The imputation procedure and its effect on the data are described elsewhere [11, 49]. Reporting problems for this item

persist and may occur more frequently among some subpopulations, such as selected maternal race groups, and among births with shorter gestations [50].

The 1989 revision of the U.S. Standard Certificate of Live Birth includes an additional measure of gestational age, the item "Clinical estimate of gestation". The comparable item on the 2003 revision of the birth certificate is the "Obstetric estimate of gestation" – see definitions [20]. The clinical or obstetric estimate is compared with the length of gestation computed from the LMP date when the latter appears to be inconsistent with birthweight. This is done for normal weight births of apparently short gestations and very low birthweight births reported to be full term. The procedures are described in NCHS instruction manuals [36,37]. The clinical/obstetric estimate is reported by all areas except California for 2006.

The period of gestation for 5.6 percent of the births in 2006 was based on the clinical or obstetric estimate of gestation. For 97 percent of these records, the clinical or obstetric estimate was used because the LMP date was not reported. For the remaining 3 percent, the clinical or obstetric estimate was used because it was compatible with the reported birthweight, whereas the LMP-based gestation was not. In cases where the reported birthweight was inconsistent with both the LMP-computed gestation and the clinical/obstetric estimate of gestation, the LMP-computed gestation was used and birthweight was reclassified as "not stated." This was necessary for 2,732 births or 0.06 percent of all birth records in 2006. The levels of the adjustments were similar to those for earlier years. Despite these edits, substantial incongruities in these data persist.

Birthweight

In some areas birthweight is reported in pounds and ounces rather than in grams. However, the metric system is used to tabulate and present the statistics to facilitate comparison with data published by other groups. The categories for birthweight are consistent with the recommendations in the *International Classification of Diseases, Ninth Revision* (ICD–9) and the *International Classification of Diseases, Tenth Revision* (ICD–10) [8]. The categories in gram intervals and their equivalents in pounds and ounces are as follows:

Less than 500 grams = 1 lb 1 oz or less
500–999 grams = 1 lb 2 oz–2 lb 3 oz
1,000–1,499 grams = 2 lb 4 oz–3 lb 4 oz
1,500–1,999 grams = 3 lb 5 oz–4 lb 6 oz
2,000–2,499 grams = 4 lb 7 oz–5 lb 8 oz
2,500–2,999 grams = 5 lb 9 oz–6 lb 9 oz
3,000–3,499 grams = 6 lb 10 oz–7 lb 11 oz
3,500–3,999 grams = 7 lb 12 oz–8 lb 13 oz
4,000–4,499 grams = 8 lb l4 oz–9 lb l4 oz
4,500–4,999 grams = 9 lb 15 oz–11 lb 0 oz
5,000 grams or more = 11 lb l oz or more

ICD–9 and ICD–10 define low birthweight as less than 2,500 grams. This is a shift of 1 gram from the previous criterion of 2,500 grams or less, which was recommended by the American Academy of Pediatrics in 1935 and adopted in 1948 by the World Health Organization in the *International Lists of Diseases and Causes of Death, Sixth Revision* [51]. Very low birthweight is defined as less than 1,500 grams.

To establish the continuity of class intervals needed to convert pounds and ounces to grams, the end points of these intervals are assumed to be half an ounce less at the lower end and half an ounce more at the upper end. For example, 2 lb 4 oz–3 lb 4 oz is interpreted as 2 lb 3 ½ oz–3 lb 4 ½ oz. Births for which birthweights are not reported are excluded from the computation of percentages.

Apgar score

The Apgar score is a measure of the need for resuscitation and a predictor of the infant's chances of surviving the first year of life. It is a summary measure of the infant's condition based on heart rate, respiratory effort, muscle tone, reflex irritability, and color. Each of these factors is given a score of 0, 1, or 2; the sum of these 5 values is the Apgar score, which ranges from 0 to 10. A score of 0 to 3 indicates an infant in need of resuscitation; a score of 4 to 6 is considered intermediate; a score of 7 or greater indicates that the neonate is in good to excellent physical condition.

The 1– and 5–minute Apgar scores were added to the U.S. Standard Certificate of Live Birth in 1978 to evaluate the condition of the newborn infant at 1 and 5 minutes after birth. In 1995, NCHS discontinued collecting data on the 1-minute score. The 2003 revised certificate includes the five minute score and also asks for a 10 minute score if the

5 minute score is less than 6. The 2006 natality file includes information on the 5 minute score only. In 2006, California did not collect information on Apgar scores on its birth certificate.

Plurality

Plurality is classified as single, twin, triplet, quadruplet, and quintuplet and higher order births. Each record in the natality file represents an individual birth. For example, a record coded as a twin represents one birth in a twin delivery. Pairs or sets of twins or higher order multiple births are not identified in this file. The Matched Multiple Birth File 1995-2000 [52] includes information on sets of twin, triplet and quadruplets, thus allowing for the analysis of maternal and infant characteristics of sets of births and fetal deaths in multiple deliveries.

Records for which plurality is unknown are imputed as singletons. This occurred for 0.004 percent of all records for 2006.

Abnormal conditions of the newborn

Both the 2003 and 1989 standard birth certificates collect abnormal conditions of the newborn in a checkbox format **(Figures 1** and **2).** There are seven specific abnormal conditions included on the 2003 revised birth certificate; the 1989 certificate separately identifies eight abnormal conditions. None of the specific abnormal conditions of the newborn is comparable across the 1989 and 2003 revisions, see **Table C**. Abnormal conditions based on the revised certificate were presented in a recent report based on 2005 data [21]; 2006 data will be presented in a forthcoming report.

More than one abnormal condition may be reported for a given birth. "None" or "None of the above" (in the case of the revised certificate) may also be selected. Accordingly, if the item is not completed, it is tabulated as "not stated."

Detailed instructions and definitions for the abnormal conditions of the newborn collected on the revised 2003 certificate are presented in the *Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 Revision)* [20]. Definitions for the 1989 certificate items are also available [30].

Congenital anomalies of the newborn

Both the 2003 and 1989 standard birth certificates collect congenital anomalies of the newborn in a checkbox format **(Figures 1** and **2).** Twelve specific anomalies or anomaly groups are collected on the 2003 revised birth certificate; 21 anomalies are collected on the 1989 certificate. Six anomalies or anomaly groups; Anencephaly, Meningolmyelocele/Spinda Bifida, Congenital diaphragmatic hernia, Omphalocele/Gastroschisis, Cleft lip with or without Cleft palate, and Down Syndrome are comparable across revisions [3], see **Table C**. Congenital anomalies new to the 2003 revised certificate were presented in a recent report based on 2005 data [21]; 2006 data will be presented in a forthcoming report.

Both the revised and unrevised formats allow for the identification of more than one anomaly and include a choice of "None" (or "None of the above"). Accordingly, if the item is not completed, it is classified as "not stated."

It is well documented that congenital anomalies, except for the most visible and most severe, have historically been under-reported on birth certificates [53]. This has been attributable, at least in part, to the inclusion of anomalies on the 1989 U.S. Standard Certificate of Live Birth which may be difficult to detect within the short period between birth and completion of the child's birth certificate. The 2003 revision of the US Standard Certificate attempted to improve reporting of congenital anomalies by including only those diagnosable within 24 hours of birth using conventional, widely available diagnostic techniques [17, 22]. As more data based on the revised certificate become available, it will be possible to determine whether this change has had the intended effect.

Detailed instructions and definitions for the congenital anomalies of the newborn collected on the revised 2003 certificate are presented in the *Guide to Completing the Facility Worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 Revision)* [20]. Definitions for the 1989 certificate items are also available [30].

Quality of Data

Although vital statistics data are useful for a variety of administrative and scientific purposes, they cannot be correctly interpreted unless various qualifying factors

and methods of classification are taken into account. The factors to be considered depend on the specific purposes for which the data are to be used. It is not feasible to discuss all the pertinent factors in the use of vital statistics tabulations, but some of the more important ones should be mentioned.

Most of the factors limiting the use of data arise from imperfections in the original records or from the impracticability of tabulating these data in very detailed categories. These limitations should not be ignored, but their existence does not lessen the value of the data for most general purposes.

Completeness of registration

It is estimated that more than 99 percent of all births occurring in the United States in 2006 were registered. This estimate is based on the results of a national 1964–68 test of birth-registration completeness according to place of delivery (in or out of hospital) and race (white and non-white) [54]. This test has not been conducted more recently. Information on procedures for adjusting births for under registration (for cohort fertility tables) is presented elsewhere [11].

Completeness of reporting

Interpretation of birth certificate data must include evaluation of item completeness. The "Not stated" percentage is one measure of the quality of the data. Completeness of reporting varies among items and states. See **Table B** for the percentage of birth records on which specified items were not stated. In this table, there are items comparable to the two revisions, items not comparable between the 2003 and 1989 revision, and items exclusive to each.

Data users should note that levels of incomplete or inaccurate reporting for some of the items are quite high in some states. See **Table B**.

Quality control procedures

As electronic files are received at NCHS, they are automatically checked for completeness, individual item code validity, and unacceptable inconsistencies between data items. The registration area is notified of any problems. In addition, NCHS staff reviews the files on an ongoing basis to detect problems in overall quality such as inadequate reporting for certain items, failure to follow NCHS coding rules, and systems and software errors. Traditionally, quality assurance procedures were limited to the

review and analysis of differences between NCHS and registration area code assignments for a small sample of records. In recent years, as electronic birth registration became prevalent, this procedure was augmented by analyses of year-to-year and area-to-area variations in the data. These analyses are based on preliminary tabulations of the data that are cumulated by state on a year-to-date basis each month. NCHS investigates all differences that are judged to have consequences for quality and completeness. In the review process, statistical tests are used to call initial attention to differences for possible follow-up. As necessary, registration areas are informed of differences encountered in the tables and asked to verify the counts or to determine the nature of the differences. Missing records (except those permanently voided) and other problems detected by NCHS are resolved, and corrections are transmitted to NCHS.

Computation of Rates and Other Measures

Population denominators

Estimation by age, sex, race and Hispanic origin—Populations for birth and fertility rates for 2006 shown in the report: "Births: Final Data for 2006" [1] are estimated from the 2000 census, as of July 1, 2006. These populations are shown in **Tables 1** and **2** of these Detailed Notes. The population estimates have been provided by the U.S. Census Bureau [55] and are based on the 2000 census counts by age, sex, race, and Hispanic origin, which have been modified to be consistent with Office of Management and Budget racial categories as of 1977 and historical categories for birth data. The modification procedures are described in detail elsewhere [24, 26, 27, 56, 57].

Birth and fertility rates by state shown in the 2006 final report [1] use 2000 census-based state-level post-censal population estimates provided by the U.S. Census Bureau [55]. Rates by state shown in this report may differ from rates computed on the basis of other population estimates; rates for smaller population subgroups, such as those for teenaged mothers, may be particularly affected by differences in population estimates. Birth and fertility rates by month shown in the 2006 natality final report [1] are based on monthly population estimates consistent with the July 1, 2006 population estimates. Rates for unmarried women shown in that report are based on distributions of the

population by marital status as of March 2006 as reported by the U.S. Census Bureau in the March Current Population Survey (CPS) [58-60], which have been adjusted to July 2006 population levels [55] by the Division of Vital Statistics, NCHS [1]**.** Birth and fertility rates for the Hispanic population [1]**,** are based on estimates of the total Hispanic population as of July 1, 2006 [55]. Rates for Hispanic subgroups are based on special population estimates that are presented in **Table 2.** Information about allocation to Hispanic subgroups is presented elsewhere [61-63].

The populations by race used in this report were produced under a collaborative arrangement with the U.S. Census Bureau and are 2000 census-based post-censal estimates. Reflecting the new guidelines issued in 1997 by the Office of Management and Budget (OMB), the 2000 census included an option for individuals to report more than one race as appropriate for themselves and household members [25]. In addition, the 1997 OMB guidelines called for reporting of Asian persons separately from Native Hawaiians or other Pacific Islanders. In the 1977 OMB guidelines, data for Asian or Pacific Islander persons were collected as a single group [24]. Except for twenty-three states, birth certificates currently report only one race for each parent in the categories specified in the 1977 OMB guidelines (see "Hispanic origin, race and national origin"). In addition, unrevised birth certificate data do not report Asians separately from Native Hawaiians or other Pacific Islanders. Thus, birth certificate data by race (the numerators for birth and fertility rates) currently are incompatible with the population data collected in the 2000 census (the denominators for the rates).

To produce birth and fertility rates for 1991 through 2006, it was necessary to ''bridge'' the population data for multiple-race persons back to single race categories. In addition, the 2000 census counts estimates were modified to be consistent with the 1977 OMB racial categories, that is, to report the data for Asian persons and Native Hawaiians or other Pacific Islanders as a combined category Asian or Pacific Islanders [26, 27]. The procedures used to produce the ''bridged'' populations are described in separate publications [26, 27]. Twenty-three states reported multiple-race data for all of 2006;. Once all states revise their birth certificates to be compliant with the 1997 OMB standards, the use of ''bridged'' populations can be discontinued.

Populations used to calculate the rates for 1991–99 are based on population

estimates as of July 1 of each year and were produced by the U.S. Census Bureau, with support from the National Cancer Institute [26,55,64,65].

These intercensal population estimates for 1991-99 are based on the April 1990 and April 2000 Censuses. The bridged rates for 1990 and 2000 are based on populations from the censuses in those years as of April 1.

The population data used to compile birth and fertility rates by race and ethnicity shown in these Detailed Notes and used for this file are based on special estimation procedures, and are not actual counts. This is the case even for the 2000 populations that are based on the 2000 census. As a result, the estimation procedures used to develop these populations may contain some errors. Smaller populations, for example, American Indians or Alaskan Natives, are likely to be affected much more than larger populations by potential measurement error [26]. While the nature and magnitude of error is unknown, the potential for error should be kept in mind when evaluating trends and differentials.

Additional information on the revised populations is available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm .

Residential population base— Birth rates for the United States, individual states, and metropolitan areas are based on the total resident populations of the respective areas (**Table 3**). Except as noted, these populations exclude the Armed Forces abroad but include the Armed Forces stationed in each area. The residential population of the birth- and death-registration states for 1900–1932 and for the United States for 1900–2006 is shown in **Table 4**. In addition, the population including Armed Forces abroad is shown for the United States. **Table D** in these Notes shows the sources for these populations. A detailed discussion of historical population bases is presented elsewhere [11].

Small populations as denominators— An asterisk (*) is shown in place of any derived rate based on fewer than 20 births in the numerator, or a population denominator of less than 50 (unweighted) for decennial years and 75,000 (weighted) for all other years for the Hispanic subgroups. Rates based on populations below these minimum levels lack sufficient reliability for analytic purposes.

Net census undercounts and overcounts— Studies conducted by the U.S. Census

Bureau indicate that some age, race, and sex groups are more completely enumerated than others. Census miscounts can have consequences for vital statistics measures. For example, an adjustment to increase the population denominator would result in a smaller rate compared to the unadjusted population. A more detailed discussion of census undercounts and overcounts can be found in the "1999 Technical Appendix" [11]. Adjusted rates for 2000 can be computed by multiplying the reported rates by ratios from the 2000 census-level population adjusted for the estimated age-specific census over- and undercounts, which are shown in **Table E** of these Notes.

Cohort fertility tables

Various fertility measures for cohorts of women are computed from births adjusted for underregistration and population estimates corrected for under enumeration and misstatement of age. Heuser [66] prepared a detailed description of the methods used in deriving these measures as well as more detailed data for earlier years. The series of cohort fertility tables is being revised to incorporate rates for black women and the revised intercensal population estimates of the 1990s. A publication is forthcoming in 2009.

Parity distribution—The percentage distribution of women by parity (number of children ever born alive to mother) is derived from cumulative birth rates by order of birth. The percentage of 0-parity women is found by subtracting the cumulative first birth rate from 1,000 and dividing by 10. The proportions of women at parities one through six are found from the following formula:

Percent at N parity = ((cum. rate, order N)-(cum. rate, order N + 1))/10

The percentage of women at seventh and higher parities is found by dividing the cumulative rate for seventh-order births by 10.

Birth probabilities—Birth probabilities indicate the likelihood that a woman of a certain parity and age at the beginning of the year will have a child during the year. Birth probabilities differ from central birth rates in that the denominator for birth probabilities is specific for parity as well as for age.

Total fertility rates

The total fertility rate is the sum of the birth rates by age of mother (in 5–year age groups) multiplied by 5. It is an age–adjusted rate because it is based on the assumption

that there is the same number of women in each age group. The rate of 2,101 in 2006, for example, means that if a hypothetical group of 1,000 women were to have the same birth rates in each age group that were observed in the actual childbearing population in 2006, they would have a total of 2,101 children by the time they reached the end of the reproductive period (taken here to be age 50 years), assuming that all of the women survived to that age.

Seasonal adjustment of rates

The seasonally adjusted birth and fertility rates are computed from the X–11 variant of Census Method II [67]. This method, used since 1964, differs slightly from the U.S. Bureau of Labor Statistics (BLS) Seasonal Factor Method, which was used for *Vital Statistics of the United States*, 1964. The fundamental technique is the same in that it is an adaptation of the ratio-to-moving-average method. Before 1964, the method of seasonal adjustment was based on the X–9 variant and other variants of Census Method II. A comparison of the Census Method II with the BLS Seasonal Factor Method shows the differences in the seasonal patterns of births to be negligible.

Computation of percentages, percentage distributions, and means

Births for which a particular characteristic is unknown were subtracted from the figures for total births that were used as denominators before percentages, percentage distributions, and means were computed. The percentage of records with missing information for each item is shown by state in **Table B**. The mean age of mother is the arithmetic average of the age of mothers at the time of birth, computed directly from the frequency of births by age of mother. An asterisk is shown in place of any derived statistic based on fewer than 20 births in the numerator or denominator.

Computation of Measures of Variability

Random variation and confidence intervals for natality data

This detailed discussion of random variation and significance testing for natality data is similar to that in the "Technical Notes" of "Births: Final Data for 2006" [1]. The number of births reported for an area is essentially a complete count, because more than 99 percent of all births are registered. Although this number is not subject to sampling error, it may be affected by nonsampling errors such as mistakes in recording the

mother's residence or age during the registration process.

When the number of births is used for analytic purposes (that is, for the comparison of numbers, rates, and percents over time, for different areas, or between different groups), the number of events that *actually* occurred can be thought of as one outcome in a large series of possible results that *could have* occurred under the same (or similar) circumstances. When considered in this way, the number of births is subject to random variation and a probable range of values estimated from the actual figures, according to certain statistical assumptions.

The confidence interval is the range of values for the number of births, birth rates, or percent of births that you could expect in 95 out of 100 cases. The confidence limits are the end points of this range of values (the highest and lowest values). Confidence limits tell you how much the number of events or rates could vary under the same (or similar) circumstances.

Confidence limits for numbers, rates, and percents can be estimated from the actual number of vital events. Procedures differ for rates and percents and also differ depending on the number of births on which these statistics are based. Below are detailed procedures and examples for each type of case.

When the number of vital events is large, the distribution is assumed to follow a normal distribution (where the relative standard error is small). When the number of events is small and the probability of the event is small, the distribution is assumed to follow a Poisson probability distribution. Considerable caution should be observed in interpreting the occurrence of infrequent events.

95-percent confidence limits for numbers less than 100 -- When the number of births is less than 100 and the rate is small, the data are assumed to follow a Poisson probability distribution [68]. Confidence limits are estimated using the following formulas:

$$\text{Lower limit} = B \times L$$

$$\text{Upper limit} = B \times U$$

where:

B = number of births

L = the value in **Table F** that corresponds to the number B

U = the value in **Table F** that corresponds to the number B

Example

Suppose that the number of first births to American Indian or Alaskan Native (AIAN) women 40-44 years of age was 47. The confidence limits for this number would be:

$$\text{Lower limit} = 47 \times 0.73476 = 35$$

$$\text{Upper limit} = 47 \times 1.32979 = 63$$

This means that the chances are 95 out of 100 that the actual number of first births to AIAN women 40-44 years of age would lie between 35 and 63.

95-percent confidence limits for numbers of 100 or more — When the number of events is greater than 100, the data are assumed to approximate a normal distribution. Formulas for 95-percent confidence limits are:

$$\text{Lower limit} = B - \left(1.96 \times \sqrt{B}\right)$$

$$\text{Upper limit} = B + \left(1.96 \times \sqrt{B}\right)$$

where:

B = number of births

Example

Suppose that the number of first births to white women 40-44 years of age was 14,108. The 95-percent confidence limits for this number would be:

$$\text{Lower limit} = 14{,}108 - \left(1.96 \times \sqrt{14{,}108}\right)$$
$$= 14{,}108 - 233$$
$$= 13{,}875$$

$$\text{Upper limit} = 14{,}108 + \left(1.96 \times \sqrt{14{,}108}\right)$$
$$= 14{,}108 + 233$$
$$= 14{,}341$$

This means that the chances are 95 out of 100 that the actual number of first births to white women 40-44 years of age would fall between 13,875 and 14,341.

Computing confidence intervals for rates -- The same statistical assumptions can be used to estimate the variability in birth rates. Again, one formula is used for rates based on numbers of events less than 100, and another formula for rates based on numbers of 100 or greater. For our purposes, assume that the denominators of these rates (the population estimates) have no error. While this assumption is technically correct *only* for denominators based on the census that occurs every 10 years, the error in intercensal population estimates is usually small, difficult to measure, and therefore not considered. (See, however, discussion of population denominators in "population bases" [11].)

95-percent confidence limits for rates based on fewer than 100 events — As stated earlier, when the number of events in the numerator is less than 20 (or the population denominator is less than 50 for decennial years and 75,000 (weighted) for all other years for an Hispanic subgroup), an asterisk (*) is shown in place of the rate because there were too few births or the population is too small to compute a statistically reliable rate. When the number of events in the numerator is greater than 20 but less than 100 (and the population denominator for the subgroups is above the minimum), the confidence interval for a rate can be estimated using the two formulas which follow and the values in **Table F**.

$$\text{Lower limit} = R \times L$$

$$\text{Upper limit} = R \times U$$

where:

R = birth rate

L = the value in **Table F** that corresponds to the number of events B

U = the value in **Table F** that corresponds to the number of events B

Example

Suppose that the first birth rate for American Indian and Alaskan Native (AIAN) women 40-44 years of age was 0.50 per thousand, based on 47 births in the numerator. Using **Table F**:

$$\text{Lower limit} = 0.50 \times 0.73476$$
$$= 0.37$$

$$\text{Upper limit} = 0.50 \times 1.32979$$
$$= 0.66$$

This means that the chances are 95 out of 100 that the actual first birth rate for AIAN women 40-44 years of age would be between 0.37 and 0.66.

95-percent confidence limits for rates when the numerator is 100 or more -- In this case, use the following formula for the birth rate R based on the number of births B:

$$\text{Lower limit} = R - \left(1.96 \times \left(R / \sqrt{B}\right)\right)$$

$$\text{Upper limit} = R + \left(1.96 \times \left(R / \sqrt{B}\right)\right)$$

where:

R = birth rate

B = number of births

Example

Suppose that the first birth rate for white women 40-44 years of age was 1.55 per thousand, based on 14,108 births in the numerator. Therefore, the 95-percent confidence

interval would be:

$$\begin{aligned}\text{Lower limit} &= 1.55 - \left(1.96 \times \left(1.55 / \sqrt{14{,}108}\right)\right) \\ &= 1.55 - 0.026 \\ &= 1.52\end{aligned}$$

$$\begin{aligned}\text{Upper limit} &= 1.55 + \left(1.96 \times \left(1.55 / \sqrt{14{,}108}\right)\right) \\ &= 1.55 + 0.026 \\ &= 1.58\end{aligned}$$

This means that the chances are 95 out of 100 that the actual first birth rate for white women 40-44 years of age lies between 1.52 and 1.58.

Computing 95-percent confidence intervals for percents and proportions-- In many instances we need to compute the confidence intervals for percents or proportions. Percents derive from a binomial distribution. As with birth rates, an asterisk (*) will be shown for any percent which is based on fewer than 20 births in the numerator. The computation of a 95-percent confidence interval for a percent is made when the following conditions are met:

$$B \times p \geq 5 \text{ and } B \times q \geq 5$$

where:

B	=	number of births in the denominator
p	=	percent divided by 100
q	=	1 - p

For natality data, these conditions will be met except for very rare events in small subgroups. If the conditions are not met, the variation in the percent will be so large as to render the confidence intervals meaningless. When these conditions are met the 95-percent confidence interval can be computed using the normal approximation of the binomial. The 95-percent confidence intervals are computed by the following formulas

$$\text{Lower limit} = p - \left(1.96 \text{ x } \left(\sqrt{p \text{x } q / B}\right)\right)$$

$$\text{Upper limit} = p + \left(1.96 \text{ x } \left(\sqrt{p \text{x } q / B}\right)\right)$$

where:

p	=	percent divided by 100
q	=	1- p
B	=	number of births in the denominator

Example

Suppose that the percent of births to Hispanic women in Arizona that were to unmarried women was 49.7 percent. This was based on 14,752 births in the numerator and 29,682 births in the denominator. First is the test to make sure the normal approximation of the binomial can be used:

$$29{,}682 \times 0.497 = 14{,}752$$

$$29{,}682 \times (1 - 0.497) = 29{,}682 \times 0.503 = 14{,}930$$

Both 14,752 and 14,930 are greater than 5, so we can proceed. The 95-percent confidence interval would be:

$$\begin{aligned}\text{Lower limit} &= 0.497 - \left(1.96 \text{ x } \left(\sqrt{0.497 \text{ x } 0.503 / 29{,}682}\right)\right) \\ &= 0.497 - 0.006 \\ &= 0.491 \text{ or } 49.1 \text{ percent}\end{aligned}$$

$$\text{Upper limit} = 0.497 + \left(1.96 \times \left(\sqrt{0.497 \times 0.503 / 29{,}682}\right)\right)$$
$$= 0.497 + 0.006$$
$$= 0.503 \text{ or } 50.3 \text{ percent}$$

This means that the chances are 95 out of 100 that the actual percent of births to unmarried Hispanic women in Arizona is between 49.1 and 50.3 percent.

Significance testing for population groups

Significance testing when one or both of the rates is based on fewer than 100 cases -- To compare two rates, when one or both of those rates are based on less than 100 cases, you first compute the confidence intervals for both rates. Then you check to see if those intervals overlap. If they **do** overlap, the difference is not statistically significant at the 95-percent level. If they **do not** overlap, the difference is indeed statistically significant.

Example

Suppose that the first birth rate for American Indian and Alaskan Native (AIAN) women 40-44 years of age was 0.70 per 1,000 in year X and 0.57 in year Y. Is the rate for year X significantly higher than the rate for year Y? The two rates are based on 63 events in year X and 54 events in year Y. Both rates are based on fewer than 100 events; therefore, the first step is to compute the confidence intervals for both rates.

	Lower Limit	Upper Limit
Year X	0.54	0.90
Year Y	0.43	0.74

These two confidence intervals overlap. Therefore, the first birth rate for AIAN women 40-44 in year X is not significantly higher (at the 95-percent confidence level) than the rate in year Y.

This method of comparing confidence intervals is a conservative test for statistical significance. That is, the difference between two rates may, in fact, be statistically significant even though confidence intervals for the two rates overlap [69]. Thus, caution

should be observed when interpreting a non-significant difference between two rates, especially when the lower and upper limits being compared overlap only slightly.

Significance testing when both rates are based on 100 or more events -- When both rates are based on 100 or more events, the difference between the two rates, irrespective of sign (+/-), is considered statistically significant if it exceeds the statistic in the formula below. This statistic equals 1.96 times the standard error for the difference between two rates.

$$1.96 \times \sqrt{\frac{R_1^2}{N_1} + \frac{R_2^2}{N_2}}$$

where:

R_1 = first rate

R_2 = second rate

N_1 = first number of births

N_2 = second number of births

If the difference is **greater** than this statistic, then the difference would occur by chance less than 5 times out of 100. If the difference is **less than or equal** to this statistic, the difference might occur by chance more than 5 times out of 100. We say that the difference is not statistically significant at the 95-percent confidence level.

Example

Is the first birth rate for black women 40-44 years of age (1.08 per 1,000) significantly lower than the comparable rate for white women (1.55)? Both rates are based on more than 100 births (1,535 for black women and 14,108 for white women). The difference between the rates is 1.55 - 1.08 = 0.47. The statistic is then calculated as follows:

$$= 1.96 \times \sqrt{\frac{1.08^2}{1{,}535} + \frac{1.55^2}{14{,}108}}$$
$$= 1.96 \times \sqrt{\left(\left(1.166/1{,}535\right) + \left(2.403/14{,}108\right)\right)}$$
$$= 1.96 \times \sqrt{0.00076 + 0.00017}$$
$$= 1.96 \times \sqrt{0.00093}$$
$$= 1.96 \times 0.03$$
$$= 0.06$$

The difference between the rates (0.47) is greater than this statistic (0.06). Therefore, the difference is statistically significant at the 95-percent confidence level.

Significance testing differences between two percentages -- When testing the difference between two percents, both percents must meet the following conditions:

$$B \times p \geq 5 \text{ and } B \times q \geq 5$$

where:

B	=	number of births in the denominator
p	=	percent divided by 100
q	=	1 - p

When both percents meet these conditions then the difference between the two percents is considered statistically significant if it is greater than the statistic in the formula below. This statistic equals 1.96 times the standard error for the difference between two percents.

$$1.96 \times \sqrt{p \times (1-p) \times \left(\frac{1}{B_1} + \frac{1}{B_2}\right)}$$

where:

B_1	=	number of births in the denominator of the first percent
B_2	=	number of births in the denominator of the second percent

$$p = \frac{B_1 \times p_1 + B_2 \times p_2}{B_1 + B_2}$$

p_1 = the first percent divided by 100

p_2 = the second percent divided by 100

Example

Is the percent of births to Hispanic women that were to unmarried women higher in New Mexico (50.2) than in Arizona (49.7)? Suppose that the number in the denominator was 13,714 in New Mexico and 29,682 in Arizona. The necessary conditions are met for both percents (calculations not shown). The difference between the two percents is 0.502 - 0.497 = 0.005. The statistic is then calculated as follows:

$$\begin{aligned} & 1.96 \times \sqrt{0.499 \times (0.501) \times (0.000106609)} \\ & = 1.96 \times \sqrt{0.000026652} \\ & = 1.96 \times 0.005162563 \\ & = 0.010 \end{aligned}$$

The difference between the percents (0.005) is less than this statistic (0.010). Therefore, the difference is not statistically significant at the 95-percent confidence level.

Significance testing differences between two means – A previous report details the formula and procedure in testing differences between two means in which both means are based on 100 or more cases [70]. When one or both means is based on fewer than 100 cases, confidence intervals are computed for both means based on the standard error of the mean: $s / \sqrt{N}$; s is the standard deviation and N is the number of births. If the confidence intervals overlap, the difference is not statistically significant given the width of the confidence interval (i.e. 0.95 percent level). If they do not overlap, the difference is statistically significant.

Random variation and significance testing for population subgroups

This section presents information relevant to Hispanic subgroups (or generally speaking, any subgroup of the population for which survey data has been used for estimation of the denominator.) Birth and fertility rates for Mexicans, Puerto Ricans,

Cubans, and "Other" Hispanic subgroups for 2006 are shown in the 2006 final report [1] and in the "Vital Statistics of the United States, 2006, Part 1, Natality" (in preparation). Population estimates for Hispanic subgroups are derived from the U.S. Census Bureau's *Current Population Survey* (CPS) and adjusted to resident population control totals as shown in **Table 2** [55, 62]. As a result, the rates are subject to the variability of the denominator as well as the numerator. For these Hispanic subgroups (but not for all origin, total Hispanic, total non-Hispanic, non-Hispanic white, or non-Hispanic black populations), the following formulas are used for testing statistical significance in trends and differences:

Approximate 95-percent confidence interval: less than 100 births -- When the number of events in the numerator is less than 20, an asterisk is shown in place of the rate. When the number of events in the numerator is greater than 20 but less than 100, the confidence interval for the birth rate can be estimated using the formulas that follow and the values in **Table F.**

For crude and age–specific birth rates,

$$\text{Lower limit} = R * L(1-\alpha = .96, B) * \left(1 - 2.576\sqrt{f\left(a + \frac{b}{P}\right)}\right)$$

$$\text{Upper limit} = R * U(1-\alpha = .96, B) * \left(1 + 2.576\sqrt{f\left(a + \frac{b}{P}\right)}\right)$$

where:

R = rate (births per 1,000 population)
L = the value in **Table F** that corresponds to the number B, using the 96 percent CI column
U = the value in **Table F** that corresponds to the number B, using the 96 percent CI column
α = standard error term for selecting CI column in **Table F**
B = total number of births upon which rate is based
f = the factor which depends on whether an entire or a sampled population (like one from a Current Population Survey – CPS) is used, and the span of years represented. f equals 0.670 for a single year
a and b of the example are single year averages of the 2005 and 2006 CPS standard error parameters [71,72]
P = total estimated population upon which the rate is based

NOTE: In the formulas above, the confidence limits are estimated from the non-

sampling error in the number of births, the numerator, and the sampling error in the population estimate, the denominator. A 96 percent standard error is computed for the numerator and a 99 percent standard error is computed for the denominator in order to compute a 95-percent confidence interval for the rate**.**

Example

Suppose that the birth rate of Puerto Rican women 45–49 years of age was 0.4 per 1,000, based on 35 births in the numerator and an estimated resident population of 87,892 in the denominator. Using **Table F**, the 95-percent confidence interval would be:

$$\text{Lower limit} = 0.4 * 0.68419 * \left(1 - 2.576\sqrt{0.670\left(-0.000087 + \left(\frac{3{,}809}{87{,}892}\right)\right)}\right)$$
$$= 0.4 * 0.68419 * \left(1 - 2.576\sqrt{0.028978}\right)$$
$$= 0.4 * 0.68419 * \left(1 - (2.576 * 0.170229)\right)$$
$$= 0.4 * 0.68419 * 0.561490$$
$$= 0.154$$

$$\text{Upper limit} = 0.4 * 1.41047 * \left(1 + 2.576\sqrt{0.670\left(-0.000087 + \left(\frac{3{,}809}{87{,}892}\right)\right)}\right)$$
$$= 0.4 * 1.41047 * \left(1 + 2.576\sqrt{0.028978}\right)$$
$$= 0.4 * 1.41047 * \left(1 + (2.576 * 0.170229)\right)$$
$$= 0.4 * 1.41047 * 1.438510$$
$$= 0.812$$

This means that the chances are 95 out of 100 that the actual birth rate of Puerto Rican women 45–49 years of age lies between 0.15 and 0.81.

Approximate 95-percent confidence interval: 100 or more births -- When the number of events in the numerator is greater than 100, the confidence interval for the birth rate can be estimated from the following formulas: For crude and age–specific birth rates,

$$\text{Lower limit} = R - 1.96 * R * \sqrt{\left(\frac{1}{B}\right) + f\left(a + \frac{b}{P}\right)}$$

$$\text{Upper limit} = R + 1.96 * R * \sqrt{\left(\frac{1}{B}\right) + f\left(a + \frac{b}{P}\right)}$$

where:

R = rate (births per 1,000 population)
B = total number of births upon which rate is based
f = the factor which depends on whether an entire or a sampled population (like one from a Current Population Survey – CPS) is used, and the span of years represented. f equals 0.670 for a single year
a and b of the example are single year averages of the 2005 and 2006 CPS standard error parameters [71,72]
a = -0.000087
b = 3,809
P = total estimated population upon which rate is based

Example

Suppose that the fertility rate of Cuban women 15–44 years of age was 51.2 per 1,000 based on 13,088 births in the numerator and an estimated resident population of 255,399 in the denominator. The 95-percent confidence interval would be:

$$\begin{aligned}
\text{Lower limit} &= 51.2 - 1.96 * 51.2 * \sqrt{\left(\frac{1}{13{,}088}\right) + 0.670 * \left[-0.000087 + \left(\frac{3{,}809}{255{,}399}\right)\right]} \\
&= 51.2 - 1.96 * 51.2 * \sqrt{0.000076406 + (0.670 * 0.014827)} \\
&= 51.2 - 1.96 * 51.2 * \sqrt{0.01001050} \\
&= 51.2 - 1.96 * 51.2 * 0.1000524 \\
&= 41.1
\end{aligned}$$

$$\begin{aligned}
\text{Upper limit} &= 51.2 + 1.96 * 51.2 * \sqrt{\left(\frac{1}{13{,}088}\right) + 0.670 * \left[-0.000087 + \left(\frac{3{,}809}{255{,}399}\right)\right]} \\
&= 51.2 + 1.96 * 51.2 * \sqrt{0.000076406 + (0.670 * 0.014827)} \\
&= 51.2 + 1.96 * 51.2 * \sqrt{0.01001050} \\
&= 51.2 + 1.96 * 51.2 * 0.1000524 \\
&= 61.3
\end{aligned}$$

This means that the chances are 95 out of 100 that the actual fertility rate of Cuban women 15–44 years of age is between 41.16 and 61.24.

Significance testing for subgroups -- When both rates are based on 100 or more events, the difference between the two rates is considered statistically significant if it exceeds the value given by the formula below. This statistic equals 1.96 times the standard error for the difference between two rates.

$$z = 1.96 * \sqrt{R_1^2 * \left[\left(\frac{1}{B_1}\right) + f\left(a + \frac{b}{P_1}\right)\right] + R_2^2 * \left[\left(\frac{1}{B_2}\right) + f\left(a + \frac{b}{P_2}\right)\right]}$$

If the difference is greater than this statistic, then the difference would occur by chance less than 5 times out of 100. If the difference is less than this statistic, the difference might occur by chance more than 5 times out of 100. It may be concluded that the difference is not statistically significant at the 95-percent confidence level.

Example

Suppose the birth rate for Mexican women 15–19 years of age (R_1) is 94.5, based on 97,744 births and an estimated population of 1,033,878, and the birth rate for Puerto Rican women 15–19 years of age (R_2) is 61.4, based on 10,006 births and an estimated population of 162,899. Using the above formula, the z score is computed as follows

$$= 1.96 * \sqrt{94.5^2 * \left[\left(\frac{1}{97{,}744}\right) + 0.670\left(-0.000087 + \frac{3{,}809}{1{,}033{,}878}\right)\right] + 61.4^2 * \left[\left(\frac{1}{10{,}006}\right) + 0.670\left(-0.000087 + \frac{3{,}809}{162{,}899}\right)\right]}$$

$$= 1.96 * \sqrt{8930.25 * (0.000010231 + 0.670 * 0.003597) + 3769.96(0.00009994 + 0.670 * 0.023296)}$$

$$= 1.96 * \sqrt{(8930.25 * 0.00242022) + (3769.96 * 0.015708)}$$

$$= 1.96 * \sqrt{21.61 + 59.21}$$

$$= 1.96 * 9.0$$

$$= 17.64$$

Since the difference between the two rates 33.1 is greater than the value above (17.64), the two rates are statistically significantly different at the 0.05 level of significance.

References

1. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer SE, and Mathews, TJ. Births: Final data for 2006. National vital statistics reports; vol 57 no _. Hyattsville, Maryland: National Center for Health Statistics. 2008.

2. National Center for Health Statistics. Documentation for Public Use File, Natality 2006. Hyattsville, Maryland: National Center for Health Statistics. Annual product 2008. Available for downloading at : http://www.cdc.gov/nchs/about/major/dvs/Vitalstatsonline.htm#Downloadable

3. National Center for Health Statistics. Natality 2006. Public use file. Hyattsville, Maryland: National Center for Health Statistics. Annual internet product. 2008. Available for downloading at: http://www.cdc.gov/nchs/about/major/dvs/Vitalstatsonline.htm#Downloadable

4. National Center for Health Statistics. NCHS Data Release and Access Policy for Microdata and Compressed Vital Statistics Files. Available at: http://www.cdc.gov/nchs/about/major/dvs/NCHS_DataRelease.htm

5. United Nations. Handbook of vital statistics. Studies in methods series F. no. 7. New York: United Nations. 1955.

6. Centers for Disease Control and Prevention. Model State Vital Statistics Act and Regulations, 1992 Revision. Publication no. (PHS) 95–1115. Hyattsville, Maryland: National Center for Health Statistics. 1995.

7. American Academy of Pediatrics and American College of Obstetricians and Gynecologists. Guidelines for perinatal care, (2nd edition). Washington, DC. 308–24. 1988.

8. World Health Organization. Manual of the international statistical classification of diseases, injuries, and causes of death, based on the recommendations of the Tenth Revision Conference, 1987. Geneva: World Health Organization. 1992.

9. Kowaleski J. State definitions and reporting requirements for live births, fetal deaths, and induced terminations of pregnancy (1997 revision). Hyattsville, Maryland: National Center for Health Statistics. 1997.

10. National Center for Health Statistics. Technical appendix – Fetal death 2004. 2004 perinatal mortality data file. Public use CD-ROM. Hyattsville, Maryland: National Center for Health Statistics Annual product, 2007.

11. National Center for Health Statistics. Technical appendix. Vital statistics of the United States: 1999, vol I, natality on CD-ROM from Hyattsville, Maryland: National Center for Health Statistics. 2001.

12. Hertzel, AM. U.S. Vital Statistics System. Major activities and developments, 1950-95. Hyattsville, Maryland: National Center for Health Statistics. 1997.

13. U.S. Department of Health, Education and Welfare, Public Health Service, Office of Vital Statistics. Birth registration completeness in the United States and geographic areas, 1950; vol 39 no 2. 1954.

14. Schachter J. Matched record comparison of birth certificate and census information in the United States, 1950. Vital statistics—Special Reports; vol 47 no 12. Washington: Public Health Service. 1962.

15. National Center for Health Statistics. Instruction manual, part 8. Vital records, geographic codes 2003. Hyattsville, Maryland: National Center for Health Statistics. 2002.

16. National Center for Health Statistics. Instruction manual, part 8A. Vital records, geographic codes, 2004. Federal information processing standards (FIPS). Hyattsville, Maryland: National Center for Health Statistics. 2003.

17. National Center for Health Statistics. Report of the Panel to Evaluate the U.S. Standard Certificates. Hyattsville, Maryland: National Center for Health Statistics. 2000.

18. National Center for Health Statistics. 2003 revision of the U.S. Standard Certificate of Live Birth. 2003.

19. National Center for Health Statistics. Birth edit specifications for the 2003 Revision of the U.S. Standard Certificate of Birth. 2005.

20. National Center for Health Statistics. Guide to completing the facility worksheets for the Certificate of Live Birth and Report of Fetal Death (2003 revision). 2006 update. Hyattsville, Maryland: National Center for Health Statistics.

21. Menacker, F Martin, JA. Expanded health data from the new birth certificate, 2005. National statistics reports; vol 56 no 13. Hyattsville, Maryland: National Center for Health Statistics. 2008.

22. Martin, JA, Menacker, F. Expanded health data from the new birth certificate, 2004. National statistics reports; vol 55 no 12. Hyattsville, Maryland: National Center for Health Statistics. 2007.

23. Division of Vital Statistics. Instruction manual part 3a: Classification and coding instructions for birth records, 1999-2001. Hyattsville, Maryland: National Center for Health Statistics.

24. Office of Management and Budget. Race and ethnic standards for Federal statistics and administrative reporting. Statistical Policy Directive 15. May 12, 1977.

25. Office of Management and Budget. Revisions to the standards for the classification of Federal data on race and ethnicity. Federal Register 62FR58781-58790. October 30, 1997.

26. Ingram DD, Parker JD, Schenker N, Weed JA, Hamilton B, Arias E, Madans JH. United States Census 2000 with bridged race categories. National Center for Health Statistics. Vital Health Stat 2(135). 2003.

27. Schenker N, Parker JD. From single-race reporting to multiple-race reporting: Using imputation methods to bridge the transition. Stat Med 22(9):1571–87. 2003.

28. Johnson D. Coding and editing multiple-race and ethnicity. Presented at the Joint Meeting of NAPHSIS and VSCP. Portland, Oregon. June 6-10, 2004.

29. Weed JA. NCHS procedures for multiple-race and Hispanic origin data: Collecting, coding, editing and transmitting. Presented at the 2004 Joint Meeting of NAPHSIS and VSCP. Portland, Oregon. June 6-10, 2004.

30. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F and Munson ML. Births: Final data for 2003. National vital statistics reports; vol 54 no 2. Hyattsville, Maryland: National Center for Health Statistics. 2005.

31. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, and Kirmeyer, S. Births: Final data for 2004. National vital statistics reports; vol 55 no 1. Hyattsville, Maryland: National Center for Health Statistics. 2006.

32. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer, SE. and Munson, ML. Births: Final data for 2005. National vital statistics reports; vol 56 no 6. Hyattsville, Maryland: National Center for Health Statistics. 2007.

33. Hamilton BE, Ventura SJ. Characteristics of births to single-and multiple-race women: California, Hawaii, Pennsylvania, Utah, and Washington, 2003. National vital statistics reports; vol 55 no 15. Hyattsville, Maryland: National Center for Health Statistics, 2007.

34. Schoendorf KC, Parker JD, Batkhan LZ, Kiely JL. Comparability of the birth certificate and 1988 maternal and infant health survey. Vital Health Statistics 2 (116). Hyattsville, Maryland: National Center for Health Statistics. 1993.

35. National Center for Health Statistics. Vital statistics of the United States, 2002, vol I, natality. CD-ROM. Hyattsville, Maryland: National Center for Health Statistics. 2004.

36. Division of Vital Statistics. Instruction manual part 12: Computer edits for natality data, effective 1993.Vital statistics, data preparation. Hyattsville, Maryland: National Center for Health Statistics. 1995.

37. Division of Vital Statistics. Instruction manual part 12: Computer edits for natality data -- 2003 Revised Certificate. Hyattsville, Maryland: National Center for Health Statistics. Forthcoming on the Internet.

38. Ventura SJ, Bachrach CA. Nonmarital childbearing in the United States, 1940–99. National vital statistics reports; vol 48 no 16. Hyattsville, Maryland: National Center for Health Statistics. 2000.

39. Ventura SJ. Births to unmarried mothers: United States, 1980–92. National Center for Health Statistics. Vital Health Stat 21(53). 1995.

40. Florida Department of Health. Florida Hospital Birth Registration Netsmart VRS EBR Birth Manual. (e-Vitals) Version 13.

41. Sampson PD, Bookstein FL, Barr HM, Steissguth AP. Prenatal alcohol exposure, birthweight, and measures of child size from birth to 14 years. Am J Public Health 84(9):1421-28. 1994.

42. Roeleveld N, Vingerhoets E, Zielhuis GA, Gabreels F. Mental retardation associated with parental smoking and alcohol consumption before, during, and after pregnancy. Prev Medicine 21(1):110-19. 1992.

43. Ebrahim SH, Luman ET, Floyd RL, et al. Alcohol consumption by pregnant women in the United States during 1988-1995. Obstet Gynecol 92(2):187-192. 1998.

44. Chomitz VR, Cheung LWY, Lieberman E. The role of lifestyle in preventing low birth weight. In: The future of children: Low birthweight. Vol 5(1):121-138. Los Altos, California: Center for the Future of Children, The David and Lucile Packard Foundation. 1995.

45. Kotelchuck M. An evaluation of the Kessner adequacy of prenatal care index and a proposed adequacy of prenatal care utilization index. Am J Public Health 84 (9):1414-20. 1994.

46. Kogan MD, Martin JA, Alexander GR, et al. The changing pattern of prenatal care utilization in the United States, 1981-1995, using different prenatal care indices. JAMA 279(20):1623-8. 1998.

47. Walker D, Brooks-Schmunk S. Summers L. Do birth certificate data accurately reflect the number of CNM-attended births? An exploratory study. J Midwifery Women's Health, 49(5): 443-448. 2004

48. Martin JA, Ventura SJ. Braving the new world: Challenges and rewards of the revised birth data. Presented at Annual meeting of the National Association for Public Health Statistics and Information Systems. San Diego, CA. June 8, 2006.

49. Taffel S, Johnson D, Heuser R. A method for imputing length of gestation on birth certificates. National Center for Health Statistics. Vital Health Stat 2(93). Hyattsville, Maryland: National Center for Health Statistics. 1982.

50. Kirmeyer S and Martin JA. Trends and differentials in higher-birthweight infants at 28-31 weeks of gestation, by race and Hispanic origin, United States, 1990-2002. Paed. Peri. Epid. 21 (s2):31–40. September 2007.

51. World Health Organization. Manual of the international statistical classification of diseases, injuries and causes of death. Sixth revision. Geneva. 1949.

52. National Center for Health Statistics. Matched Multiple Birth file 1995-2000. Public use CD-ROM. Hyattsville, Maryland: National Center for Health Statistics. CD Rom series 21. no.17. 2005.

53. Watkins ML, Edmonds L, McClearn A, et al. The surveillance of birth defects: The usefulness of the revised U.S. standard birth certificate. Am J Public Health 86(5):731–4. 1996.

54. U.S. Census Bureau. Test of birth-registration completeness, 1964 to 1968. 1970 census of population and housing; PHC (E)–2. Evaluation and Research Program. Washington: U.S. Department of Commerce. 1973.

55. National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2006, by year, state and county, age, bridged race, sex, and Hispanic origin (vintage 2006). File pcen_v2006_y06.txt (ASCII). Released August 16, 2007

56. U.S. Census Bureau. Age, sex, race, and Hispanic origin information from the 1990 census: A comparison of census results with results where age and race have been modified. 1990 CPH–L–74. Washington, DC: U.S. Department of Commerce. 1991.

57. U.S. Census Bureau. Census 2000 modified race data summary file.

58. U.S. Census Bureau. Unpublished data from the March 2005 current population survey. U.S. Census Bureau. 2005.

59. U.S. Census Bureau. Unpublished data from the March 2006 current population survey. U.S. Census Bureau. 2006.

60. U.S. Census Bureau. Unpublished data from the March 2007 current population survey. U.S. Census Bureau. 2007.

61. Mathews TJ, Ventura SJ, Curtin SC, Martin JA. Births of Hispanic origin, 1989-95. Monthly vital statistics report; vol 46, no 6, supp. Hyattsville, Maryland: National Center for Health Statistics. 1998.

62. U.S. Census Bureau. Population estimates for 2006 based on unpublished tabulations prepared by the Housing and Household Economics Statistics Division. 2007.

63. Sutton, PD, Mathews TJ. Births and fertility rates by Hispanic origin subgroups: United States, 1990 and 2000. National Center for Health Statistics. Vital Health Stat 21(57). 2006.

64. Hamilton BE, Sutton PD, Ventura SJ. Revised birth and fertility rates for the 1990s and new rates for Hispanic populations, 2000 and 2001: United States. National vital statistics reports; vol 51 no 12. Hyattsville, Maryland. 2003.

65. Ventura SJ, Hamilton BE, Sutton PD. Revised birth and fertility rates for the United States, 2000 and 2001. National vital statistics reports; vol 51 no 4. Hyattsville, Maryland: National Center for Health Statistics. 2003.

66. Heuser R. Fertility tables for birth cohorts by color: United States, 1917–73. National Center for Health Statistics. Hyattsville, Maryland:. 1976.

67. Shiskin J, Young A, Musgrove J. The X–11 variant of the Census Method II Seasonal Adjustment Program. Technical paper; no 15, 1967 rev. Washington: U.S. Census Bureau. 1967.

68. Bailer JC, Ederer F. Significance factors for the ratio of a Poisson variable to its expectations. Biometrics. 20:639-43. 1964.

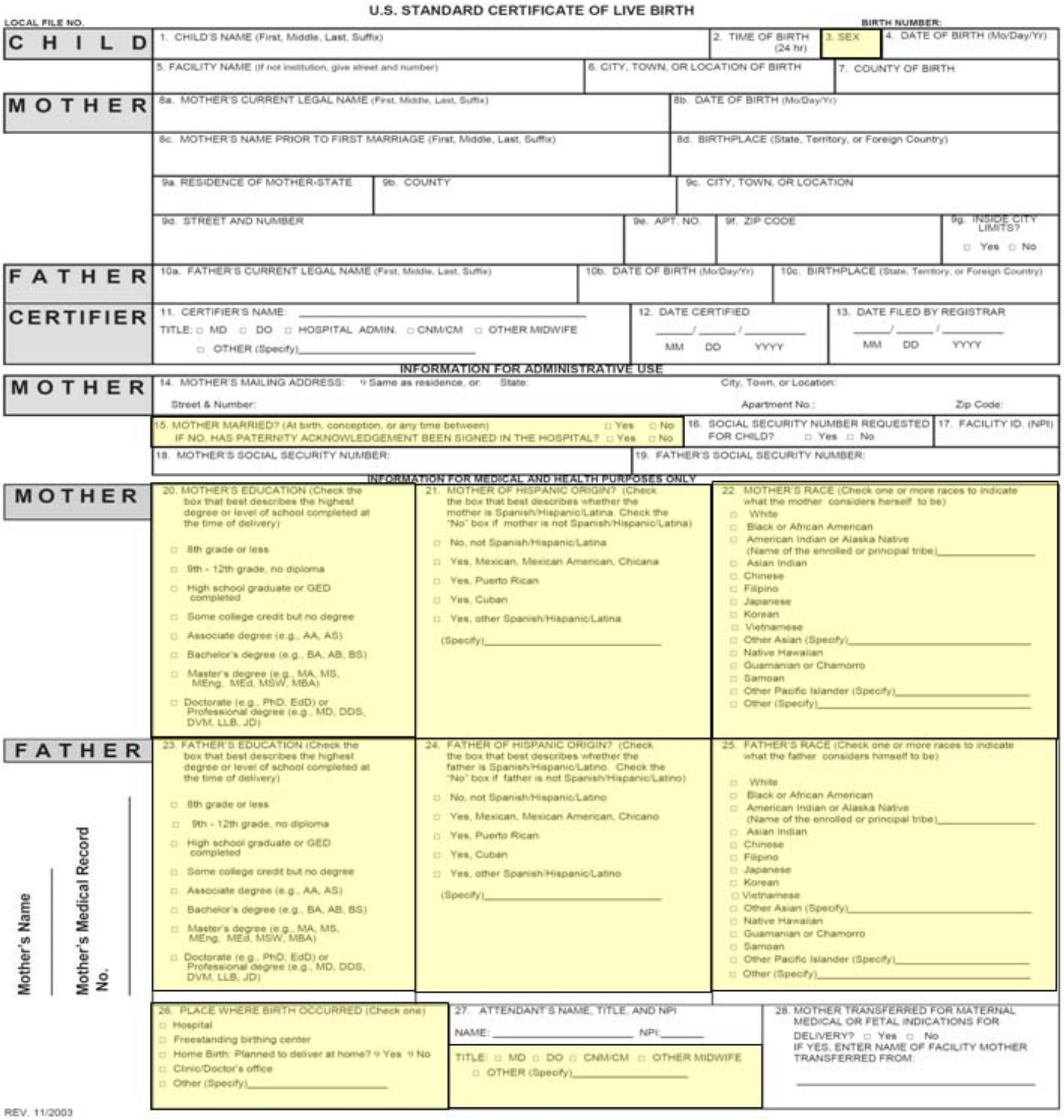
69. Schenker N, Gentleman JF. On judging the significance of differences by examining the overlap between confidence intervals. Amer Stat 55:182-86. 2001.

70. Mathews TJ, Hamilton BE. Mean age of mother, 1970-2000. National vital statistics reports; vol 51 no 1. Hyattsville, MD: National Center for Health Statistics. 2002.

71. U.S. Census Bureau, Source and accuracy of estimates for income, poverty, and health insurance coverage in the United States: 2005. Current Population Reports P60-231. 2006.

72. U.S. Census Bureau, Source and accuracy of estimates for income, poverty, and health insurance coverage in the United States: 2006. Current Population Reports P60-233. 2007.

Figure 1. U.S. Standard Certificate of Live Birth, 2003 Revision



U.S. STANDARD CERTIFICATE OF LIVE BIRTH

LOCAL FILE NO. BIRTH NUMBER:

CHILD

1. CHILD'S NAME (First, Middle, Last, Suffix)
2. TIME OF BIRTH (24 hr)
3. SEX
4. DATE OF BIRTH (Mo/Day/Yr)
5. FACILITY NAME (If not institution, give street and number)
6. CITY, TOWN, OR LOCATION OF BIRTH
7. COUNTY OF BIRTH

MOTHER

8a. MOTHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)
8b. DATE OF BIRTH (Mo/Day/Yr)
8c. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last, Suffix)
8d. BIRTHPLACE (State, Territory, or Foreign Country)
9a. RESIDENCE OF MOTHER-STATE
9b. COUNTY
9c. CITY, TOWN, OR LOCATION
9d. STREET AND NUMBER
9e. APT. NO.
9f. ZIP CODE
9g. INSIDE CITY LIMITS? ☐ Yes ☐ No

FATHER

10a. FATHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)
10b. DATE OF BIRTH (Mo/Day/Yr)
10c. BIRTHPLACE (State, Territory, or Foreign Country)

CERTIFIER

11. CERTIFIER'S NAME:
TITLE: ☐ MD ☐ DO ☐ HOSPITAL ADMIN. ☐ CNM/CM ☐ OTHER MIDWIFE
☐ OTHER (Specify)
12. DATE CERTIFIED ___/___/___ MM DD YYYY
13. DATE FILED BY REGISTRAR ___/___/___ MM DD YYYY

INFORMATION FOR ADMINISTRATIVE USE

MOTHER

14. MOTHER'S MAILING ADDRESS: ☐ Same as residence, or: State: City, Town, or Location:
Street & Number: Apartment No.: Zip Code:
15. MOTHER MARRIED? (At birth, conception, or any time between) ☐ Yes ☐ No
IF NO, HAS PATERNITY ACKNOWLEDGEMENT BEEN SIGNED IN THE HOSPITAL? ☐ Yes ☐ No
16. SOCIAL SECURITY NUMBER REQUESTED FOR CHILD? ☐ Yes ☐ No
17. FACILITY ID. (NPI)
18. MOTHER'S SOCIAL SECURITY NUMBER:
19. FATHER'S SOCIAL SECURITY NUMBER:

INFORMATION FOR MEDICAL AND HEALTH PURPOSES ONLY

MOTHER

20. MOTHER'S EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery)
☐ 8th grade or less
☐ 9th - 12th grade, no diploma
☐ High school graduate or GED completed
☐ Some college credit but no degree
☐ Associate degree (e.g., AA, AS)
☐ Bachelor's degree (e.g., BA, AB, BS)
☐ Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)
☐ Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)

21. MOTHER OF HISPANIC ORIGIN? (Check the box that best describes whether the mother is Spanish/Hispanic/Latina. Check the "No" box if mother is not Spanish/Hispanic/Latina)
☐ No, not Spanish/Hispanic/Latina
☐ Yes, Mexican, Mexican American, Chicana
☐ Yes, Puerto Rican
☐ Yes, Cuban
☐ Yes, other Spanish/Hispanic/Latina
(Specify)

22. MOTHER'S RACE (Check one or more races to indicate what the mother considers herself to be)
☐ White
☐ Black or African American
☐ American Indian or Alaska Native (Name of the enrolled or principal tribe)
☐ Asian Indian
☐ Chinese
☐ Filipino
☐ Japanese
☐ Korean
☐ Vietnamese
☐ Other Asian (Specify)
☐ Native Hawaiian
☐ Guamanian or Chamorro
☐ Samoan
☐ Other Pacific Islander (Specify)
☐ Other (Specify)

FATHER

23. FATHER'S EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery)
☐ 8th grade or less
☐ 9th - 12th grade, no diploma
☐ High school graduate or GED completed
☐ Some college credit but no degree
☐ Associate degree (e.g., AA, AS)
☐ Bachelor's degree (e.g., BA, AB, BS)
☐ Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)
☐ Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD)

24. FATHER OF HISPANIC ORIGIN? (Check the box that best describes whether the father is Spanish/Hispanic/Latino. Check the "No" box if father is not Spanish/Hispanic/Latino)
☐ No, not Spanish/Hispanic/Latino
☐ Yes, Mexican, Mexican American, Chicano
☐ Yes, Puerto Rican
☐ Yes, Cuban
☐ Yes, other Spanish/Hispanic/Latino
(Specify)

25. FATHER'S RACE (Check one or more races to indicate what the father considers himself to be)
☐ White
☐ Black or African American
☐ American Indian or Alaska Native (Name of the enrolled or principal tribe)
☐ Asian Indian
☐ Chinese
☐ Filipino
☐ Japanese
☐ Korean
☐ Vietnamese
☐ Other Asian (Specify)
☐ Native Hawaiian
☐ Guamanian or Chamorro
☐ Samoan
☐ Other Pacific Islander (Specify)
☐ Other (Specify)

Mother's Name

Mother's Medical Record No.

26. PLACE WHERE BIRTH OCCURRED (Check one)
☐ Hospital
☐ Freestanding birthing center
☐ Home Birth: Planned to deliver at home? ☐ Yes ☐ No
☐ Clinic/Doctor's office
☐ Other (Specify)

27. ATTENDANT'S NAME, TITLE, AND NPI
NAME: NPI:
TITLE: ☐ MD ☐ DO ☐ CNM/CM ☐ OTHER MIDWIFE
☐ OTHER (Specify)

28. MOTHER TRANSFERRED FOR MATERNAL MEDICAL OR FETAL INDICATIONS FOR DELIVERY? ☐ Yes ☐ No
IF YES, ENTER NAME OF FACILITY MOTHER TRANSFERRED FROM:

REV. 11/2003

NOTE:
Shaded portions indicate items included in the 2006 natality public use micro-data file.

Figure 1. - Continued

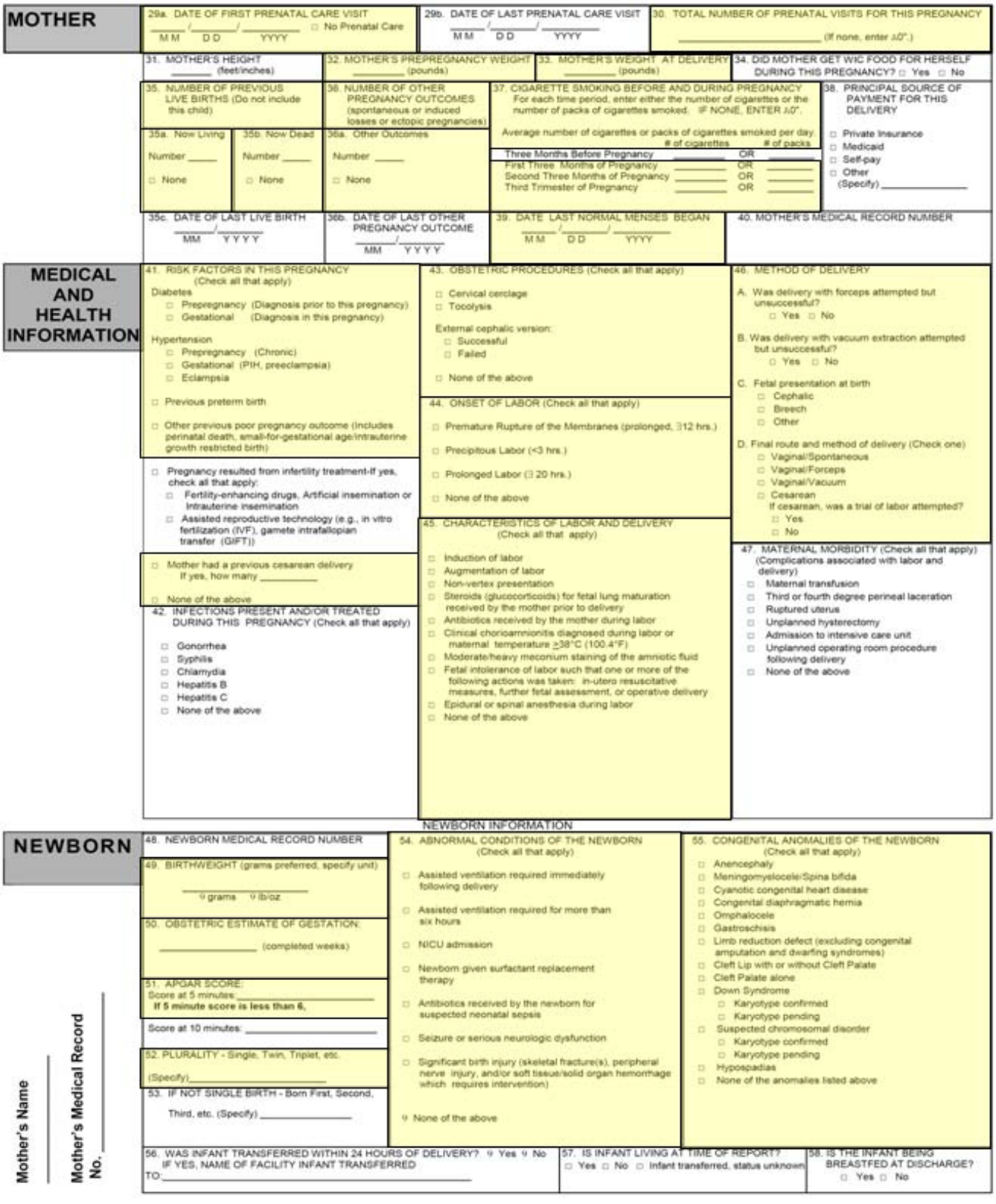
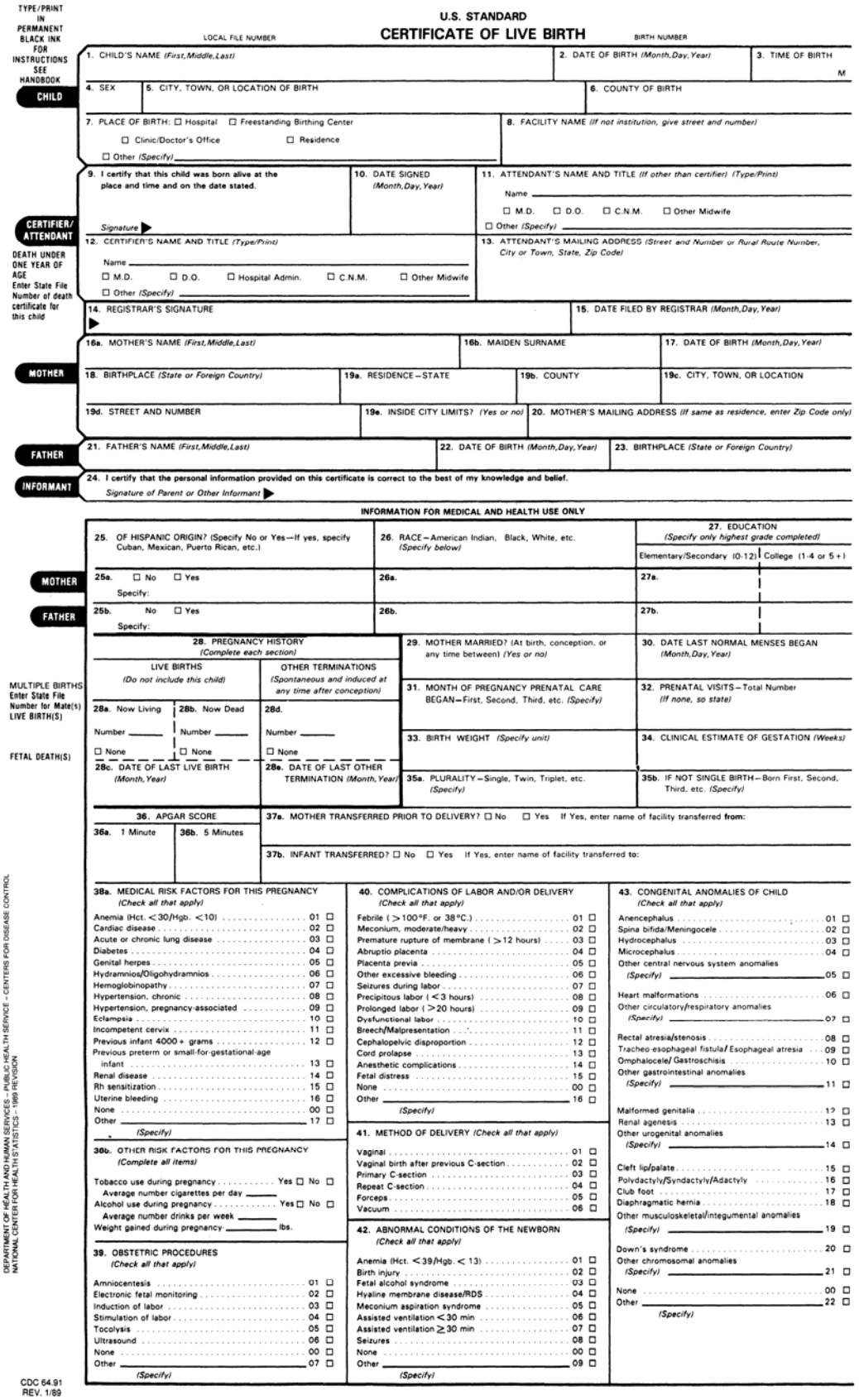


Figure 2. U.S. Standard Certificate of Live Birth, 1989 Revision



TYPE/PRINT IN PERMANENT BLACK INK FOR INSTRUCTIONS SEE HANDBOOK

LOCAL FILE NUMBER

U.S. STANDARD

CERTIFICATE OF LIVE BIRTH

BIRTH NUMBER

CHILD

1. CHILD'S NAME *(First,Middle,Last)*
2. DATE OF BIRTH *(Month,Day,Year)*
3. TIME OF BIRTH
4. SEX
5. CITY, TOWN, OR LOCATION OF BIRTH
6. COUNTY OF BIRTH
7. PLACE OF BIRTH: ☐ Hospital ☐ Freestanding Birthing Center ☐ Clinic/Doctor's Office ☐ Residence ☐ Other *(Specify)*
8. FACILITY NAME *(If not institution, give street and number)*

CERTIFIER/ ATTENDANT

9. I certify that this child was born alive at the place and time and on the date stated. Signature ▶
10. DATE SIGNED *(Month,Day,Year)*
11. ATTENDANT'S NAME AND TITLE *(If other than certifier) (Type/Print)* Name ☐ M.D. ☐ D.O. ☐ C.N.M. ☐ Other Midwife ☐ Other *(Specify)*
12. CERTIFIER'S NAME AND TITLE *(Type/Print)* Name ☐ M.D. ☐ D.O. ☐ Hospital Admin. ☐ C.N.M. ☐ Other Midwife ☐ Other *(Specify)*
13. ATTENDANT'S MAILING ADDRESS *(Street and Number or Rural Route Number, City or Town, State, Zip Code)*

DEATH UNDER ONE YEAR OF AGE Enter State File Number of death certificate for this child

14. REGISTRAR'S SIGNATURE ▶
15. DATE FILED BY REGISTRAR *(Month,Day,Year)*

MOTHER

16a. MOTHER'S NAME *(First,Middle,Last)*
16b. MAIDEN SURNAME
17. DATE OF BIRTH *(Month,Day,Year)*
18. BIRTHPLACE *(State or Foreign Country)*
19a. RESIDENCE—STATE
19b. COUNTY
19c. CITY, TOWN, OR LOCATION
19d. STREET AND NUMBER
19e. INSIDE CITY LIMITS? *(Yes or no)*
20. MOTHER'S MAILING ADDRESS *(If same as residence, enter Zip Code only)*

FATHER

21. FATHER'S NAME *(First,Middle,Last)*
22. DATE OF BIRTH *(Month,Day,Year)*
23. BIRTHPLACE *(State or Foreign Country)*

INFORMANT

24. I certify that the personal information provided on this certificate is correct to the best of my knowledge and belief. *Signature of Parent or Other Informant* ▶

INFORMATION FOR MEDICAL AND HEALTH USE ONLY

	25. OF HISPANIC ORIGIN? (Specify No or Yes—If yes, specify Cuban, Mexican, Puerto Rican, etc.)	26. RACE—American Indian, Black, White, etc. *(Specify below)*	27. EDUCATION *(Specify only highest grade completed)* Elementary/Secondary (0-12) | College (1-4 or 5+)
MOTHER	25a. ☐ No ☐ Yes Specify:	26a.	27a.
FATHER	25b. ☐ No ☐ Yes Specify:	26b.	27b.

28. PREGNANCY HISTORY *(Complete each section)*

LIVE BIRTHS *(Do not include this child)*		OTHER TERMINATIONS *(Spontaneous and induced at any time after conception)*
28a. Now Living Number ☐ None	28b. Now Dead Number ☐ None	28d. Number ☐ None
28c. DATE OF LAST LIVE BIRTH *(Month,Year)*		28e. DATE OF LAST OTHER TERMINATION *(Month,Year)*

29. MOTHER MARRIED? (At birth, conception, or any time between) *(Yes or no)*
30. DATE LAST NORMAL MENSES BEGAN *(Month,Day,Year)*
31. MONTH OF PREGNANCY PRENATAL CARE BEGAN—First, Second, Third, etc. *(Specify)*
32. PRENATAL VISITS—Total Number *(If none, so state)*
33. BIRTH WEIGHT *(Specify unit)*
34. CLINICAL ESTIMATE OF GESTATION *(Weeks)*
35a. PLURALITY—Single, Twin, Triplet, etc. *(Specify)*
35b. IF NOT SINGLE BIRTH—Born First, Second, Third, etc. *(Specify)*

MULTIPLE BIRTHS Enter State File Number for Mate(s) LIVE BIRTH(S)

FETAL DEATH(S)

36. APGAR SCORE
36a. 1 Minute
36b. 5 Minutes
37a. MOTHER TRANSFERRED PRIOR TO DELIVERY? ☐ No ☐ Yes If Yes, enter name of facility transferred from:
37b. INFANT TRANSFERRED? ☐ No ☐ Yes If Yes, enter name of facility transferred to:

38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY *(Check all that apply)*

Anemia (Hct. <30/Hgb. <10)	01 ☐	Hydramnios/Oligohydramnios	06 ☐
Cardiac disease	02 ☐	Hemoglobinopathy	07 ☐
Acute or chronic lung disease	03 ☐	Hypertension, chronic	08 ☐
Diabetes	04 ☐	Hypertension, pregnancy-associated	09 ☐
Genital herpes	05 ☐	Eclampsia	10 ☐
Incompetent cervix	11 ☐	Previous infant 4000+ grams	12 ☐
Previous preterm or small-for-gestational-age infant	13 ☐	Renal disease	14 ☐
Rh sensitization	15 ☐	Uterine bleeding	16 ☐
None	00 ☐	Other (Specify)	17 ☐

38b. OTHER RISK FACTORS FOR THIS PREGNANCY *(Complete all items)*

Tobacco use during pregnancy ☐ Yes ☐ No
Average number cigarettes per day
Alcohol use during pregnancy ☐ Yes ☐ No
Average number drinks per week
Weight gained during pregnancy lbs.

39. OBSTETRIC PROCEDURES *(Check all that apply)*

Amniocentesis	01 ☐	Induction of labor	03 ☐
Electronic fetal monitoring	02 ☐	Stimulation of labor	04 ☐
Tocolysis	05 ☐	Ultrasound	06 ☐
None	00 ☐	Other (Specify)	07 ☐

40. COMPLICATIONS OF LABOR AND/OR DELIVERY *(Check all that apply)*

Febrile (>100°F. or 38°C.)	01 ☐	Placenta previa	05 ☐
Meconium, moderate/heavy	02 ☐	Other excessive bleeding	06 ☐
Premature rupture of membrane (>12 hours)	03 ☐	Seizures during labor	07 ☐
Abruptio placenta	04 ☐	Precipitous labor (<3 hours)	08 ☐
Prolonged labor (>20 hours)	09 ☐	Dysfunctional labor	10 ☐
Breech/Malpresentation	11 ☐	Cephalopelvic disproportion	12 ☐
Cord prolapse	13 ☐	Anesthetic complications	14 ☐
Fetal distress	15 ☐	None	00 ☐
Other (Specify)	16 ☐		

41. METHOD OF DELIVERY *(Check all that apply)*

Vaginal	01 ☐	Primary C-section	03 ☐
Vaginal birth after previous C-section	02 ☐	Repeat C-section	04 ☐
Forceps	05 ☐	Vacuum	06 ☐

42. ABNORMAL CONDITIONS OF THE NEWBORN *(Check all that apply)*

Anemia (Hct. <39/Hgb. <13)	01 ☐	Meconium aspiration syndrome	05 ☐
Birth injury	02 ☐	Assisted ventilation <30 min	06 ☐
Fetal alcohol syndrome	03 ☐	Assisted ventilation ≥30 min	07 ☐
Hyaline membrane disease/RDS	04 ☐	Seizures	08 ☐
None	00 ☐	Other (Specify)	09 ☐

43. CONGENITAL ANOMALIES OF CHILD *(Check all that apply)*

Anencephalus	01 ☐	Other urogenital anomalies (Specify)	14 ☐
Spina bifida/Meningocele	02 ☐	Cleft lip/palate	15 ☐
Hydrocephalus	03 ☐	Polydactyly/Syndactyly/Adactyly	16 ☐
Microcephalus	04 ☐	Club foot	17 ☐
Other central nervous system anomalies (Specify)	05 ☐	Diaphragmatic hernia	18 ☐
Heart malformations	06 ☐	Other musculoskeletal/integumental anomalies (Specify)	19 ☐
Other circulatory/respiratory anomalies (Specify)	07 ☐	Down's syndrome	20 ☐
Rectal atresia/stenosis	08 ☐	Other chromosomal anomalies (Specify)	21 ☐
Tracheo-esophageal fistula/ Esophageal atresia	09 ☐	None	00 ☐
Omphalocele/ Gastroschisis	10 ☐	Other (Specify)	22 ☐
Other gastrointestinal anomalies (Specify)	11 ☐		
Malformed genitalia	12 ☐		
Renal agenesis	13 ☐		

DEPARTMENT OF HEALTH AND HUMAN SERVICES – PUBLIC HEALTH SERVICE – CENTERS FOR DISEASE CONTROL
NATIONAL CENTER FOR HEALTH STATISTICS – 1989 REVISION

CDC 64.91
REV. 1/89

Table 1 Estimated total population by race, and estimated female population by age and race: United States, 2006

[Populations estimated as of July 1]

Age	All races	White	Black	American Indian or Alaska Native	Asian or Pacific Islander
Total population	299,398,484	242,097,490	39,558,375	3,201,342	14,541,277
Female population					
15-44 years	62,258,466	48,685,619	9,248,296	755,932	3,568,619
10-14 years	10,064,622	7,781,599	1,678,560	140,282	464,181
15-19 years	10,389,322	8,062,381	1,717,948	150,209	458,784
15-17 years	6,327,814	4,896,574	1,063,042	91,718	276,480
18-19 years	4,061,508	3,165,807	654,906	58,491	182,304
20-24 years	10,201,150	7,979,675	1,574,556	142,577	504,342
25-29 years	10,125,210	7,857,739	1,525,226	124,743	617,502
30-34 years	9,726,116	7,500,734	1,406,604	109,701	709,077
35-39 years	10,535,872	8,279,559	1,472,854	110,547	672,912
40-44 years	11,280,796	9,005,531	1,551,108	118,155	606,002
45-49 years	11,535,713	9,355,037	1,508,201	116,435	556,040

NOTES: These population counts are estimated based on the 2000 census; see "Technical Notes." Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. The multiple-race population estimates were bridged to the single race categories of the 1977 OMB standards for comparability with the birth data; see "Technical Notes."

SOURCE: U.S. Census Bureau. See reference 55.

Table 2. Estimated total population by specified Hispanic origin and estimated female population by age and specified Hispanic origin and by race for women of non-Hispanic origin: United States, 2006

[Populations estimated as of July 1]

Age	Hispanic					Non-Hispanic		
	Total	Mexican	Puerto Rican	Cuban	Other Hispanic[1]	Total[2]	White	Black
Total population	44,321,038	28,978,493	3,803,495	1,635,407	9,903,614	255,077,446	200,791,915	37,751,497
Female population								
15-44 years	10,238,864	6,587,674	904,669	343,202	2,403,312	52,019,602	39,194,811	8,801,457
10-14 years	1,925,602	1,330,298	170,423	48,158	376,726	8,139,020	6,008,576	1,588,069
15-19 years	1,755,297	1,142,840	168,425	48,571	395,454	8,634,025	6,446,759	1,636,874
15-17 years	1,084,580	713,965	106,234	30,166	234,209	5,243,234	3,898,745	1,012,308
18-19 years	670,717	428,875	62,191	18,405	161,245	3,390,791	2,548,014	624,566
20-24 years	1,714,394	1,130,659	151,384	51,517	380,840	8,486,756	6,392,691	1,501,877
25-29 years	1,841,265	1,248,461	166,580	49,637	376,580	8,283,945	6,150,454	1,444,805
30-34 years	1,794,301	1,181,880	142,391	53,822	416,209	7,931,815	5,830,404	1,330,240
35-39 years	1,647,044	1,030,073	134,152	58,032	424,791	8,888,828	6,749,433	1,400,752
40-44 years	1,486,563	853,761	141,737	81,623	409,438	9,794,233	7,625,070	1,486,909
45-49 years	1,248,131	743,887	132,752	40,983	330,507	10,287,582	8,195,836	1,454,716

1 Includes Central and South American and other and unknown Hispanic.
2 Includes races other than white and black.

NOTES: These population counts are estimated based on the 2000 census; see "Technical Notes." Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. The multiple-race population estimates were bridged to the single race categories of the 1977 OMB standards for comparability with the birth data; see "Technical Notes."

SOURCE: U.S. Census Bureau. See reference 62.

Table 3. Estimated total population and female population aged 15-44 years: United States, each state, and territory: July 1, 2006

Geographic area	Total population	Females15-44 years
United States	299,398,484	62,258,466
Alabama	4,599,030	943,914
Alaska	670,053	143,353
Arizona	6,166,318	1,255,745
Arkansas	2,810,872	567,016
California	36,457,549	7,831,520
Colorado	4,753,377	1,008,481
Connecticut	3,504,809	710,709
Delaware	853,476	178,171
District of Columbia	581,530	145,818
Florida	18,089,888	3,518,128
Georgia	9,363,941	2,052,335
Hawaii	1,285,498	256,885
Idaho	1,466,465	298,798
Illinois	12,831,970	2,702,754
Indiana	6,313,520	1,297,750
Iowa	2,982,085	587,468
Kansas	2,764,075	558,796
Kentucky	4,206,074	867,547
Louisiana	4,287,768	898,065
Maine	1,321,574	259,544
Maryland	5,615,727	1,207,574
Massachusetts	6,437,193	1,365,510
Michigan	10,095,643	2,064,752
Minnesota	5,167,101	1,070,877
Mississippi	2,910,540	608,112
Missouri	5,842,713	1,197,935
Montana	944,632	180,048
Nebraska	1,768,331	356,064
Nevada	2,495,529	513,600
New Hampshire	1,314,895	269,234
New Jersey	8,724,560	1,784,623
New Mexico	1,954,599	400,506
New York	19,306,183	4,095,748
North Carolina	8,856,505	1,852,963
North Dakota	635,867	125,505
Ohio	11,478,006	2,328,799
Oklahoma	3,579,212	723,398
Oregon	3,700,758	744,046
Pennsylvania	12,440,621	2,458,239
Rhode Island	1,067,610	226,636
South Carolina	4,321,249	893,609
South Dakota	781,919	151,914
Tennessee	6,038,803	1,250,321
Texas	23,507,783	5,071,921
Utah	2,550,063	568,784
Vermont	623,908	124,734
Virginia	7,642,884	1,625,508
Washington	6,395,798	1,331,909
West Virginia	1,818,470	352,210
Wisconsin	5,556,506	1,129,480
Wyoming	515,004	101,110
Puerto Rico	3,927,776	849,643
Virgin Islands	108,605	22,168
Guam	171,019	37,649
American Samoa	57,794	13,066
Northern Marianas	82,459	33,499

Source: National Center for Health Statistics. Unpublished estimates of the July 1, 2006, United States population by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau, 2006.
See reference 54.
Territories data from Census Bureau International Data Base.

Table 4. Population of birth- and death-registration states, 1900–1932, and United States, 1900–2006

[Population enumerated as of April 1 for 1940, 1950, 1960, 1970, 1980, 1990, and 2000 and estimated as of July 1 for all other years]

Year	United States 1/		Year	United States 1/		Birth-registration States		Death-registration States	
	Population including Armed Forces abroad	Population residing in area		Population including Armed Forces abroad	Population residing in area	Number of States2/	Population residing in area	Number of States2/	Population residing in area
2006	299,801,097	299,398,484							
2005	296,748,486	296,410,404	1952	156,954,000	155,687,000				
2004	293,906,517	293,655,404	1951	154,287,000	153,310,000				
2003	291,028,156	290,810,789	1950	151,132,000	150,697,361	. .	. . .	. . .	. . .
2002	288,600,204	288,368,706	1949	149,188,000	148,665,000	. .	. . .	. . .	. . .
2001	285,024,000	284,796,887	1948	146,631,000	146,093,000	. .	. . .	. . .	. . .
2000	281,652,000	281,421,906	1947	144,126,000	143,446,000	. .	. . .	. . .	. . .
1999	279,294,713	279,040,168	1946	141,389,000	140,054,000	. .	. . .	. . .	. . .
1998	276,115,288	275,854,104	1945	139,928,000	132,481,000	. .	. . .	. . .	. . .
1997	272,911,760	272,646,925	1944	138,397,000	132,885,000	. .	. . .	. . .	. . .
1996	269,667,391	269,394,284	1943	136,739,000	134,245,000	. .	. . .	. . .	. . .
1995	266,557,091	266,278,393	1942	134,860,000	133,920,000	. .	. . .	. . .	. . .
1994	263,435,673	263,125,821	1941	133,402,000	133,121,000	. .	. . .	. . .	. . .
1993	260,255,352	259,918,588	1940	131,820,000	131,669,275	. .	. . .	. . .	. . .
1992	256,894,189	256,514,224	1939	131,028,000	130,879,718	. .	. . .	. . .	. . .
1991	253,492,503	252,980,941	1938	129,969,000	129,824,939	. .	. . .	. . .	. . .
1990	249,225,000	248,709,873	1937	128,961,000	128,824,829	. .	. . .	. . .	. . .
1989	247,342,000	246,819,000	1936	128,181,000	128,053,180	. .	. . .	. . .	. . .
1988	245,021,000	244,499,000	1935	127,362,000	127,250,232	. .	. . .	. . .	. . .
1987	242,804,000	242,289,000	1934	126,485,000	126,373,773	. .	. . .	. . .	. . .
1986	240,651,000	240,133,000	1933	125,690,000	125,578,763	. .	. . .	. . .	. . .
1985	238,466,000	237,924,000	1932	124,949,000	124,840,471	47	118,903,899	47	118,903,899
1984	236,348,000	235,825,000	1931	124,149,000	124,039,648	46	117,455,229	47	118,148,987
1983	234,307,000	233,792,000	1930	123,188,000	123,076,741	46	116,544,946	47	117,238,278
1982	232,188,000	231,664,000	1929		121,769,939	46	115,317,450	46	115,317,450
1981	229,966,000	229,466,000	1928		120,501,115	44	113,636,160	44	113,636,160
1980	227,061,000	226,545,805	1927		119,038,062	40	104,320,830	42	107,084,532
1979	225,055,000	224,567,000	1926		117,399,225	35	90,400,590	41	103,822,683
1978	222,585,000	222,095,000	1925		115,831,963	33	88,294,564	40	102,031,555
1977	220,239,000	219,760,000	1924		114,113,463	33	87,000,295	39	99,318,098
1976	218,035,000	217,563,000	1923		111,949,945	30	81,072,123	38	96,788,197
1975	215,973,000	215,465,000	1922		110,054,778	30	79,560,746	37	92,702,901
1974	213,854,000	213,342,000	1921		108,541,489	27	70,807,090	34	87,814,447
1973	211,909,000	211,357,000	1920		106,466,420	23	63,597,307	34	86,079,263
1972	209,896,000	209,284,000	1919	105,063,000	104,512,110	22	61,212,076	33	83,157,982
1971	207,661,000	206,827,000	1918	104,550,000	103,202,801	20	55,153,782	30	79,008,412
1970	204,270,000	203,211,926	1917	103,414,000	103,265,913	20	55,197,952	27	70,234,775
1969	202,677,000	201,385,000	1916		101,965,984	11	32,944,013	26	66,971,177
1968	200,706,000	199,399,000	1915		100,549,013	10	31,096,697	24	61,894,847
1967	198,712,000	197,457,000	1914		99,117,567	. .	. . .	24	60,963,309
1966	196,560,000	195,576,000	1913		97,226,814	. .	. . .	23	58,156,740
1965	194,303,000	193,526,000	1912		95,331,300	. .	. . .	22	54,847,700
1964	191,889,000	191,141,000	1911		93,867,814	. .	. . .	22	53,929,644
1963	189,242,000	188,483,000	1910		92,406,536	. .	. . .	20	47,470,437
1962	186,538,000	185,771,000	1909		90,491,525	. .	. . .	18	44,223,513
1961	183,691,000	182,992,000	1908		88,708,976	. .	. . .	17	38,634,759
1960	179,933,000	179,323,175	1907		87,000,271	. .	. . .	15	34,552,837
1959	177,264,000	176,513,000	1906		85,436,556	. .	. . .	15	33,782,288
1958	174,141,000	173,320,000	1905		83,819,666	. .	. . .	10	21,767,980
1957	171,274,000	170,371,000	1904		82,164,974	. .	. . .	10	21,332,076
1956	168,221,000	167,306,000	1903		80,632,152	. .	. . .	10	20,943,222
1955	165,275,000	164,308,000	1902		79,160,196	. .	. . .	10	20,582,907
1954	162,391,000	161,164,000	1901		77,585,128	. .	. . .	10	20,237,453
1953	159,565,000	158,242,000	1900		76,094,134	. .	. . .	10	19,965,446

- - - Data not available.

... Category not applicable.

1/ Alaska included beginning 1959 and Hawaii, 1960.

2/ The District of Columbia is not included in "Number of States," but it is represented in all data shown for each year.

SOURCE: Published and unpublished data from the U.S. Census Bureau; see text and Table D.

Table A. Births by place of occurrence and residence for births occurring in the 50 states, the District of Columbia, and U.S. territories, 2006

Area	Number live births	
	Occurrence	Residence
United States 1/	4,273,225	4,265,555
Alabama	62,100	63,232
Alaska	10,899	10,996
Arizona	103,142	102,429
Arkansas	39,746	40,961
California	563,522	562,440
Colorado	71,157	70,751
Connecticut	42,187	41,820
Delaware	12,418	11,989
District of Columbia	14,592	8,523
Florida	237,499	236,802
Georgia	149,920	148,633
Hawaii	18,986	18,982
Idaho	23,719	24,184
Illinois	177,234	180,572
Indiana	89,178	88,631
Iowa	40,620	40,607
Kansas	41,946	40,968
Kentucky	56,646	58,250
Louisiana	63,479	63,376
Maine	14,010	14,151
Maryland	74,082	77,494
Massachusetts	78,508	77,676
Michigan	126,393	127,483
Minnesota	73,474	73,525
Mississippi	44,863	46,056
Missouri	82,458	81,385
Montana	12,490	12,508
Nebraska	26,892	26,727
Nevada	39,690	40,027
New Hampshire	14,070	14,378
New Jersey	111,930	115,020
New Mexico	29,337	29,936
New York	251,948	250,104
North Carolina	128,999	127,859
North Dakota	9,875	8,621
Ohio	151,341	150,593
Oklahoma	53,039	54,016
Oregon	49,090	48,689
Pennsylvania	148,518	149,090
Rhode Island	13,179	12,372
South Carolina	59,571	62,171
South Dakota	12,386	11,919
Tennessee	89,429	84,355
Texas	405,869	399,603
Utah	54,528	53,504
Vermont	6,114	6,511
Virginia	105,890	107,817
Washington	86,799	86,876
West Virginia	21,134	20,931
Wisconsin	71,236	72,340
Wyoming	7,093	7,672
Births occurring to US territorial residents		
Puerto Rico	-	48,597
Virgin Islands	-	1,687
Guam	-	3,391
American Samoa	-	1,442
Northern Marianas	-	1,422

--- Data not available.

1/ Excludes data for the territories and foreign residents

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006
[By place of residence]

Area	Items common to both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth							
	All births	Place of birth	Attendant at birth	Mother's birthplace	Father's age	Father's race	Hispanic Origin	
							Mother	Father
Total of reporting areas /1	4,265,555	0.0	0.1	0.4	14.5	18.2	0.7	15.0
Alabama	63,232	0.0	0.0	0.2	20.6	21.1	0.1	20.6
Alaska	10,996	0.1	1.3	0.8	9.9	15.1	1.7	14.3
Arizona	102,429	0.0	0.0	0.1	14.9	18.0	1.0	16.2
Arkansas	40,961	0.0	0.0	0.7	19.5	21.6	0.3	19.7
California	562,440	0.0	0.1	0.1	7.7	8.4	1.5	7.9
Colorado	70,751	0.0	0.0	0.5	8.3	8.8	0.0	8.8
Connecticut	41,820	0.0	0.1	0.3	11.2	12.6	0.2	11.4
Delaware	11,989	-	0.1	0.3	31.4	36.0	0.2	34.7
District of Columbia	8,523	-	-	0.1	34.4	44.9	0.2	34.6
Florida	236,802	0.0	0.0	0.3	14.7	26.5	0.4	16.8
Georgia	148,633	0.0	0.0	0.3	17.7	18.3	1.1	18.6
Hawaii	18,982	-	0.1	0.2	8.9	13.0	0.3	8.9
Idaho	24,184	0.0	0.0	0.4	9.7	16.5	0.5	12.0
Illinois	180,572	0.0	0.0	0.1	14.9	15.7	0.1	15.5
Indiana	88,631	0.0	0.1	0.1	14.1	14.0	0.2	14.0
Iowa	40,607	-	-	0.0	14.0	16.8	0.3	16.8
Kansas	40,968	0.0	-	0.0	11.5	17.2	0.3	10.9
Kentucky	58,250	0.3	0.0	0.8	21.6	26.9	0.1	24.7
Louisiana	63,376	-	0.0	0.0	17.8	18.8	0.2	18.0
Maine	14,151	0.0	0.0	-	9.8	11.6	0.2	11.0
Maryland	77,494	-	0.0	0.1	15.2	23.7	0.2	17.1
Massachusetts	77,676	0.0	-	1.0	8.9	10.6	0.5	9.0
Michigan	127,483	0.0	0.2	0.1	15.6	17.4	3.1	19.7
Minnesota	73,525	0.0	0.1	0.5	13.4	20.0	1.6	15.2
Mississippi	46,056	0.0	0.0	0.1	22.5	22.6	0.1	22.7
Missouri	81,385	-	0.0	0.3	19.0	20.7	0.2	19.0
Montana	12,508	-	0.1	-	9.8	11.6	4.6	13.9
Nebraska	26,727	0.0	0.0	0.1	13.2	22.4	0.0	13.3
Nevada	40,027	-	0.0	0.8	21.1	23.3	1.7	21.9
New Hampshire	14,378	0.0	0.0	0.2	7.6	13.1	1.5	8.2
New Jersey	115,020	0.0	0.0	0.1	7.9	10.2	0.1	8.3
New Mexico	29,936	-	0.0	0.6	18.6	18.5	0.0	18.5
New York (excluding NYC)	130,219	0.0	0.0	0.0	11.5	15.9	0.2	11.6
New York City	119,885	0.0	0.0	0.4	15.5	16.6	0.3	15.6
North Carolina	127,859	-	-	0.0	17.3	17.5	0.1	17.5
North Dakota	8,621	-	-	0.0	7.3	13.9	0.9	10.5
Ohio	150,593	0.0	0.0	1.3	17.8	21.4	0.6	18.2
Oklahoma	54,016	0.0	0.0	0.0	14.2	17.2	0.4	16.8
Oregon	48,689	-	-	0.2	10.3	5.2	0.6	5.4
Pennsylvania	149,090	0.0	0.1	3.9	15.0	12.4	1.1	6.3
Rhode Island	12,372	0.0	0.0	0.3	13.0	14.3	16.6	26.7
South Carolina	62,171	-	0.0	0.2	32.2	37.8	0.7	32.5
South Dakota	11,919	-	-	0.1	11.2	11.7	0.1	14.4
Tennessee	84,355	0.0	0.1	0.2	17.3	24.8	0.2	17.3
Texas	399,603	0.0	0.2	0.1	15.4	27.9	0.1	15.8
Utah	53,504	0.0	0.0	0.2	8.6	10.0	0.5	9.4
Vermont	6,511	0.1	0.0	0.1	6.7	9.1	0.6	8.6
Virginia	107,817	-	0.0	0.1	15.1	17.9	0.1	15.3
Washington	86,876	0.0	0.0	0.2	10.5	23.2	1.9	15.2
West Virginia	20,931	0.2	0.0	0.2	13.4	14.4	0.4	14.4
Wisconsin	72,340	-	0.0	0.1	33.6	33.6	0.0	33.6
Wyoming	7,672	0.0	0.0	-	13.1	17.1	1.4	15.2
Puerto Rico	48,597	0.0	0.2	0.1	3.8	4.4	0.0	4.0
Virgin Islands	1,687	-	0.5	-	21.1	22.2	4.9	53.3
Guam	3,391	0.0	0.1	0.0	22.1	22.4	0.3	22.2
American Samoa	1,442	-	-	5.2	34.8	34.9	---	---
Northern Marianas	1,422	-	0.4	-	10.1	9.9	---	---

See footnotes at end of table.

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006 -- Con.
[By place of residence]

Area	Items common to both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth						
	Educational attainment of mother		Live-birth order	Length of gestation	Month prenatal care began		Number of prenatal visits
	Unrevised[2]	Revised [3]			Unrevised[2]	Revised[3]	
Total of reporting areas /1	2.5	2.5	0.6	0.6	2.7	6.1	3.2
Alabama	0.9	---	0.1	0.2	1.0	---	0.5
Alaska	3.0	---	0.2	0.1	3.9	---	6.5
Arizona	1.1	---	0.0	0.0	0.1	---	0.2
Arkansas	5.1	---	0.2	0.2	5.6	---	1.9
California /4,5	---	3.1	0.1	3.8	0.8	---	1.1
Colorado	3.1	---	0.6	0.0	2.0	---	2.2
Connecticut	1.2	---	0.0	0.0	1.4	---	0.6
Delaware	---	2.9	0.1	0.1	---	4.4	0.4
District of Columbia	9.0	---	0.4	0.3	13.9	---	19.9
Florida	---	0.9	0.6	0.1	---	5.0	4.1
Georgia	4.7	---	0.3	0.1	5.0	---	5.5
Hawaii	2.2	---	0.1	0.3	3.5	---	2.6
Idaho	---	4.1	0.1	0.1	---	3.2	0.6
Illinois	1.2	---	0.1	0.2	4.4	---	4.8
Indiana	2.7	---	0.1	0.0	3.0	---	1.7
Iowa	3.2	---	0.0	0.1	3.4	---	0.3
Kansas	---	3.8	0.0	0.2	---	7.6	4.0
Kentucky	---	2.1	0.4	0.1	---	4.1	2.1
Louisiana	0.4	---	0.1	0.1	0.6	---	0.2
Maine	2.4	---	0.3	0.0	2.2	---	0.1
Maryland	2.1	---	0.2	0.1	2.2	---	2.1
Massachusetts	0.6	---	0.1	0.1	2.3	---	0.8
Michigan	2.1	---	0.5	0.1	3.4	---	2.3
Minnesota	4.4	---	0.3	0.2	7.7	---	6.5
Mississippi	4.0	---	0.1	0.1	4.5	---	2.5
Missouri	3.9	---	1.1	0.1	5.6	---	4.8
Montana	3.0	---	0.0	0.0	1.6	---	0.9
Nebraska	---	3.0	0.7	0.1	---	5.2	0.3
Nevada	4.7	---	0.9	0.3	7.7	---	10.5
New Hampshire	---	13.6	3.0	0.3	---	14.3	4.8
New Jersey	2.3	---	0.1	0.0	2.0	---	1.5
	5.0	---	0.2	0.2	6.6	---	5.4
New York (excluding NYC)	---	7.6	2.2	0.1	---	10.4	7.0
New York City	4.1	---	0.1	0.0	6.3	---	1.4
North Carolina	0.6	---	0.1	0.0	1.2	---	1.1
North Dakota	---	3.2	0.1	0.0	---	4.2	0.7
Ohio	---	2.0	4.3	0.1	---	11.0	12.0
Oklahoma	1.3	---	0.1	0.2	1.8	---	1.3
Oregon	3.2	---	0.1	0.0	1.7	---	0.4
Pennsylvania	---	2.6	1.4	0.6	---	9.5	11.5
Rhode Island	4.0	---	3.7	0.1	2.3	---	4.2
South Carolina	---	5.5	0.1	0.1	---	6.0	0.7
South Dakota	---	2.1	0.1	0.0	---	2.4	0.6
Tennessee	---	1.0	1.0	0.3	---	7.0	4.8
Texas	---	0.4	0.0	0.0	---	0.9	0.3
Utah	1.9	---	0.3	0.0	1.6	---	1.7
Vermont	---	1.7	0.9	0.0	---	1.2	0.9
Virginia	2.1	---	0.0	0.0	1.1	---	0.4
Washington	---	2.3	3.8	0.1	---	12.7	12.7
West Virginia	4.3	---	0.0	0.0	4.5	---	0.5
Wisconsin	0.7	---	0.0	0.0	0.9	---	1.2
Wyoming	---	7.1	0.4	0.2	---	7.3	1.5
Puerto Rico	---	0.2	0.0	0.1	---	0.5	0.2
Virgin Islands	2.6	---	0.5	0.2	1.7	---	3.3
Guam	0.9	---	0.7	0.1	-	---	0.8
American Samoa	---	---	-	---	---	---	---
Northern Marianas	10.5	---	-	0.7	3.1	---	2.9

See footnotes at end of table.

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006 -- Con.
[By place of residence]

Area	Items common to both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth					
	Birthweight	5-minute Apgar score	Weight gain	Tobacco use		Method of Delivery[6]
				Unrevised[2]	Revised[3]	
Total of reporting areas /1	0.1	0.4	5.2	1.6	2.5	0.3
Alabama	0.1	0.3	2.2	0.8	---	0.7
Alaska	0.3	0.6	7.8	1.1	---	0.5
Arizona	0.0	0.2	0.9	0.4	---	0.5
Arkansas	0.0	0.3	6.5	4.4	---	0.3
California/4	0.1	---	---	---	---	0.0
Colorado	0.1	0.3	4.5	0.3	---	-
Connecticut	0.0	0.2	1.0	0.8	---	0.1
Delaware	0.1	0.2	1.6	---	2.7	0.0
District of Columbia	0.1	0.6	13.4	0.0	---	0.1
Florida /7	0.0	0.2	7.4	---	---	0.2
Georgia	0.0	0.4	9.6	1.5	---	0.9
Hawaii	0.1	0.5	10.6	1.0	---	0.5
Idaho	0.1	0.5	2.3	---	2.8	0.1
Illinois	0.1	0.3	6.7	0.3	---	0.8
Indiana /8	0.4	0.2	2.6	2.0	---	0.7
Iowa	0.1	0.3	0.7	3.2	---	0.9
Kansas	0.0	0.4	3.6	---	4.1	0.0
Kentucky	0.0	0.2	2.4	---	1.7	0.1
Louisiana	0.1	0.1	1.0	0.4	---	0.1
Maine	0.1	0.1	0.7	2.2	---	0.3
Maryland	0.0	0.3	2.9	1.0	---	0.8
Massachusetts	0.1	0.2	1.0	0.5	---	0.3
Michigan	0.1	0.4	5.5	1.0	---	0.6
Minnesota	0.1	0.3	12.0	4.3	---	0.7
Mississippi	0.1	0.5	7.8	3.9	---	0.6
Missouri	0.1	0.6	4.7	3.2	---	0.7
Montana	0.0	0.3	2.6	2.3	---	0.3
Nebraska	0.0	0.1	2.5	---	3.1	0.1
Nevada	0.0	1.2	10.9	2.3	---	1.3
New Hampshire	0.2	0.5	13.4	---	12.3	0.1
New Jersey	0.1	0.1	0.8	1.8	---	1.0
New Mexico	0.3	0.4	6.9	4.0	---	0.4
New York (excluding NYC)	0.1	0.4	6.9	---	6.6	0.6
New York City	0.0	0.1	2.3	3.9	---	0.3
North Carolina	0.1	0.3	3.2	0.5	---	0.6
North Dakota	-	0.1	1.0	---	2.7	-
Ohio	0.1	0.3	10.7	---	1.9	0.1
Oklahoma	0.1	0.4	2.5	0.9	---	1.0
Oregon	0.0	0.3	2.1	2.5	---	0.8
Pennsylvania	0.8	0.6	15.7	---	3.8	0.1
Rhode Island	0.1	0.3	14.2	3.6	---	0.2
South Carolina	0.1	0.3	2.5	---	5.2	0.0
South Dakota	0.1	0.2	2.8	---	2.9	0.1
Tennessee	0.0	0.3	9.5	---	0.7	0.0
Texas	0.1	1.5	0.7	---	0.3	0.0
Utah	0.0	0.2	4.0	1.0	---	0.6
Vermont	-	0.4	2.5	---	1.8	0.0
Virginia	0.1	0.1	4.2	1.1	---	0.6
Washington	0.3	0.3	10.5	---	2.9	0.0
West Virginia	0.1	0.2	1.1	3.8	---	0.4
Wisconsin	0.0	0.4	2.1	0.3	---	0.0
Wyoming	0.1	0.2	9.0	---	10.2	0.0
Puerto Rico	0.2	0.9	0.7	---	-	0.0
Virgin Islands	0.6	0.9	20.4	1.4	---	1.8
Guam	0.4	0.3	2.8	0.6	---	0.2
American Samoa	-	---	---	---	---	---
Northern Marianas /9	0.4	0.8	---	0.2	---	0.7

See footnotes at end of table.

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006 -- Con.
[By place of residence]

Area	Items common to both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth						
	Risk Factors in this Pregnancy				Characteristics of Labor and Delivery		
	Diabetes	Pregnancy Associated Hypertension	Chronic Hypertension	Eclampsia	Menconium	Breech	Precipitous Labor
Total of reporting areas /1	0.3	0.3	0.3	**0.3**	0.2	2.5	0.2
Alabama	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1
Alaska	1.4	1.4	1.4	**1.4**	1.3	1.3	1.3
Arizona	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Arkansas	0.0	0.0	0.0	**0.0**	0.0	0.2	0.0
California/4	0.0	0.0	0.0	**0.0**	0.0	12.1	0.0
Colorado	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Connecticut	0.1	0.1	0.1	**0.1**	0.0	0.0	0.0
Delaware	-	-	-	**-**	-	-	-
District of Columbia	-	-	-	**-**	-	-	-
Florida	0.4	0.4	0.4	**0.4**	0.6	1.5	0.5
Georgia	1.0	1.0	1.0	**1.0**	0.3	0.3	0.3
Hawaii	-	-	-	**-**	-	-	-
Idaho	0.2	0.2	0.2	**---**	0.1	0.3	0.1
Illinois	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Indiana	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Iowa	0.1	0.1	0.1	**0.1**	0.0	0.0	0.1
Kansas	-	-	-	**-**	-	-	-
Kentucky	0.3	0.3	0.3	**---**	0.1	0.5	0.4
Louisiana	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1
Maine	0.2	0.2	0.2	**0.2**	0.1	0.1	0.2
Maryland	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Massachusetts	0.3	0.3	0.3	**0.3**	0.3	0.3	0.3
Michigan	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Minnesota	2.5	2.5	2.5	**2.5**	2.4	2.4	2.4
Mississippi	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Missouri	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1
Montana	-	-	-	**-**	-	0.0	-
Nebraska	0.1	0.1	0.1	**---**	0.0	0.1	0.1
Nevada	1.3	1.3	1.3	**1.3**	1.4	1.5	1.4
New Hampshire	0.0	0.0	0.0	**0.0**	0.6	0.0	2.0
New Jersey	0.2	0.2	0.2	**0.2**	0.1	0.1	0.1
New Mexico	-	-	-	**-**	-	0.1	-
New York (excluding NYC)	1.1	1.1	1.1	**1.1**	0.0	0.6	1.9
New York City	0.2	0.2	0.2	**0.2**	0.1	0.1	0.2
North Carolina	0.0	0.0	0.0	**0.0**	-	0.0	0.0
North Dakota	0.1	0.1	0.1	**0.1**	0.0	0.2	0.0
Ohio	1.6	1.6	1.6	**1.6**	0.5	7.3	0.0
Oklahoma	0.9	0.9	0.9	**0.9**	1.1	1.1	1.1
Oregon	0.6	0.6	0.6	**0.6**	0.0	0.0	0.0
Pennsylvania	0.0	0.0	0.0	**---**	0.0	0.0	0.0
Rhode Island	1.2	1.2	1.2	**1.2**	1.2	1.2	1.2
South Carolina	0.0	0.0	0.0	**---**	0.0	0.0	0.0
South Dakota	0.9	0.9	0.9	**0.9**	0.4	0.0	0.9
Tennessee	0.0	0.0	0.0	**---**	-	0.0	0.0
Texas	0.0	0.0	0.0	**0.0**	0.0	4.2	0.0
Utah	0.2	0.2	0.2	**0.2**	0.0	0.0	0.0
Vermont	0.2	0.2	0.2	**0.2**	0.2	0.1	0.5
Virginia	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Washington	1.8	1.8	1.8	**---**	0.8	2.5	2.0
West Virginia	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1
Wisconsin	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0
Wyoming	0.0	0.0	0.0	**0.0**	-	-	0.0
Puerto Rico	-	-	-	-	-	0.0	0.0
Virgin Islands	6.8	6.8	6.8	6.8	7.5	7.5	7.5
Guam	1.1	1.1	1.1	1.1	2.9	2.9	2.9
American Samoa	---	---	---	---	---	---	---
Northern Marianas	-	-		-	-	-	-

See footnotes at end of table.

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006 -- Con.
[By place of residence]

Area	Items common to both the 1989 and 2003 revisions of the U.S. Standard Certificate of Live Birth						
	Obstetric Procedures		Congenital Anomalies				
	Induction of Labor	Tocolysis	Anencephaly	Spina bifida	Omphalocele/ Gastroschisis	Cleft Lip/ Palate	Down Syndrome
Total of reporting areas /1	0.2	0.2	0.5	0.5	0.5	0.5	0.5
Alabama	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Alaska	1.3	1.4	1.6	1.6	1.6	1.6	1.6
Arizona	0.0	0.0	0.3	0.3	0.3	0.3	0.3
Arkansas	0.0	0.0	0.0	0.0	0.0	0.0	0.0
California/4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Colorado	0.0	-	0.1	0.1	0.1	0.1	0.1
Connecticut	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Delaware	-	-	-	-	-	-	-
District of Columbia	-	-	-	-	-	-	-
Florida	0.6	0.0	0.5	0.5	0.5	0.5	0.5
Georgia	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hawaii	-	-	0.0	0.0	0.0	0.0	0.0
Idaho	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Illinois	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indiana	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iowa	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Kansas	-	-	0.0	0.0	0.0	0.0	0.0
Kentucky	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Louisiana	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Maine	0.1	0.1	0.3	0.3	0.3	0.3	0.3
Maryland	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Massachusetts	0.1	0.1	1.0	1.0	1.0	1.0	1.0
Michigan	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minnesota	0.6	0.6	4.6	4.6	4.6	4.6	4.6
Mississippi	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Missouri	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Montana	-	-	-	-	-	-	-
Nebraska	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Nevada	4.1	4.1	10.8	10.8	10.8	10.8	10.8
New Hampshire	0.6	0.8	3.4	3.4	3.4	3.4	3.4
New Jersey	0.0	0.0	0.3	0.3	0.3	0.3	0.3
New Mexico	-	-	---	---	---	---	---
New York (excluding NYC)	0.0	1.3	3.6	3.6	3.6	3.6	3.6
New York City	0.0	0.1	0.4	0.4	0.4	0.4	0.4
North Carolina	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North Dakota	-	-	0.1	0.1	0.1	0.1	0.1
Ohio	0.5	0.0	0.6	0.6	0.6	0.6	0.6
Oklahoma	0.7	0.7	1.5	1.5	1.5	1.5	1.5
Oregon	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pennsylvania	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rhode Island	1.1	1.1	7.0	7.0	7.0	7.0	7.0
South Carolina	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Dakota	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Tennessee	-	0.0	0.0	0.0	0.0	0.0	0.0
Texas	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Utah	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Vermont	0.2	0.1	1.1	1.1	1.1	1.1	1.1
Virginia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Washington	0.8	2.4	2.2	2.2	2.2	2.2	2.2
West Virginia	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Wisconsin	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Wyoming	-	-	-	-	-	-	-
Puerto Rico	-	-	-	-	-	-	-
Virgin Islands	3.0	3.0	8.4	8.4	8.4	8.4	8.4
Guam	1.7	1.7	1.4	1.4	1.4	1.4	1.4
American Samoa	---	---	---	---	---	---	---
Northern Marianas	-	-	-	-	-	-	-

See footnotes at end of table.

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006 -- Con.
[By place of residence]

Area	Items exclusive to the 2003 US. Standard Certificate of Live Birth /3					
	Pregnancy Risk Factors	Obstetric Procedures	Onset of Labor	Characteristics of Labor and Delivery	Method of Delivery	Congenital Anomalies
Total of reporting areas /1	1.6	1.5	1.6	1.4	1.3	1.8
Alabama	---	---	---	---	---	---
Alaska	---	---	---	---	---	---
Arizona	---	---	---	---	---	---
Arkansas	---	---	---	---	---	---
California/4	0.2	0.2	0.2	0.2	0.2	0.2
Colorado	---	---	---	---	---	---
Connecticut	---	---	---	---	---	---
Delaware	2.5	2.5	2.5	2.5	2.5	2.5
District of Columbia	---	---	---	---	---	---
Florida	0.7	0.3	0.8	0.8	0.3	0.8
Georgia	---	---	---	---	---	---
Hawaii	---	---	---	---	---	---
Idaho	2.7	2.6	2.6	2.6	2.5	2.7
Illinois	---	---	---	---	---	---
Indiana	---	---	---	---	---	---
Iowa	---	---	---	---	---	---
Kansas	3.4	3.4	3.4	3.4	3.4	3.4
Kentucky	1.9	2.0	2.0	1.8	1.6	2.0
Louisiana	---	---	---	---	---	---
Maine	---	---	---	---	---	---
Maryland	---	---	---	---	---	---
Massachusetts	---	---	---	---	---	---
Michigan	---	---	---	---	---	---
Minnesota	---	---	---	---	---	---
Mississippi	---	---	---	---	---	---
Missouri	---	---	---	---	---	---
Montana	---	---	---	---	---	---
Nebraska	3.1	3.1	3.1	3.0	3.0	3.1
Nevada	---	---	---	---	---	---
New Hampshire	10.2	11.0	12.2	10.8	10.2	13.6
New Jersey	---	---	---	---	---	---
New Mexico	---	---	---	---	---	---
New York (excluding NYC)	7.7	7.9	8.5	6.6	6.6	10.1
New York City	---	---	---	---	---	---
North Carolina	---	---	---	---	---	---
North Dakota	2.6	2.6	2.6	2.6	2.6	2.6
Ohio	2.9	1.3	1.3	1.8	1.3	1.9
Oklahoma	---	---	---	---	---	---
Oregon	---	---	---	---	---	---
Pennsylvania	1.9	1.9	1.9	1.9	1.9	1.9
Rhode Island	---	---	---	---	---	---
South Carolina	5.1	5.1	5.1	5.1	5.1	5.1
South Dakota	2.7	1.8	2.7	2.2	1.8	1.8
Tennessee	0.6	0.6	0.6	0.6	0.6	0.6
Texas	0.2	0.2	0.2	0.2	0.2	0.2
Utah	---	---	---	---	---	---
Vermont	1.0	0.9	1.3	1.0	0.8	1.8
Virginia	---	---	---	---	---	---
Washington	2.9	3.5	3.1	1.9	1.1	3.3
West Virginia	---	---	---	---	---	---
Wisconsin	---	---	---	---	---	---
Wyoming	6.4	6.4	6.5	6.4	6.4	6.4
Puerto Rico	-	-	-	-	-	-
Virgin Islands	---	---	---	---	---	---
Guam	---	---	---	---	---	---
American Samoa	---	---	---	---	---	---
Northern Marianas	---	---	---	---	---	---

See footnotes at end of table.

Table B. Percent of birth records on which specified items were not stated: United States and each state and territory, New York City and the District of Columbia, 2006 -- Con.
[By place of residence]

Area	Items exclusive to the 1989 U.S. Standard Certificate of Live Birth /2					
	Alcohol use	Medical Risk Factors	Obstetric Procedures	Complications of Labor/ Delivery	Abnormal Conditions of the Newborn	Congenital Anomalies
Total of reporting areas /1	1.6	1.5	1.4	1.4	1.6	1.8
Alabama	0.8	0.7	0.7	0.7	0.7	0.7
Alaska	1.2	2.1	2.0	2.0	2.1	2.2
Arizona	0.6	0.2	0.2	0.2	0.2	0.4
Arkansas	4.5	4.2	4.2	4.2	4.2	4.2
California	---	---	---	---	---	---
Colorado	0.4	0.2	0.2	0.2	0.2	0.3
Connecticut	0.8	0.8	0.7	0.7	0.9	0.8
Delaware	---	---	---	---	---	---
District of Columbia	0.0	0.0	0.0	0.0	0.0	0.0
Florida	---	---	---	---	---	---
Georgia	1.4	2.1	1.5	1.5	1.4	1.4
Hawaii	1.0	0.2	0.2	0.2	0.2	0.2
Idaho	---	---	---	---	---	---
Illinois	0.2	0.1	0.1	0.1	0.1	0.2
Indiana	1.9	1.8	1.8	1.8	1.8	1.8
Iowa	3.2	3.2	3.1	3.2	3.2	3.2
Kansas	---	---	---	---	---	---
Kentucky	---	---	---	---	---	---
Louisiana	0.4	0.3	0.3	0.3	0.3	0.3
Maine	2.3	2.3	2.2	2.2	2.2	2.2
Maryland	1.0	0.9	0.9	0.9	0.9	0.9
Massachusetts	0.5	0.6	0.5	0.6	0.8	1.3
Michigan	1.0	0.6	0.6	0.6	0.6	0.6
Minnesota	4.4	4.7	2.8	4.6	6.0	6.8
Mississippi	4.0	3.8	3.8	3.8	3.8	3.8
Missouri	3.2	2.9	2.9	2.9	2.9	3.0
Montana	2.4	1.0	1.0	1.0	1.0	1.0
Nebraska	---	---	---	---	---	---
Nevada	2.5	2.3	5.1	2.4	4.0	11.8
New Hampshire	---	---	---	---	---	---
New Jersey	1.8	1.9	1.8	1.8	1.9	2.0
New Mexico	4.4	3.0	3.0	3.0	3.0	---
New York (excluding NYC)	---	---	---	---	---	---
New York City /10	3.9	3.9	3.8	3.9	4.1	4.1
North Carolina	0.5	0.4	0.4	0.4	0.4	0.4
North Dakota	---	---	---	---	---	---
Ohio	---	---	---	---	---	---
Oklahoma	0.9	1.7	1.5	1.9	2.0	2.3
Oregon	2.5	2.5	1.9	1.9	1.9	1.9
Pennsylvania	---	---	---	---	---	---
Rhode Island	3.8	1.3	1.2	1.3	15.7	7.1
South Carolina	---	---	---	---	---	---
South Dakota	---	---	---	---	---	---
Tennessee	---	---	---	---	---	---
Texas	---	---	---	---	---	---
Utah	1.1	0.4	0.2	0.2	0.2	0.3
Vermont	---	---	---	---	---	---
Virginia	1.1	1.1	1.1	1.1	1.2	1.1
Washington	---	---	---	---	---	---
West Virginia	3.9	3.5	3.4	3.5	3.5	3.4
Wisconsin /11	0.4	0.1	0.1	0.1	0.1	0.2
Wyoming	---	---	---	---	---	---
Puerto Rico	---	---	---	---	---	---
Virgin Islands	1.4	7.2	3.4	7.9	10.3	8.8
Guam	0.8	1.1	1.7	2.9	1.5	1.4
American Samoa	---	---	---	---	---	---
Northern Marianas	-	-	-	-	-	-

See footnotes at end of table.

0.0 Quantity more than zero but less than 0.05.
---Data not available.
- Quantity zero.

[1] Excludes data for Puerto Rico, Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Marianas.

[2] Data are for states using the 1989 Standard Certificate of Live Birth. Births to residents of states using the 1989 Standard Certificate of Live Birth occurring in states using the 2003 Standard Certificate of Live Birth are coded as not stated for this item. See "Technical Notes."

[3] Data are for states using the 2003 Standard Certificate of Live Birth. Births to residents of states using the 2003 Standard Certificate of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth are coded as not stated for this item. See "Technical Notes."

[4] California did a partial implementation of the 2003 US Standard Certificate of live birth in 2006, with full implementation of the new certificate in 2007.

[5] California reports date last normal menses began but does not report the clinical estimate of gestation.

[6] Not stated levels for states which implemented the 2003 U.S. Standard Certificate of Live Birth are derived from the item "Final route and method of delivery" only.

[7] The Florida tobacco use item is not consistent with the tobacco use items on either the 1989 or 2003 U.S Standard Certificates of Live Birth.

[8] Indiana reports tobacco use but does not report the average number of cigarettes smoked per day in standard categories.

[9] The Commonwealth of the Northern Marianas reports tobacco use but does not report the average number of cigarettes smoked per day.

[10] New York City does not report the Abnormal Conditions of the Newborn "assisted ventilation less then 30 minutes and assisted ventilation of 30 minutes or more."
Wisconsin does not report the Abnormal Condition of the Newborn "fetal alcohol syndrome."

Table C. Comparability of selected data items from the 2003 U.S. Standard Certificate of Live Birth with items from the 1989 U.S. Standard Certificate of Live Birth

Item on 2003 U.S. Standard Certificate of Live Birth	*Comparable*	*Not comparable*	*New*
Race - Mother/Father	X[1]		
Hispanic origin - Mother/Father	X		
Education - Mother/Father		X	
Cigarette smoking during pregnancy		X	
Month prenatal care began		X	
Risk factors in this pregnancy			
Diabetes, Prepregnancy (Diagnosis prior to this pregnancy)	X[2]		
Diabetes, Gestational (Diagnosis in this pregnancy)	X[2]		
Hypertension, Prepregnancy (chronic)	X		
Hypertension, Gestational (PIH, preeclampsia)	X		
Hypertension, Eclampsia	X		
Previous preterm birth		X	
Other previous poor pregnancy outcome		X	
Mother had previous cesarean delivery		X	
Obstetric Procedures			
Cervical cerclage		X	
Tocolysis	X		
External cephalic version - Successful			X
External cephalic version - Failed			X
Onset of Labor			
Premature rupture>=12 hrs		X	
Precipitous labor<3 hrs	X		
Prolonged labor>=20 hours		X	
Characteristics of Labor/Delivery			
Induction of labor	X		
Augmentation of labor		X	
Non-vertex presentation			X
Steroids (glucocorticoids) for fetal lung maturation			X
Antibiotics received by the mother during labor			X
Clinical chorioamnionitis diagnosed during labor		X	
Moderate/heavy meconium staining of the amniotic fluid	X		
Fetal intolerance of labor		X	
Epidural or spinal anesthesia during labor			X
Method of Delivery			
Forceps delivery attempted but unsuccessful?		X	
Vacuum extraction delivery attempted but unsuccessful?		X	
Cephalic Presentation		X	
Breech Presentation	X[3]		
Other presentation	X[3]		
Final route and method of delivery Vaginal/Spontaneous	X[4]		
Final route and method of delivery Vaginal/Forceps	X[4]		
Final route and method of delivery Vaginal/Vacuum	X[4]		
Final route and method of delivery Cesarean	X[5]		
If cesarean, was trial of labor attempted?			X
NEWBORN INFORMATION			
Birthweight	X		
Apgar Score - 5 minute	X		
Plurality	X		
Abnormal Conditions of the Newborn			
Assisted ventilation required immediately following delivery		X	
Assisted ventilation > 6 hours		X	
NICU admission			X
Newborn given surfactant replacement therapy			X
Antibiotics received by the newborn for suspected neonatal sepsis			X
Seizure or serious neurologic dysfunction			X
Significant birth injury			X
Congenital Anomalies			
Anencephaly	X		
Meningomyelolcele/Spina Bifida	X		
Cyanotic congenital heart disease			X
Congenital diaphragmatic hernia	X		
Omphalocele	X[6]		
Gastroschisis	X[6]		
Limb reduction defect			X
Cleft lip with or without Cleft palate	X[7]		
Cleft Palate alone	X[7]		
Down Syndrome	X		

Down Syndrome - karyotype confirmed			X
Down Syndrome - karyotype pending			X
Suspected chromosomal disorder		X	
Suspected chromosomal disorder - karyotype confirmed			X
Suspected chromosomal disorder - karyotype pending			X
Hypospadias			X

1 Twenty-three states reported multiple race data in 2006.
The multiple-race data for these states are bridged to the single race categories of the 1977 OMB standards for comparability with other states; See Detailed Technical Notes.
2 Prepregnancy diabetes and Gestational diabetes may be combined to be consistent with the Diabetes item reported on the 1989 U.S. Standard Certificate of Live Birth.
3 "Breech" and "Other" fetal presentations at birth may be combined to be consistent with the Breech/malpresentation item on the 1989 U.S. Standard Certificate of Live Birth.
4 Information on whether the vaginal delivery following a previous cesarean delivery (VBAC) is not comparable.
5 Information on whether the delivery was a primary or repeat cesarean is not comparable.
6 "Omphalocele" and "Gastroschisis may be combined to be consistent with the Omphalocele/Gastroschisis item *on the 1989 U.S. Standard Certificate of Live Birth.*
7 Cleft lip with or without palate may be combined with Cleft lip alone to be consistent with the Cleft lip/palate item on the 1989 U.S. Standard Certificate of Live Birth.

Table D. Sources for the resident population and population including Armed Forces abroad: Birth and death-registration states, 1900-1932, and United States, 1900-2006

[2006] National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2006, United States resident population from the Vintage 2006 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. Released August 16, 2007. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[2006] US Census Bureau. Monthly postcensal resident population plus Armed Forces overseas, by single year of age, sex, race, and Hispanic origin. Available at: http://www.census.gov/popest/national/asrh/2006_nat_af.html

[2005] National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2005, United States resident population from the Vintage 2005 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. Released August 16, 2006. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[2005] US Census Bureau. Monthly postcensal resident population plus Armed Forces overseas, by single year of age, sex, race, and Hispanic origin. Available at: http://www.census.gov/popest/national/asrh/2004_nat_af.html

[2004] National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2004, by year, state and county, age, bridged race, sex, and Hispanic origin (vintage 2004). File pcen_v2004.txt (ASCII). Released September 8, 2005. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/datadoc.htm

[2004] US Census Bureau. Monthly postcensal resident population plus Armed Forces overseas, by single year of age, sex, race, and Hispanic origin. Available at: http://www.census.gov/popest/national/asrh/2004_nat_af.html

[2003] National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2003, by year, state and county, age, bridged race, sex, and Hispanic origin (vintage 2003). File pcen_v2003_y03.txt (ASCII). Released September 14, 2004. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/datadoc.htm

[2002] National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2002, by state and county, age, bridged race, sex, and Hispanic origin. File pcen v2002.txt. Internet released, August 1, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[2001] National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2001, by state and county, age, bridged race, sex, and Hispanic origin. File pcen v2002.txt. Internet released, August 1, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[2001] National Center for Health Statistics. Postcensal estimates of the resident population of the United States as of July 1, 2001, by age, bridged race, sex, and Hispanic origin. File pcen v2001.txt. Internet released, January 12, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[2000] National Center for Health Statistics. Estimates of the April 1, 2000, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File br040100.txt. Internet released, January 12, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1999] National Center for Health Statistics. Intercensal estimates of the July 1, 1999, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1999.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1998] National Center for Health Statistics. Intercensal estimates of the July 1, 1998, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1998.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1997] National Center for Health Statistics. Intercensal estimates of the July 1, 1997, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1997.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1996] National Center for Health Statistics. Intercensal estimates of the July 1, 1996, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1996.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1995] National Center for Health Statistics. Intercensal estimates of the July 1, 1995, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1995.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1994] National Center for Health Statistics. Intercensal estimates of the July 1, 1994, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1994.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1993] National Center for Health Statistics. Intercensal estimates of the July 1, 1993, United States resident population state and county, by age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1993.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1992] National Center for Health Statistics. Intercensal estimates of the July 1, 1992, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1992.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

[1991] National Center for Health Statistics. Intercensal estimates of the July 1, 1991, United States resident population by state and county, age, sex, bridged race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. File icen1991.txt. Internet released, April 15, 2003. Available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm

Table E. Percentage net under/over count, by age, sex, and race/Hispanic origin: United States, April 1, 2000	
Characteristic	Estimate (%)
Total	-0.49
Age/sex	
10–17 Male and female	-1.32
18–29 Male	1.12
18–29 Female	-1.39
30–49 Male	2.01
30–49 Female	-0.60
50 years and over male	-0.80
50 years and over female	-2.53
Race/Hispanic origin	
Non-Hispanic white	-1.13
Non-Hispanic black	1.84
Hispanic	0.71

SOURCE: Fenstermaker D, Haines D. Summary of estimated net coverage. DSSD A.C.E. Revision II Memorandum Series #PP-54. Washington: U.S. Census Bureau. 2002.

Table F. Lower and upper 95 percent and 96 percent confidence limit factors for a birth rate based on a Poisson variable of 1 through 99 births, *B*

B	L(1- α=.95,*B*)	U(1- α =.95,*B*)	L(1- α =.96,*B*)	U(1- α =.96,*B*)
1	0.02532	5.57164	0.02020	5.83392
2	0.12110	3.61234	0.10735	3.75830
3	0.20622	2.92242	0.18907	3.02804
4	0.27247	2.56040	0.25406	2.64510
5	0.32470	2.33367	0.30591	2.40540
6	0.36698	2.17658	0.34819	2.23940
7	0.40205	2.06038	0.38344	2.11666
8	0.43173	1.97040	0.41339	2.02164
9	0.45726	1.89831	0.43923	1.94553
10	0.47954	1.83904	0.46183	1.88297
11	0.49920	1.78928	0.48182	1.83047
12	0.51671	1.74680	0.49966	1.78566
13	0.53246	1.71003	0.51571	1.74688
14	0.54671	1.67783	0.53027	1.71292
15	0.55969	1.64935	0.54354	1.68289
16	0.57159	1.62394	0.55571	1.65610
17	0.58254	1.60110	0.56692	1.63203
18	0.59266	1.58043	0.57730	1.61024
19	0.60207	1.56162	0.58695	1.59042
20	0.61083	1.54442	0.59594	1.57230
21	0.61902	1.52861	0.60435	1.55563
22	0.62669	1.51401	0.61224	1.54026
23	0.63391	1.50049	0.61966	1.52602
24	0.64072	1.48792	0.62666	1.51278
25	0.64715	1.47620	0.63328	1.50043
26	0.65323	1.46523	0.63954	1.48888
27	0.65901	1.45495	0.64549	1.47805
28	0.66449	1.44528	0.65114	1.46787
29	0.66972	1.43617	0.65652	1.45827
30	0.67470	1.42756	0.66166	1.44922
31	0.67945	1.41942	0.66656	1.44064
32	0.68400	1.41170	0.67125	1.43252
33	0.68835	1.40437	0.67575	1.42480
34	0.69253	1.39740	0.68005	1.41746
35	0.69654	1.39076	0.68419	1.41047
36	0.70039	1.38442	0.68817	1.40380
37	0.70409	1.37837	0.69199	1.39743
38	0.70766	1.37258	0.69568	1.39134
39	0.71110	1.36703	0.69923	1.38550
40	0.71441	1.36172	0.70266	1.37991
41	0.71762	1.35661	0.70597	1.37454
42	0.72071	1.35171	0.70917	1.36938
43	0.72370	1.34699	0.71227	1.36442
44	0.72660	1.34245	0.71526	1.35964
45	0.72941	1.33808	0.71816	1.35504
46	0.73213	1.33386	0.72098	1.35060
47	0.73476	1.32979	0.72370	1.34632
48	0.73732	1.32585	0.72635	1.34218
49	0.73981	1.32205	0.72892	1.33818
50	0.74222	1.31838	0.73142	1.33431

Table F. Lower and upper 95 percent and 96 percent confidence limit factors for a birth rate based on a Poisson variable of 1 through 99 births, *B* --Con.

B	L(1- α=.95,*B*)	U(1- α =.95,*B*)	L(1- α =.96,*B*)	U(1- α =.96,*B*)
51	0.74457	1.31482	0.73385	1.33057
52	0.74685	1.31137	0.73621	1.32694
53	0.74907	1.30802	0.73851	1.32342
54	0.75123	1.30478	0.74075	1.32002
55	0.75334	1.30164	0.74293	1.31671
56	0.75539	1.29858	0.74506	1.31349
57	0.75739	1.29562	0.74713	1.31037
58	0.75934	1.29273	0.74916	1.30734
59	0.76125	1.28993	0.75113	1.30439
60	0.76311	1.28720	0.75306	1.30152
61	0.76492	1.28454	0.75494	1.29873
62	0.76669	1.28195	0.75678	1.29601
63	0.76843	1.27943	0.75857	1.29336
64	0.77012	1.27698	0.76033	1.29077
65	0.77178	1.27458	0.76205	1.28826
66	0.77340	1.27225	0.76373	1.28580
67	0.77499	1.26996	0.76537	1.28340
68	0.77654	1.26774	0.76698	1.28106
69	0.77806	1.26556	0.76856	1.27877
70	0.77955	1.26344	0.77011	1.27654
71	0.78101	1.26136	0.77162	1.27436
72	0.78244	1.25933	0.77310	1.27223
73	0.78384	1.25735	0.77456	1.27014
74	0.78522	1.25541	0.77598	1.26810
75	0.78656	1.25351	0.77738	1.26610
76	0.78789	1.25165	0.77876	1.26415
77	0.78918	1.24983	0.78010	1.26223
78	0.79046	1.24805	0.78143	1.26036
79	0.79171	1.24630	0.78272	1.25852
80	0.79294	1.24459	0.78400	1.25672
81	0.79414	1.24291	0.78525	1.25496
82	0.79533	1.24126	0.78648	1.25323
83	0.79649	1.23965	0.78769	1.25153
84	0.79764	1.23807	0.78888	1.24987
85	0.79876	1.23652	0.79005	1.24824
86	0.79987	1.23499	0.79120	1.24664
87	0.80096	1.23350	0.79233	1.24507
88	0.80203	1.23203	0.79344	1.24352
89	0.80308	1.23059	0.79453	1.24201
90	0.80412	1.22917	0.79561	1.24052
91	0.80514	1.22778	0.79667	1.23906
92	0.80614	1.22641	0.79771	1.23762
93	0.80713	1.22507	0.79874	1.23621
94	0.80810	1.22375	0.79975	1.23482
95	0.80906	1.22245	0.80074	1.23345
96	0.81000	1.22117	0.80172	1.23211
97	0.81093	1.21992	0.80269	1.23079
98	0.81185	1.21868	0.80364	1.22949
99	0.81275	1.21746	0.80458	1.22822

Table R-1. Number and rate of live births by pregnancy risk factors, by age and race and Hispanic origin of mother: Total of 19 reporting states, 2006

[Rates are number of live births with specified risk factor per 1,000 live births in specified group]

Risk factor and race and Hispanic origin of mother	All births[1]	Factor reported	All ages	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-54 years	Not stated[2]
All races[3]										
Diabetes										
Prepregnancy (diagnosis prior to this pregnancy)	**2,073,368**	**13,871**	**6.8**	**2.5**	**4.2**	**6.6**	**8.6**	**11.6**	**15.7**	**33,743**
Gestational (diagnosis in this pregnancy)	**2,073,368**	**78,899**	**38.7**	**12.2**	**22.6**	**36.9**	**51.3**	**67.9**	**84.7**	**33,743**
Hypertension										
Prepregnancy (chronic)	2,073,368	21,408	10.5	4.4	6.6	9.7	12.8	18.6	26.6	33,743
Gestational (PIH, preeclampsia)	2,073,368	77,606	38.0	42.7	37.8	37.2	35.6	38.8	48.2	33,743
Eclampsia[4]	1,581,715	2,541	1.6	2.3	1.6	1.5	1.4	1.7	2.0	22,208
Previous preterm birth	2,073,368	36,117	17.7	6.3	16.7	19.3	20.0	21.5	21.7	33,743
Other previous poor pregnancy outcome	2,073,368	40,666	19.9	7.0	15.8	21.1	23.3	28.6	34.4	33,743
Mother had a previous cesarean delivery[5]	2,073,368	254,126	124.3	29.2	91.2	123.6	160.8	195.7	212.6	28,742
Non-Hispanic white[6]										
Diabetes										
Prepregnancy (diagnosis prior to this pregnancy)	**1,034,778**	**6,287**	**6.2**	**2.9**	**4.6**	**6.0**	**7.1**	**8.8**	**11.4**	**24,029**
Gestational (diagnosis in this pregnancy)	**1,034,778**	**39,466**	**39.0**	**14.6**	**25.1**	**36.2**	**47.2**	**60.9**	**72.7**	**24,029**
Hypertension										
Prepregnancy (chronic)	1,034,778	12,150	12.0	5.6	8.1	11.0	13.7	18.9	24.0	24,029
Gestational (PIH, preeclampsia)	1,034,778	44,099	43.6	49.0	45.7	44.4	40.2	40.6	46.9	24,029
Eclampsia[4]	690,848	1,326	2.0	2.6	2.1	1.8	1.7	2.0	2.4	15,653
Previous preterm birth	1,034,778	21,414	21.2	7.5	20.0	22.3	23.0	24.5	24.9	24,029
Other previous poor pregnancy outcome	1,034,778	25,001	24.7	9.4	19.4	24.4	27.7	34.4	41.4	24,029
Mother had a previous cesarean delivery[5]	1,034,778	117,223	115.6	21.5	78.0	105.2	145.5	183.1	203.7	21,033
Non-Hispanic black[6]										
Diabetes										
Prepregnancy (diagnosis prior to this pregnancy)	**242,621**	**2,189**	**9.2**	**3.1**	**5.1**	**10.1**	**15.3**	**20.5**	**25.3**	**3,689**
Gestational (diagnosis in this pregnancy)	**242,621**	**8,158**	**34.1**	**11.9**	**21.6**	**38.1**	**55.2**	**69.5**	**83.4**	**3,689**
Hypertension										
Prepregnancy (chronic)	242,621	5,119	21.4	7.0	11.7	22.2	35.1	51.9	70.9	3,689
Gestational (PIH, preeclampsia)	242,621	11,743	49.1	53.0	45.0	46.6	49.9	59.1	70.9	3,689
Eclampsia[4]	173,034	524	3.1	4.4	2.5	2.8	2.6	4.2	*	2,389
Previous preterm birth	242,621	6,608	27.7	9.1	26.3	33.9	36.8	34.5	35.0	3,689
Other previous poor pregnancy outcome	242,621	6,358	26.6	9.8	22.5	32.6	36.4	39.0	41.8	3,689
Mother had a previous cesarean delivery[5]	242,621	30,527	127.4	34.0	109.1	151.8	180.1	209.8	205.5	2,958

Hispanic[7]										
Diabetes										
Prepregnancy (diagnosis prior to this pregnancy)	**651,982**	**4,313**	**6.7**	**2.0**	**3.2**	**6.3**	**10.1**	**15.2**	**22.4**	**3,630**
Gestational (diagnosis in this pregnancy)	**651,982**	**23,178**	**35.7**	**10.3**	**19.3**	**35.1**	**53.8**	**77.6**	**103.3**	**3,630**
Hypertension										
Prepregnancy (chronic)	651,982	3,233	5.0	2.2	2.9	4.2	6.9	10.8	20.2	3,630
Gestational (PIH, preeclampsia)	651,982	18,522	28.6	33.8	26.2	25.5	27.9	34.0	46.4	3,630
Eclampsia[4]	598,529	580	1.0	1.4	0.9	0.8	0.9	0.9	*	2,607
Previous preterm birth	651,982	6,477	10.0	4.1	8.9	11.0	12.4	14.0	12.7	3,630
Other previous poor pregnancy outcome	651,982	7,369	11.4	3.8	8.6	13.3	14.7	17.1	21.8	3,630
Mother had a previous cesarean delivery[5]	651,982	90,113	138.8	34.0	103.3	153.8	198.1	227.2	242.0	2,877

* Figure does not meet standards of reliability or precision; based on fewer than 20 births in the numerator.

[1]Total number of births to residents of areas reporting specified pregnancy risk factor.

[2]No response reported for pregnancy risk factor item; includes births to residents of states using the 2003 Standard Certificate of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth.

[3]Includes other races not shown.

[4]Excludes data for Idaho, Kentucky, Nebraska, Pennsylvania, South Carolina, Tennessee, and Washington.

[5]Differences in not stated levels for this risk factor compared with other risk factors are the result of editing procedures; see "Technical Notes."

[6]Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race. Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. All states in the 19-state reporting area reported multiple-race data for 2006. These multiple-race data were bridged to the single-race categories of the 1977 OMB standards for comparability with other states; see "Technical Notes."

[7]Includes all persons of Hispanic origin of any race.

NOTE: Includes California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming.

Table R-2. Rates of obstetric procedures by age and race and Hispanic origin of mother: Total of 19 reporting states, 2006

[Rates are number of live births with specified obstetric procedure per 1,000 live births in specified group]

Obstetric procedure and race and Hispanic origin of mother	All births[1]	Procedure reported	All ages	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-54 years	Not stated[2]
All races[3]										
Cervical cerclage	**2,073,368**	**5,993**	**2.9**	**1.3**	**2.0**	**3.0**	**3.6**	**4.4**	**5.3**	**31,083**
Tocolysis	2,073,368	24,025	11.8	12.8	12.1	11.5	11.3	11.6	11.7	31,083
External cephalic version	**2,073,368**	**6,625**	**3.2**	**3.1**	**3.1**	**3.4**	**3.3**	**3.2**	**3.4**	**31,083**
Percent successful[4]	**2,073,368**	**4,819**	**72.7**	**75.7**	**75.4**	**73.1**	**71.3**	**68.6**	**63.3**	**31,083**
Non-Hispanic white[5]										
Cervical cerclage	**1,034,778**	**3,056**	**3.0**	**1.2**	**1.9**	**2.9**	**3.7**	**4.5**	**5.7**	**22,310**
Tocolysis	1,034,778	15,447	15.3	19.5	16.5	15.0	14.1	13.4	14.1	22,310
External cephalic version	**1,034,778**	**4,559**	**4.5**	**5.1**	**4.6**	**4.7**	**4.3**	**4.0**	**4.5**	**22,310**
Percent successful[4]	**1,034,778**	**3,376**	**74.1**	**76.9**	**77.3**	**75.3**	**72.2**	**68.5**	**63.8**	**22,310**
Non-Hispanic black[5]										
Cervical cerclage	**242,621**	**1,517**	**6.3**	**2.0**	**4.4**	**8.0**	**9.7**	**11.0**	**11.5**	**3,025**
Tocolysis	242,621	3,330	13.9	15.2	13.6	13.2	14.0	14.6	12.3	**3,025**
External cephalic version	**242,621**	**586**	**2.4**	**2.8**	**2.2**	**2.5**	**2.4**	**2.5**	*	**3,025**
Percent successful[4]	**242,621**	**446**	**76.1**	**87.9**	**76.9**	**75.0**	**69.8**	**59.6**	*	**3,025**
Hispanic[6]										
Cervical cerclage	**651,982**	**1,145**	**1.8**	**1.1**	**1.3**	**1.7**	**2.3**	**3.0**	**3.3**	**3,318**
Tocolysis	651,982	3,718	5.7	6.1	5.6	5.4	5.5	6.7	6.2	**3,318**
External cephalic version	**651,982**	**1,177**	**1.8**	**1.6**	**1.8**	**1.7**	**2.0**	**2.0**	**2.1**	**3,318**
Percent successful[4]	**651,982**	**816**	**69.3**	**67.3**	**70.8**	**67.8**	**72.5**	**68.9**	*	**3,318**

* Figure does not meet standards of reliability or precision; based on fewer than 20 births in the numerator.

[1]Total number of births to residents of areas reporting specified obstetric procedure.

[2]No response reported for obstetric procedure item; includes births to residents of states using the 2003 Standard Certificate of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth.

[3]Includes other races not shown.

[4]Percentage successful external cephalic version (ECV) is the number of successful ECVs per 100 live births to women with an attempted ECV in specified group

[5]Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race. Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. All states in the 19-state reporting area reported multiple-race data for 2006. These multiple-race data were bridged to the single-race categories of the 1977 OMB standards for comparability with other states; see "Technical Notes."

[6]Includes all persons of Hispanic origin of any race.

NOTE: Includes California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming.

Table R-3. Number and rate of live births by characteristics of labor and delivery, by age and race and Hispanic origin of mother: Total of 19 reporting states, 2006

[Rates are number of live births with specified characteristic per 1,000 live births in specified group]

Labor and delivery characteristic and race and Hispanic origin of mother	All births[1]	Characteristic reported	All ages	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-54 years	Not stated[2]
All races[3]										
Induction of labor	2,073,368	465,237	227.7	237.8	236.9	236.4	218.6	204.0	188.6	30,027
Augmentation of labor	2,073,368	399,600	195.6	241.9	215.7	198.0	176.2	153.6	136.4	30,027
Non-vertex presentation	**2,073,368**	**36,567**	**17.9**	**12.1**	**13.7**	**16.7**	**21.2**	**25.4**	**33.2**	**30,027**
Steroids (glucocorticoids) for fetal lung maturation	**2,073,368**	**17,187**	**8.4**	**9.4**	**8.1**	**8.0**	**8.1**	**9.1**	**11.0**	**30,027**
Antibiotics received by mother during labor	**2,073,368**	**307,992**	**150.7**	**171.0**	**156.1**	**148.2**	**143.2**	**142.5**	**142.5**	**30,027**
Clinical chorioamnionitis during labor	2,073,368	22,929	11.2	16.8	12.1	10.8	9.8	8.7	7.1	30,027
Moderate/heavy meconium staining of amniotic fluid	2,073,368	86,434	42.3	47.9	44.0	42.4	40.0	38.3	39.1	30,027
Fetal intolerance of labor	2,073,368	92,235	45.1	50.6	45.1	44.0	43.4	45.4	48.0	30,027
Epidural or spinal anesthesia during labor	**2,073,368**	**1,135,548**	**555.7**	**559.7**	**546.2**	**550.3**	**566.2**	**567.6**	**548.8**	**30,027**
Non-Hispanic white[4]										
Induction of labor	1,034,778	286,215	282.5	318.9	306.8	294.9	264.6	239.8	218.1	21,573
Augmentation of labor	1,034,778	210,484	207.7	267.3	234.9	214.2	187.6	163.1	145.7	21,573
Non-vertex presentation	**1,034,778**	**21,700**	**21.4**	**15.9**	**16.2**	**19.6**	**24.6**	**28.5**	**36.0**	**21,573**
Steroids (glucocorticoids) for fetal lung maturation	**1,034,778**	**10,106**	**10.0**	**12.1**	**9.9**	**9.8**	**9.6**	**9.8**	**11.7**	**21,573**
Antibiotics received by mother during labor	**1,034,778**	**171,431**	**169.2**	**195.0**	**174.3**	**168.7**	**163.0**	**160.3**	**158.2**	**21,573**
Clinical chorioamnionitis during labor	1,034,778	9,605	9.5	13.2	10.3	9.7	8.6	7.6	6.7	21,573
Moderate/heavy meconium staining of amniotic fluid	1,034,778	38,468	38.0	41.9	39.3	38.0	36.9	35.6	36.5	21,573
Fetal intolerance of labor	1,034,778	50,503	49.8	59.6	50.9	49.4	47.6	47.5	49.8	21,573
Epidural or spinal anesthesia during labor	**1,034,778**	**619,568**	**611.5**	**634.4**	**607.8**	**606.0**	**617.6**	**611.6**	**584.5**	**21,573**
Non-Hispanic black[4]										
Induction of labor	242,621	50,628	211.4	226.2	211.1	211.7	205.8	195.8	186.5	3,106
Augmentation of labor	242,621	50,621	211.3	260.9	226.6	202.2	181.2	147.3	128.4	3,106
Non-vertex presentation	**242,621**	**3,929**	**16.4**	**11.8**	**13.6**	**16.2**	**20.7**	**25.6**	**34.7**	**3,106**
Steroids (glucocorticoids) for fetal lung maturation	**242,621**	**3,353**	**14.0**	**14.0**	**12.7**	**13.6**	**14.9**	**17.7**	**19.9**	**3,106**
Antibiotics received by mother during labor	**242,621**	**50,051**	**209.0**	**241.0**	**218.8**	**197.9**	**187.9**	**179.9**	**183.4**	**3,106**
Clinical chorioamnionitis during labor	242,621	2,796	11.7	18.1	12.1	9.7	8.5	9.3	7.2	3,106
Moderate/heavy meconium staining of amniotic fluid	242,621	12,576	52.5	56.7	51.2	52.1	51.2	50.6	59.8	3,106
Fetal intolerance of labor	242,621	14,707	61.4	70.1	61.7	56.1	58.4	62.0	67.4	3,106
Epidural or spinal anesthesia during labor	**242,621**	**138,125**	**576.7**	**590.2**	**579.0**	**568.9**	**574.0**	**569.3**	**568.4**	**3,106**
Hispanic[5]										
Induction of labor	651,982	105,308	162.3	180.0	166.8	160.6	153.3	148.2	143.4	3,255
Augmentation of labor	651,982	111,155	171.3	213.0	187.3	165.5	148.0	131.7	120.1	3,255
Non-vertex presentation	**651,982**	**8,121**	**12.5**	**9.0**	**10.5**	**12.0**	**14.9**	**18.2**	**25.1**	**3,255**
Steroids (glucocorticoids) for fetal lung maturation	**651,982**	**2,882**	**4.4**	**5.3**	**4.2**	**3.7**	**4.3**	**5.8**	**7.4**	**3,255**
Antibiotics received by mother during labor	**651,982**	**68,993**	**106.4**	**120.5**	**109.7**	**101.0**	**100.3**	**101.5**	**106.0**	**3,255**
Clinical chorioamnionitis during labor	651,982	7,674	11.8	18.8	13.6	10.7	8.5	7.0	5.6	3,255
Moderate/heavy meconium staining of amniotic fluid	651,982	29,209	45.0	48.6	46.3	45.0	42.7	41.2	40.1	3,255
Fetal intolerance of labor	651,982	21,243	32.7	35.0	31.9	30.5	32.2	38.1	39.6	3,255
Epidural or spinal anesthesia during labor	**651,982**	**301,799**	**465.2**	**488.5**	**460.2**	**452.6**	**467.8**	**475.0**	**469.2**	**3,255**

[1]Total number of births to residents of areas reporting specified labor and delivery characteristic.

[2]No response reported for characteristic of labor and delivery item; includes births to residents of states using the 2003 Standard Certificate of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth.

[3]Includes other races not shown.

[4]Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race.
Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. All states in the 19-state reporting area reported multiple-race data for 2006. These multiple-race data were bridged to the single-race categories of the 1977 OMB standards for comparability with other states; see "Technical Notes."

[5]Includes all persons of Hispanic origin of any race.

NOTE: Includes California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming.

Table R-4. Live births by method of delivery, by age and race and Hispanic origin of mother: Total of 19 reporting states, 2006

[Percentages are number of live births with specified method of delivery per 100 live births in specified group]

Method of delivery and race and Hispanic origin of mother	All births	Method reported	All ages[1]	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-54 years	Not stated[2]
All races[3]			Percent							
Attempted forceps/unsuccessful	**2,073,368**	**6,976**	**0.4**	**0.4**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**119,101**
Attempted vacuum extraction/unsuccessful	**2,073,368**	**14,666**	**0.8**	**0.9**	**0.8**	**0.7**	**0.7**	**0.6**	**0.6**	**120,731**
Fetal presentation at birth										
Cephalic	2,073,368	1,805,989	92.9	94.2	93.8	93.2	92.2	91.3	89.6	129,479
Breech	2,073,368	71,313	3.7	2.5	2.9	3.5	4.3	5.0	6.2	129,479
Other	2,073,368	66,587	3.4	3.3	3.3	3.3	3.5	3.7	4.2	129,479
Final route and method of delivery										
Vaginal/Spontaneous	2,073,368	1,295,818	63.4	70.8	67.8	64.8	59.7	54.2	47.7	28,510
Vaginal/Forceps	2,073,368	16,844	0.8	1.1	0.9	0.8	0.8	0.6	0.6	28,510
Vaginal/Vacuum	2,073,368	79,503	3.9	5.4	4.0	3.7	3.6	3.3	3.0	28,510
Cesarean	2,073,368	652,693	31.9	22.8	27.3	30.6	35.9	41.9	48.7	28,510
Cesarean/trial of labor attempted[4]	**652,693**	**160,996**	**25.3**	**41.7**	**30.5**	**25.4**	**21.0**	**18.5**	**17.5**	**15,541**
Non-Hispanic white[5]										
Attempted forceps/unsuccessful	**1,034,778**	**3,844**	**0.4**	**0.5**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**43,206**
Attempted vacuum extraction/unsuccessful	**1,034,778**	**8,339**	**0.8**	**1.1**	**1.0**	**0.9**	**0.7**	**0.7**	**0.6**	**45,306**
Fetal presentation at birth										
Cephalic	1,034,778	917,896	93.2	94.8	94.3	93.6	92.4	91.5	90.0	49,853
Breech	1,034,778	40,559	4.1	3.0	3.3	3.8	4.7	5.3	6.2	49,853
Other	1,034,778	26,470	2.7	2.2	2.4	2.5	2.9	3.2	3.8	49,853
Final route and method of delivery										
Vaginal/Spontaneous	1,034,778	636,492	62.8	69.4	67.3	64.9	60.0	54.8	48.3	20,729
Vaginal/Forceps	1,034,778	10,590	1.0	1.5	1.1	1.1	0.9	0.8	0.8	20,729
Vaginal/Vacuum	1,034,778	43,514	4.3	6.3	4.7	4.3	3.8	3.4	3.2	20,729
Cesarean	1,034,778	323,453	31.9	22.8	26.9	29.7	35.2	41.0	47.7	20,729
Cesarean/trial of labor attempted[4]	**323,453**	**88,404**	**27.9**	**49.5**	**35.5**	**29.2**	**23.1**	**20.0**	**18.5**	**6,159**
Non-Hispanic black[5]										
Attempted forceps/unsuccessful	**242,621**	**859**	**0.4**	**0.5**	**0.4**	**0.3**	**0.4**	**0.3**	*****	**11,412**
Attempted vacuum extraction/unsuccessful	**242,621**	**1,669**	**0.7**	**0.9**	**0.7**	**0.7**	**0.7**	**0.7**	**0.6**	**11,538**
Fetal presentation at birth										
Cephalic	242,621	214,322	93.8	95.3	94.6	93.6	92.6	91.4	90.2	14,212
Breech	242,621	7,181	3.1	2.1	2.6	3.3	4.0	4.9	5.7	14,212
Other	242,621	6,906	3.0	2.5	2.8	3.1	3.3	3.7	4.1	14,212
Final route and method of delivery										
Vaginal/Spontaneous	242,621	149,617	62.4	69.1	65.4	62.4	56.9	50.0	44.6	2,750
Vaginal/Forceps	242,621	1,755	0.7	1.2	0.7	0.6	0.5	0.6	0.5	2,750
Vaginal/Vacuum	242,621	7,458	3.1	4.8	3.3	2.5	2.3	2.3	2.2	2,750
Cesarean	242,621	81,041	33.8	24.9	30.6	34.5	40.2	47.2	52.7	2,750
Cesarean/trial of labor attempted[4]	**81,041**	**22,788**	**29.0**	**45.2**	**32.4**	**25.8**	**22.9**	**21.0**	**20.5**	**2,452**

Hispanic[6]										
Attempted forceps/unsuccessful	**651,982**	**1,949**	**0.3**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.4**	**52,062**
Attempted vacuum extraction/unsuccessful	**651,982**	**3,828**	**0.6**	**0.8**	**0.7**	**0.6**	**0.6**	**0.6**	**0.7**	**51,378**
Fetal presentation at birth										
Cephalic	651,982	550,347	91.9	93.1	92.6	92.0	91.2	90.2	88.1	53,370
Breech	651,982	18,589	3.1	2.2	2.5	3.0	3.7	4.7	6.2	53,370
Other	651,982	29,676	5.0	4.7	4.9	5.0	5.1	5.1	5.7	53,370
Final route and method of delivery										
Vaginal/Spontaneous	651,982	421,457	64.9	72.3	69.1	65.3	59.6	53.9	47.7	2,944
Vaginal/Forceps	651,982	3,391	0.5	0.9	0.6	0.4	0.4	0.4	0.3	2,944
Vaginal/Vacuum	651,982	20,241	3.1	4.7	3.3	2.7	2.6	2.4	2.4	2,944
Cesarean	651,982	203,949	31.4	22.1	27.0	31.6	37.4	43.3	49.7	2,944
Cesarean/trial of labor attempted[4]	**203,949**	**39,887**	**20.2**	**33.3**	**23.3**	**18.6**	**16.3**	**15.4**	**15.1**	**6,432**

* Figure does not meet standards of reliability or precision; based on fewer than 20 births in the numerator.

[1]Total number of births to residents of areas reporting the specified item

[2]No response reported for method of delivery item; includes births to residents of states using the 2003 Standard Certificate of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth.

[3]Includes other races not shown.

[4]Cesarean/trial of labor attempted is number of women who attempted a trial of labor prior to cesarean delivery per 100 cesarean births.

[5]Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race. Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. All states in the 19-state reporting area reported multiple-race data for 2006. These multiple-race data were bridged to the single-race categories of the 1977 OMB standards for comparability with other states; see "Technical Notes."

[6]Includes all persons of Hispanic origin of any race.

NOTE: Includes California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming.

Table R-5. Abnormal conditions of the newborn, by age and race and Hispanic origin of mother: Total of 19 reporting states, 2006

[Rates are number of live births with specified condition per 1,000 live births in specified group]

Abnormal condition and race and Hispanic origin of mother	All births[1]	Condition reported	All ages	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-54 years	Not stated[2]
All races[3]										
Assisted ventilation required immediately following delivery	**2,073,368**	**86,595**	**42.5**	**45.0**	**41.9**	**41.0**	**41.9**	**44.5**	**48.5**	**34,811**
Assisted ventilation required for more than six hours	**2,073,368**	**17,216**	**8.4**	**9.5**	**8.3**	**7.8**	**8.2**	**9.1**	**11.3**	**34,809**
NICU admission	**2,073,368**	**123,922**	**60.8**	**62.6**	**57.0**	**56.8**	**61.1**	**70.5**	**86.2**	**34,813**
Surfactant replacement therapy given to newborn	**2,073,368**	**6,462**	**3.2**	**3.6**	**3.1**	**2.9**	**3.1**	**3.5**	**4.2**	**34,808**
Antibiotics received by newborn for suspected neonatal sepsis	**2,073,368**	**33,092**	**16.2**	**20.1**	**17.0**	**15.4**	**14.8**	**15.4**	**17.6**	**34,806**
Seizure or serious neurologic dysfunction	2,073,368	528	0.3	0.3	0.3	0.3	0.2	0.2	0.4	34,807
Significant birth injury	2,073,368	1,188	0.6	0.5	0.5	0.5	0.6	0.7	0.8	34,806
Non-Hispanic white[4]										
Assisted ventilation required immediately following delivery	**1,034,778**	**49,382**	**48.9**	**51.4**	**47.8**	**47.2**	**49.1**	**51.0**	**54.8**	**24,239**
Assisted ventilation required for more than six hours	**1,034,778**	**9,704**	**9.6**	**11.1**	**9.5**	**9.0**	**9.5**	**9.9**	**11.3**	**24,237**
NICU admission	**1,034,778**	**63,252**	**62.6**	**63.6**	**58.5**	**59.0**	**63.6**	**70.2**	**84.1**	**24,243**
Surfactant replacement therapy given to newborn	**1,034,778**	**3,965**	**3.9**	**4.8**	**3.9**	**3.7**	**3.8**	**4.0**	**4.4**	**24,237**
Antibiotics received by newborn for suspected neonatal sepsis	**1,034,778**	**18,101**	**17.9**	**22.5**	**19.3**	**17.3**	**16.7**	**16.2**	**18.4**	**24,236**
Seizure or serious neurologic dysfunction	1,034,778	310	0.3	0.3	0.4	0.3	0.3	0.2	*	24,236
Significant birth injury	1,034,778	700	0.7	0.7	0.7	0.6	0.7	0.6	1.0	24,236
Non-Hispanic black[4]										
Assisted ventilation required immediately following delivery	**242,621**	**13,959**	**58.4**	**58.5**	**56.2**	**57.8**	**61.4**	**62.1**	**64.7**	**3,646**
Assisted ventilation required for more than six hours	**242,621**	**3,191**	**13.4**	**13.8**	**12.5**	**12.6**	**14.3**	**15.3**	**17.5**	**3,646**
NICU admission	**242,621**	**20,806**	**87.1**	**83.8**	**78.8**	**83.5**	**97.4**	**110.1**	**126.9**	**3,645**
Surfactant replacement therapy given to newborn	**242,621**	**1,203**	**5.0**	**4.9**	**4.5**	**4.7**	**5.6**	**6.9**	**7.0**	**3,645**
Antibiotics received by newborn for suspected neonatal sepsis	**242,621**	**4,991**	**20.9**	**22.8**	**20.8**	**18.9**	**20.6**	**22.8**	**25.8**	**3,645**
Seizure or serious neurologic dysfunction	242,621	59	0.2	*	*	*	*	*	*	3,645
Significant birth injury	242,621	87	0.4	*	0.3	*	*	*	*	3,645
Hispanic[5]										
Assisted ventilation required immediately following delivery	**651,982**	**19,190**	**29.6**	**33.9**	**29.8**	**27.6**	**27.8**	**30.8**	**35.4**	**4,430**
Assisted ventilation required for more than six hours	**651,982**	**3,492**	**5.4**	**6.4**	**5.2**	**4.5**	**5.3**	**6.3**	**9.5**	**4,430**
NICU admission	**651,982**	**32,327**	**49.9**	**52.5**	**46.6**	**45.0**	**50.2**	**63.9**	**78.1**	**4,430**
Surfactant replacement therapy given to newborn	**651,982**	**1,045**	**1.6**	**2.1**	**1.6**	**1.2**	**1.6**	**1.8**	**3.3**	**4,430**
Antibiotics received by newborn for suspected neonatal sepsis	**651,982**	**8,229**	**12.7**	**17.1**	**12.9**	**11.3**	**10.9**	**12.5**	**14.5**	**4,430**
Seizure or serious neurologic dysfunction	651,982	127	0.2	0.3	0.2	0.2	*	*	*	4,430
Significant birth injury	651,982	299	0.5	0.4	0.4	0.5	0.5	0.6	*	4,429

* Figure does not meet standards of reliability or precision; based on fewer than 20 births in the numerator.

[1]Total number of births to residents of areas reporting specified abnormal condition

[2]No response reported for abnormal condition of the newborn item. Includes births to residents of states using the 2003 Standard Certificat of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth.

[3]Includes other races not shown.

[4]Race and Hispanic origin are reported separately on birth certificates. Persons of Hispanic origin may be of any race. Race categories are consistent with the 1977 Office of Management and Budget (OMB) standards. All states in the 19-state reporting area reported multiple-race data for 2006. These multiple-race data were bridged to the single-race categories of the 1977 OMB standards for comparability with other states; see "Technical Notes."

[5]Includes all persons of Hispanic origin of any race

NOTE: Includes California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming.

Table R-6. Number and rate of live births by congenital anomaly of the newborn, by age of mother: Total of 19 reporting states, 2006

[Rates are number of live births with specified anomaly per 100,000 live births in specified group]

Congenital anomaly	All births[1]	Congenital anomaly reported	All ages	Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-54 years	Not stated[2]
Total										
Anencephaly	2,073,368	207	10.2	11.5	11.3	10.0	9.1	9.3	*	36,339
Menigomyelocele or spina bifida	2,073,368	296	14.5	17.0	13.1	15.9	12.9	14.7	*	36,339
Cyanotic congenital heart disease	**2,073,368**	**852**	**41.8**	**31.7**	**38.7**	**38.3**	**45.6**	**48.8**	**86.4**	**36,339**
Congenital diaphragmatic hernia	2,073,368	240	11.8	9.2	9.8	13.3	12.5	12.2	*	36,339
Omphalocele	2,073,368	168	8.2	13.3	7.7	7.5	6.7	8.4	*	36,339
Gastroschisis	2,073,368	533	26.2	86.9	42.3	14.9	6.2	*	*	36,339
Limb reduction defect	2,073,368	325	16.0	21.6	19.4	14.7	12.5	12.2	*	36,339
Cleft lip with or without cleft palate	2,073,368	1,160	56.9	69.9	63.5	54.5	48.1	52.6	60.6	36,339
Cleft palate alone	2,073,368	447	21.9	19.3	24.0	23.3	18.9	21.9	*	36,339
Down syndrome	2,073,368	1,000	49.1	25.3	29.6	26.2	45.6	102.7	360.1	36,339
Suspected chromosomal disorder	**2,073,368**	**782**	**38.4**	**32.2**	**34.8**	**29.6**	**32.9**	**58.1**	**147.0**	**36,339**
Hypospadias[3]	**2,073,368**	**925**	**45.4**	**43.7**	**46.0**	**48.4**	**42.7**	**41.2**	**57.0**	**36,339**
Males only[4]	**1,061,483**	**925**	**88.7**	**85.3**	**90.0**	**94.4**	**83.4**	**80.7**	**111.7**	**18,826**

* Figure does not meet standards of reliability or precision; based on fewer than 20 births in the numerator.

[1]Total number of births to residents of areas reporting specified congenital anomaly.

[2]No response reported for congenital anomaly of the newborn item; includes births to residents of states using the 2003 Standard Certificate of Live Birth occurring in states using the 1989 Standard Certificate of Live Birth.

[3]Denominator includes both male and female births.

[4]Denominator includes males only.

NOTE: Includes California, Delaware, Florida, Idaho, Kansas, Kentucky, Nebraska, New Hampshire, New York (excluding New York City), North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Washington, and Wyoming.