1995 Linked Birth/lnfant Death Birth Cohort Data Set

Contents

Linked Birth/Infant Death Data Set — 1995 Birth Cohort

Introduction

This documentation is for the 1995 birth cohort linked birth/infant death data set (linked file). Previous birth cohort linked files were released for data years 1983-91. Beginning with 1995 data, the linked file was released in two different formats — period data and birth cohort data.

Period data — The numerator for the 1995 period linked file consists of all infant deaths occurring in 1995 linked to their corresponding birth certificates, whether the birth occurred in 1995 or 1994. The denominator file for this data set is the 1995 natality file, that is, all births occurring in 1995. Beginning in 1995, the period linked files form the basis for all official NCHS linked file statistics (except for special cohort studies).

Birth cohort data — The numerator of the 1995 birth cohort linked file consists of deaths to infants born in 1995 linked to their corresponding birth certificates, whether the death occurred in 1995 or 1996. The denominator file is the 1995 natality file, that is, all births occurring in 1995.

The release of linked file data in two different formats allows NCHS to meet customer demands for more timely linked file data while still meeting the needs of data users who prefer the birth cohort format. The birth cohort file for a particular data year will generally be available about one year after the release of the period file since it is necessary to wait until the close of the following data year to include all infant deaths to the birth cohort. For most general purposes, differences between the 1995 birth cohort and 1995 period linked files are negligible. However, birth cohort files are preferred for multivariate and some other types of detailed analysis because they follow a given cohort of births for an entire year to ascertain their mortality experience. This is generally considered to be a more robust methodology than the period file, which is essentially cross-sectional in nature.

The 1995 birth cohort linked file includes several separate data files. The first file includes linked birth and death certificate data for all US infants born in 1995 who died before their first birthday - referred to as the numerator file. The second file contains information from the death certificate for all US infant death records which could not be linked to their corresponding birth certificates - referred to as the unlinked death file. The third file is the 1995 NCHS natality file for the US with a few minor modifications - referred to as the denominator-plus file. These same three data files are also available for Puerto Rico, the Virgin Islands, and Guam.

For the denominator-plus file, selected variables from the numerator file have been added to the denominator file to facilitate processing. These variables include age at death (and recodes), underlying cause of death (and the 61-cause recode), place of accident, and record weight. These variables are the most widely used variables from the numerator file. With the previous

file format it was sometimes necessary to combine the numerator and denominator files when performing certain multivariate statistical techniques. Now, when the number of variables required from the numerator file is limited, the denominator-plus file may be used by itself for ease of programming. Infant death identification numbers are also included, so that the same infant can be uniquely identified and matched between the numerator and denominator-plus files.

Weighting

In part to correct for known biases in the data, changes were made to the linked file beginning with the 1995 data year. These changes include the addition of a record weight and an imputation for not-stated birthweight. In the 1995 birth cohort linked file, 97.6% of infant death records were linked to their corresponding birth certificates. Overall, 2.4% of infant death records could not be linked because the matching birth certificate could not be found; however this percent varied considerably by State and other characteristics (see section on *Percent of records linked* below). Beginning with 1995 data, a record weight was added to the infant death records to correct in part for biases in percent of records linked by major characteristics. The number of infant deaths in the linked file are weighted to equal the sum of the linked plus unlinked infant deaths by age at death and state. The formula for computing the weights is as follows:

$$\frac{\text{number of linked infant deaths + number of unlinked infant deaths}}{\text{number of linked infant deaths.}}$$

A separate weight is computed for each State of residence of birth and each age at death category (<1 day, 1-27 days, 28 days-1 year). Thus, weights are 1.0 for states which link all of their infant deaths. These weights have been added to all linked infant death records in the numerator file, and in the denominator-plus file. In the denominator-plus file, records for surviving infants have been assigned a weight of 1.0. This causes the denominator-plus file to weight up to about 700 more than the total number of live births (3.9 million), thus most runs on live birth data from the denominator-plus file should be run unweighted. Weights have not been computed for the Puerto Rico, Virgin Islands, and Guam files.

The addition of weighting to the file has greatly reduced bias, but has also created challenges for data analysis. The researcher should be aware that the use of the weights is appropriate for some, but not all applications. Weights should be used when computing the total number of infant deaths, or the number of infant deaths by characteristics, either from the numerator or the denominator-plus files. Weights should not be used when computing the total number of live births, or the number of live births by characteristics from the denominator-plus file, as the use of weights under these circumstances will yield a slight overestimate of the total number of US births. For multivariate analysis, the use of weights is generally recommended, however, a decision should be made on an individual basis, depending on the type of multivariate technique

used, and the goals of the particular analysis. We would appreciate your feedback on the design and utility of the weights - please call Marian MacDorman at (301) 436-8954 ext. 171.

Imputed birthweight

An imputation for not-stated birthweight has been added to the data set, to reduce potential bias in the computation of birthweight-specific infant mortality rates. Basically, if birthweight is not-stated and the period of gestation is known, birthweight is assigned the value from the previous record with the same period of gestation, race, sex, and plurality. Imputed values are flagged. The addition of this imputation has reduced the percent of not-stated responses for birthweight from 3.15% to 1.19% in the numerator file, and from 0.10% to 0.04% in the denominator-plus file, thus reducing (but not eliminating) the potential for underestimation when computing birthweight-specific infant mortality rates.

Methodology

The methodology used to create the national file of linked birth and infant death records takes advantage of two existing data sources:

1. State linked files for the identification of linked birth and infant death certificates; and

2. NCHS natality and mortality computerized statistical files, the source of computer records for the two linked certificates.

Virtually all States routinely link infant death certificates to their corresponding birth certificates for legal and statistical purposes. When the birth and death of an infant occur in different States, copies of the records are exchanged by the State of death and State of birth in order to effect a link. In addition, if a third State is identified as the State of residence at the time of birth or death, that State is also sent a copy of the appropriate certificate by the State where the birth or death occurred.

The NCHS natality and mortality files, produced annually, include statistical data from birth and death certificates that are provided to NCHS by States under the Vital Statistics Cooperative Program (VSCP). The data have been coded according to uniform coding specifications, have passed rigid quality control standards, have been edited and reviewed, and are the basis for official U.S. birth and death statistics.

To initiate processing, NCHS obtained matching birth certificate numbers from States for all infant deaths that occurred in their jurisdiction. We used this information to extract final, edited mortality and natality data from the NCHS natality and mortality statistical files. Individual birth and death records were selected from their respective

files and linked into a single statistical record, thereby establishing a national linked record file.

After the initial linkage, NCHS returned to the States where the death occurred computer lists of unlinked infant death certificates for follow up linking. If the birth occurred in a State different from the State of death, the State of birth identified on the death certificate was contacted to obtain the linking birth certificate. State additions and corrections were incorporated, and a final, national linked file was produced. Characteristics of the natality and mortality data from which the linked file is constructed are described in detail in the Technical Appendices and Addenda included in this document.

Characteristics of Unlinked File

For the 1995 birth cohort linked file 708, or 2.4% of all infant death records could not be linked to their corresponding birth certificates. Unlinked records are included in a separate data file in this data set. The unlinked record file uses the same record layout as the numerator file of linked birth and infant death records. However, except as noted below, tape locations 1-210, reserved for information from the matching birth certificate, are blank since no matching birth certificate could be found for these records. The sex field (tape location 79) contains the sex of infant as reported on the death certificate, rather than the sex of infant from the birth certificate, which is not available. The race field (tape location 36-37) contains the race of the decedent as reported on the death certificate rather than the race of mother as reported on the birth certificate as is the case with the linked record file. The race of mother on the birth certificate is generally considered to be more accurate than the race information from the death certificate (see section on *Comparison of race data from birth and death certificates* in the Mortality Technical Appendix included in this documentation). Also, date of birth as reported on the death certificate is used to generate age at death. This information is used in place of date of birth from the birth certificate, which is not available.

Documentation table 6 shows counts of unlinked records by race and age at death for each State of residence. The user is cautioned in using table 6 that the race and residence items are based on information reported on the death certificate; whereas, tables 1-5 present data from the linked file in which the race and residence items are based on information reported on the birth certificate. (see section on *Comparison of race data from birth and death certificates* in the Mortality Technical Appendix included in this documentation).

Percent of Records Linked

The 1995 birth cohort linked file includes 28,607 linked infant death records and 708 unlinked infant death records by place of occurrence. The linked file is weighted to the sum of linked plus unlinked records, thus the total number of weighted infant deaths by place of occurrence is

29,315. While the overall percent linked for infant deaths in the 1995 birth cohort linked file is 97.6%, there are differences in percent linked by certain variables. These differences have important implications for how the data is analyzed.

Table 1 shows the percent of infant deaths linked by State of residence. While most States link a high percentage of infant deaths, linkage rates for some States are well below the national average. Note in particular the percent linked for California (94.7%), Ohio (92.0%) and Oklahoma (86.7%). When a high percentage of deaths remain unlinked, infant mortality rates computed for these States are underestimated. It is for this reason that weights were added to the 1995 birth cohort file to correct for biases in the data due to poor data linkage for particular states.

The percent of infant deaths linked by race and age at death is shown in Table 2. In general, a higher percentage of postneonatal (98.3%) than neonatal (97.2%) deaths were linked. The percent of records linked was similar for white (97.6%) and for black (97.5%) infants. Variations in percent linked by underlying cause of death have also been noted (data not shown). While the weighting protocol has been designed to correct for possible bias due to variations in match rates by characteristics, no statistical method can correct perfectly for data limitations. Therefore, variations in the percent of records linked should be taken into consideration when comparing infant mortality rates by detailed characteristics.

Geographic classification

Geographic codes in this data set have been updated to reflect the results of the 1990 census, and differ slightly from those used in previous linked files. Because of confidentiality concerns, only those counties and cities with a population size of 250,000 or more are separately identified in this data set. Users should refer to the geographic code outline in this document for the list of available areas and codes.

For events to be included in the linked file, both the birth and death must occur inside the 50 States and D.C. in the case of the 50 States and D.C. file; or in Puerto Rico, the Virgin Islands or Guam in the case of the Puerto Rico, Virgin Islands and Guam file. In tabulations of linked data and denominator data events occurring in each of the respective areas to nonresidents are included in tabulations that are by place of occurrence, and excluded from tabulations by place of residence. These exclusions are based on the usual place of residence of the mother. This item is contained in both the denominator file and the birth section of the numerator (linked) file. Nonresidents are identified by a code 4 in location 11 of these files.

Table 1. Percent of infant deaths linked by state of residence of birth: United States, 1995 birth cohort

United States	97.6%	Nebraska	100.0%
Alabama	100.0%	Nevada	96.6%
Alaska	98.8%	New Hampshire	98.7%
Arizona	98.2%	New Jersey	95.8%
Arkansas	99.7%	New Mexico	96.4%
California	94.7%	Upstate New York	98.0%
Colorado	99.7%	New York City	98.6%
Connecticut	99.7%	North Carolina	98.3%
Delaware	100.0%	North Dakota	100.0%
District of Columbia	99.3%	Ohio	92.0%
Florida	99.8%	Oklahoma	86.7%
Georgia	99.7%	Oregon	99.2%
Hawaii	98.1%	Pennsylvania	98.4%
Idaho	100.0%	Rhode Island	98.9%
Illinois	98.0%	South Carolina	99.0%
Indiana	97.6%	South Dakota	98.9%
Iowa	98.3%	Tennessee	100.0%
Kansas	98.4%	Texas	98.7%
Kentucky	97.3%	Utah	98.1%
Louisiana	97.0%	Vermont	100.0%
Maine	97.6%	Virginia	96.8%
Maryland	99.2%	Washington	97.8%
Massachusetts	97.1%	West Virginia	98.2%
Michigan	97.4%	Wisconsin	99.8%
Minnesota	99.8%	Wyoming	95.2%
Mississippi	99.8%	Puerto Rico	99.5%
Missouri	99.2%	Virgin Islands	84.4%
Montana	100.0%	Guam	100.0%

Table 2. Percent of resident infant deaths linked by race and age at death: United States, 1995 birth cohort (Infant deaths are under 1 year; neonatal, under 28 days, and postneonatal, 28 days-under 1 year)

	All races	White	Black
Infant	97.6%	97.6%	97.5%
Neonatal	97.2%	97.4%	96.9%
Postneonatal	98.3%	98.1%	98.6%

Demographic and Medical Classification

The documents listed below describe in detail the procedures employed for demographic classification on both the birth and death records and medical classification on death records. While not absolutely essential to the proper interpretation of the data for a number of general applications, these documents should nevertheless be studied carefully prior to any detailed analysis of demographic or medical (especially multiple cause) data variables. In particular, there are a number of exceptions to the ICD rules in multiple cause-of-death coding which, if not treated properly, may result in faulty analysis of the data.

A. Manual of the International Statistical Classification of Diseases, Injuries, and the Cause-of-Death, Ninth Revision (ICD-9) Volumes 1 and 2.

B. NCHS Instruction Manual Data Preparation Part 2a, Vital Statistics Instructions for Classifying the Underlying Cause-of-Death. Published annually.

C. NCHS Instruction Manual Data Preparation, Part 2b, Vital Statistics Instructions for Classifying Multiple Cause-of-Death. Published annually.

D. NCHS Instruction Manual Data Preparation, Part 2c, Vital Statistics ICD-9 ACME Decision Tables for Classifying Underlying Causes-of-Death. Published annually.

E. NCHS Instruction Manual Data Preparation, Part 2d, Vital Statistics NCHS Procedures for Mortality Medical Data System File Preparation and Maintenance, Effective 1985.

F. NCHS Instruction Manual Data Tabulation, Part 2f, Vital Statistics ICD-9 TRANSAX Disease Reference Tables for Classifying Multiple Causes-of-Death, 1982-85.

G. NCHS Instruction Manual Part 2g, Vital Statistics, Data Entry Instructions for the Mortality Medical Indexing, Classification, and Retrieval system (MICAR). Published annually.

H. NCHS Instruction Manual Part 2h, Vital Statistics, Dictionary of Valid Terms for the Mortality Medical Indexing, Classification, and Retrieval System (MICAR). Published annually.

I. NCHS Instruction Manual Data Preparation, Part 3a, Vital Statistics Classification and Coding Instructions for Live Birth Records. Published annually.

J. NCHS Instruction Manual Data Preparation, Part 4, Vital Statistics Demographic Classification and Coding Instructions for Death Records. Published annually.

K. NCHS Instruction Manual Tabulation, Part 11, Vital Statistics Computer Edits for Mortality Data, Effective 1990.

Copies of NCHS Instruction Manuals may be requested from the Chief, Data Preparation Branch, Division of Data Processing, National Center for Health Statistics, P.O. Box 12214, Research Triangle Park, North Carolina 27709.

In addition, the user should refer to the Technical Appendices of the Vital Statistics of the United States for information on the source of data, coding procedures, quality of the data, etc. The Technical Appendices for natality and mortality are part of this documentation package.

Cause-of-Death Data

Mortality data are traditionally analyzed and published in terms of underlying cause-of-death. The underlying cause-of-death data are coded and classified as described in the Mortality Technical Appendices. NCHS has augmented underlying cause-of-death data with data on multiple causes reported on the death certificate. The linked file includes both underlying and multiple cause-of-death data.

The multiple cause of death codes were developed with two objectives in mind. First, to facilitate etiological studies of the relationships among conditions, it was necessary to reflect accurately in coded form each condition and its location on the death certificate in the exact manner given by the certifier. Secondly, coding needed to be carried out in a manner by which the underlying cause of death could be assigned through computer applications. The approach was to suspend the linkage provisions of the ICD for the purpose of condition coding and code each entity with minimum regard to other conditions present on the certification. This general approach is hereafter called entity coding.

Unfortunately, the set of multiple cause codes produced by entity coding is not conducive to a third objective -- the generation of person-based multiple cause statistics. Person-based analysis requires that each condition be coded within the context of every other condition on the same certificate and modified or linked to such conditions as provided by ICD-9. By definition, the entity data cannot meet this requirement since the linkage provisions distort the character and placement of the information originally recorded by the certifying physician.

Since the two objectives are incompatible, NCHS has chosen to create from the original set of entity codes a new code set called record axis multiple cause data. Essentially,

the axis of classification has been converted from an entity basis to a record (or person) basis. The record axis codes are assigned in terms of the set of codes that best describe the overall medical certification portion of the death certificate.
This translation is accomplished by a computer system called TRANSAX (translation of axis) through selective use of traditional linkage and modification rules for mortality coding. Underlying cause linkages which simply prefer one code over another for purposes of underlying cause selection are not included. Each entity code on the record is examined and modified or deleted as necessary to create a set of codes which are free of contradictions and are the most precise within the constraints of ICD-9 and medical information on the record. Repetitive codes are deleted. The process may (1) combine two entity axis categories together to a new category thereby eliminating a contradiction or standardizing the data; or (2) eliminate one category in favor of another to promote specificity of the data or resolve contradictions. The following examples from ICD-9 illustrate the effect of this translation:

Case 1: When reported on the same record as separate entities, cirrhosis of liver and alcoholism are coded to 5715 (cirrhosis of liver without mention of alcohol) and 303 (alcohol dependence syndrome). Tabulation of records with 5715 would on the surface falsely imply that such records had no mention of alcohol. A preferable codification would be 5712 (alcoholic cirrhosis of liver) in lieu of both 5715 and 303.

Case 2: If "gastric ulcer" and "bleeding gastric ulcer" are reported on a record they are coded to 5319 (gastric ulcer, unspecified as acute or chronic, without mention of hemorrhage or perforation) and 5314 (gastric ulcer, chronic or unspecified, with hemorrhage). A more concise codification would be to code 5314 only since the 5314 shows both the gastric ulcer and the bleeding.

Entity Axis Codes

The original conditions coded for selection of the underlying cause of death are reformatted and edited prior to creating the public-use tape. The following paragraphs describe the format and application of entity axis data.

Format — Each entity-axis code is displayed as an overall seven byte code with subcomponents as follows:

1. Line indicator: The first byte represents the line of the certificate on which the code appears. Six lines (1-6) are allowable with the fourth and fifth denoting one or two written in "due to"s beyond the three lines provided in Part I of the U.S. standard

death certificate. Line "6" represents Part II of the certificate.

2. Position indicator: The next byte indicates the position of the code on the line, i.e., it is the first (1), second (2), third (3),... eighth (8) code on the line.

3. Cause category: The next four bytes represent the ICD-9 cause code.

4. Nature of injury flag: ICD-9 uses the same series of numbers (800-999) to indicate nature of injury (N codes) and external cause codes (E codes). This flag distinguishes between the two with a one (1) representing nature of injury codes and a zero (0) representing all other cause codes.

A maximum of 20 of these seven byte codes are captured on a record for multiple-cause purposes. This may consist of a maximum of 8 codes on any given line with up to 20 codes distributed across three or more lines depending on where the subject conditions are located on the certificate. Codes may be omitted from one or more lines, e.g., line 1 with one or more codes, line 2 with no codes, line 3 with one or more codes.

In writing out these codes, they are ordered as follows: line 1 first code, line 1 second code, etc. ----- line 2 first code, line 2 second code, etc. ----- line 3 ----- line 4 ----- line 5 ----- line 6. Any space remaining in the field is left blank. The specifics of locations are contained in the record layout given later in this document.

Edit — The original conditions are edited to remove invalid codes, reverify the coding of certain rare causes of death, and assure age/cause and sex/cause compatibility. Detailed information relating to the edit criteria and the sets of cause codes which are valid to underlying cause coding and multiple cause coding are provided in Part 11 of the NCHS Vital Statistics Instruction Manual Series.

Entity axis applications — The entity axis multiple cause data is appropriate to analyses which require that each condition be coded as a stand alone entity without linkage to other conditions and/or require information on the placement of such conditions in the certificate. Within this framework, the entity data are appropriate to the examination of etiological relationships among conditions, accuracy of certification reporting, and the validity of traditional assumptions in underlying cause selection.

Additionally, the entity data provide in certain categories a more detailed code assignment which is linked out in the creation of record axis data. Where such detail is needed for a study, the user should selectively employ entity data. Finally, the

researcher may not wish to be bound by the assumptions used in the axis translation process preferring rather to investigate hypotheses of his own predilection.

By definition, the main limitation of entity axis data is that an entity code does not necessarily reflect the best code for a condition when considered within the context of the medical certification as a whole. As a result certain entity codes can be misleading or even contradict other codes in the record. For example, category 5750 is titled "Acute cholecystitis without mention of calculus". Within the framework of entity codes this is interpreted to mean that the codable entity itself contained no mention of calculus rather than that calculus was not mentioned anywhere on the record. Tabulation of records with a "5750" as a count of persons having acute cholecystitis without mention of calculus would therefore be erroneous. This illustrates the fact that under entity coding the ICD-9 titles cannot be taken literally. The user must study the rules for entity coding as they relate to his/her research prior to utilization of entity data. The user is further cautioned that the inclusion notes in ICD-9 which relate to modifying and combining categories are seldom applicable to entity coding (except where provided in Part 2b of the Vital Statistics Instruction Manual Series).

In tabulating the entity axis data, one may count codes with the resultant tabulation of an individual code representing the number of times the disease(s) represented by the code appears in the file. In this kind of tabulation of morbid condition prevalence, the counts among categories may be added together to produce counts for groups of codes. Alternatively, subject to the limitations given above, one may count persons having mention of the disease represented by a code or codes. In this instance it is not correct to add counts for individual codes to create person counts for groups of codes. Since more than one code in the researcher's interest may appear together on the certificate, totaling must account for higher order interactions among codes. Up to 20 codes may be assigned on a record; therefore, a 20-way interaction is theoretically possible. All totaling must be based on mention of one or more of the categories under investigation.

Record Axis Codes

The following paragraphs describe the format and application of record-axis data. Part 2f of the Vital Statistics Instruction Manual Series describes the TRANSAX process for creating record axis data from entity axis data.

Format — Each record (or person) axis code is displayed in five bytes. Location information is not relevant. The Code consists of the following components:

1. Cause category: The first four bytes represent the ICD-9 cause code.

2. Nature of injury flag: The last byte contains a 0 or 1 with the 1 indicating that the cause is a nature of injury category.

Again, a maximum of 20 codes are captured on a record for multiple cause purposes. The codes are written in a 100-byte field in ascending code number (5 bytes) order with any unused bytes left blank.

Edit — The record axis codes are edited for rare causes and age/cause and sex/cause compatibility. Likewise, individual code validity is checked. The valid code set for record axis coding is the same as that for entity coding.

Record axis applications — The record axis multiple cause data set is the basis for NCHS core multiple cause tabulations. Location of codes is not relevant to this data set and conditions have been linked into the most meaningful categories for the certification. The most immediate consequence for the user is that the codes on the record already represent mention of a disease assignable to that particular ICD-9 category. This is in contrast to the entity code which is assigned each time such a disease is reported on two different lines of the certification. Secondly, the linkage implies that within the constraints of ICD-9 the most meaningful code has been assigned. The translation process creates for the user a data set which is edited for contradictions, duplicate codes, and imprecisions. In contrast to entity axis data, record axis data are classified in a manner comparable to underlying cause of death classification thereby facilitating joint analysis of these variables. Likewise, they are comparable to general morbidity coding where the linkage provisions of ICD-9 are usually utilized. A potential disadvantage of record axis data is that some detail is sacrificed in a number of the linkages.

The user can take the record axis codes as literally representing the information conveyed in ICD-9 category titles. While knowledge of the rules for combining and linking and coding conditions is useful, it is not a prerequisite to meaningful analysis of the data as long as one is willing to accept the assumptions of the axis translation process. The user is cautioned, however, that due to special rules in mortality coding, not all linkage notes in ICD-9 are utilized. (See Part 2f of the Vital Statistics Instruction Manual Series.)

The user should proceed with caution in using record axis data to count conditions as opposed to people with conditions since linkages have been invoked and duplicate codes have been eliminated. As with entity data, person based tabulations which combine individual cause categories must take into account the possible interaction of up to 20 codes on a single certificate.

In using the NCHS multiple cause data, the user is urged to review the information in this document and its references. The instructional material does change from year to

year and revision to revision. The user is cautioned that coding of specific ICD-9 categories should be checked in the appropriate instruction manual. What may appear on the surface to be the correct code by ICD-9 may in fact not be correct as given in the instruction manuals.

If on the surface it is not obvious whether entity axis or record axis data should be employed in a given application, detailed examination of Part 2f of the Vital Statistics Instruction Manual Series and its attachments will probably provide the necessary information to make a decision. It allows the user to determine the extent of the trade-offs between the two sets of data in terms of specific categories and the assumptions of axis translation. In certain situations, a combination of entity and record axis data may be the more appropriate alternative.

Linked Birth/Infant Death Data Set - 1995 Birth Cohort

Data File Characteristics:

The data were processed using the SAS language on an IBM 9672.
The data are recorded in IBM/EBCDIC 8-bit code for each character.
Codes may be numeric, alphabets, or blank.
The record type is fixed format.

I. Denominator File:

United States Data Set

A. File Organization:	One file, multiple tapes	
B. Record count:	3,903,012	
C. Record length:	230	
D. Data counts:	a. By occurrence:	3,903,012
	b. By residence:	3,899,589
	c. To foreign residents:	3,423

Possessions Data Set

A. File Organization:	One file, one tape	
B. Record count:		63,518
C. Record length:		230

Puerto Rico

Data counts:	a. By occurrence:	63,518
	b. By occurrence and residence:	63,419
	c. To foreign residents:	99

Virgin Islands

Data counts:	a. By occurrence:	2,164
	b. By occurrence and residence:	2,032
	c. To foreign residents:	132

Guam

Data counts:	a. By occurrence:	4,186
	b. By occurrence and residence	4,180
	c. To foreign residents:	6

II. Numerator File:

United States Data Set

A. File Organization:	One of multiple files on a tape	
B. Record count:	28,607	
C. Record length:	535	
D. Data counts:	a. By occurrence:	28,607
	b. By residence:	28,594
	c. To foreign residents:	13

Possessions Data Set

A. File Organization:	one of multiple files on a tape	
B. Record count:	856	
C. Record length:	535	
Puerto Rico		
Data counts:	a. By occurrence:	789
	b. By occurrence and residence:	783
	c. To foreign residents:	6
Virgin Islands		
Data counts:	a. By occurrence:	27
	b. By occurrence and residence:	27
	c. To foreign residents:	0
Guam		
Data counts:	a. By occurrence:	40
	b. By occurrence and residence:	40
	c. To foreign residents:	0

III. Unlinked File:

United States Data Set

A. File Organization:	one file of multiple files on a tape	
B. Record count:	708	
C. Record length:	535	
D. Data counts:	a. By occurrence:	708
	b. By residence:	704
	c. To foreign residents:	4

Possessions Data Set

A. File Organization:	one file of multiple files on a tape	
B. Record count:	3	
C. Record length:	535	

Puerto Rico

Data counts:	a. By occurrence:	9
	b. By occurrence and residence:	4
	c. To foreign residents:	5

Virgin Islands

Data counts:	a. By occurrence:	0
	b. By occurrence and residence:	0
	c. To foreign residents:	0

Guam

Data counts:	a. By occurrence:	0
	b. By occurrence and residence:	0
	c. To foreign residents:	0

Linked Birth/Infant Death Data Set - 1996 Period Data
List of Data Elements and Locations

Data Items	Denominator Plus File	Numerator File Birth	Numerator File Death	Unlinked File
1. General				
a. Year of birth	7-10	7-10	--	--
b. Year of death	--	--	524-527	524-527
c. Resident status	11	11	505	505
d. Record weight	223-230	--	223-230	--
e. Flag for records included in both numerator and denominator	210	--	--	--
2. Occurrence				
a. FIPS state	14-15	14-15	508-509	508-509
b. FIPS county	16-18	16-18	510-512	510-512
3. Residence				
a. FIPS state	19-20	19-20	513-514	513-514
b. FIPS county	21-23	21-23	515-517	515-517
c. FIPS place	24-28	24-28	518-522	518-522
d. NCHS state	12-13	12-13	506-507	506-507
4. Infant				
a. Age	--	--	211-214	211-214+
b. Race	--	--	--	35-38*
c. Sex	78-79	78-79	--	78-79*
d. Gestation	70-77	70-77	--	--
e. Birthweight	80-87	80-87	--	--
f. Plurality	88-89	88-89	--	--
g. Apgar score	90-91	90-91	--	--
h. Day of week of birth/death	209	209	532	532
i. Month of birth/death	205-206	205-206	528-529	528-529
5. Mother				
a. Age	29-32	29-32	--	--
b. Race	35-38	35-38	--	--
c. Education	39-41	39-41	--	--
d. Marital status	42-43	42-43	--	--
e. Place of birth	44-46	44-46	--	--
f. Hispanic origin	33-34	33-34	--	--
6. Father				
a. Age	60-62	60-62	--	--
b. Race	65-66	65-66	--	--
c. Hispanic origin	63-64	63-64	--	--

Linked Birth/Infant Death Data Set - 1996 Period Data
List of Data Elements and Locations

Data Items	Denominator Plus File	Numerator File Birth	Numerator File Death	Unlinked File
7. Pregnancy items				
a. Month prenatal care began	51-53	51-53	--	--
b. Number of prenatal visits	54-55	54-55	--	--
c. Adequacy of care recode56	56	--	--	
d. Total birth order	47-48	47-48	--	--
e. Live birth order	49-50	49-50	--	--
8. Medical and Health Data				
a. Method of delivery	92-99	92-99	--	--
b. Medical risk factors	100-117	100-117	--	--
c. Other risk factors				
Tobacco	118-121	118-121	--	--
Alcohol	122-125	122-125	--	--
Weight gain during pregnancy	126-128	126-128	--	--
d. Obstetric procedures	129-136	129-136	--	--
e. Complications of labor and/or delivery	137-153	137-153	--	--
f. Abnormal conditions of the newborn	154-163	154-163	--	--
g. Congenital anomalies	164-186	164-186	--	--
h. Underlying cause of death			216-219	216-219
i. 61 Infant cause recode			220-222	220-222
j. Multiple conditions			261-504	261-504
9. Other items				
a. Place of delivery	67	67	--	--
b. Attendant at birth	68	68	--	--
c. Hospital and patient status	--	--	523	523
e. Place of accident	--	--	215	215
f. Residence reporting flags	187-203	187-203	--	--

\+ For the unlinked file, date of birth as reported on the death certificate is used to generate age at death. See section on Changes Beginning with the 1995 Data Year for explanation.

* For the unlinked file, these items are from the death certificate. See section on Changes Beginning with the 1995 Data Year for explanation.

Item Location	Item Length	Variable Name, Item and Code Outline
1	1	**MATCHS** **Match Status** 1 ... Matched Birth/Infant Death Record 2 ... Surviving infant record 3 ... Unmatched infant death record Note: This code is used in the unlinked file only.
2- 6	5	**IDNUMBER** **Infant Death Number** This number uniquely identifies the same infant in the numerator and denominator-plus files.

Locations 7-210 of the linked file contain data from the Birth Certificate.
Locations 211-222, 261-535 of linked file contain data from the Death Certificate.

Residence items in the Denominator Record and in the natality section of the Numerator (linked) Record refer to the usual place of residence of the Mother; whereas in the mortality section of the Numerator (Linked) Record, these items refer to the residence of the Decedent.

7-10	4	**BIRYR** **Year of Birth** 1995 ... Born in 1995
11	1	**RESSTATB** **Resident Status - Birth** **United States Occurrence** 1 ... RESIDENTS: State and county of occurrence and residence are the same. 2 ... INTRASTATE NONRESIDENTS: State of occurrence and residence are the same, but county is different. 3 ... INTERSTATE NONRESIDENTS: State of occurrence and residence are different, but both are in the 50 States and D.C. 4 ... FOREIGN RESIDENTS: State of occurrence is one of the 50 States or the District of Columbia, but place of residence of mother is outside of the 50 States and D.C. **Puerto Rico Occurrence** 1 ... RESIDENTS: State and county of occurrence and residence are the same. 2 ... INTRASTATE NONRESIDENTS: State of occurrence and residence are the same, but county is different. 4 ... FOREIGN RESIDENTS: Occurred in Puerto Rico to a resident of any other place.

Item Location	Item Length	Variable Name, Item and Code Outline
11	1	**Virgin Islands Occurrence**
		1 ... RESIDENTS: State and county of occurrence and residence are the same.
		2 ... INTRASTATE NONRESIDENTS: State of occurrence and residence are the same, but county is different.
		4 ... FOREIGN RESIDENTS: Occurred in the Virgin Islands to a resident of any other place.
		Guam Occurrence
		1 ... RESIDENTS: Occurred in Guam to a resident of Guam or to a resident of the U.S.
		4 ... FOREIGN RESIDENTS: Occurred in Guam to a resident of any place other than Guam or the U.S.
12-13	2	**BRSTATE** **Expanded State of Residence - NCHS Codes - Birth**
		This item is designed to separately identify New York City records from other New York State records.
		United States Occurrence
		01 ... Alabama
		02 ... Alaska
		03 ... Arizona
		04 ... Arkansas
		05 ... California
		06 ... Colorado
		07 ... Connecticut
		08 ... Delaware
		09 ... District of Columbia
		10 ... Florida
		11 ... Georgia
		12 ... Hawaii
		13 ... Idaho
		14 ... Illinois
		15 ... Indiana
		16 ... Iowa
		17 ... Kansas
		18 ... Kentucky
		19 ... Louisiana
		20 ... Maine
		21 ... Maryland
		22 ... Massachusetts
		23 ... Michigan
		24 ... Minnesota
		25 ... Mississippi
		26 ... Missouri

Item Location	Item Length	Variable Name, Item and Code Outline
12-13	2	**BRSTATE** **Expanded State of Residence - NCHS Codes - Birth (Cond't)**

This item is designed to separately identify New York City records from other New York State records.

United States Occurrence

27	...	Montana
28	...	Nebraska
29	...	Nevada
30	...	New Hampshire
31	...	New Jersey
32	...	New Mexico
33	...	New York
34	...	New York City
35	...	North Carolina
36	...	North Dakota
37	...	Ohio
38	...	Oklahoma
39	...	Oregon
40	...	Pennsylvania
41	...	Rhode Island
42	...	South Carolina
43	...	South Dakota
44	...	Tennessee
45	...	Texas
46	...	Utah
47	...	Vermont
48	...	Virginia
49	...	Washington
50	...	West Virginia
51	...	Wisconsin
52	...	Wyoming
53-58,60	...	Foreign Residents
53	...	Puerto Rico
54	...	Virgin Islands
55	...	Guam
56	...	Canada
57	...	Cuba
58	...	Mexico
60	...	Remainder of the World

Puerto Rico Occurrence

53	...	Puerto Rico
01-52,54-58,60	...	Foreign Residents: Refer to U.S. for specific code structure.

Virgin Islands Occurrence

54	...	Virgin Islands
01-53,55-58,60	...	Foreign Residents: Refer to U.S. for specific code structure.

Item Location	Item Length	Variable Name, Item and Code Outline

12-13 2

BRSTATE
Expanded State of Residence - NCHS Codes - Birth (Cond't)

This item is designed to separately identify New York City records from other New York State records.

Guam Occurrence

55	...	Guam
01-52	...	U.S. resident is also considered a resident of Guam.
53,54,58,60	...	Foreign Residents: Refer to U.S. for specific code structure.

14-18 5

FIPSOCCB
Federal Information Processing Standards (FIPS) Geographic Codes (Occurrence) - Birth

Refer to the Geographic Code Outline further back in this document for a detailed list of areas and codes. For an explanation of FIPS codes, reference should be made to various National Institute of Standards and Technology (NIST) publications.

14-15 2

STOCCFIPB
State of Occurrence (FIPS) - Birth

United States

01	...	Alabama
02	...	Alaska
04	...	Arizona
05	...	Arkansas
06	...	California
08	...	Colorado
09	...	Connecticut
10	...	Delaware
11	...	District of Columbia
12	...	Florida
13	...	Georgia
15	...	Hawaii
16	...	Idaho
17	...	Illinois
18	...	Indiana
19	...	Iowa
20	...	Kansas
21	...	Kentucky
22	...	Louisiana
23	...	Maine
24	...	Maryland
25	...	Massachusetts
26	...	Michigan
27	...	Minnesota
28	...	Mississippi
29	...	Missouri
30	...	Montana
31	...	Nebraska
32	...	Nevada

Item Location	Item Length	Variable Name, Item and Code Outline		
14-15	2	**STOCCFIPB** **State of Occurrence (FIPS) - Birth (Cond't)**		
		United States		
		33	...	New Hampshire
		34	...	New Jersey
		35	...	New Mexico
		36	...	New York
		37	...	North Carolina
		38	...	North Dakota
		39	...	Ohio
		40	...	Oklahoma
		41	...	Oregon
		42	...	Pennsylvania
		44	...	Rhode Island
		45	...	South Carolina
		46	...	South Dakota
		47	...	Tennessee
		48	...	Texas
		49	...	Utah
		50	...	Vermont
		51	...	Virginia
		53	...	Washington
		54	...	West Virginia
		55	...	Wisconsin
		56	...	Wyoming
		Puerto Rico		
		72	...	Puerto Rico
		Virgin Islands		
		78	...	Virgin Islands
		Guam		
		66	...	Guam
16-18	3	**CNTOCFIPB** **County of Occurrence (FIPS) - Birth**		
		001-nnn	...	Counties and county equivalents (independent and coextensive cities) are numbered alphabetically within each State. (Note: To uniquely identify a county, both the State and county codes must be used.)
		999	...	County with less than 250,000 population

Item Location	Item Length	Variable Name, Item and Code Outline
19-23	5	**FIPSRESB** **Federal Information Processing Standards (FIPS) Geographic Codes (Residence) - Birth** Refer to the Geographic Code Outline further back in this document for a detailed list of areas and codes. For an explanation of FIPS codes, reference should be made to various National Institute of Standards and Technology (NIST) publications.
19-20	2	**STRESFIPB** **State of Residence (FIPS) - Birth**

United States Occurrence

00	...	Foreign residents
01	...	Alabama
02	...	Alaska
04	...	Arizona
05	...	Arkansas
06	...	California
08	...	Colorado
09	...	Connecticut
10	...	Delaware
11	...	District of Columbia
12	...	Florida
13	...	Georgia
15	...	Hawaii
16	...	Idaho
17	...	Illinois
18	...	Indiana
19	...	Iowa
20	...	Kansas
21	...	Kentucky
22	...	Louisiana
23	...	Maine
24	...	Maryland
25	...	Massachusetts
26	...	Michigan
27	...	Minnesota
28	...	Mississippi
29	...	Missouri
30	...	Montana
31	...	Nebraska
32	...	Nevada
33	...	New Hampshire
34	...	New Jersey
35	...	New Mexico
36	...	New York
37	...	North Carolina
38	...	North Dakota
39	...	Ohio
40	...	Oklahoma
41	...	Oregon
42	...	Pennsylvania
44	...	Rhode Island

Item Location	Item Length	Variable Name, Item and Code Outline
19-20	2	**STRESFIPB** **State of Residence (FIPS) - Birth Cond't)**

United States Occurrence

45	...	South Carolina
46	...	South Dakota
47	...	Tennessee
48	...	Texas
49	...	Utah
50	...	Vermont
51	...	Virginia
53	...	Washington
54	...	West Virginia
55	...	Wisconsin
56	...	Wyoming

Puerto Rico Occurrence

00-56,66,78	...	Foreign Residents: Refer to U.S. for specific code structure
72	...	Puerto Rico

Virgin Islands Occurrence

00-56,66,72	...	Foreign Residents: Refer to U.S. for specific code structure
78	...	Virgin Islands

Guam Occurrence

00,72,78	...	Foreign Residents: Refer to U.S. for specific code structure
01-56	...	U.S. Resident is also considered a resident of Guam. Refer to U.S. for specific code structure
66	...	Guam

21-23	3	**CNTYRFPB** **County of Residence (FIPS) - Birth**

000	...	Foreign residents
001-nnn	...	Counties and county equivalents (independent and coextensive cities) are numbered alphabetically within each State (Note: To uniquely identify a county, both the State and county codes must be used.)
999	...	County with less than 250,000 population

24-28	5	**PLRES** **Place (City) of Residence (FIPS)**

A complete list of cities is shown in the Geographic Code Outline further back in this document.

00000	...	Foreign residents
00001-nnnnn	...	Code range
99999	...	Balance of county; or city less than 250,000 population

Item Location	Item Length	Variable Name, Item and Code Outline
29	1	**MAGEFLG** **Age of Mother Flag** This position is flagged whenever age is imputed or the mother's reported age is used. The reported age is used, if valid, when computed age derived from the date of birth is not available or when it is outside the 10-49 code range. Blank ... Not imputed and reported age is not used 1 ... Reported age is used 2 ... Age is imputed
30-31	2	**DMAGE** **Age of Mother** This item is: a) computed using dates of birth of mother and of delivery; b) reported; or c) imputed. This is the age item used in NCHS publications. 10-49 ... Age in single years
32	1	**MAGER8** **Age of Mother Recode 8** 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 8 ... 45 - 49 years
33	1	**ORMOTH** **Hispanic Origin of Mother** Hispanic origin is reported for all areas except Puerto Rico. 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

Item Location	Item Length	Variable Name, Item and Code Outline
34	1	**ORRACEM** **Hispanic Origin and Race of Mother Recode** Hispanic origin is reported for all areas except Puerto Rico. 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
35	1	**MRACEIMP** **Race of Mother Imputation Flag** Blank ... Race is not imputed 1 ... Race is imputed 2 ... All other races, formerly code 09, is imputed
36-37	2	**MRACE** **Race of Mother - Birth Record or for Unlinked Records Race of Decedent from Death Record** Beginning with 1992 data, some areas started reporting additional Asian or Pacific Islander codes for race. Codes 18-68 replace old code 08 for these areas. Code 78 replaces old code 08 for all other areas. For consistency with Census race code 09 (all other races) used prior to 1992 has been imputed. **United States Occurrence** 01 ... White 02 ... Black 03 ... American Indian (includes Aleuts and Eskimos) 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 or Pacific Islander in areas reporting codes 18-58 78 ... Combined other Asian or Pacific Islander, includes codes 18-68 for areas that do not report them separately

Item Location	Item Length	Variable Name, Item and Code Outline
36-37	2	**MRACE** **Race of Mother - Birth Record or for Unlinked Records Race of Decedent from Death Record (Cond't)**

Puerto Rico Occurrence

00	...	Other races
01	...	White
02	...	Black

Virgin Islands Occurrence

01	...	White
02	...	Black
03	...	American Indian (includes Aleuts and Eskimos)
04	...	Chinese
05	...	Japanese
06	...	Hawaiian (includes part-Hawaiian)
07	...	Filipino
08	...	Other Asian or Pacific Islander

Guam Occurrence

01	...	White
02	...	Black
03	...	American Indian (includes Aleuts and Eskimos)
04	...	Chinese
05	...	Japanese
06	...	Hawaiian (includes part-Hawaiian)
07	...	Filipino
08	...	Other Asian or Pacific Islander
58	...	Guamanian

38	1	**MRACE3** **Race of Mother Recode**

1	...	White
2	...	Races other than White or Black
3	...	Black

Item Location	Item Length	Variable Name, Item and Code Outline

39-40 2

DMEDUC
Education of Mother Detail

All areas report education of mother.

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

41 1

MEDUC6
Education of Mother Recode

1	...	0 - 8 years
2	...	9 - 11 years
3	...	12 years
4	...	13 - 15 years
5	...	16 years and over
6	...	Not stated

42 1

DMARIMP
Marital Status of Mother Imputation Flag

Blank	...	Marital status is not imputed
1	...	Marital status is imputed

43 1

DMAR
Marital Status of Mother

Marital status is not reported by all areas. See reporting flags.

United States/Virgin Islands/Guam Occurrence

1	...	Married
2	...	Unmarried
9	...	Unknown or not stated

Puerto Rico Occurrence

1	...	Married
2	...	Unmarried parents living together
3	...	Unmarried parents not living together
9	...	Unknown or not stated

Item Location	Item Length	Variable Name, Item and Code Outline		
44-45	2	**MPLBIR**		
		Place of Birth of Mother		
		01	...	Alabama
		02	...	Alaska
		03	...	Arizona
		04	...	Arkansas
		05	...	California
		06	...	Colorado
		07	...	Connecticut
		08	...	Delaware
		09	...	District of Columbia
		10	...	Florida
		11	...	Georgia
		12	...	Hawaii
		13	...	Idaho
		14	...	Illinois
		15	...	Indiana
		16	...	Iowa
		17	...	Kansas
		18	...	Kentucky
		19	...	Louisiana
		20	...	Maine
		21	...	Maryland
		22	...	Massachusetts
		23	...	Michigan
		24	...	Minnesota
		25	...	Mississippi
		26	...	Missouri
		27	...	Montana
		28	...	Nebraska
		29	...	Nevada
		30	...	New Hampshire
		31	...	New Jersey
		32	...	New Mexico
		33	...	New York
		34	...	North Carolina
		35	...	North Dakota
		36	...	Ohio
		37	...	Oklahoma
		38	...	Oregon
		39	...	Pennsylvania
		40	...	Rhode Island
		41	...	South Carolina
		42	...	South Dakota
		43	...	Tennessee
		44	...	Texas
		45	...	Utah
		46	...	Vermont
		47	...	Virginia
		48	...	Washington
		49	...	West Virginia

Item Location	Item Length	Variable Name, Item and Code Outline

44-45 2 **MPLBIR**
Place of Birth of Mother (Cond't)

50	...	Wisconsin
51	...	Wyoming
52	...	Puerto Rico
53	...	Virgin Islands
54	...	Guam
55	...	Canada
56	...	Cuba
57	...	Mexico
59	...	Remainder of the World
99	...	Not Classifiable

46 1 **MPLBIRR**
Place of Birth of Mother Recode

United States Occurrence

1	...	Born in the 50 States and D.C.
2	...	Born outside the 50 States and DC
3	...	Unknown or not stated

Puerto Rico/Virgin Island/ Guam Occurrence

Blank	...	This item not recorded

47-48 2 **DTOTORD**
Detail Total Birth Order

Sum of live birth order and other terminations of pregnancy. If either item is unknown, this item is made unknown.

01-40	...	Total number of live births and other terminations of pregnancy
99	...	Unknown

49-50 2 **DLIVORD**
Detail Live Birth Order

Sum of live births now living and now dead plus one. If either item is unknown, this item is made unknown.

00-31	...	Number of children born alive to mother
99	...	Unknown

Item Location	Item Length	Variable Name, Item and Code Outline
51-52	2	**MONPRE** **Detail Month of Pregnancy Prenatal Care Began** 00 ... No prenatal care 01 ... 1st month 02 ... 2nd month 03 ... 3rd month 04 ... 4th month 05 ... 5th month 06 ... 6th month 07 ... 7th month 08 ... 8th month 09 ... 9th month 99 ... Unknown or not stated
53	1	**MPRE5** **Month Prenatal Care Began Recode 5** 1 ... 1st Trimester (1st-3rd month) 2 ... 2nd Trimester (4th-6th month) 3 ... 3rd Trimester (7th-9th month) 4 ... No prenatal care 5 ... Unknown or not stated
54-55	2	**NPREVIST** **Total Number of Prenatal Visits** 00 ... No prenatal visits 01-48 ... Stated number of visits 49 ... 49 or more visits 99 ... Unknown or not stated
56	1	**ADEQUACY** **Adequacy of Care Recode (Kessner Index)** This code is based on a modified Kessner criterion. Month Prenatal Care Began, Number of Prenatal Visits, and Gestation are the items used to generate this recode. 1 ... Adequate 2 ... Intermediate 3 ... Inadequate 4 ... Unknown
57-59	3	**R1** **Reserved Positions**

Item Location	Item Length	Variable Name, Item and Code Outline
60	1	**FAGERFLG** **Reported Age of Father Used Flag** This position is flagged whenever the Father's reported age in years is used. The reported age is used, if valid, when age derived from date of birth is not available or when it is less than 10. Blank ... Reported age is not used 1 ... Reported age is used
61-62	2	**DFAGE** **Age of Father** This item is either computed from date of birth of father and of child or is the reported age. This is the age item used in NCHS publications. 10-98 ... Age in single years 99 ... Unknown or not stated
63	1	**ORFATH** **Hispanic Origin of Father** Hispanic origin is reported for all areas except Puerto Rico. 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
64	1	**ORRACEF** **Hispanic Origin and Race of Father Recode** Hispanic origin is reported for all areas except Puerto Rico. 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 or unknown race 9 ... Origin unknown or not stated

Item Location	Item Length	Variable Name, Item and Code Outline
65-66	2	**FRACE** **Race of Father**

Beginning with 1992 data, some areas started reporting additional Asian or Pacific Islander codes for race. See reporting flags. Codes 18 -68 replace old code 08 for these areas. Code 78 replaces old code 08 for all other areas. Code 09 (all other races) has been changed to 99.

United States Occurrence

01	...	White
02	...	Black
03	...	American Indian (includes Aleuts and Eskimos)
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 or Pacific Islander in areas reporting codes 18-58
78	...	Combined other Asian or Pacific Islander, includes codes 18-68 for areas that do not report them separately
99	...	Unknown or not stated

Puerto Rico Occurrence

00	...	Other races
01	...	White
02	...	Black
99	...	Unknown or not stated

Virgin Islands Occurrence

01	...	White
02	...	Black
03	...	American Indian (includes Aleuts and Eskimos)
04	...	Chinese
05	...	Japanese
06	...	Hawaiian (includes part-Hawaiian)
07	...	Filipino
08	...	Other Asian or Pacific Islander
99	...	Unknown or not stated

Item Location	Item Length	Variable Name, Item and Code Outline
65-66	2	**FRACE** **Race of Father (Cond't)** **Guam Occurrence** 01 ... White 02 ... Black 03 ... American Indian (includes Aleuts and Eskimos) 04 ... Chinese 05 ... Japanese 06 ... Hawaiian (includes part-Hawaiian) 07 ... Filipino 08 ... Other Asian or Pacific Islander 58 ... Guamanian 99 ... Unknown or not stated
67	1	**PLDEL** **Place or Facility of Delivery** 1 ... Hospital 2 ... Freestanding Birthing Center 3 ... Clinic or Doctor's Office 4 ... A Residence 5 ... Other 9 ... Unknown or Not Stated
68	1	**BIRATTND** **Attendant at Delivery** 1 ... Doctor of Medicine (M.D.) 2 ... Doctor of Osteopathy (D.O.) 3 ... Certified Nurse Midwife (C.N.M.) 4 ... Other Midwife 5 ... Other 9 ... Unknown or not stated
69	1	**R2** **Reserved position**
70	1	**GESTESTM** **Clinical Estimate of Gestation Used Flag** This position is flagged whenever the clinical estimate of gestation is used. It is used when gestation could not be computed or when the computed gestation is outside the 17-47 code range. Blank ... Clinical Estimate is not used 1 ... Clinical Estimate is used

Item Location	Item Length	Variable Name, Item and Code Outline
71-72	2	**CLINGEST** **Clinical Estimate of Gestation** Clinical estimate is not reported by all areas. See reporting flags. 17-47 ... Estimated gestation in weeks 99 ... Unknown or not stated
73	1	**GESTIMP** **Gestation Imputation Flag** Blank ... Gestation is not imputed 1 ... Gestation is imputed
74-75	2	**GESTAT** **Gestation - Detail in Weeks** This item is: a) computed using dates of birth of child and last normal menses; b) imputed from LMP date; c) the clinical estimate; or d) unknown when there is insufficient data to impute or no valid clinical estimate. This is the gestation item used in NCHS publications. 17-47 ... 17th through 47th week of gestation 99 ... Unknown
76-77	2	**GESTAT 10** **GESTATION RECODE 10** 01 ... Under 20 weeks 02 ... 20 - 27 weeks 03 ... 28 - 31 weeks 04 ... 32 - 35 weeks 05 ... 36 weeks 06 ... 37 - 39 weeks 07 ... 40 weeks 08 ... 41 weeks 09 ... 42 weeks and over 10 ... Not stated
78	1	**CSEXIMP** **Sex Imputation Flag** Blank ... Sex is not imputed 1 ... Sex is imputed
79	1	**CSEX** **Sex** 1 ... Male 2 ... Female

Item Location	Item Length	Variable Name, Item and Code Outline
80-87	8	**BIRTHWEIGHT** Beginning in 1995, an imputation for not-stated birthweight was added to reduce potential bias in the data (see section on Changes beginning with the 1995 data year in the introductory text to this documentation). The following imputation flag can be used to delete imputed values for those researchers wishing to use only reported birthweight data.
80	1	**BWIF** **Birth Weight Imputation Flag** Blank ... Birthweight is not imputed 1 ... Birthweight is imputed
81-84	4	**DBIRWT** **Birth Weight Detail in Grams (Imputed)** 0227-8165 ... Number of grams 9999 ... Not stated birth weight
85-86	2	**BIRWT12** **Birth Weight Recode 12 (Imputed)** 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 ... 3000-3499 grams 08 ... 3500-3999 grams 09 ... 4000-4499 grams 10 ... 4500-4999 grams 11 ... 5000-8165 grams 12 ... Unknown or not stated
87	1	**BIRWT4** **Birth Weight Recode 4 (Imputed)** 1 ... 1499 grams or less 2 ... 1500-2499 grams 3 ... 2500 grams or more 4 ... Unknown or not stated
88	1	**PLURIMP** **Plurality Imputation Flag** Blank ... Plurality is not imputed 1 ... Plurality is imputed

Item Location	Item Length	Variable Name, Item and Code Outline
89	1	**DPLURAL** **Plurality** 1 ... Single 2 ... Twin 3 ... Triplet 4 ... Quadruplet 5 ... Quintuplet or higher
90-91	2	**FMAPS** **Five-Minute Apgar Score** Apgar score is not reported by all areas. See reporting flags. 00-10 ... A score of 0-10 99 ... Unknown or not stated
92-186	95	**MEDINFO** **Medical and Health Data** Some States do not report an entire item while other States do not report all of the categories within an item. If an item is not reported, it is indicated by code zero in the appropriate reporting flag. If a category within an item is not reported it is indicated by code 8 in the position for that category.
92-99	8	**DELMETH** **Method of Delivery** Each method is assigned a separate position, and the code structure for each method (position) is: 1 ... The method was used 2 ... The method was not used 8 ... Method not on certificate 9 ... Method unknown or not stated
92	1	**VAGINAL** **Vaginal**
93	1	**VBAC** **Vaginal Birth After Previous C-Section**
94	1	**PRIMAC** **Primary C-Section**
95	1	**REPEAC** **Repeat C-Section**
96	1	**FORCEP** **Forceps**

Item Location	Item Length	Variable Name, Item and Code Outline
97	1	**VACUUM** **Vacuum**
98	1	**R3** **Reserved Position**
99	1	**DELMETH5** **Method of Delivery Recode** 1 ... Vaginal (excludes Vaginal after previous C-section) 2 ... Vaginal birth after previous C section 3 ... Primary C-section 4 ... Repeat C-Section 5 ... Not stated
100-117	18	**MEDRISK** **Medical Risk Factors** Each risk factor is assigned a separate position, and the code structure for each risk factor (position) is: 1 ... Factor reported 2 ... Factor not reported 8 ... Factor not on certificate 9 ... Factor not classifiable
100	1	**MRFLAG** **No Medical Risk Factors Reported Flag** Blank ... One or more medical risk factors coded, one, eight, or nine 2 ... No medical risk factors reported. Each factor is coded a two.
101	1	**ANEMIA** **Anemia (Hct.<30/Hgb.<10)**
102	1	**CARDIAC** **Cardiac disease**
103	1	**LUNG** **Acute or chronic lung disease**
104	1	**DIABETES** **Diabetes**
105	1	**HERPES** **Genital herpes**
106	1	**HYDRA** **Hydramnios/Oligohydramnios**

Item Location	Item Length	Variable Name, Item and Code Outline
107	1	**HEMO** **Hemoglobinopathy**
108	1	**CHYPER** **Hypertension, chronic**
109	1	**PHYPER** **Hypertension, pregnancy-associated**
110	1	**ECLAMP** **Eclampsia**
111	1	**INCERVIX** **Incompetent cervix**
112	1	**PRE4000** **Previous infant 4000+ grams**
113	1	**PRETERM** **Previous preterm or small-for-gestational-age infant**
114	1	**RENAL** **Renal disease**
115	1	**RH** **Rh sensitization**
116	1	**UTERINE** **Uterine bleeding**
117	1	**OTHERMR** **Other Medical Risk Factors**
118-128	11	**OTHERRSK** **Other Risk Factors for this Pregnancy**
118-121	4	**TOBACRSK** **Tobacco Risks**
118	1	**TOBACCO** **Tobacco Use During Pregnancy** 1 ... Yes 2 ... No 9 ... Unknown or not stated
119-120	2	**CIGAR** **Average Number of Cigarettes Per Day** 00-97 ... As stated 98 ... 98 or more cigarettes per day 99 ... Unknown or not stated

Item Location	Item Length	Variable Name, Item and Code Outline		
121	1	**CIGAR6** **Average Number of Cigarettes Per Day Recode**		
		0	...	Non-smoker
		1	...	1-5 cigarettes per day
		2	...	6-10 cigarettes per day
		3	...	11-20 cigarettes per day
		4	...	21-40 cigarettes per day
		5	...	41 or more cigarettes per day
		6	...	Unknown or not stated
122-125	4	**ALCOHRSK** **Alcohol**		
122	1	**ALCOHOL** **Alcohol Use During Pregnancy**		
		1	...	Yes
		2	...	No
		9	...	Unknown or not stated
123-124	2	**DRINK** **Average Number of Drinks Per Week**		
		00-97	...	As stated
		98	...	98 or more drinks per week
		99	...	Unknown or not stated
125	1	**DRINK5** **Average Number of Drinks Per Week Recode**		
		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
126-128	3	**WTGANRSK** **Weight Gain During Pregnancy**		
126-127	2	**WTGAIN** **Weight Gain**		
		00-97	...	Stated number of pounds
		98	...	98 pounds or more
		99	...	Unknown or not stated

Item Location	Item Length	Variable Name, Item and Code Outline
128	1	**WTGAIN9** **Weight Gain Recode** 1 ... Less than 16 pounds 2 ... 16-20 pounds 3 ... 21-25 pounds 4 ... 26-30 pounds 5 ... 31-35 pounds 6 ... 36-40 pounds 7 ... 41-45 pounds 8 ... 46 or more pounds 9 ... Unknown or not stated
129-136	8	**OBSTETRC** **Obstetric Procedures** Each procedure is assigned a separate position, and the code structure for each procedure (position) is: 1 ... Procedure reported 2 ... Procedure not reported 8 ... Procedure not on certificate 9 ... Procedure not classifiable
129	1	**OBFLAG** **Obstetric Flag** Blank ... One or more obstetric procedures coded, one, eight, or nine 2 ... No obstetric procedures reported. Each factor is coded a two.
130	1	**AMNIO** **Amniocentesis**
131	1	**MONITOR** **Electronic fetal monitoring**
132	1	**INDUCT** **Induction of labor**
133	1	**STIMULA** **Stimulation of labor**
134	1	**TOCOL** **Tocolysis**
135	1	**ULTRAS** **Ultrasound**
136	1	**OTHEROB** **Other Obstetric Procedures**

Item Location	Item Length	Variable Name, Item and Code Outline
137-153	17	**LABOR** **Complications of Labor and/or Delivery** Each complication is assigned a separate position, and the code structure for each complication (position) is: 1 ... Complication reported 2 ... Complication not reported 8 ... Complication not on certificate 9 ... Complication not classifiable
137	1	**FBFLAG** **Labor Flag** Blank ... One or more labor and/or delivery complications coded, one, eight, or nine 2 ... No labor and/or delivery complication reported. Each factor is coded a two.
138	1	**FEBRILE** **Febrile (>100 degrees F. or 38 degrees C.)**
139	1	**MECONIUM** **Meconium, moderate/heavy**
140	1	**RUPTURE** **Premature rupture of membrane (>12 hours)**
141	1	**ABRUPTIO** **Abruptio placenta**
142	1	**PREPLACE** **Placenta previa**
143	1	**EXCEBLD** **Other excessive bleeding**
144	1	**SEIZURE** **Seizures during labor**
145	1	**PRECIP** **Precipitous labor (<3 hours)**
146	1	**PROLONG** **Prolonged labor (>20 hours)**
147	1	**DYSFUNC** **Dysfunctional labor**
148	1	**BREECH** **Breech/Malpresentation**

Item Location	Item Length	Variable Name, Item and Code Outline
149	1	**CEPHALO** **Cephalopelvic disproportion**
150	1	**CORD** **Cord prolapse**
151	1	**ANESTHE** **Anesthetic complications**
152	1	**DISTRESS** **Fetal distress**
153	1	**OTHERLB** **Other Complications of Labor and/or Delivery**
154-163	10	**NEWBORN** **Abnormal conditions of the Newborn** Each condition is assigned a separate position, and the code structure for each condition (position)is: 1 ... Condition reported 2 ... Condition not reported 8 ... Condition not on certificate 9 ... Condition not classifiable
154	1	**NBFLAG** **Newborn Flag** Blank ... One or more abnormal conditions of the newborn coded, one, eight, or nine 2 ... No abnormal condition of the newborn reported. Each factor is coded a two.
155	1	**NANEMIA** **Anemia Hct.>39/Hgb.<13)**
156	1	**INJURY** **Birth injury**
157	1	**ALCOSYN** **Fetal alcohol syndrome**
158	1	**HYALINE** **Hyaline membrane disease**
159	1	**MECONSYN** **Meconium aspiration syndrome**
160	1	**VENL30** **Assisted ventilation, less than 30 minutes**

Item Location	Item Length	Variable Name, Item and Code Outline
161	1	**VEN30M** **Assisted ventilation, 30 minutes or more**
162	1	**NSEIZ** **Seizures**
163	1	**OTHERAB** **Other Abnormal Conditions of the Newborn**
164-186	23	**CONGENIT** **Congenital Anomalies** Each anomaly is assigned a separate position, and the code structure for each anomaly (position) is: 1 ... Anomaly reported 2 ... Anomaly not reported 8 ... Anomaly not on certificate 9 ... Anomaly not classifiable
164	1	**CGFLAG** **Congenital Flag** Blank ... One or more congenital anomalies coded, one, eight, or nine 2 ... No congenital anomaly is reported. Each factor is coded a two.
165	1	**ANEN** **Anencephalus**
166	1	**SPINA** **Spina bifida/Meningocele**
167	1	**HYDRO** **Hydrocephalus**
168	1	**MICROCE** **Microcephalus**
169	1	**NERVOUS** **Other central nervous system anomalies**
170	1	**HEART** **Heart malformations**
171	1	**CIRCUL** **Other circulatory/respiratory anomalies**
172	1	**RECTAL** **Rectal atresia/stenosis**

Item Location	Item Length	Variable Name, Item and Code Outline
173	1	**TRACHEO** **Tracheo-esophageal fistula/Esophageal atresia**
174	1	**OMPHALO** **Omphalocele/Gastroschisis**
175	1	**GASTRO** **Other gastrointestinal anomalies**
176	1	**GENITAL** **Malformed genitalia**
177	1	**RENALAGE** **Renal agenesis**
178	1	**UROGEN** **Other urogenital anomalies**
179	1	**CLEFTLP** **Cleft lip/palate**
180	1	**ADACTYLY** **Polydactyly/Syndactyly/Adactyly**
181	1	**CLUBFOOT** **Club foot**
182	1	**HERNIA** **Diaphragmatic hernia**
183	1	**MUSCULO** **Other musculoskeletal/integumental anomalies**
184	1	**DOWNS** **Down's syndrome**
185	1	**CHROMO** **Other chromosomal anomalies**
186	1	**OTHERCON** **Other congenital anomalies**
187-203	17	**FLRES** **Reporting Flags for Place of Residence** These positions contain flags to indicate whether or not the specified item is included on the birth certificate of the State of residence or of the SMSA of residence. The code structure of each flag (position) is: 0 ... The item is not reported 1 ... The item is reported or partially reported.

Item Location	Item Length	Variable Name, Item and Code Outline
187	1	**ORIGM** **Origin of mother**
188	1	**ORIGF** **Origin of father**
189	1	**EDUCM** **Education of mother**
190	1	**R4** **Reserved Position**
191	1	**GESTE** **Clinical estimate of gestation**
192	1	**R5** **Reserved position**
193	1	**FMAPSRF** **5-minute Apgar score**
194	1	**DELMETRF** **Method of delivery**
195	1	**MEDRSK** **Medical risk factors**
196	1	**TOBUSE** **Tobacco use**
197	1	**ALCUSE** **Alcohol use**
198	1	**WTGN** **Weight gain**
199	1	**OBSTRC** **Obstetric procedures**
200	1	**CLABOR** **Complications of labor and/or delivery**
201	1	**ABNML** **Abnormal conditions of newborn**
202	1	**CONGAN** **Congenital anomalies**
203	1	**API flag** **Race codes 18-68 reported (beginning with 1992 data)**

Item Location	Item Length	Variable Name, Item and Code Outline
204	1	**CDOBMIMP** **Month of Birth of Child Imputation Flag** Blank ... Month is not imputed 1 ... Month is imputed
205-206	2	**BIRMON** **Month of Birth** 01 ... January 02 ... February 03 ... March 04 ... April 05 ... May 06 ... June 07 ... July 08 ... August 09 ... September 10 ... October 11 ... November 12 ... December
207-208	2	**R6** **Reserved Position**
209	1	**WEEKDAYB** **Day of Week Child Born** 1 ... Sunday 2 ... Monday 3 ... Tuesday 4 ... Wednesday 5 ... Thursday 6 ... Friday 7 ... Saturday
210	1	**R7** **Reserved Position**

Locations 211-535 contain data from the Death Certificate. Data in locations 211-222 are included on both the numerator and denominator-plus files. Data in locations 223-535 are include in the numerator file only. Residence items in the Denominator Record and in the natality section of the Numerator (Linked) Record refer to the usual place of residence of the Mother; whereas in the mortality section of the Numerator (Linked) Record, these items refer to the place of residence of the Decedent.

Item Location	Item Length	Variable Name, Item and Code Outline
211-213	3	**AGED** **Age at Death in Days** The generated age at death in days is calculated from the date of death on the death certificate minus the date of birth on the birth certificate unless the reported age of death is less than 2 days, then the reported age is used. If the exact date of birth and/or death is unknown, the age is imputed. 000-364 ... Number of days
214	1	**AGER5** **Infant Age Recode 5** 1 ... Under 1 hour 2 ... 1-23 hours 3 ... 1-6 days 4 ... 7-27 days (late neonatal) 5 ... 28 days and over (postneonatal)
215	1	**ACCIDPL** **Place of Accident for Causes E850-E869 and E880-E928** Blank ... Causes other than E850-E869 and E880-E928 0 ... Home 1 ... Farm 2 ... Mine and quarry 3 ... Industrial place and premises 4 ... Place for recreation and sport 5 ... Street and highway 6 ... Public building 7 ... Resident institution 8 ... Other specified places 9 ... Place of accident not specified
216-219	4	**UCOD** **ICD Code (9th Revision)** See the International Classification of Diseases, 1975 Revision, Volume 1. For injuries and poisoning, the external cause is coded (E800-E999) rather than the Nature of Injury (800-999). These positions do not include the letter E for the external cause of injury. For those causes that do not have a 4th digit, location 219 is blank.

Item Location	Item Length	Variable Name, Item and Code Outline
220-222	3	**UCODR61** **61 Infant Cause Recode** A recode of the ICD cause code into 61 groups for NCHS publications. Further back in this document is a complete list of recodes and the causes included. 010-680 ... Code range (not inclusive)
223-230	8	**RECWT** **Record weight** Beginning in 1995, a record weight was added to the linked file to adjust for the approximately 2-3% of infant death records each year which cannot be linked to their corresponding birth certificates. Weights are generally slightly greater than 1.0 for infant death records, and are set at 1.0 for surviving live birth records. Weights are appropriate for use in some circumstances, but not others — please see Introduction for further details. The weights were used to produce all NCHS linked file tables, including Documentation tables 1-5 included in this tape documentation. The general format for the record weight is the number one followed by a decimal point and six decimal places as follows: 1.XXXXXX

Here ends the Denominator file. Documentation for the Mortality Section of the Numerator (Linked) file begins with the record weight in positions 223-230.

Item Location	Item Length	Variable Name, Item and Code Outline
261-504	244	**MULTCOND** **Multiple Conditions** See the "International Classification of Diseases", 1975 Revision, Volume 1. Both the entity-axis and record-axis conditions are coded according to this revision (9th).
261-262	2	**EANUM** **Number of Entity-Axis Conditions** 00-20 ... Code range
263-402	140	**ENTITY** **ENTITY - AXIS CONDITIONS** Space has been provided for a maximum of 20 conditions. Each condition takes 7 positions in the record. Records that do not have 20 conditions are blank in the unused area. Position 1: Part/line number on certificate 1 ... Part I, line 1 (a) 2 ... Part I, line 2 (b) 3 ... Part I, line 3 (c) 4 ... Part I, line 4 (d) 5 ... Part I, line 5 (e) 6 ... Part II, Position 2: Sequence of condition within part/line 1-7 ... Code range Position 3 - 6: Condition code (ICD 9th Revision) Position 7: Nature of Injury Flag 1 ... Indicates that the code in positions 3-6 is a Nature of Injury code 0 ... All other codes
263-269	7	**1st Condition**
270-276	7	**2nd Condition**
277-283	7	**3rd Condition**
284-290	7	**4th Condition**
291-297	7	**5th Condition**

Item Location	Item Length	Variable Name, Item and Code Outline
298-304	7	**6th Condition**
305-311	7	**7th Condition**
312-318	7	**8th Condition**
319-325	7	**9th Condition**
326-332	7	**10th Condition**
333-339	7	**11th Condition**
340-346	7	**12th Condition**
347-353	7	**13th Condition**
354-360	7	**14th Condition**
361-367	7	**15th Condition**
368-374	7	**16th Condition**
375-381	7	**17th Condition**
382-388	7	**18th Condition**
389-395	7	**19th Condition**
396-402	7	**20th Condition**
403-404	2	**RANUM** **Number of Record-Axis Conditions** 00-20 ... Code range
405-504	100	**RECORD** **RECORD - AXIS CONDITIONS** Space has been provided for a maximum of 20 conditions. Each condition takes 5 positions in the record. Records that do not have 20 conditions are blank in the unused area. Positions 1-4: Condition code (ICD 9th Revision) Position 5: Nature of Injury Flag 1 ... Indicates that the code in positions 1-4 is a Nature of Injury code 0 ... All other codes

Item Location	Item Length	Variable Name, Item and Code Outline
405-409	5	**1st Condition**
410-414	5	**2nd Condition**
415-419	5	**3rd Condition**
420-424	5	**4th Condition**
425-429	5	**5th Condition**
430-434	5	**6th Condition**
435-439	5	**7th Condition**
440-444	5	**8th Condition**
445-449	5	**9th Condition**
450-454	5	**10th Condition**
455-459	5	**11th Condition**
460-464	5	**12th Condition**
465-469	5	**13th Condition**
470-474	5	**14th Condition**
475-479	5	**15th Condition**
480-484	5	**16th Condition**
485-489	5	**17th Condition**
490-494	5	**18th Condition**
495-499	5	**19th Condition**
500-504	5	**20th Condition**
505	1	**RESSTATD** **Resident Status - Death** **United States Occurrence** 1 ... RESIDENTS: State and county of occurrence and residence are the same. 2 ... INTRASTATE NONRESIDENTS: State of occurrence and residence are the same, but county is different. 3 ... INTERSTATE NONRESIDENTS: State of occurrence and residence are different, but both are in the 50 States and D.C. 4 ... FOREIGN RESIDENTS: State of occurrence is one of the 50 States or the District of Columbia, but place of residence is outside of the 50 States and D.C.

Item Location	Item Length	Variable Name, Item and Code Outline

505 1 **RESSTATD**

Resident Status - Death (Cond't)

Puerto Rico Occurrence

1 ... RESIDENTS: State and county of occurrence and residence are the same.

2 ... INTRASTATE NONRESIDENTS: State of occurrence and residence are the same, but county is different.

4 ... FOREIGN RESIDENTS: Occurred in Puerto Rico to a resident of any other place.

Virgin Islands Occurrence

1 ... RESIDENTS: State and county of occurrence and residence are the same.

2 ... INTRASTATE NONRESIDENTS: State of occurrence and residence are the same, but county is different.

4 ... FOREIGN RESIDENTS: Occurred in the Virgin Islands to a resident of any other place.

Guam Occurrence

1 ... RESIDENTS: Occurred in Guam to a resident of Guam or to a resident of the U.S.

4 ... FOREIGN RESIDENTS: Occurred in Guam to a resident of any place other than Guam or the U.S.

506-507 2 **DRSTATE**

Expanded State of Residence - NCHS Codes - Deaths

This item is designed to separately identify New York City records from other New York State records.

United States Occurrence

01 ... Alabama
02 ... Alaska
03 ... Arizona
04 ... Arkansas
05 ... California
06 ... Colorado
07 ... Connecticut
08 ... Delaware
09 ... District of Columbia
10 ... Florida
11 ... Georgia
12 ... Hawaii
13 ... Idaho
14 ... Illinois
15 ... Indiana
16 ... Iowa
17 ... Kansas
18 ... Kentucky
19 ... Louisiana
20 ... Maine

Item Location	Item Length	Variable Name, Item and Code Outline
506-507	2	**DRSTATE**

Expanded State of Residence - NCHS Codes - Deaths (Cond't)

United States Occurrence

21	...	Maryland
22	...	Massachusetts
23	...	Michigan
24	...	Minnesota
25	...	Mississippi
26	...	Missouri
27	...	Montana
28	...	Nebraska
29	...	Nevada
30	...	New Hampshire
31	...	New Jersey
32	...	New Mexico
33	...	New York
34	...	New York City
35	...	North Carolina
36	...	North Dakota
37	...	Ohio
38	...	Oklahoma
39	...	Oregon
40	...	Pennsylvania
41	...	Rhode Island
42	...	South Carolina
43	...	South Dakota
44	...	Tennessee
45	...	Texas
46	..	Utah
47	...	Vermont
48	...	Virginia
49	...	Washington
50	...	West Virginia
51	...	Wisconsin
52	...	Wyoming
53-58,60	...	Foreign Residents
53	...	Puerto Rico
54	...	Virgin Islands
55	...	Guam
56	...	Canada
57	...	Cuba
58	...	Mexico
60	...	Remainder of the World

Puerto Rico Occurrence

53	...	Puerto Rico
01-52,54-58,60	...	Foreign Residents: Refer to U.S. for specific code structure.

Item Location	Item Length	Variable Name, Item and Code Outline
506-507	2	**DRSTATE** **Expanded State of Residence - NCHS Codes - Deaths (Cond't)**

Virgin Islands Occurrence

54	...	Virgin Islands
01-53,55-58,60	...	Foreign Residents: Refer to U.S. for specific code structure.

Guam Occurrence

55	...	Guam
01-52	...	U.S. resident is also considered a resident of Guam.
53,54,58,60	...	Foreign Residents: Refer to U.S. for specific code structure.

508-512 5 **FIPSOCCD**
Federal Information Processing Standards (FIPS) Geographic Codes (Occurrence) - Death

Refer to the Geographic Code Outline further back in this document for a detailed list of areas and codes. For an explanation of FIPS codes, reference should be made to various National Institute of Standards and Technology (NIST) publications.

508-509 2 **STOCCFIPD**
State of Occurrence (FIPS) - Death

United States

01	...	Alabama
02	...	Alaska
04	...	Arizona
05	...	Arkansas
06	...	California
08	...	Colorado
09	...	Connecticut
10	...	Delaware
11	...	District of Columbia
12	...	Florida
13	...	Georgia
15	...	Hawaii
16	...	Idaho
17	...	Illinois
18	...	Indiana
19	...	Iowa
20	...	Kansas
21	...	Kentucky
22	...	Louisiana
23	...	Maine
24	...	Maryland
25	...	Massachusetts
26	...	Michigan
27	...	Minnesota
28	...	Mississippi
29	...	Missouri
30	...	Montana

Item Location	Item Length	Variable Name, Item and Code Outline
508-509	2	**STOCCFIPD** **State of Occurrence (FIPS) - Death (Cond't)**

United States

31	...	Nebraska
32	...	Nevada
33	...	New Hampshire
34	...	New Jersey
35	...	New Mexico
36	...	New York
37	...	North Carolina
38	...	North Dakota
39	...	Ohio
40	...	Oklahoma
41	...	Oregon
42	...	Pennsylvania
44	...	Rhode Island
45	...	South Carolina
46	...	South Dakota
47	...	Tennessee
48	...	Texas
49	...	Utah
50	...	Vermont
51	...	Virginia
53	...	Washington
54	...	West Virginia
55	...	Wisconsin
56	...	Wyoming

Puerto Rico

72	...	Puerto Rico

Virgin Islands

78	...	Virgin Islands

Guam

66	...	Guam

510-512	3	**CNTOCFIPD** **County of Occurrence (FIPS) - Death**

001-nnn	...	Counties and county equivalents (independent and coextensive cities) are numbered alphabetically within each State. (Note: To uniquely identify a county, both the State and county codes must be used.)
999	...	County with less than 250,000 population

Item Location	Item Length	Variable Name, Item and Code Outline
513-517	5	**FIPSRESD** **Federal Information Processing Standards (FIPS) Geographic Codes (Residence) - Death** Refer to the Geographic Code Outline further back in this document for a detailed list of areas and codes. For an explanation of FIPS codes, reference should be made to various National Institute of Standards and Technology (NIST) publications.
513-514	2	**STRESFIPD** **State of Residence (FIPS) - Death**

United States Occurrence

00	...	Foreign residents
01	...	Alabama
02	...	Alaska
04	...	Arizona
05	...	Arkansas
06	...	California
08	...	Colorado
09	...	Connecticut
10	...	Delaware
11	...	District of Columbia
12	...	Florida
13	...	Georgia
15	...	Hawaii
16	...	Idaho
17	...	Illinois
18	...	Indiana
19	...	Iowa
20	...	Kansas
21	...	Kentucky
22	...	Louisiana
23	...	Maine
24	...	Maryland
25	...	Massachusetts
26	...	Michigan
27	...	Minnesota
28	...	Mississippi
29	...	Missouri
30	...	Montana
31	...	Nebraska
32	...	Nevada
33	...	New Hampshire
34	...	New Jersey
35	...	New Mexico
36	...	New York
37	...	North Carolina
38	...	North Dakota
39	...	Ohio
40	...	Oklahoma

Item Location	Item Length	Variable Name, Item and Code Outline
513-514	2	**STRESFIPD** **State of Residence (FIPS) - Death (Cond't)**

United States Occurrence

41	...	Oregon
42	...	Pennsylvania
44	...	Rhode Island
45	...	South Carolina
46	...	South Dakota
47	...	Tennessee
48	...	Texas
49	...	Utah
50	...	Vermont
51	...	Virginia
53	...	Washington
54	...	West Virginia
55	...	Wisconsin
56	...	Wyoming

Puerto Rico Occurrence

72	...	Puerto Rico
00-56, 66,78	...	Foreign resident: Refer to U.S. for specific code structure.

Virgin Islands Occurrence

78	...	Virgin Islands
00-56, 66,72	...	Foreign resident: Refer to U.S. for specific code structure.

Guam Occurrence

66	...	Guam
01-56, 00,72,78	...	Foreign resident: Refer to U.S. for specific code structure.

515-517	3	**CNTYRFPD** **County of Residence (FIPS) - Death**

000	...	Foreign residents
001-nnn	...	Counties and county equivalents (independent and coextensive cities) are numbered alphabetically within each State (Note: To uniquely identify a county, both the State and county codes must be used.) A complete list of counties is shown in the Geographic Code Outline further back in this document.
999	...	County with less than 250,000 population

Item Location	Item Length	Variable Name, Item and Code Outline
518-522	5	**PLRES** **Place (City) of Residence (FIPS)** A complete list of cities is shown in the Geographic code outline further back in this document. 00000 ... Foreign residents 00001-nnnnn ... Code range 99999 ... Balance of county; or city less than 250,000 population
523	1	**HOSPD** **Hospital and Patient Status** 1 ... Hospital, Clinic or Medical Center - Inpatient 2 ... Hospital, Clinic or Medical Center - Outpatient or admitted to Emergency Room 3 ... Hospital, Clinic or Medical Center - Dead on arrival 4 ... Hospital, Clinic or Medical Center - Patient status unknown 5 ... Nursing home 6 ... Residence 7 ... Other 9 ... Place of death unknown
524-527	4	**DTHYR** **Year of Death** 1995 ... Death occurred in 1995 1996 ... Death occurred in 1996
528-529	2	**DTHMON** **Month of Death** 01 ... January 02 ... February 03 ... March 04 ... April 05 ... May 06 ... June 07 ... July 08 ... August 09 ... September 10 ... October 11 ... November 12 ... December
530-531	2	**R8** **Reserved Position**

Item Location	Item Length	Variable Name, Item and Code Outline		
532	1	**WEEKDAYD** **Day of Week of Death**		
		1	...	Sunday
		2	...	Monday
		3	...	Tuesday
		4	...	Wednesday
		5	...	Thursday
		6	...	Friday
		7	...	Saturday
		9	...	Unknown
533-535	3	**R9** **Reserved positions**		

Linked Birth/Infant Death Data Set

Geographic Code Outline

The following pages show the geographic codes used by the Division of Vital Statistics in the processing of vital event data occurring in the United States. For the perinatal data set, counties and cities with a population of 250,000 or more are identified.

Federal Information Processing Standards (FIPS) State, County, and City/Place Codes: For the 1995 linked file, the county and city/place codes and the State code immediately preceding them are FIPS codes. These codes were effective with the 1995 data year and are based on the results of the 1990 Census. County and county equivalents (independent and coextensive cities) are numbered alphabetically within each State. When an event occurs to a nonresident of the United States, residence data are coded only to the "State" level, or to the remainder of the world. For an explanation of FIPS codes, reference should be made to various National Bureau of Standards (NBS) publications.

Listing of Counties Identified in the Linked Data Set
Vital Statistics Geographic Code Outline Effective With 1995 Data

State	County	State and County Name
01		Alabama
	073	Jefferson
	097	Mobile
02		Alaska
04		Arizona
	013	Maricopa
	019	Pima
05		Arkansas
	119	Pulaski
06		California
	001	Alameda
	013	Contra Costa
	019	Fresno
	029	Kern
	037	Los Angeles
	053	Monterey
	059	Orange
	065	Riverside
	067	Sacramento
	071	San Bernardino
	073	San Diego
	075	San Francisco, coext. with San Francisco city
	077	San Joaquin
	081	San Mateo
	083	Santa Barbara
	085	Santa Clara
	095	Solano
	097	Sonoma
	099	Stanislaus
	107	Tulare
	111	Ventura
08		Colorado
	001	Adams
	005	Arapahoe
	031	Denver, coext. with Denver city
	041	El Paso
	059	Jefferson
09		Connecticut
	001	Fairfield
	003	Hartford
	009	New Haven
	011	New London

10		Delaware
	003	New Castle
11		District of Columbia
	001	District of Columbia
12		Florida
	009	Brevard
	011	Broward
	025	Dade
	031	Duval
	033	Escambia
	057	Hillsborough
	071	Lee
	095	Orange
	099	Palm Beach
	101	Pasco
	103	Pinellas
	105	Polk
	115	Sarasota
	117	Seminole
	127	Volusia
13		Georgia
	067	Cobb
	089	De Kalb
	121	Fulton
	135	Gwinnett
15		Hawaii
	003	Honolulu
16		Idaho
17		Illinois
	031	Cook
	043	Du Page
	089	Kane
	097	Lake
	163	St. Clair
	197	Will
	201	Winnebago
18		Indiana
	003	Allen
	089	Lake
	097	Marion
19		Iowa
	153	Polk
20		Kansas
	091	Johnson
	173	Sedgwick

21		Kentucky
	111	Jefferson
22		Louisiana
	033	East Baton Rouge
	051	Jefferson
	071	Orleans, coext. with New Orleans city
23		Maine
24		Maryland
	003	Anne Arundel
	005	Baltimore
	031	Montgomery
	033	Prince George's
	510	Baltimore city
25		Massachusetts
	005	Bristol
	009	Essex
	013	Hampden
	017	Middlesex
	021	Norfolk
	023	Plymouth
	025	Suffolk
	027	Worcester
26		Michigan
	049	Genesee
	065	Ingham
	081	Kent
	099	Macomb
	125	Oakland
	161	Washtenaw
	163	Wayne
27		Minnesota
	037	Dakota
	053	Hennepin
	123	Ramsey
28		Mississippi
	049	Hinds
29		Missouri
	095	Jackson
	189	St. Louis
	510	St. Louis city
30		Montana

31		Nebraska
	055	Douglas
32		Nevada
	003	Clark
	031	Washoe
33		New Hampshire
	011	Hillsborough
34		New Jersey
	003	Bergen
	005	Burlington
	007	Camden
	013	Essex
	017	Hudson
	021	Mercer
	023	Middlesex
	025	Monmouth
	027	Morris
	029	Ocean
	031	Passaic
	039	Union
35		New Mexico
	001	Bernalillo
36		New York
	001	Albany
	005	Bronx borough, Bronx county
	047	Brooklyn borough, Kings county
	061	Manhattan borough, New York county
	081	Queens borough, Queens county
	085	Staten Island borough, Richmond county
	027	Dutchess
	029	Erie
	055	Monroe
	059	Nassau
	065	Oneida
	067	Onondaga
	071	Orange
	087	Rockland
	103	Suffolk
	119	Westchester
37		North Carolina
	051	Cumberland
	067	Forsyth
	081	Guilford
	119	Mecklenburg
	183	Wake
38		North Dakota

39		Ohio
	017	Butler
	035	Cuyahoga
	049	Franklin
	061	Hamilton
	093	Lorain
	095	Lucas
	099	Mahoning
	113	Montgomery
	151	Stark
	153	Summit
40		Oklahoma
	109	Oklahoma
	143	Tulsa
41		Oregon
	005	Clackamas
	039	Lane
	051	Multnomah
	067	Washington
42		Pennsylvania
	003	Allegheny
	011	Berks
	017	Bucks
	029	Chester
	045	Delaware
	049	Erie
	071	Lancaster
	077	Lehigh
	079	Luzerne
	091	Montgomery
	101	Philadelphia, coext. with Philadelphia city
	129	Westmoreland
	133	York
44		Rhode Island
	007	Providence
45		South Carolina
	019	Charleston
	045	Greenville
	079	Richland
46		South Dakota
47		Tennessee
	037	Davidson
	065	Hamilton
	093	Knox
	157	Shelby

48		Texas
	029	Bexar
	061	Cameron
	085	Collin
	113	Dallas
	121	Denton
	141	El Paso
	201	Harris
	215	Hidalgo
	355	Nueces
	439	Tarrant
	453	Travis
49		Utah
	035	Salt Lake
	049	Utah
50		Vermont
51		Virginia
	059	Fairfax
	540	Charlottesville city
	710	Norfolk city
	810	Virginia Beach city
53		Washington
	033	King
	053	Pierce
	061	Snohomish
	063	Spokane
54		West Virginia
55		Wisconsin
	025	Dane
	079	Milwaukee
	133	Waukesha
56		Wyoming
72		Puerto Rico
	127	San Juan
78		Virgin Islands
66	010	Guam
00	000	Canada
00	000	Cuba
00	000	Mexico
00	000	Remainder of World

Listing of Cities/Places Identified in the Linked Data Set
Vital Statistics Geographic Code Outline Effective With 1995 Data
FIPS Codes

State	City/Place	State and City/Place Name
01		Alabama
	07000	Birmingham
02		Alaska
04		Arizona
	46000	Mesa
	55000	Phoenix
	77000	Tucson
05		Arkansas
06		California
	02000	Anaheim
	27000	Fresno
	43000	Long Beach
	44000	Los Angeles
	53000	Oakland
	64000	Sacramento
	66000	San Diego
	67000	San Francisco
	68000	San Jose
	69000	Santa Ana
08		Colorado
	16000	Colorado Springs
	20000	Denver
09		Connecticut
10		Delaware
11		District of Columbia
	50000	Washington
12		Florida
	35000	Jacksonville
	45000	Miami
	71000	Tampa
13		Georgia
	04000	Atlanta
15		Hawaii
	17000	Honolulu
16		Idaho

17		Illinois
	14000	Chicago
18		Indiana
	36000	Indianapolis
19		Iowa
20		Kansas
	79000	Wichita
21		Kentucky
	48000	Louisville
22		Louisiana
	55000	New Orleans
23		Maine
24		Maryland
	04000	Baltimore
25		Massachusetts
	07000	Boston
26		Michigan
	22000	Detroit
27		Minnesota
	43000	Minneapolis
	58000	St. Paul
28		Mississippi
29		Missouri
	38000	Kansas City
	65000	St. Louis
30		Montana
31		Nebraska
	37000	Omaha
32		Nevada
	40000	Las Vegas
33		New Hampshire
34		New Jersey
	51000	Newark
35		New Mexico
	02000	Albuquerque

36		New York
	11000	Buffalo
	51000	Bronx borough, Bronx county
	51000	Brooklyn borough, Kings county
	51000	Manhattan borough, New York county
	51000	Queens borough, Queens county
	51000	Staten Island borough, Richmond county
37		North Carolina
	12000	Charlotte
38		North Dakota
39		Ohio
	15000	Cincinnati
	16000	Cleveland
	18000	Columbus
	77000	Toledo
40		Oklahoma
	55000	Oklahoma City
	75000	Tulsa
41		Oregon
	59000	Portland
42		Pennsylvania
	60000	Philadelphia
	61000	Pittsburgh
44		Rhode Island
45		South Carolina
46		South Dakota
47		Tennessee
	48000	Memphis
	52010	Nashville-Davidson
48		Texas
	04000	Arlington
	05000	Austin
	17000	Corpus Christi
	19000	Dallas
	24000	El Paso
	27000	Fort Worth
	35000	Houston
	65000	San Antonio
49		Utah
50		Vermont

51		Virginia
	57000	Norfolk
	82000	Virginia Beach
53		Washington
	63000	Seattle
54		West Virginia
55		Wisconsin
	53000	Milwaukee
56		Wyoming
72		Puerto Rico
78		Virgin Islands
66		Guam
00		Canada
00		Cuba
00		Mexico
00		Remainder of World

Chapter 5

Ninth Revision 61 Causes of Death Adapted for use by DVS

ST: 1 = Subtotal Limited: Sex: 1 = Males; 2 = Females

Length = of Cause Title Age: 1 = 5 & Over; 2 = 10-54;

3 = 28 Days & Over

***** Cause Subtotals are not Identified in this File *****

61 Recode	S T	Limited Sex	Age	Len-gth	Cause Title And ICD-9 Codes Included
010				039	Certain intestinal infections (008-009)
020				020	Whooping cough (033)
030				029	Meningococcal infection (036)
040			3	016	Septicemia (038)
050				024	Viral diseases (045-079)
060				025	Congenital syphilis (090)
070				110	Remainder of infectious and parasitic diseases (001-007,010-032,034-035,037,039-041, *042-*044,080-088,091-139)
080				089	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)
090				108	Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature (210-239)
100				030	Diseases of thymus gland (254)
110				023	Cystic fibrosis (277.0)
120				052	Diseases of blood and blood-forming organs (280-289)
130				020	Meningitis (320-322)
140				059	Other diseases of nervous system and sense organs (323-389)
150				044	Acute upper respiratory infections (460-465)
160				042	Bronchitis and bronchiolitis (466,490-491)
170	1			033	Pneumonia and influenza (480-487)
180				021	Pneumonia (480-486)
190				017	Influenza (487)
200				061	Remainder of diseases of respiratory system (470-478, 492-519)
210				093	Hernia of abdominal cavity and intestinal obstruction without mention of hernia (550-553,560)
220				075	Gastritis, duodenitis, and noninfective enteritis and colitis (535,555-558)
230				067	Remainder of diseases of digestive system (520-534,536-543,562-579)
240	1			030	Congenital anomalies (740-759)
250				042	Anencephalus and similar anomalies (740)

260		020	Spina bifida (741)
270		034	Congenital hydrocephalus (742.3)
280		092	Other congenital anomalies of central nervous system and eye (742.0-742.2,742.4-742.9,743)
290		041	Congenital anomalies of heart (745-746)
300		056	Other congenital anomalies of circulatory system (747)
310		050	Congenital anomalies of respiratory system (748)
320		052	Congenital anomalies of digestive system (749-751)
330		056	Congenital anomalies of genitourinary system (752-753)
340		058	Congenital anomalies of musculoskeletal system (754-756)
350		025	Down's syndrome (758.0)
360		043	Other chromosomal anomalies (758.1-758.9)
370		062	All other and unspecified congenital anomalies (744,757,759)
380	1	064	Certain conditions originating in the perinatal period (760-779)
390		091	Newborn affected by maternal conditions which may be unrelated to present pregnancy (760)
400		063	Newborn affected by maternal complications of pregnancy (761)
410		074	Newborn affected by complications of placenta, cord, and membranes (762)
420		069	Newborn affected by other complications of labor and delivery (763)
430		048	Slow fetal growth and fetal malnutrition (764)
440		077	Disorders relating to short gestation and unspecified low birthweight (765)
450		065	Disorders relating to long gestation and high birthweight (766)
460		020	Birth trauma (767)
470	1	047	Intrauterine hypoxia and birth asphyxia (768)
480		051	Fetal distress in liveborn infant (768.2-768.4)
490		032	Birth asphyxia (768.5-768.9)
500		037	Respiratory distress syndrome (769)
510		047	Other respiratory conditions of newborn (770)
520		051	Infections specific to the perinatal period (771)
530		027	Neonatal hemorrhage (772)
540		094	Hemolytic disease of newborn, due to isoimmunization, and other perinatal jaundice (773-774)
550		088	Syndrome of "infant of a diabetic mother" and neonatal diabetes mellitus (775.0-775.1)
560		040	Hemorrhagic disease of newborn (776.0)
570		098	All other and ill-defined conditions originating in the perinatal period (775.2-775.9,776.1-779)

580	1	053	Symptoms, signs, and ill-defined conditions (780-799)
590		038	Sudden infant death syndrome (798.0)
600		075	Symptoms, signs, and all other ill-defined conditions (780-797,798.1-799)
610	1	041	Accidents and adverse effects (E800-E949)
620		118	Inhalation and ingestion of food or other object causing obstruction of respiratory tract or suffocation (E911-E912)
630		042	Accidental mechanical suffocation (E913)
640		067	Other accidental causes and adverse effects (E800-E910,E914-E949)
650	1	020	Homicide (E960-E969)
660		047	Child battering and other maltreatment (E967)
670		038	Other homicide (E960-E966,E968-E969)
680		027	All other causes (Residual)

DOCUMENTATION TABLE 1
LIVE BIRTHS AND INFANT DEATHS BY STATE OF OCCURRENCE AND BY STATE RESIDENCE AT BIRTH:
UNITED STATES, PUERTO RICO, VIRGIN ISLANDS, AND GUAM -- 1995 BIRTH COHORT DATA
(RESIDENCE AT BIRTH IS OF THE MOTHER)

AREA	LIVE BIRTHS		INFANT DEATHS			
			UNWEIGHTED		WEIGHTED 1/	
	OCCURRENCE	RESIDENCE	OCCURRENCE	RESIDENCE	OCCURRENCE	RESIDENCE
UNITED STATES 2/.....	3,903,012	3,899,589	28,607	28,594	29,315	29,302
ALABAMA.....	59,518	60,329	587	579	588	580
ALASKA.....	10,127	10,244	74	79	75	80
ARIZONA.....	72,363	72,463	534	533	544	543
ARKANSAS.....	33,644	35,175	288	313	289	314
CALIFORNIA.....	552,322	552,045	3,263	3,262	3,440	3,439
COLORADO.....	54,569	54,332	373	356	375	358
CONNECTICUT.....	44,250	44,334	300	306	300	306
DELAWARE.....	10,770	10,266	83	78	83	78
DISTRICT OF COLUMBIA.....	16,198	9,014	260	144	262	145
FLORIDA.....	188,966	188,723	1,429	1,422	1,436	1,429
GEORGIA.....	113,165	112,282	1,070	1,064	1,074	1,068
HAWAII.....	18,635	18,595	106	102	108	104
IDAHO.....	17,700	18,035	100	111	101	112
ILLINOIS.....	182,635	185,812	1,632	1,683	1,665	1,717
INDIANA.....	82,740	82,835	697	706	712	721
IOWA.....	36,869	36,810	268	289	273	294
KANSAS.....	35,527	37,201	224	250	226	253
KENTUCKY.....	50,858	52,377	335	365	345	376
LOUISIANA.....	65,812	65,641	623	609	640	625
MAINE.....	13,690	13,896	82	81	84	83
MARYLAND.....	67,901	72,396	549	639	554	645
MASSACHUSETTS.....	82,647	81,648	417	401	432	415
MICHIGAN.....	133,273	134,642	1,048	1,052	1,078	1,083
MINNESOTA.....	63,044	63,263	434	434	435	435
MISSISSIPPI.....	40,720	41,344	389	418	391	420
MISSOURI.....	75,981	73,028	595	523	601	528

DOCUMENTATION TABLE 1
LIVE BIRTHS AND INFANT DEATHS BY STATE OF OCCURRENCE AND BY STATE RESIDENCE AT BIRTH:
UNITED STATES, PUERTO RICO, VIRGIN ISLANDS, AND GUAM -- 1995 BIRTH COHORT DATA
(RESIDENCE AT BIRTH IS OF THE MOTHER)

AREA	LIVE BIRTHS		INFANT DEATHS			
			UNWEIGHTED		WEIGHTED 1/	
	OCCURRENCE	RESIDENCE	OCCURRENCE	RESIDENCE	OCCURRENCE	RESIDENCE
MONTANA	11,049	11,142	73	76	73	76
NEBRASKA	23,551	23,243	191	179	192	180
NEVADA	24,672	25,056	143	144	149	150
NEW HAMPSHIRE	14,158	14,665	66	75	66	75
NEW JERSEY	111,887	114,828	716	730	748	762
NEW MEXICO	26,607	26,920	154	162	163	171
NEW YORK	272,296	271,369	2,042	2,054	2,078	2,090
UPSTATE	141,287	145,316	943	973	964	994
CITY	131,009	126,053	1,099	1,081	1,114	1,096
NORTH CAROLINA	102,163	101,592	911	911	925	925
NORTH DAKOTA	9,736	8,476	64	54	64	54
OHIO	154,996	154,064	1,257	1,246	1,357	1,343
OKLAHOMA	44,722	45,672	336	340	388	391
OREGON	44,609	42,811	263	256	267	260
PENNSYLVANIA	152,776	151,850	1,152	1,135	1,171	1,154
RHODE ISLAND	13,787	12,776	98	90	99	91
SOUTH CAROLINA	49,105	50,926	462	486	468	492
SOUTH DAKOTA	10,632	10,475	91	86	91	86
TENNESSEE	77,899	73,173	703	631	704	632
TEXAS	326,587	322,753	2,088	2,071	2,117	2,100
UTAH	40,535	39,577	220	210	226	216
VERMONT	6,448	6,783	43	39	43	39
VIRGINIA	90,594	92,578	659	691	681	713
WASHINGTON	75,678	77,228	435	438	447	450
WEST VIRGINIA	22,181	21,162	174	161	179	165
WISCONSIN	66,565	67,479	476	490	476	490
WYOMING	5,855	6,261	30	40	32	42
FOREIGN RESIDENTS	...	3,423	...	13	...	13

DOCUMENTATION TABLE 1
LIVE BIRTHS AND INFANT DEATHS BY STATE OF OCCURRENCE AND BY STATE RESIDENCE AT BIRTH:
UNITED STATES, PUERTO RICO, VIRGIN ISLANDS, AND GUAM -- 1995 BIRTH COHORT DATA
(RESIDENCE AT BIRTH IS OF THE MOTHER)

AREA	LIVE BIRTHS		INFANT DEATHS			
			UNWEIGHTED		WEIGHTED 1/	
	OCCURRENCE	RESIDENCE	OCCURRENCE	RESIDENCE	OCCURRENCE	RESIDENCE
PUERTO RICO 3/.....	63,518	63,425	789	783	...	...
VIRGIN ISLAND 3/.....	2,164	2,063	27	27	...	...
GUAM 3/.....	4,186	4,179	40	40	...	...

1/ FIGURES ARE BASES ON WEIGHTED DATA ROUNDED TO THE NEAREST INFANT, SO CATEGORIES MAY NOT ADD TO TOTALS.
2/ EXCLUDES DATA FOR PUERTO RICO, VIRGIN ISLANDS, AND GUAM OCCURRENCES
3/ DATA FROM THE PUERTO RICO, VIRGIN ISLANDS, AND GUAM FILE

DOCUMENTATION TABLE 2
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY RACE OF MOTHER, SEX AND BIRTH WEIGHT OF CHILD:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

RACE OF MOTHER AND SEX	TOTAL	<500 GRAMS	500-749 GRAMS	750-999 GRAMS	1000-1249 GRAMS	1250-1499 GRAMS	1500-1999 GRAMS	2000-2499 GRAMS	2500 GRAMS OR MORE	NOT STATED
ALL RACES 1/										
BOTH SEXES										
LIVE BIRTHS.....	3,899,589	5,703	9,998	10,816	12,242	14,267	55,342	177,608	3,611,935	1,678
INFANT DEATHS...	29,302	5,162	5,261	1,979	1,038	795	1,823	2,467	10,426	351
INF.MORT.RATE...	7.5	905.2	526.2	183.0	84.8	55.7	32.9	13.9	2.9	209.4
MALE										
LIVE BIRTHS.....	1,996,355	2,917	5,033	5,621	6,350	7,328	27,134	81,593	1,859,469	910
INFANT DEATHS...	16,468	2,661	3,006	1,221	634	454	958	1,275	6,037	223
INF.MORT.RATE...	8.2	912.4	597.2	217.1	99.8	61.9	35.3	15.6	3.2	245.1
FEMALE										
LIVE BIRTHS.....	1,903,234	2,786	4,965	5,195	5,892	6,939	28,208	96,015	1,752,466	768
INFANT DEATHS...	12,834	2,501	2,255	759	404	341	865	1,192	4,389	128
INF.MORT.RATE...	6.7	897.6	454.2	146.0	68.6	49.2	30.7	12.4	2.5	167.1
WHITE										
BOTH SEXES										
LIVE BIRTHS.....	3,098,885	3,140	5,888	6,685	7,972	9,358	37,525	122,515	2,904,634	1,168
INFANT DEATHS...	19,461	2,862	3,213	1,303	717	532	1,256	1,705	7,677	197
INF.MORT.RATE...	6.3	911.4	545.7	194.9	89.9	56.8	33.5	13.9	2.6	168.7
MALE										
LIVE BIRTHS.....	1,588,427	1,628	2,971	3,497	4,209	4,880	18,647	56,827	1,495,140	628
INFANT DEATHS...	11,087	1,494	1,844	812	447	313	672	890	4,491	124
INF.MORT.RATE...	7.0	917.8	620.7	232.3	106.3	64.1	36.0	15.7	3.0	196.8
FEMALE										
LIVE BIRTHS.....	1,510,458	1,512	2,917	3,188	3,763	4,478	18,878	65,688	1,409,494	540
INFANT DEATHS...	8,375	1,368	1,369	491	269	219	584	815	3,186	73
INF.MORT.RATE...	5.5	904.5	469.3	154.0	71.6	48.9	31.0	12.4	2.3	135.9

DOCUMENTATION TABLE 2
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY RACE OF MOTHER, SEX AND BIRTH WEIGHT OF CHILD:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

RACE OF MOTHER AND SEX	TOTAL	<500 GRAMS	500-749 GRAMS	750-999 GRAMS	1000-1249 GRAMS	1250-1499 GRAMS	1500-1999 GRAMS	2000-2499 GRAMS	2500 GRAMS OR MORE	NOT STATED
BLACK										
BOTH SEXES										
LIVE BIRTHS.....	603,139	2,421	3,800	3,748	3,801	4,323	15,384	45,858	523,420	384
INFANT DEATHS...	8,674	2,173	1,888	600	281	215	472	660	2,249	137
INF.MORT.RATE...	14.4	897.6	496.9	160.2	73.9	49.7	30.7	14.4	4.3	355.9
MALE										
LIVE BIRTHS.....	306,115	1,210	1,912	1,919	1,888	2,126	7,248	20,411	269,182	219
INFANT DEATHS...	4,755	1,098	1,079	362	163	118	240	336	1,272	87
INF.MORT.RATE...	15.5	907.6	564.4	188.4	86.2	55.5	33.2	16.5	4.7	397.6
FEMALE										
LIVE BIRTHS.....	297,024	1,211	1,888	1,829	1,913	2,197	8,136	25,447	254,238	165
INFANT DEATHS...	3,919	1,075	809	239	118	97	231	323	978	50
INF.MORT.RATE...	13.2	887.6	428.6	130.6	61.7	44.0	28.4	12.7	3.8	300.5

1/ INCLUDES RACES OTHER THAN WHITE AND BLACK

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
ALL RACES 1/										
TOTAL										
LIVE BIRTHS.....	3,899,589	27,478	45,622	199,383	151,972	1,733,269	876,828	493,055	335,513	36,469
INFANT DEATHS.....	29,302	11,568	2,426	2,704	1,108	5,864	2,286	1,253	1,135	958
INF. MORT. RATE....	7.5	421.0	53.2	13.6	7.3	3.4	2.6	2.5	3.4	26.3
LESS THAN 2,500 GRAMS										
LIVE BIRTHS.....	285,976	26,214	33,267	90,870	31,579	75,096	12,325	6,014	6,954	3,657
INFANT DEATHS.....	18,525	11,547	2,311	1,956	506	1,221	241	159	159	425
INF. MORT. RATE....	64.8	440.5	69.5	21.5	16.0	16.3	19.5	26.5	22.9	116.2
LESS THAN 500 GRAMS										
LIVE BIRTHS.....	5,703	5,280	231	11	1	3	2	2	1	172
INFANT DEATHS.....	5,162	4,829	177	9	1	2	2	1	1	140
INF. MORT. RATE....	905.2	914.5	765.4	828.8	1036.3	666.7	1029.0	514.5	1000.0	816.4
500-749 GRAMS										
LIVE BIRTHS.....	9,998	8,422	1,158	147	9	25	4	5	6	222
INFANT DEATHS.....	5,261	4,702	381	45	2	12	3	5	3	107
INF. MORT. RATE....	526.2	558.3	328.9	305.6	225.1	488.4	756.9	1061.6	504.6	480.8
750-999 GRAMS										
LIVE BIRTHS.....	10,816	6,726	3,274	450	31	92	37	19	9	178
INFANT DEATHS.....	1,979	1,408	449	60	5	12	1	1	3	40
INF. MORT. RATE....	183.0	209.3	137.1	133.5	163.3	134.8	27.2	53.5	338.5	224.7
1,000-1,249 GRAMS										
LIVE BIRTHS.....	12,242	2,953	6,368	1,985	160	355	106	50	76	189
INFANT DEATHS.....	1,038	375	425	159	13	27	6	5	5	23
INF. MORT. RATE....	84.8	126.9	66.7	80.1	83.3	76.0	57.3	102.6	66.8	120.4

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
ALL RACES 1/										
1,250-1,499 GRAMS										
LIVE BIRTHS.....	14,267	1,000	7,105	4,466	441	687	152	98	129	189
INFANT DEATHS.....	795	101	345	207	39	58	16	6	7	16
INF. MORT. RATE....	55.7	101.2	48.6	46.3	88.1	84.8	102.7	61.9	55.7	83.0
1,500-1,999 GRAMS										
LIVE BIRTHS.....	55,342	1,126	10,685	28,455	4,700	7,197	1,033	602	817	727
INFANT DEATHS.....	1,823	110	397	708	141	315	47	32	33	41
INF. MORT. RATE....	32.9	97.3	37.2	24.9	30.1	43.8	45.4	52.5	40.0	57.0
2,000-2,499 GRAMS										
LIVE BIRTHS.....	177,608	707	4,446	55,356	26,237	66,737	10,991	5,238	5,916	1,980
INFANT DEATHS.....	2,467	22	137	769	305	794	166	109	107	58
INF. MORT. RATE....	13.9	31.7	30.8	13.9	11.6	11.9	15.1	20.9	18.1	29.2
2,500-2,999 GRAMS										
LIVE BIRTHS.....	640,891	1,264	4,699	50,827	55,113	346,702	93,773	43,519	39,002	5,992
INFANT DEATHS.....	3,419	21	60	434	332	1,563	472	237	245	54
INF. MORT. RATE....	5.3	16.9	12.8	8.5	6.0	4.5	5.0	5.5	6.3	9.0
3,000-3,499 GRAMS										
LIVE BIRTHS.....	1,438,889	-	5,074	36,822	44,427	720,824	330,594	168,085	120,637	12,426
INFANT DEATHS.....	4,059	-	41	218	174	1,941	845	415	367	59
INF. MORT. RATE....	2.8	-	8.1	5.9	3.9	2.7	2.6	2.5	3.0	4.7
3,500-3,999 GRAMS										
LIVE BIRTHS.....	1,129,470	-	2,582	16,464	16,476	458,423	319,102	189,314	117,969	9,140
INFANT DEATHS.....	2,175	-	14	76	68	887	534	306	252	38
INF. MORT. RATE....	1.9	-	5.6	4.6	4.1	1.9	1.7	1.6	2.1	4.2

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
ALL RACES 1/										
4,000-4,499 GRAMS										
LIVE BIRTHS.....	339,910	-	-	3,778	3,689	113,188	102,510	71,539	42,210	2,996
INFANT DEATHS.....	609	-	-	13	23	196	157	112	91	17
INF. MORT. RATE....	1.8	-	-	3.5	6.1	1.7	1.5	1.6	2.2	5.5
4,500-4,999 GRAMS										
LIVE BIRTHS.....	56,309	-	-	524	598	16,958	16,792	13,160	7,784	493
INFANT DEATHS.....	113	-	-	3	3	40	30	17	15	4
INF. MORT. RATE....	2.0	-	-	6.0	5.1	2.4	1.8	1.3	1.9	8.8
5,000 GRAMS OR MORE										
LIVE BIRTHS.....	6,466	-	-	98	90	2,078	1,732	1,424	957	87
INFANT DEATHS.....	50	-	-	4	2	16	7	5	5	10
INF. MORT. RATE....	7.7	-	-	41.1	22.7	7.9	4.1	3.6	5.3	118.7
NOT STATED										
LIVE BIRTHS.....	1,678	-	-	-	-	-	-	-	-	1,678
INFANT DEATHS.....	351	-	-	-	-	-	-	-	-	351
INF. MORT. RATE....	209.4	-	-	-	-	-	-	-	-	209.4

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
WHITE										
TOTAL										
LIVE BIRTHS.....	3,098,885	15,736	29,187	140,098	113,537	1,370,843	719,882	410,221	271,485	27,896
INFANT DEATHS.....	19,461	6,793	1,625	1,888	788	4,305	1,680	945	842	597
INF. MORT. RATE....	6.3	431.7	55.7	13.5	6.9	3.1	2.3	2.3	3.1	21.4
LESS THAN 2,500 GRAMS										
LIVE BIRTHS.....	193,083	15,083	21,586	63,625	22,181	51,200	8,282	4,059	4,653	2,414
INFANT DEATHS.....	11,587	6,780	1,551	1,363	360	881	156	116	105	274
INF. MORT. RATE....	60.0	449.5	71.9	21.4	16.2	17.2	18.8	28.5	22.6	113.7
LESS THAN 500 GRAMS										
LIVE BIRTHS.....	3,140	2,881	138	6	-	3	2	2	-	108
INFANT DEATHS.....	2,862	2,656	109	6	-	2	2	1	-	86
INF. MORT. RATE....	911.4	921.9	787.9	1013.4	-	666.7	1029.0	514.5	-	795.7
500-749 GRAMS										
LIVE BIRTHS.....	5,888	4,881	746	91	8	13	2	5	5	137
INFANT DEATHS.....	3,213	2,838	265	24	1	4	2	5	2	70
INF. MORT. RATE....	545.7	581.5	355.8	269.0	127.2	314.8	1010.9	1061.6	405.6	513.3
750-999 GRAMS										
LIVE BIRTHS.....	6,685	4,032	2,109	297	21	64	27	15	4	116
INFANT DEATHS.....	1,303	918	304	44	3	8	-	1	1	25
INF. MORT. RATE....	194.9	227.6	144.0	147.7	143.9	129.0	-	67.8	257.2	211.3
1,000-1,249 GRAMS										
LIVE BIRTHS.....	7,972	1,793	4,196	1,393	98	216	74	33	45	124
INFANT DEATHS.....	717	250	291	120	10	18	5	4	2	17
INF. MORT. RATE....	89.9	139.5	69.3	86.4	104.9	82.0	68.2	125.1	44.4	133.6

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
WHITE										
1,250-1,499 GRAMS										
LIVE BIRTHS.....	9,358	557	4,674	3,031	301	424	100	67	92	112
INFANT DEATHS.....	532	57	224	152	27	45	10	4	4	10
INF. MORT. RATE....	56.8	101.4	47.8	50.1	88.2	105.9	104.6	60.0	44.9	85.6
1,500-1,999 GRAMS										
LIVE BIRTHS.....	37,525	583	7,154	19,511	3,274	4,865	692	399	544	503
INFANT DEATHS.....	1,256	53	267	485	103	239	32	23	23	30
INF. MORT. RATE....	33.5	91.3	37.4	24.8	31.4	49.1	45.7	58.6	43.1	60.1
2,000-2,499 GRAMS										
LIVE BIRTHS.....	122,515	356	2,569	39,296	18,479	45,615	7,385	3,538	3,963	1,314
INFANT DEATHS.....	1,705	8	91	532	217	565	105	77	73	37
INF. MORT. RATE....	13.9	23.0	35.6	13.5	11.7	12.4	14.2	21.7	18.3	28.3
2,500-2,999 GRAMS										
LIVE BIRTHS.....	458,899	653	2,620	35,465	40,685	249,049	67,237	31,500	27,630	4,060
INFANT DEATHS.....	2,385	13	38	296	226	1,107	340	163	168	34
INF. MORT. RATE....	5.2	20.2	14.4	8.3	5.5	4.4	5.1	5.2	6.1	8.4
3,000-3,499 GRAMS										
LIVE BIRTHS.....	1,130,307	-	3,208	25,456	34,145	566,968	262,214	134,333	94,472	9,511
INFANT DEATHS.....	3,000	-	29	157	133	1,435	613	320	272	42
INF. MORT. RATE....	2.7	-	8.9	6.1	3.9	2.5	2.3	2.4	2.9	4.5
3,500-3,999 GRAMS										
LIVE BIRTHS.....	958,758	-	1,773	12,143	12,912	387,738	273,851	162,960	99,737	7,644
INFANT DEATHS.....	1,691	-	7	57	49	683	422	244	202	27
INF. MORT. RATE....	1.8	-	4.1	4.7	3.8	1.8	1.5	1.5	2.0	3.5

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
WHITE										
4,000-4,499 GRAMS										
LIVE BIRTHS.....	300,735	-	-	2,917	3,061	99,306	91,610	64,114	37,132	2,595
INFANT DEATHS.....	470	-	-	8	17	153	116	85	78	12
INF. MORT. RATE....	1.6	-	-	2.8	5.4	1.5	1.3	1.3	2.1	4.8
4,500-4,999 GRAMS										
LIVE BIRTHS.....	50,333	-	-	412	482	14,841	15,178	11,987	7,000	433
INFANT DEATHS.....	93	-	-	2	1	34	26	14	13	3
INF. MORT. RATE....	1.8	-	-	4.9	2.1	2.3	1.7	1.2	1.9	7.0
5,000 GRAMS OR MORE										
LIVE BIRTHS.....	5,602	-	-	80	71	1,741	1,510	1,268	861	71
INFANT DEATHS.....	39	-	-	4	2	12	6	4	4	6
INF. MORT. RATE....	6.9	-	-	50.3	28.7	7.1	4.0	3.2	4.8	88.0
NOT STATED										
LIVE BIRTHS.....	1,168	-	-	-	-	-	-	-	-	1,168
INFANT DEATHS.....	197	-	-	-	-	-	-	-	-	197
INF. MORT. RATE....	168.7	-	-	-	-	-	-	-	-	168.7

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
BLACK										
TOTAL										
LIVE BIRTHS.....	603,139	10,890	14,551	49,553	30,720	267,192	114,646	61,516	49,048	5,023
INFANT DEATHS.....	8,674	4,440	705	684	265	1,300	494	243	245	298
INF. MORT. RATE....	14.4	407.7	48.5	13.8	8.6	4.9	4.3	3.9	5.0	59.2
LESS THAN 2,500 GRAMS										
LIVE BIRTHS.....	79,335	10,325	10,431	23,275	7,843	19,519	3,387	1,649	1,963	943
INFANT DEATHS.....	6,289	4,434	669	495	126	279	73	35	48	129
INF. MORT. RATE....	79.3	429.4	64.1	21.3	16.1	14.3	21.6	21.0	24.4	137.0
LESS THAN 500 GRAMS										
LIVE BIRTHS.....	2,421	2,273	86	5	1	-	-	-	1	55
INFANT DEATHS.....	2,173	2,056	64	3	1	-	-	-	1	48
INF. MORT. RATE....	897.6	904.6	743.5	607.3	1036.3	-	-	-	1000.0	870.4
500-749 GRAMS										
LIVE BIRTHS.....	3,800	3,298	373	47	1	9	2	-	1	69
INFANT DEATHS.....	1,888	1,727	103	17	1	7	1	-	1	31
INF. MORT. RATE....	496.9	523.6	276.0	368.5	1008.3	788.5	503.0	-	1000.0	451.2
750-999 GRAMS										
LIVE BIRTHS.....	3,748	2,470	1,055	128	9	24	6	2	4	50
INFANT DEATHS.....	600	439	127	12	2	4	1	-	2	13
INF. MORT. RATE....	160.2	177.8	120.0	94.3	226.8	172.5	167.7	-	504.4	268.8
1,000-1,249 GRAMS										
LIVE BIRTHS.....	3,801	1,048	1,937	518	52	122	27	16	26	55
INFANT DEATHS.....	281	112	117	32	2	8	1	1	3	4
INF. MORT. RATE....	73.9	107.1	60.3	62.7	39.1	67.0	38.2	62.5	118.2	74.3

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
BLACK										
1,250-1,499 GRAMS										
LIVE BIRTHS.....	4,323	404	2,153	1,235	128	230	45	30	34	64
INFANT DEATHS.....	215	34	102	45	10	9	5	2	2	5
INF. MORT. RATE....	49.7	85.3	47.3	36.2	79.4	39.8	114.4	68.2	60.1	79.2
1,500-1,999 GRAMS										
LIVE BIRTHS.....	15,384	505	3,130	7,705	1,203	1,972	295	174	235	165
INFANT DEATHS.....	472	51	112	178	33	63	11	5	6	11
INF. MORT. RATE....	30.7	101.3	35.9	23.1	27.8	31.9	37.8	29.4	26.2	67.8
2,000-2,499 GRAMS										
LIVE BIRTHS.....	45,858	327	1,697	13,637	6,449	17,162	3,012	1,427	1,662	485
INFANT DEATHS.....	660	14	45	207	76	188	54	26	33	16
INF. MORT. RATE....	14.4	43.4	26.3	15.2	11.9	10.9	17.9	18.5	19.6	33.9
2,500-2,999 GRAMS										
LIVE BIRTHS.....	141,444	565	1,839	12,773	11,515	74,441	20,496	9,346	9,282	1,187
INFANT DEATHS.....	861	6	18	113	93	390	109	57	63	11
INF. MORT. RATE....	6.1	11.0	9.9	8.8	8.1	5.2	5.3	6.1	6.8	9.4
3,000-3,499 GRAMS										
LIVE BIRTHS.....	228,037	-	1,612	9,307	8,036	111,867	50,064	25,419	20,216	1,516
INFANT DEATHS.....	867	-	11	55	30	419	187	74	83	7
INF. MORT. RATE....	3.8	-	6.9	5.9	3.7	3.7	3.7	2.9	4.1	4.7
3,500-3,999 GRAMS										
LIVE BIRTHS.....	122,168	-	669	3,432	2,760	50,063	31,899	19,085	13,476	784
INFANT DEATHS.....	387	-	7	15	12	169	90	51	37	7
INF. MORT. RATE....	3.2	-	10.7	4.4	4.4	3.4	2.8	2.7	2.7	9.2

SEE FOOTNOTES AT END OF TABLE.

DOCUMENTATION TABLE 3
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND GESTATIONAL AGE:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT	GESTATION									
	TOTAL	<28 WEEKS	28-31 WEEKS	32-35 WEEKS	36 WEEKS	37-39 WEEKS	40 WEEKS	41 WEEKS	42 WEEKS OR MORE	NOT STATED
BLACK										
4,000-4,499 GRAMS										
LIVE BIRTHS.....	27,133	-	-	679	469	9,615	7,536	5,110	3,550	174
INFANT DEATHS.....	115	-	-	5	4	35	32	23	12	3
INF. MORT. RATE....	4.2	-	-	7.5	8.6	3.7	4.2	4.6	3.5	17.6
4,500-4,999 GRAMS										
LIVE BIRTHS.....	4,038	-	-	76	82	1,443	1,108	811	494	24
INFANT DEATHS.....	10	-	-	1	-	4	2	2	1	-
INF. MORT. RATE....	2.5	-	-	15.1	-	2.8	1.8	2.5	2.0	-
5,000 GRAMS OR MORE										
LIVE BIRTHS.....	600	-	-	11	15	244	156	96	67	11
INFANT DEATHS.....	9	-	-	-	-	3	1	1	1	3
INF. MORT. RATE....	15.2	-	-	-	-	12.4	6.4	10.5	15.0	280.4
NOT STATED										
LIVE BIRTHS.....	384	-	-	-	-	-	-	-	-	384
INFANT DEATHS.....	137	-	-	-	-	-	-	-	-	137
INF. MORT. RATE....	355.9	-	-	-	-	-	-	-	-	355.9

1/ INCLUDES RACES OTHER THAN WHITE AND BLACK

- DATA NOT AVAILABLE.

DOCUMENTATION TABLE 4
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND AGE AT DEATH:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT AND RACE OF MOTHER	LIVE BIRTHS	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
ALL RACES1/						
TOTAL (ALL BIRTH WEIGHTS)...NUMBER..	3,899,589	29,302	19,184	15,482	3,703	10,117
RATE..		7.5	4.9	4.0	.9	2.6
LESS THAN 2,500 GRAMS.....NUMBER..	285,976	18,525	14,946	12,765	2,181	3,579
RATE..		64.8	52.3	44.6	7.6	12.5
LESS THAN 500 GRAMS.....NUMBER..	5,703	5,162	5,072	4,947	125	90
RATE..		905.2	889.3	867.4	21.9	15.8
500-749 GRAMS.....NUMBER..	9,998	5,261	4,677	3,935	742	584
RATE..		526.2	467.8	393.6	74.2	58.4
750-999 GRAMS.....NUMBER..	10,816	1,979	1,521	1,103	418	458
RATE..		183.0	140.6	102.0	38.7	42.3
1,000-1,249 GRAMS.....NUMBER..	12,242	1,038	743	567	176	295
RATE..		84.8	60.7	46.3	14.4	24.1
1,250-1,499 GRAMS.....NUMBER..	14,267	795	552	439	113	243
RATE..		55.7	38.7	30.8	7.9	17.0
1,500-1,999 GRAMS.....NUMBER..	55,342	1,823	1,164	899	265	659
RATE..		32.9	21.0	16.2	4.8	11.9
2,000-2,499 GRAMS.....NUMBER..	177,608	2,467	1,217	876	342	1,249
RATE..		13.9	6.9	4.9	1.9	7.0
2,500-2,999 GRAMS.....NUMBER..	640,891	3,419	1,420	911	509	1,999
RATE..		5.3	2.2	1.4	.8	3.1
3,000-3,499 GRAMS.....NUMBER..	1,438,889	4,059	1,385	786	598	2,675
RATE..		2.8	1.0	.5	.4	1.9

DOCUMENTATION TABLE 4
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND AGE AT DEATH:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT AND RACE OF MOTHER	LIVE BIRTHS	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
ALL RACES1/						
3,500-3,999 GRAMS.....NUMBER..	1,129,470	2,175	774	470	303	1,402
RATE..		1.9	.7	.4	.3	1.2
4,000-4,499 GRAMS.....NUMBER..	339,910	609	241	160	82	368
RATE..		1.8	.7	.5	.2	1.1
4,500-4,999 GRAMS.....NUMBER..	56,309	113	46	33	13	66
RATE..		2.0	.8	.6	.2	1.2
5,000 GRAMS OR MORE.....NUMBER..	6,466	50	35	33	2	15
RATE..		7.7	5.4	5.1	.3	2.4
NOT STATED.....NUMBER..	1,678	351	338	324	14	13
RATE..		209.4	201.4	192.8	8.6	8.0

DOCUMENTATION TABLE 4
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND AGE AT DEATH:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT AND RACE OF MOTHER	LIVE BIRTHS	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
WHITE						
TOTAL (ALL BIRTH WEIGHTS)...NUMBER..	3,098,885	19,461	12,709	10,106	2,603	6,752
RATE..		6.3	4.1	3.3	.8	2.2
LESS THAN 2,500 GRAMS.....NUMBER..	193,083	11,587	9,468	8,047	1,421	2,119
RATE..		60.0	49.0	41.7	7.4	11.0
LESS THAN 500 GRAMS.....NUMBER..	3,140	2,862	2,814	2,731	83	48
RATE..		911.4	896.2	869.6	26.6	15.2
500-749 GRAMS.....NUMBER..	5,888	3,213	2,899	2,469	430	314
RATE..		545.7	492.4	419.4	73.0	53.3
750-999 GRAMS.....NUMBER..	6,685	1,303	1,059	772	287	244
RATE..		194.9	158.4	115.4	42.9	36.6
1,000-1,249 GRAMS.....NUMBER..	7,972	717	544	431	113	172
RATE..		89.9	68.3	54.1	14.2	21.6
1,250-1,499 GRAMS.....NUMBER..	9,358	532	387	313	74	145
RATE..		56.8	41.4	33.4	7.9	15.4
1,500-1,999 GRAMS.....NUMBER..	37,525	1,256	835	654	181	421
RATE..		33.5	22.3	17.4	4.8	11.2
2,000-2,499 GRAMS.....NUMBER..	122,515	1,705	930	677	252	775
RATE..		13.9	7.6	5.5	2.1	6.3
2,500-2,999 GRAMS.....NUMBER..	458,899	2,385	1,061	691	370	1,324
RATE..		5.2	2.3	1.5	.8	2.9
3,000-3,499 GRAMS.....NUMBER..	1,130,307	3,000	1,098	624	473	1,902
RATE..		2.7	1.0	.6	.4	1.7

DOCUMENTATION TABLE 4
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND AGE AT DEATH:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT AND RACE OF MOTHER	LIVE BIRTHS	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
WHITE						
3,500-3,999 GRAMS.....NUMBER..	958,758	1,691	635	385	250	1,056
RATE..		1.8	.7	.4	.3	1.1
4,000-4,499 GRAMS.....NUMBER..	300,735	470	194	127	67	276
RATE..		1.6	.6	.4	.2	.9
4,500-4,999 GRAMS.....NUMBER..	50,333	93	37	24	13	56
RATE..		1.8	.7	.5	.3	1.1
5,000 GRAMS OR MORE.....NUMBER..	5,602	39	28	26	2	11
RATE..		6.9	4.9	4.6	.4	2.0
NOT STATED.....NUMBER..	1,168	197	189	182	6	8
RATE..		168.7	161.6	156.2	5.3	7.1

DOCUMENTATION TABLE 4
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND AGE AT DEATH:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT AND RACE OF MOTHER	LIVE BIRTHS	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
BLACK						
TOTAL (ALL BIRTH WEIGHTS)...NUMBER..	603,139	8,674	5,788	4,821	967	2,887
RATE..		14.4	9.6	8.0	1.6	4.8
LESS THAN 2,500 GRAMS.....NUMBER..	79,335	6,289	4,982	4,291	691	1,306
RATE..		79.3	62.8	54.1	8.7	16.5
LESS THAN 500 GRAMS.....NUMBER..	2,421	2,173	2,134	2,093	40	40
RATE..		897.6	881.3	864.6	16.7	16.3
500-749 GRAMS.....NUMBER..	3,800	1,888	1,638	1,344	294	250
RATE..		496.9	431.0	353.6	77.4	65.9
750-999 GRAMS.....NUMBER..	3,748	600	411	295	117	189
RATE..		160.2	109.8	78.6	31.1	50.4
1,000-1,249 GRAMS.....NUMBER..	3,801	281	171	115	57	109
RATE..		73.9	45.1	30.1	14.9	28.8
1,250-1,499 GRAMS.....NUMBER..	4,323	215	127	93	35	87
RATE..		49.7	29.5	21.5	8.0	20.2
1,500-1,999 GRAMS.....NUMBER..	15,384	472	262	192	70	210
RATE..		30.7	17.0	12.5	4.5	13.6
2,000-2,499 GRAMS.....NUMBER..	45,858	660	239	161	78	421
RATE..		14.4	5.2	3.5	1.7	9.2
2,500-2,999 GRAMS.....NUMBER..	141,444	861	287	172	115	574
RATE..		6.1	2.0	1.2	.8	4.1
3,000-3,499 GRAMS.....NUMBER..	228,037	867	224	124	100	643
RATE..		3.8	1.0	.5	.4	2.8

DOCUMENTATION TABLE 4
LIVE BIRTHS, INFANT DEATHS, AND INFANT MORTALITY RATES BY BIRTH WEIGHT, RACE OF MOTHER, AND AGE AT DEATH:
UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 1000 LIVE BIRTHS)

BIRTH WEIGHT AND RACE OF MOTHER	LIVE BIRTHS	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
BLACK						
3,500-3,999 GRAMS.....NUMBER..	122,168	387	111	68	44	276
RATE..		3.2	.9	.6	.4	2.3
4,000-4,499 GRAMS.....NUMBER..	27,133	115	41	29	12	74
RATE..		4.2	1.5	1.1	.4	2.7
4,500-4,999 GRAMS.....NUMBER..	4,038	10	6	6	-	4
RATE..		2.5	1.5	1.5	-	1.0
5,000 GRAMS OR MORE.....NUMBER..	600	9	5	5	-	4
RATE..		15.2	8.5	8.5	-	6.7
NOT STATED.....NUMBER..	384	137	132	126	5	5
RATE..		355.9	342.5	329.2	13.3	13.4

1/ INCLUDES RACES OTHER THAN WHITE AND BLACK

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER	LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
ALL RACES 1/ ALL BIRTH WEIGHTS						
ALL CAUSES.....NUMBER...	3,899,589	29,302	19,184	15,482	3,703	10,117
RATE..		751.4	492.0	397.0	94.9	259.4
CONGENITAL ANOMALIES (740-759).....NUMBER...		6,585	4,785	3,652	1,133	1,800
RATE..		168.9	122.7	93.6	29.1	46.2
PREMATURITY (765).....NUMBER...		3,909	3,855	3,783	72	54
RATE..		100.2	98.9	97.0	1.8	1.4
SUDDEN INFANT DEATH SYNDROME (798.0)..NUMBER...		3,255	225	27	197	3,031
RATE..		83.5	5.8	.7	5.1	77.7
RESPIRATORY DISTRESS SYNDROME (769)...NUMBER...		1,462	1,368	1,128	240	94
RATE..		37.5	35.1	28.9	6.2	2.4
MATERNAL COMPLICATIONS (761).....NUMBER...		1,315	1,307	1,296	11	8
RATE..		33.7	33.5	33.2	.3	.2
COMPLICATIONS OF PLACENTA,ETC. (762)..NUMBER...		957	939	900	39	18
RATE..		24.5	24.1	23.1	1.0	.5
ACCIDENTS (E800-E949).....NUMBER...		762	68	35	33	694
RATE..		19.5	1.7	.9	.9	17.8
INFECTIONS (771).....NUMBER...		795	738	377	360	57
RATE..		20.4	18.9	9.7	9.2	1.5
PNEUMONIA AND INFLUENZA (480-487).....NUMBER...		534	110	40	70	424
RATE..		13.7	2.8	1.0	1.8	10.9
HYPOXIA AND ASPHYXIA (768).....NUMBER...		469	420	344	75	50
RATE..		12.0	10.8	8.8	1.9	1.3
ALL OTHER CAUSES.....NUMBER...		9,259	5,371	3,899	1,471	3,888
RATE..		237.4	137.7	100.0	37.7	99.7

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER	LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
ALL RACES 1/ LESS THAN 2,500 GRAMS						
ALL CAUSES.....NUMBER...	285,976	18,525	14,946	12,765	2,181	3,579
RATE..		6,477.8	5,226.3	4,463.7	762.6	1,251.4
CONGENITAL ANOMALIES (740-759).....NUMBER...		3,543	2,828	2,393	435	714
RATE..		1,238.8	989.0	836.9	152.2	249.8
PREMATURITY (765).....NUMBER...		3,728	3,675	3,604	71	54
RATE..		1,303.8	1,284.9	1,260.1	24.8	18.8
SUDDEN INFANT DEATH SYNDROME (798.0)..NUMBER...		678	44	5	39	634
RATE..		237.0	15.3	1.8	13.5	221.8
RESPIRATORY DISTRESS SYNDROME (769)...NUMBER...		1,412	1,333	1,102	231	78
RATE..		493.6	466.2	385.4	80.8	27.4
MATERNAL COMPLICATIONS (761).....NUMBER...		1,272	1,264	1,253	11	8
RATE..		444.7	441.8	438.0	3.9	2.8
COMPLICATIONS OF PLACENTA,ETC. (762)..NUMBER...		814	801	775	25	13
RATE..		284.6	280.0	271.1	8.9	4.6
ACCIDENTS (E800-E949).....NUMBER...		132	16	14	2	116
RATE..		46.3	5.7	5.0	.7	40.6
INFECTIONS (771).....NUMBER...		621	573	279	294	48
RATE..		217.1	200.4	97.6	102.8	16.7
PNEUMONIA AND INFLUENZA (480-487).....NUMBER...		236	63	19	44	173
RATE..		82.4	22.1	6.8	15.3	60.4
HYPOXIA AND ASPHYXIA (768).....NUMBER...		204	195	167	27	9
RATE..		71.3	68.1	58.5	9.6	3.2
ALL OTHER CAUSES.....NUMBER...		5,886	4,155	3,153	1,002	1,731
RATE..		2,058.1	1,452.8	1,102.5	350.2	605.3

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER		LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
ALL RACES 1/ 2,500 GRAMS OR MORE							
ALL CAUSES	NUMBER...	3,611,935	10,426	3,900	2,393	1,507	6,525
	RATE..		288.6	108.0	66.3	41.7	180.7
CONGENITAL ANOMALIES (740-759)	NUMBER...		2,992	1,910	1,217	694	1,082
	RATE..		82.8	52.9	33.7	19.2	30.0
PREMATURITY (765)	NUMBER...		42	42	41	1	-
	RATE..		1.2	1.2	1.1	.0	-
SUDDEN INFANT DEATH SYNDROME (798.0)	NUMBER...		2,573	181	22	159	2,393
	RATE..		71.2	5.0	.6	4.4	66.2
RESPIRATORY DISTRESS SYNDROME (769)	NUMBER...		41	26	19	7	15
	RATE..		1.1	.7	.5	.2	.4
MATERNAL COMPLICATIONS (761)	NUMBER...		9	9	9	-	-
	RATE..		.3	.3	.3	-	-
COMPLICATIONS OF PLACENTA,ETC. (762)	NUMBER...		121	116	104	12	5
	RATE..		3.4	3.2	2.9	.3	.1
ACCIDENTS (E800-E949)	NUMBER...		630	52	20	31	578
	RATE..		17.4	1.4	.6	.9	16.0
INFECTIONS (771)	NUMBER...		166	158	95	63	8
	RATE..		4.6	4.4	2.6	1.8	.2
PNEUMONIA AND INFLUENZA (480-487)	NUMBER...		297	47	20	26	250
	RATE..		8.2	1.3	.6	.7	6.9
HYPOXIA AND ASPHYXIA (768)	NUMBER...		254	213	165	48	41
	RATE..		7.0	5.9	4.6	1.3	1.1
ALL OTHER CAUSES	NUMBER...		3,300	1,146	680	466	2,154
	RATE..		91.4	31.7	18.8	12.9	59.6

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER	LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
ALL RACES 1/ NOT STATED BIRTH WEIGHT						
ALL CAUSES.....NUMBER...	1,678	351	338	324	14	13
RATE..		20,942.5	20,142.4	19,280.9	861.4	800.1
CONGENITAL ANOMALIES (740-759).....NUMBER...		51	46	42	4	4
RATE..		3,009.8	2,761.9	2,509.5	252.4	247.9
PREMATURITY (765).....NUMBER...		138	138	138	-	-
RATE..		8,250.8	8,250.8	8,250.8	-	-
SUDDEN INFANT DEATH SYNDROME (798.0)..NUMBER...		4	-	-	-	4
RATE..		245.9	-	-	-	245.9
RESPIRATORY DISTRESS SYNDROME (769)...NUMBER...		9	9	7	2	-
RATE..		552.4	552.4	430.2	122.1	-
MATERNAL COMPLICATIONS (761).....NUMBER...		34	34	34	-	-
RATE..		2,033.3	2,033.3	2,033.3	-	-
COMPLICATIONS OF PLACENTA,ETC. (762)..NUMBER...		22	22	21	1	-
RATE..		1,286.5	1,286.5	1,225.9	60.6	-
ACCIDENTS (E800-E949).....NUMBER...		-	-	-	-	-
RATE..		-	-	-	-	-
INFECTIONS (771).....NUMBER...		7	6	3	3	1
RATE..		432.3	372.5	187.8	184.7	59.8
PNEUMONIA AND INFLUENZA (480-487).....NUMBER...		1	-	-	-	1
RATE..		65.4	-	-	-	65.4
HYPOXIA AND ASPHYXIA (768).....NUMBER...		12	12	12	-	-
RATE..		701.2	701.2	701.2	-	-
ALL OTHER CAUSES.....NUMBER...		73	70	66	4	3
RATE..		4,364.8	4,183.7	3,942.1	241.6	181.1

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER	LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
WHITE ALL BIRTH WEIGHTS						
ALL CAUSES.....NUMBER...	3,098,885	19,461	12,709	10,106	2,603	6,752
RATE..		628.0	410.1	326.1	84.0	217.9
CONGENITAL ANOMALIES (740-759).....NUMBER...		5,176	3,815	2,900	915	1,361
RATE..		167.0	123.1	93.6	29.5	43.9
PREMATURITY (765).....NUMBER...		2,041	2,016	1,975	42	24
RATE..		65.9	65.1	63.7	1.3	.8
SUDDEN INFANT DEATH SYNDROME (798.0)..NUMBER...		2,144	145	16	129	1,999
RATE..		69.2	4.7	.5	4.2	64.5
RESPIRATORY DISTRESS SYNDROME (769)...NUMBER...		939	878	722	156	61
RATE..		30.3	28.3	23.3	5.0	2.0
MATERNAL COMPLICATIONS (761).....NUMBER...		840	835	828	7	5
RATE..		27.1	27.0	26.7	.2	.2
COMPLICATIONS OF PLACENTA,ETC. (762)..NUMBER...		669	655	623	31	14
RATE..		21.6	21.1	20.1	1.0	.5
ACCIDENTS (E800-E949).....NUMBER...		534	47	24	22	487
RATE..		17.2	1.5	.8	.7	15.7
INFECTIONS (771).....NUMBER...		534	498	256	242	37
RATE..		17.2	16.1	8.3	7.8	1.2
PNEUMONIA AND INFLUENZA (480-487).....NUMBER...		333	66	28	39	267
RATE..		10.8	2.1	.9	1.2	8.6
HYPOXIA AND ASPHYXIA (768).....NUMBER...		337	302	249	53	34
RATE..		10.9	9.8	8.0	1.7	1.1
ALL OTHER CAUSES.....NUMBER...		5,913	3,451	2,483	968	2,462
RATE..		190.8	111.4	80.1	31.2	79.4

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER	LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
WHITE LESS THAN 2,500 GRAMS						
ALL CAUSES.....NUMBER...	193,083	11,587	9,468	8,047	1,421	2,119
RATE..		6,001.1	4,903.7	4,167.7	736.0	1,097.4
CONGENITAL ANOMALIES (740-759).....NUMBER...		2,705	2,211	1,878	334	494
RATE..		1,401.1	1,145.3	972.5	172.8	255.8
PREMATURITY (765).....NUMBER...		1,955	1,931	1,889	42	24
RATE..		1,012.5	999.9	978.4	21.5	12.7
SUDDEN INFANT DEATH SYNDROME (798.0)..NUMBER...		383	27	3	24	355
RATE..		198.1	14.2	1.6	12.6	184.0
RESPIRATORY DISTRESS SYNDROME (769)...NUMBER...		903	853	704	149	50
RATE..		467.5	441.6	364.5	77.1	25.9
MATERNAL COMPLICATIONS (761).....NUMBER...		811	806	799	7	5
RATE..		420.1	417.5	413.8	3.6	2.6
COMPLICATIONS OF PLACENTA,ETC. (762)..NUMBER...		557	548	526	21	9
RATE..		288.4	283.7	272.6	11.1	4.8
ACCIDENTS (E800-E949).....NUMBER...		80	10	9	1	69
RATE..		41.2	5.3	4.8	.5	35.9
INFECTIONS (771).....NUMBER...		396	366	179	187	29
RATE..		205.0	189.7	92.7	97.1	15.3
PNEUMONIA AND INFLUENZA (480-487).....NUMBER...		127	32	10	21	96
RATE..		65.9	16.4	5.3	11.0	49.6
HYPOXIA AND ASPHYXIA (768).....NUMBER...		131	124	109	15	7
RATE..		67.9	64.2	56.3	7.9	3.7
ALL OTHER CAUSES.....NUMBER...		3,540	2,560	1,941	619	979
RATE..		1,833.3	1,326.0	1,005.2	320.8	507.3

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER		LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
WHITE 2,500 GRAMS OR MORE							
ALL CAUSES	NUMBER...	2,904,634	7,677	3,052	1,877	1,176	4,625
	RATE..		264.3	105.1	64.6	40.5	159.2
CONGENITAL ANOMALIES (740-759)	NUMBER...		2,434	1,570	991	579	864
	RATE..		83.8	54.0	34.1	19.9	29.8
PREMATURITY (765)	NUMBER...		23	23	23	-	-
	RATE..		.8	.8	.8	-	-
SUDDEN INFANT DEATH SYNDROME (798.0)	NUMBER...		1,760	118	13	105	1,642
	RATE..		60.6	4.1	.5	3.6	56.5
RESPIRATORY DISTRESS SYNDROME (769)	NUMBER...		32	21	13	7	11
	RATE..		1.1	.7	.5	.2	.4
MATERNAL COMPLICATIONS (761)	NUMBER...		7	7	7	-	-
	RATE..		.3	.3	.3	-	-
COMPLICATIONS OF PLACENTA,ETC. (762)	NUMBER...		98	93	83	10	5
	RATE..		3.4	3.2	2.8	.3	.2
ACCIDENTS (E800-E949)	NUMBER...		455	37	15	21	418
	RATE..		15.6	1.3	.5	.7	14.4
INFECTIONS (771)	NUMBER...		135	128	76	52	7
	RATE..		4.7	4.4	2.6	1.8	.2
PNEUMONIA AND INFLUENZA (480-487)	NUMBER...		205	35	17	17	170
	RATE..		7.1	1.2	.6	.6	5.9
HYPOXIA AND ASPHYXIA (768)	NUMBER...		198	171	133	38	27
	RATE..		6.8	5.9	4.6	1.3	.9
ALL OTHER CAUSES	NUMBER...		2,331	850	504	346	1,480
	RATE..		80.2	29.3	17.4	11.9	51.0

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER		LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
WHITE							
NOT STATED BIRTH WEIGHT							
ALL CAUSES	NUMBER...	1,168	197	189	182	6	8
	RATE..		16,865.5	16,157.3	15,624.2	533.1	708.3
CONGENITAL ANOMALIES (740-759)	NUMBER...		37	34	32	2	3
	RATE..		3,160.1	2,891.5	2,709.3	182.2	268.7
PREMATURITY (765)	NUMBER...		62	62	62	-	-
	RATE..		5,335.3	5,335.3	5,335.3	-	-
SUDDEN INFANT DEATH SYNDROME (798.0)	NUMBER...		2	-	-	-	2
	RATE..		173.0	-	-	-	173.0
RESPIRATORY DISTRESS SYNDROME (769)	NUMBER...		5	5	5	-	-
	RATE..		444.9	444.9	444.9	-	-
MATERNAL COMPLICATIONS (761)	NUMBER...		22	22	22	-	-
	RATE..		1,873.2	1,873.2	1,873.2	-	-
COMPLICATIONS OF PLACENTA,ETC. (762)	NUMBER...		15	15	15	-	-
	RATE..		1,243.8	1,243.8	1,243.8	-	-
ACCIDENTS (E800-E949)	NUMBER...		-	-	-	-	-
	RATE..		-	-	-	-	-
INFECTIONS (771)	NUMBER...		3	3	1	2	-
	RATE..		275.9	275.9	98.1	177.8	-
PNEUMONIA AND INFLUENZA (480-487)	NUMBER...		1	-	-	-	1
	RATE..		94.0	-	-	-	94.0
HYPOXIA AND ASPHYXIA (768)	NUMBER...		8	8	8	-	-
	RATE..		653.0	653.0	653.0	-	-
ALL OTHER CAUSES	NUMBER...		42	40	38	2	2
	RATE..		3,612.2	3,439.6	3,266.4	173.1	172.6

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER	LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
BLACK, ALL BIRTH WEIGHTS						
ALL CAUSES.....NUMBER...	603,139	8,674	5,788	4,821	967	2,887
RATE..		1,438.2	959.6	799.3	160.3	478.6
CONGENITAL ANOMALIES (740-759).....NUMBER...		1,140	771	595	176	368
RATE..		189.0	127.9	98.7	29.2	61.1
PREMATURITY (765).....NUMBER...		1,776	1,748	1,720	28	27
RATE..		294.4	289.9	285.2	4.7	4.5
SUDDEN INFANT DEATH SYNDROME (798.0)..NUMBER...		970	68	9	59	902
RATE..		160.9	11.3	1.5	9.8	149.6
RESPIRATORY DISTRESS SYNDROME (769)...NUMBER...		490	458	377	81	31
RATE..		81.2	76.0	62.5	13.5	5.2
MATERNAL COMPLICATIONS (761).....NUMBER...		442	439	435	4	3
RATE..		73.3	72.8	72.1	.7	.5
COMPLICATIONS OF PLACENTA,ETC. (762)..NUMBER...		247	243	237	5	4
RATE..		40.9	40.2	39.4	.8	.7
ACCIDENTS (E800-E949).....NUMBER...		195	20	10	10	175
RATE..		32.3	3.4	1.7	1.7	29.0
INFECTIONS (771).....NUMBER...		234	216	104	112	18
RATE..		38.8	35.7	17.2	18.5	3.0
PNEUMONIA AND INFLUENZA (480-487).....NUMBER...		160	38	9	28	122
RATE..		26.6	6.2	1.5	4.7	20.3
HYPOXIA AND ASPHYXIA (768).....NUMBER...		115	101	79	21	14
RATE..		19.0	16.7	13.1	3.5	2.4
ALL OTHER CAUSES.....NUMBER...		2,907	1,686	1,244	442	1,221
RATE..		481.9	279.5	206.3	73.2	202.4

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER		LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
BLACK LESS THAN 2,500 GRAMS							
ALL CAUSES	NUMBER...	79,335	6,289	4,982	4,291	691	1,306
	RATE..		7,926.5	6,280.0	5,409.2	870.8	1,646.6
CONGENITAL ANOMALIES (740-759)	NUMBER...		692	500	416	84	192
	RATE..		872.3	630.7	524.6	106.1	241.6
PREMATURITY (765)	NUMBER...		1,687	1,660	1,633	27	27
	RATE..		2,126.7	2,092.3	2,057.8	34.5	34.5
SUDDEN INFANT DEATH SYNDROME (798.0)	NUMBER...		275	15	2	13	260
	RATE..		346.5	19.2	2.6	16.6	327.3
RESPIRATORY DISTRESS SYNDROME (769)	NUMBER...		477	449	370	79	27
	RATE..		600.7	566.1	466.4	99.7	34.6
MATERNAL COMPLICATIONS (761)	NUMBER...		428	425	421	4	3
	RATE..		539.0	535.2	530.1	5.1	3.9
COMPLICATIONS OF PLACENTA,ETC. (762)	NUMBER...		225	221	217	4	4
	RATE..		283.9	278.8	273.7	5.1	5.1
ACCIDENTS (E800-E949)	NUMBER...		47	6	5	1	41
	RATE..		58.8	7.6	6.3	1.3	51.2
INFECTIONS (771)	NUMBER...		202	186	86	100	16
	RATE..		255.2	234.7	108.2	126.6	20.4
PNEUMONIA AND INFLUENZA (480-487)	NUMBER...		96	27	7	20	69
	RATE..		121.2	34.6	9.1	25.6	86.6
HYPOXIA AND ASPHYXIA (768)	NUMBER...		66	64	51	12	2
	RATE..		82.6	80.1	64.7	15.3	2.5
ALL OTHER CAUSES	NUMBER...		2,094	1,429	1,083	345	665
	RATE..		2,639.5	1,800.7	1,365.6	435.0	838.8

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER		LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
BLACK, 2,500 GRAMS OR MORE							
ALL CAUSES	NUMBER...	523,420	2,249	674	403	271	1,575
	RATE..		429.7	128.8	77.0	51.8	300.9
CONGENITAL ANOMALIES (740-759)	NUMBER...		439	263	172	91	176
	RATE..		83.8	50.2	32.8	17.4	33.6
PREMATURITY (765)	NUMBER...		16	16	15	1	-
	RATE..		3.1	3.1	2.9	.2	-
SUDDEN INFANT DEATH SYNDROME (798.0)	NUMBER...		693	53	7	46	640
	RATE..		132.4	10.1	1.4	8.7	122.3
RESPIRATORY DISTRESS SYNDROME (769)	NUMBER...		9	5	5	-	4
	RATE..		1.7	1.0	1.0	-	.8
MATERNAL COMPLICATIONS (761)	NUMBER...		2	2	2	-	-
	RATE..		.4	.4	.4	-	-
COMPLICATIONS OF PLACENTA,ETC. (762)	NUMBER...		16	16	15	1	-
	RATE..		3.1	3.1	2.9	.2	-
ACCIDENTS (E800-E949)	NUMBER...		148	14	5	9	134
	RATE..		28.3	2.7	1.0	1.7	25.6
INFECTIONS (771)	NUMBER...		28	27	17	10	1
	RATE..		5.4	5.2	3.3	2.0	.2
PNEUMONIA AND INFLUENZA (480-487)	NUMBER...		64	10	2	8	54
	RATE..		12.2	1.9	.4	1.6	10.3
HYPOXIA AND ASPHYXIA (768)	NUMBER...		45	33	24	9	12
	RATE..		8.6	6.3	4.5	1.8	2.3
ALL OTHER CAUSES	NUMBER...		788	234	138	96	554
	RATE..		150.5	44.6	26.4	18.3	105.9

DOCUMENTATION TABLE 5
LIVE BIRTHS BY BIRTH WEIGHT AND RACE OF MOTHER AND INFANT DEATHS AND INFANT MORTALITY RATES BY AGE AT DEATH, BIRTH WEIGHT, AND RACE OF MOTHER FOR 10 MAJOR CAUSES OF INFANT DEATH: UNITED STATES, 1995 BIRTH COHORT DATA
(INFANT DEATHS WEIGHTED)
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(RATES ARE PER 100,000 LIVE BIRTHS)

CAUSE OF DEATH, BIRTH WEIGHT, AND RACE OF MOTHER		LIVE BIRTHS	INFANT DEATHS	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
BLACK NOT STATED BIRTH WEIGHT							
ALL CAUSES	NUMBER...	384	137	132	126	5	5
	RATE..		35,587.5	34,245.6	32,918.4	1,327.2	1,342.0
CONGENITAL ANOMALIES (740-759)	NUMBER...		9	8	7	1	1
	RATE..		2,379.9	2,113.7	1,850.7	263.1	266.2
PREMATURITY (765)	NUMBER...		72	72	72	-	-
	RATE..		18,766.1	18,766.1	18,766.1	-	-
SUDDEN INFANT DEATH SYNDROME (798.0)	NUMBER...		2	-	-	-	2
	RATE..		548.3	-	-	-	548.3
RESPIRATORY DISTRESS SYNDROME (769)	NUMBER...		4	4	2	2	-
	RATE..		1,060.6	1,060.6	526.9	533.7	-
MATERNAL COMPLICATIONS (761)	NUMBER...		12	12	12	-	-
	RATE..		3,187.6	3,187.6	3,187.6	-	-
COMPLICATIONS OF PLACENTA,ETC. (762)	NUMBER...		5	5	5	-	-
	RATE..		1,313.2	1,313.2	1,313.2	-	-
ACCIDENTS (E800-E949)	NUMBER...		-	-	-	-	-
	RATE..		-	-	-	-	-
INFECTIONS (771)	NUMBER...		3	2	1	1	1
	RATE..		789.2	528.0	261.8	266.2	261.3
PNEUMONIA AND INFLUENZA (480-487)	NUMBER...		-	-	-	-	-
	RATE..		-	-	-	-	-
HYPOXIA AND ASPHYXIA (768)	NUMBER...		4	4	4	-	-
	RATE..		1,077.8	1,077.8	1,077.8	-	-
ALL OTHER CAUSES	NUMBER...		25	24	23	1	1
	RATE..		6,464.8	6,198.6	5,934.3	264.3	266.2

1/ INCLUDES RACES OTHER THAN WHITE AND BLACK

DOCUMENTATION TABLE 6
UNLINKED INFANT DEATHS BY RACE, AGE AT DEATH, AND STATE OF RESIDENCE:
UNITED STATES, PUERTO RICO, VIRGIN ISLANDS, GUAM -- 1995 BIRTH COHORT DATA
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(DATA IN THIS TABLE IS FOR INFANT DEATHS IN 1995 OR 1996 THAT ARE NOT INCLUDED IN THE LINKED FILE BECAUSE THEY WERE NOT LINKED WITH THEIR CORRESPONDING BIRTH CERTIFICATES. SEE METHODOLOGY SECTION. RESIDENCE IS OF INFANT DECEDENT; RACE IS FROM DEATH CERTIFICATE.)

AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
UNITED STATES 2/	704	530	465	65	174
WHITE	458	333	287	46	125
BLACK	218	178	161	17	40
ALABAMA	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
ALASKA	1	-	-	-	1
WHITE	1	-	-	-	1
BLACK	-	-	-	-	-
ARIZONA	10	3	2	1	7
WHITE	7	2	1	1	5
BLACK	1	-	-	-	1
ARKANSAS	1	1	1	-	-
WHITE	-	-	-	-	-
BLACK	1	1	1	-	-
CALIFORNIA	184	147	128	19	37
WHITE	149	119	102	17	30
BLACK	28	22	21	1	6
COLORADO	1	1	1	-	-
WHITE	1	1	1	-	-
BLACK	-	-	-	-	-
CONNECTICUT	1	1	1	-	-
WHITE	1	1	1	-	-
BLACK	-	-	-	-	-
DELAWARE	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-

DOCUMENTATION TABLE 6
UNLINKED INFANT DEATHS BY RACE, AGE AT DEATH, AND STATE OF RESIDENCE:
UNITED STATES, PUERTO RICO, VIRGIN ISLANDS, GUAM -- 1995 BIRTH COHORT DATA
(INFANT DEATHS ARE UNDER 1 YEAR. NEONATAL DEATHS ARE UNDER 28 DAYS; EARLY NEONATAL, 0-6 DAYS; LATE NEONATAL, 7-27 DAYS; AND POSTNEONATAL, 28 DAYS THROUGH 11 MONTHS)
(DATA IN THIS TABLE IS FOR INFANT DEATHS IN 1995 OR 1996 THAT ARE NOT INCLUDED IN THE LINKED FILE BECAUSE THEY WERE NOT LINKED WITH THEIR CORRESPONDING BIRTH CERTIFICATES. SEE METHODOLOGY SECTION. RESIDENCE IS OF INFANT DECEDENT; RACE IS FROM DEATH CERTIFICATE.)

AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
DISTRICT OF COLUMBIA	1	1	1	-	-
WHITE	-	-	-	-	-
BLACK	1	1	1	-	-
FLORIDA	3	2	1	1	1
WHITE	3	2	1	1	1
BLACK	-	-	-	-	-
GEORGIA	3	-	-	-	3
WHITE	2	-	-	-	2
BLACK	-	-	-	-	-
HAWAII	2	1	-	1	1
WHITE	-	-	-	-	-
BLACK	1	1	-	1	-
IDAHO	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
ILLINOIS	35	31	30	1	4
WHITE	16	13	12	1	3
BLACK	19	18	18	-	1
INDIANA	17	9	6	3	8
WHITE	12	6	3	3	6
BLACK	4	3	3	-	1
IOWA	5	5	5	-	-
WHITE	5	5	5	-	-
BLACK	-	-	-	-	-
KANSAS	4	3	3	-	1
WHITE	3	3	3	-	-
BLACK	1	-	-	-	1

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(DATA IN THIS TABLE IS FOR INFANT DEATHS IN 1995 OR 1996 THAT ARE NOT INCLUDED IN THE LINKED FILE BECAUSE THEY WERE NOT LINKED WITH THEIR CORRESPONDING BIRTH CERTIFICATES. SEE METHODOLOGY SECTION. RESIDENCE IS OF INFANT DECEDENT; RACE IS FROM DEATH CERTIFICATE.)

AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
KENTUCKY	10	5	3	2	5
WHITE	10	5	3	2	5
BLACK	-	-	-	-	-
LOUISIANA	19	16	16	-	3
WHITE	5	4	4	-	1
BLACK	14	12	12	-	2
MAINE	2	-	-	-	2
WHITE	2	-	-	-	2
BLACK	-	-	-	-	-
MARYLAND	5	3	2	1	2
WHITE	3	2	1	1	1
BLACK	2	1	1	-	1
MASSACHUSETTS	12	9	9	-	3
WHITE	10	8	8	-	2
BLACK	2	1	1	-	1
MICHIGAN	28	26	22	4	2
WHITE	14	13	9	4	1
BLACK	13	12	12	-	1
MINNESOTA	1	-	-	-	1
WHITE	-	-	-	-	-
BLACK	1	-	-	-	1
MISSISSIPPI	1	-	-	-	1
WHITE	-	-	-	-	-
BLACK	1	-	-	-	1
MISSOURI	4	4	4	-	-
WHITE	3	3	3	-	-
BLACK	1	1	1	-	-

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AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
MONTANA	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
NEBRASKA	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
NEVADA	5	3	2	1	2
WHITE	5	3	2	1	2
BLACK	-	-	-	-	-
NEW HAMPSHIRE	1	1	1	-	-
WHITE	-	-	-	-	-
BLACK	1	1	1	-	-
NEW JERSEY	32	26	25	1	6
WHITE	10	8	7	1	2
BLACK	20	17	17	-	3
NEW MEXICO	6	6	5	1	-
WHITE	5	5	4	1	-
BLACK	-	-	-	-	-
NEW YORK	20	14	11	3	6
WHITE	15	9	7	2	6
BLACK	5	5	4	1	-
NEW YORK CITY	15	9	7	2	6
WHITE	6	4	3	1	2
BLACK	9	5	4	1	4
NORTH CAROLINA	16	8	6	2	8
WHITE	10	2	2	-	8
BLACK	4	4	3	1	-

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AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
NORTH DAKOTA	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
OHIO	109	87	80	7	22
WHITE	69	53	51	2	16
BLACK	40	34	29	5	6
OKLAHOMA	52	38	31	7	14
WHITE	31	20	18	2	11
BLACK	17	15	10	5	2
OREGON	2	2	-	2	-
WHITE	2	2	-	2	-
BLACK	-	-	-	-	-
PENNSYLVANIA	19	15	14	1	4
WHITE	12	9	9	-	3
BLACK	7	6	5	1	1
RHODE ISLAND	1	1	1	-	-
WHITE	1	1	1	-	-
BLACK	-	-	-	-	-
SOUTH CAROLINA	5	-	-	-	5
WHITE	4	-	-	-	4
BLACK	1	-	-	-	1
SOUTH DAKOTA	1	-	-	-	1
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
TENNESSEE	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-

DOCUMENTATION TABLE 6
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AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
TEXAS	27	22	21	1	5
WHITE	16	12	11	1	4
BLACK	10	9	9	-	1
UTAH	4	2	1	1	2
WHITE	4	2	1	1	2
BLACK	-	-	-	-	-
VERMONT	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-
VIRGINIA	23	16	14	2	7
WHITE	11	7	6	1	4
BLACK	12	9	8	1	3
WASHINGTON	10	8	8	-	2
WHITE	6	5	5	-	1
BLACK	1	-	-	-	1
WEST VIRGINIA	3	3	3	-	-
WHITE	3	3	3	-	-
BLACK	-	-	-	-	-
WISCONSIN	1	-	-	-	1
WHITE	-	-	-	-	-
BLACK	1	-	-	-	1
WYOMING	2	1	-	1	1
WHITE	1	1	-	1	-
BLACK	-	-	-	-	-
FOREIGN RESIDENTS	4	3	2	1	1
WHITE	4	3	2	1	1
BLACK	-	-	-	-	-

DOCUMENTATION TABLE 6
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AREA AND RACE OF CHILD 1/	INFANT	TOTAL NEONATAL	EARLY NEONATAL	LATE NEONATAL	POST-NEONATAL
PUERTO RICO 3/	4	3	3	-	1
WHITE	3	3	3	-	-
BLACK	1	-	-	-	1
VIRGIN ISLANDS 3/	5	2	1	1	3
WHITE	-	-	-	-	-
BLACK	5	2	1	1	3
GUAM 3/	-	-	-	-	-
WHITE	-	-	-	-	-
BLACK	-	-	-	-	-

1/ TOTALS FOR GEOGRAPHIC AREAS INCLUDE RACES OTHER THAN WHITE AND BLACK
2/ EXCLUDES DATA FOR FOREIGN RESIDENTS, PUERTO RICO, VIRGIN ISLANDS, AND GUAM
3/ DATA FROM THE PUERTO RICO, VIRGIN ISLANDS, AND GUAM FILE

Section 4. Technical Appendix

Month of pregnancy prenatal care began

Number of prenatal visits

Apgar score

Tobacco and alcohol use during pregnancy

Weight gained during pregnancy

Medical risk factors for this pregnancy

Obstetric procedures

Complications of labor and/or delivery

Abnormal conditions of the newborn

Congenital anomalies of child

Method of delivery

Hispanic parentage

Quality of data

Completeness of registration

Completeness of reporting

Quality control procedures

Small frequencies

Computation of rates and other measures

Population bases

Net census undercounts and overcounts

Cohort fertility tables

Age-sex-adjusted birth rates

Total fertility rate

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 (1):

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, 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; each product of such a birth is considered liveborn.

This definition distinguishes in precise terms a live birth from a fetal death (see the section on fetal deaths in the Technical Appendix of volume II, Vital Statistics of the United States). In the interest of comparable natality statistics, both the Statistical Commission of the United Nations and the National Center for Health Statistics (NCHS) have adopted this definition (2,3).

History of birth-registration area

The national birth-registration area was proposed in 1850 and established in 1915. By 1933 all 48 States and the District of Columbia were participating in the registration system. The organized territories of Hawaii and Alaska were admitted in 1929 and 1950, respectively; data from these areas were prepared separately until they became States--Alaska in 1959 and Hawaii in 1960. Currently the birth-registration system of the United States covers the 50 States, the District of Columbia, the independent registration area of New York City, Puerto Rico, the U.S.

Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. 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.

The original birth-registration area of 1915 consisted of 10 States and the District of Columbia. The growth of this area is indicated in table 4-1. This table also presents for each year through 1932 the estimated midyear population of the United States and of those States included in the registration system.

Because of the growth of the area for which data have been collected and tabulated, a national series of geographically comparable data before 1933 can be obtained only by estimation. Annual estimates of births have been prepared by P. K. Whelpton for 1909-34 (4). These estimates include adjustments for underregistration and for States that were not part of the birth-registration area before 1933.

Sources of data

Natality statistics

Since 1985 natality statistics for all States and the District of Columbia have been based on information from the total file of records. The information is received on computer data tapes coded by the States and provided to NCHS through the Vital Statistics Cooperative Program. NCHS receives these tapes from the registration offices of all States, the District of Columbia, and New York City. Information for PuertoRico is also received on computer tapes through the Vital Statistics Cooperative Program. Information for the Virgin Islands and Guam is obtained

from microfilm copies of original birth certificates and is based on the total file of records for all years.

Birth statistics for years prior to 1951 and for 1955 are based on the total file of birth records. Statistics for 1951-54, 1956-66, and 1968-71 are based on 50-percent samples except for data for Guam and the Virgin Islands, which are based on all records filed. During the processing of the 1967 data the sampling rate was reduced from 50 percent to 20 percent. For details of this procedure and its consequences for the 1967 data see pages 3-9 to 3-11 in volume I of Vital Statistics of the United States, 1967. From 1972 to 1984 statistics are based on all records filed in the States submitting computer tapes and on a 50-percent sample of records in all other States.

Information for years prior to 1970 for Puerto Rico, the Virgin Islands, and Guam is published in the annual vital statistics reports of the Department of Health of the Commonwealth of Puerto Rico, the Department of Public Health of the Virgin Islands, the Department of Public Health and Social Services of the Government of Guam, and in selected Vital Statistics of the United States annual reports.

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 all 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 any tabulations in this report. Similarly the data for Puerto Rico, the Virgin Islands, and Guam are limited to births registered in these areas.

Standard certificate of live birth

The U.S. Standard Certificate of Live Birth, issued by the Public Health Service, has served for many years as the principal means of attaining uniformity in the content of the documents used to collect information on births in the United States. It has been modified in each State to the extent required by the particular State's needs or by special provisions of the State's vital statistics law. However, most State certificates conform closely in content to the standard certificate.

The first standard certificate of birth was developed in 1900. Since then, it has been revised periodically by the national vital statistics agency through consultation with State health officers and registrars; Federal agencies concerned with vital statistics; national, State, and county medical societies; and others working in public health, social welfare, demography, and insurance. This procedure has assured careful evaluation of each item for its current and future usefulness for legal, medical, demographic, and research purposes. New items have been added when necessary, and old items have been modified to ensure better reporting or, in some cases, dropped when their usefulness appeared to be limited.

1989 revision--Effective January 1, 1989, a revised U.S. Standard Certificate of Live Birth (figure 4-A) replaced the 1978 revision. This revision provided a wide variety of new information on maternal and infant health characteristics, representing a significant departure from previous versions in both content and format. The most significant format change was the use of checkboxes to obtain detailed medical and health information about the mother and child. It has been demonstrated that this format produces higher quality and more complete information than do open-ended items.

The reformatted items included ``Medical Risk Factors for This Pregnancy," which combines the former items ``Complications of Pregnancy" and ``Concurrent Illnesses or Conditions Affecting

the Pregnancy." ``Complications of Labor and/or Delivery" and ``Congenital Anomalies of Child" also have been revised from the open-ended format. For each of these items at least 15 specific conditions have been identified.

Several new items were added to the revised certificate. Included are items to obtain information on tobacco and alcohol use during pregnancy, weight gain during pregnancy, obstetric procedures, method of delivery, and abnormal conditions of the newborn. These items can be used to monitor the health practices of the mother that can affect pregnancy and the use of technology in childbirth, and to identify babies with specific abnormal conditions. When combined with other socioeconomic and health data, these items provide a wealth of information relevant to the etiology of low birthweight and other adverse pregnancy outcomes.

Another modification was the addition of a Hispanic identifier for the mother and father. Although NCHS had recommended that States add items to identify the Hispanic or ethnic origin of the newborn's parents, concurrent with the 1978 revision of the U.S. Standard Certificate of Live Birth and reported data from the cooperating States since that year, the item was new to the U.S. Standard Certificate for 1989.

The 1989 revised certificate also provided more detail than previously requested on the birth attendant and place of birth. This permits a more in-depth analysis of the number and characteristics of births by attendant and type of facility and a comparison of differences in outcome. For further discussion see individual sections for each item.

Classification of data

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. Vital statistics and population statistics, therefore, must be classified according to similarly defined systems and 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, differences between the enumeration method of obtaining population data and the registration method of obtaining vital statistics data may result in significant discrepancies.

The general rules used to classify geographic and personal items for live births are set forth in ``Vital Statistics Classification and Coding Instructions for Live Birth Records, 1994," NCHS Instruction Manual, Part 3a. The classification of certain important items is discussed in the following pages.

Classification by occurrence and residence

Births to U.S. residents occurring outside this country are not reallocated to the United States. 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. Beginning in 1970 births to nonresidents of the United States occurring in the United States are excluded from these tabulations. From 1966 to 1969 births occurring in the United States to mothers who were nonresidents of the United States were considered as births to residents of the exact place of occurrence; in 1964 and 1965 all such births were allocated to ``balance of county" of occurrence even if the birth occurred in a city. The change in coding beginning in 1970 to exclude births to nonresidents of the United States from residence data significantly affects the comparability of data with years before 1970 only for Texas.

For the total United States the tabulations by place of residence and by place of occurrence are not 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.

Residence error--A nationwide test of birth-registration completeness in 1950 provided measures of residence error for natality statistics. According to this test, 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. 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 procedure of using ``city" addresses for persons living outside the city limits. Incomplete residence--Beginning in 1973 where only the State of residence is reported with no city or county specified and the State named is different from the State of occurrence, the birth is allocated to the largest city of the State of residence. Before 1973 such births were allocated to the exact place of occurrence.

Geographic classification

The rules followed in the classification of geographic areas for live births are contained in the instruction manual mentioned previously. The geographic code structure for 1994 is given in another manual, ``Vital Records Geographic Classification, 1982," NCHS Instruction Manual , Part 8.

United States--In the statistical tabulations, ``United States'' refers only to the aggregate of the 50 States and the District of Columbia. Alaska has been included in the U.S. tabulations since 1959 and Hawaii since 1960.

Metropolitan statistical areas--The metropolitan statistical areas and primary metropolitan statistical areas (MSA's and PMSA's) used in this report are those established by the U.S. Office of Management and Budget as of April 1, 1990, and used by the U.S. Bureau of the Census (5) except in the New England States.

Except in the New England States, an MSA has either a city with a population of at least 50,000, or a Bureau of the Census urbanized area of at least 50,000 and a total MSA population of at least 100,000. A PMSA consists of a large urbanized county, or cluster of counties, that demonstrates very strong internal economic and social links and has a population over 1 million. When PMSA's are defined, the large area of which they are component parts is designated a Consolidated Metropolitan Statistical Area (CMSA) (6).

In the New England States the U.S. Office of Management and Budget uses towns and cities rather than counties as geographic components of MSA's and PMSA's. NCHS cannot, however, use this classification for these States because its data are not coded to identify all towns. Instead, the New England County Metropolitan Areas (NECMA's) are used. These areas are established by the U.S. Office of Management and Budget (7) and are made up of county units.

Metropolitan and nonmetropolitan counties-- Independent cities and counties included in MSA's and PMSA's or NECMA's are included in data for metropolitan counties; all other counties are classified as nonmetropolitan.

Population-size groups--Beginning in 1994 vital statistics data for cities and certain other urban places have been classified according to the population enumerated in the 1990 Census of Population. Data are available for individual cities and other urban places of 10,000 or more population. Data for the remaining areas not separately identified are shown in the tables under the heading ``Balance of area" or ``Balance of county." Classification of areas for 1982-93 was determined by the population enumerated in the 1980 Census of Population. As a result of changes in the enumerated population between 1980 and 1990, some urban places identified in previous reports are no longer included, and a number of other urban places have been added.

Urban places other than incorporated cities for which vital statistics data are shown in this report include the following:

- Each town in New England, New York, and Wisconsin and each township in Michigan, New Jersey, and Pennsylvania that had no incorporated municipality as a subdivision and had either 25,000 inhabitants or more, or a population of 10,000 to 25,000 and a density of 1,000 persons or more per square mile.
- Each county in States other than those indicated above that had no incorporated municipality within its boundary and had a density of 1,000 persons or more per square mile. (Arlington County, Virginia, is the only county classified as urban under this rule.)
- Each place in Hawaii with 10,000 or more population. (There are no incorporated cities in Hawaii.)

Race or national origin

Beginning with the 1989 data year birth data are tabulated primarily by race of mother. In 1988 and prior years the race or national origin shown in tabulations was that of the newborn child. The race of the child was determined for statistical purposes by an algorithm based on the race of the mother and father as reported on the birth certificate. When the parents were of the same race, the race of the child was the same as the race of the parents. When the parents were of different races and one parent was white, the child was assigned to the race of the other parent. When the parents were of different races and neither parent was white, the child was assigned to the race of the father, with one exception--if either parent was Hawaiian, the child was assigned to Hawaiian. If race was missing for one parent, the child was assigned the race of the parent for whom it was reported. When information on race was missing for both parents, the race of the child was considered not stated and the birth was allocated according to rules discussed on page 4 of the Technical Appendix, volume I, Vital Statistics of the United States, 1988. In 1989 the criteria for reporting the race of the parents did not change and continues to reflect the response of the informant (usually the mother).

The most important factor influencing the decision to tabulate births by race of the mother was the decennial revision of the U.S. Standard Certificate of Live Birth in 1989. This revision included many more health questions that are directly associated with the mother, including alcohol and tobacco use, weight gain during pregnancy, medical risk factors, obstetric procedures, complications of labor and/or delivery, and method of delivery. Additionally, many of the other items that have been on the birth certificate for more than two decades also relate directly to the mother, for example, marital status, education level, and receipt of prenatal care. It is more appropriate to use the race of the mother than the race of the child in tabulating these items.

A second factor has been the increasing incidence of interracial parentage. In 1994, 4.4

percent of births were to parents of different races, compared with just 1.7 percent in 1974. About half of these births were to white mothers and fathers of another race. There have been two major consequences of the increasing interracial parentage. One is the effect on birth rates by race. The number of white births under the former procedures has been arbitrarily limited to infants whose parents were both white (or one parent if the race of only one parent was reported). At the same time, the number of births of other races has been arbitrarily increased to include all births to white mothers and fathers of other races. Thus, prior to 1989, if race of mother had been used, birth rates per 1,000 white women in a given age group would have been higher, while comparable rates for black women and women of other races would have been lower. The other consequence of increasing interracial parentage is the impact on the racial differential in various characteristics of births, particularly in cases where there is generally a large racial disparity, such as the incidence of low birthweight. In this instance, the racial differential is larger when the data are tabulated by race of mother rather than by race of child. The same effect has been noted for characteristics such as nonmarital childbearing, preterm births, late or no prenatal care, and low educational attainment of mother.

The third factor influencing the change is the growing proportion of births with race of father not stated, 16 percent in 1994 compared with 9 percent in 1974. This reflects the increase in the proportion of births to unmarried women; in many cases no information is reported on the father. These births were already assigned the race of the mother on a de facto basis. Tabulating births by race of mother provides a more uniform approach, rather than a necessarily arbitrary combination of parental races.

The change in the tabulation of births by race presents some problems when analyzing birth data by race, particularly trend data. The problem is likely to be acute for races other than white and black.

The categories for race or national origin are ``White,'' ``Black,'' ``American Indian'' (including Aleuts and Eskimos), ``Chinese,'' ``Japanese,'' ``Hawaiian,'' ``Filipino,'' and ``Other Asian or Pacific Islander'' (including Asian Indian). Before 1992 there was also an ``other'' category, which is now combined with the ``Not stated'' category. Before 1978 the category ``Other Asian or Pacific Islander'' was not identified separately but included with ``Other'' races. The separation of this category allows identification of the category ``Asian or Pacific Islander'' by combining the new category ``Other Asian or Pacific Islander'' with Chinese, Japanese, Hawaiian, and Filipino.

The category ``White'' comprises births reported as white and births where race is reported as Hispanic. Before 1964 all births for which race or national origin was not stated were classified as white. Beginning in 1964 changes in the procedures for allocating race when race or national origin is not stated have changed the composition of this category. (See discussion on ``Race or national origin not stated.'')

If the race or national origin of an Asian parent is ill-defined or not clearly identifiable with one of the categories used in the classification (for example, if ``Oriental'' is entered), an attempt is made to determine the specific race or national origin from the entry for place of birth. If the birthplace is China, Japan, or the Philippines, the race of the parent is assigned to that category. When race cannot be determined from birthplace, it is assigned to the category ``Other Asian or Pacific Islander.''

Race or national origin not stated--If the race of the mother is not defined or not identifiable with one of the categories used in the classification and the race of the father is known, the race of the father is assigned to the mother. Where information for both parents is missing, the race of the mother is allocated electronically according to the specific race of the mother on the preceding record with a known race of mother. Data for both parents were missing for only 0.5 percent of birth certificates for 1994. Nearly all statistics by race or national origin for the United States as a whole in 1962 and 1963 are affected by a lack of information for New Jersey, which did not report the race of the parents in those years. Birth rates by race for those years are computed on a population base that excluded New Jersey. For the method of estimating the U.S. population by age, sex, and race excluding New Jersey in 1962 and 1963, see page 4-8 in the Technical Appendix of volume I, Vital Statistics of the United States, 1963.

Beginning in 1992, NCHS contracted with seven States with the highest API populations to code births to additional API subgroups. The API subgroups include births to Vietnamese, Asian Indian, Korean, Samoan, Guamanian, and other API women. The seven States included in this reporting area are: California, Hawaii, Illinois, New Jersey, New York, Texas, and Washington. At least two-thirds of the U.S. population of each of these additional API groups lived in the seven-State reporting area(8). The data are available on the detailed natality tapes and CD-ROMs beginning with the 1992 data year. An analytic report based on the 1992 data year is also available upon request(9).

Age of mother

Beginning in 1989 an item on the birth certificate asks for ``Date of Birth.'' In previous years,

``Age (at time of this birth)" was requested. Not all States have revised this item for 1989, and therefore the age of mother either is derived from the reported month and year of birth or coded as stated on the certificate. The age of mother is edited for upper and lower limits. When the age of mother is computed to be under 10 years or 50 years or over, it is considered not stated and is assigned as described below.

Age-specific birth rates are based on populations of women by age, prepared by the U.S. Bureau of the Census. 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. Bureau of the Census in Current Population Reports.

The 1990 Census of Population derived age in completed years as of April 1, 1990, from the responses to questions on age at last birthday and month and year of birth, with the latter given preference. In the 1960, 1970, and the 1980 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 former birth certificate question, which the 1950 test of matched birth and census records confirms by showing a high degree of consistency in reporting age in these two sources (10).

Median 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.

Not stated date of birth of mother--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 ``Vital Statistics Computer Edits for Natality Data," NCHS Instruction Manual , Part 12, page 9.) In 1963 birth records with age not stated were allocated according to the age appearing on the record previously processed for a mother of identical race and parity (number of live births). For 1960-62 not stated ages were distributed in proportion to the known ages for each racial group. Before 1960 this was done for age-specific birth rates but not for the birth frequency tables, which showed a separate category for age not stated.

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 of ``not stated" 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 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.

Live-birth order and parity

Live-birth order and parity classifications shown in this volume refer to the total number of live births the mother has had including the 1994 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."

Not stated birth order--Before 1969 if both of these items were blank, the birth was considered a first birth. Beginning in 1969, births for which the pregnancy history items were not completed have been tabulated as live-birth order not stated. As a result of this revised procedure, 22,686 births in 1969 that would have been assigned to the ``First birth order" category under the old rules were assigned to the ``Not stated" category.

All births tabulated in the ``Not stated birth order" category are excluded from the computation of percents. 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.

Date of last live birth

The date of last live birth was added to the U.S. Standard Certificate of Live Birth in 1968 for the purpose of providing information on child spacing. The interval since the last live birth is the difference between the date of last live birth and the date of present birth. For an interval to be computed, both the month and year of the last live birth must be valid. This interval is computed only for events to mothers who have had at least one previous live birth.

Births for which the interval since last live birth is not stated are excluded from the computation of percents and means.

Zero interval--An interval of zero months since the last live birth indicates the second born of a set of twins, the second or third born of a set of triplets, and so forth. Births with an interval of zero months are excluded from the computation of mean intervals.

Educational attainment

Data on the educational attainment of both parents were collected beginning in 1968 and tabulated for publication in 1969 for the first time.

The educational attainment of either parent is defined as ``the number of years of school completed." Only those years completed in ``regular" schools are counted, that is, a formal educational system of public schools or the equivalent in accredited private or parochial schools. Business or trade schools, such as beauty and barber schools, are not considered ``regular" schools for the purposes of this item. No attempt has been made to convert years of school completed in foreign school systems, ungraded school systems, and so forth, to equivalent grades in the American school system. Such entries are included in the category ``Not stated."

Persons who have completed only a partial year in high school or college are tabulated as having completed the highest preceding grade. For those certificates on which a specific degree is stated, years of school completed is coded to the level at which the degree is most commonly attained; for example, persons reporting B.A., A.B., or B.S. degrees are considered to have completed 16 years of school.

Education not stated--The category ``Not stated" includes all records in reporting areas for which there is no information on years of school completed as well as all records for which the information provided is not compatible with coding specifications.

Births tabulated as education not stated are excluded from the computations of percents.

Marital status

Beginning with 1980 data, national estimates of births to unmarried women are derived from two sources. In 1994 marital status was reported directly on the birth certificates of 45 States and the District of Columbia. In the remaining five States, which lack such an item (California, Connecticut, Michigan, Nevada, and New York), marital status is inferred from a comparison of the child's and parents' surnames. This procedure represents a substantial departure from the method used before 1980 to prepare national estimates of births to unmarried women, which assumed that the incidence of births to unmarried women in States with no direct question on marital status was the same as the incidence in reporting States in the same geographic division.

The current method uses related information on the birth certificate to improve the quality of national data on this topic, as well as to provide data for the individual nonreporting States. Beginning

in 1980 a birth in a nonreporting State is classified as occurring to a married woman if the parents' surnames are the same, or if the child's and father's surnames are the same and the mother's current surname cannot be obtained from the informant item of the birth certificate. A birth is classified as occurring to an unmarried woman if the father's name is missing, if the parents' surnames are different, or if the father's and child's surnames are different and the mother's current surname is missing.

Because of the continued substantial increases in nonmarital childbearing throughout the 1980's, the data have been intensively evaluated in each year, 1985-94. There has been continuing concern that the current method might overstate the number of births to unmarried women because it incorporates data based on a comparison of surnames. This is because births to women who have retained their maiden surname as their legal surname after marriage and who are frequently older, well-educated women, would be classified as nonmarital births. Trends based on data incorporating inferential statistics can be compared with trends based on the geographic estimates for the 1980-94 period to show the impact of the two methods. The trends for the two methods are similar for all races combined and for white and black births. Between 1980 and 1994, birth rates for unmarried white women increased 112 percent based on data incorporating inferential information and 116 percent based on the geographic estimates. Birth rates for unmarried black women increased 1 percent based on the inferential data and declined 2 percent based on geographic estimates.

Michigan and Texas births--The number of births to unmarried women in Michigan was underreported during the years 1988-93, but the greatest undercount, numerically, was for 1990-93. Michigan had separate counts of the numbers of births with paternity acknowledgments, but did not include them with the counts of unmarried women based on the general inferential procedures that were provided to NCHS. The underreporting began in 1988, and was about 25 percent for the years

1988-93. In 1993 NCHS reported 36,326 births to unmarried women in Michigan, 26 percent below the number that included paternity affidavits (49,281) (11). Thus, there is a considerable discontinuity in the nonmarital birth data for Michigan from 1993 to 1994. The proportion of nonmarital births reported to NCHS increased from 26 percent to 35 percent.

The number of births to unmarried women in Texas was underreported during the years 1989-93. As a result of legislation passed in 1989, a birth was considered to have occurred to a married woman if the mother provides any information about the father, or if a paternity affidavit has been filed. The measurement of marital status for Texas births improved beginning with the 1994 data year because a direct question on marital status was added to the Texas birth certificate. However, there is a considerable discontinuity in the data for Texas from 1993 to 1994. The proportion of births to unmarried mothers increased from 17 to 29 percent.

No adjustments are made during the data processing for errors in the reporting of marital status on the birth records of the 45 reporting States and the District of Columbia because the extent of this reporting problem is unknown. When marital status is not stated on the birth certificate of a reporting area, the mother is considered married.

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 birth record.

Rates for 1940 and 1950 are based on decennial census counts. Rates for 1955-94 are based on a smoothed series of population estimates (12). Because of sampling error, the original U.S. Bureau of the Census population estimates by marital status fluctuate erratically from year to year; therefore, they have been smoothed so that the rates do not show similar variations. These rates differ

from those published in volumes of Vital Statistics of the United States before 1969, which were based on the original estimates provided annually by the U.S. Bureau of the Census. Birth rates by marital status for 1971-79 have been revised and differ from rates published before 1980 in volumes of Vital Statistics of the United States (see ``Computation of rates and other measures").

Place of delivery and attendant at birth

The 1989 revision of the U.S. Standard Certificate of Live Birth included separate categories for freestanding birthing centers, the mother's residence, and clinic or doctor's office as the place of birth. Prior to 1989, place of birth was classified simply as either ``In hospital" or ``Not in hospital." Births occurring in hospitals, institutions, clinics, centers, or homes were included in the category ``In hospital." In this context the word ``homes" does not refer to the mother's residence but to an institution, such as a home for unmarried women. Birthing centers were included in either category, depending on each State's assessment of the facility. Beginning in 1989 births occurring in clinics and in birthing centers not attached to a hospital are classified as ``Not in hospital." This change in classification may account in part for the lower proportion of ``In hospital" births compared with previous years. (The change in classification of clinics should have minor impact because comparatively few births occur in these facilities, but the effect of any change in classification of freestanding birthing centers is unknown.)

Beginning in 1975 the attendant at birth and place of delivery items were coded independently, primarily to permit the identification of the person in attendance at hospital deliveries. The 1989 certificate includes separate classifications for ``M.D." (Doctor of Medicine), ``D.O." (Doctor of Osteopathy), ``C.N.M." (certified nurse midwife), ``Other midwife," and ``Other" attendants. In earlier

certificates births attended by certified nurse midwives were grouped with those attended by lay midwives. The new certificate also facilitates the identification of home births, births in freestanding birthing centers, and births in clinics or physician offices.

Data for the ``In hospital" category for 1975-88 include all births in clinics or maternity centers, regardless of the attendant. Data for 1975-77 published before 1980 included clinic and center births in the category ``In hospital" only when the attendant was a physician. Data shown for 1975-77 published after 1980 will, therefore, differ from data published before 1980. As a result of this change, for 1975 an additional 12,352 births are now classified as occurring in hospitals, raising the percent of births occurring in hospitals from 98.7 to 99.1. Similarly, for 1976 the number of births occurring in hospitals increased by 14,133 and the percent in hospitals raised from 98.6 to 99.1; for 1977 the increase is 15,937 and the percent in hospitals raised from 98.5 to 99.0. For 1974 and earlier the ``In hospital" category includes all births in hospitals or institutions and births in clinics, centers, or maternity homes only when attended by physicians.

The ``Not in hospital" category includes births for which no information is reported on place of birth. Before 1975 births for which the stated place of birth was a ``doctor's office" and delivery was by a physician were included in the category ``In hospital." Beginning in 1975 these births were tabulated as ``Not in hospital" and included with births delivered by physicians in this category. Although the actual number of such births is unknown, the effect of the change is minimal. In 1974, 0.3 percent of all births were delivered by physicians outside of hospitals; in 1975 this proportion was 0.4 percent.

Babies born on the way to or on arrival at the hospital are classified as having been born in the hospital. This may account for some of the hospital births not delivered by physicians or

midwives.

Beginning in 1993, all in-hospital births occurring in Illinois where the attendant was classified as an "other" midwife were changed to certified nurse-midwife. This was necessary because almost all of these births were delivered by midwives certified by the American College of Nurse Midwives but because Illinois does not certify midwives, many of these births were classified as "other" midwives.

Birthweight

Birthweight is reported in some areas in pounds and ounces rather than in grams. However, the metric system has been used in tabulating and presenting the statistics to facilitate comparison with data published by other groups. The categories for birthweight were changed in 1979 to be consistent with the recommendations in the Ninth Revision of the International Classification of Diseases (ICD-9). 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 14 oz-9 lb 14 oz

4,500-4,999 grams = 9 lb 15 oz-11 lb 0 oz

5,000 grams or more = 11 lb 1 oz or more

The ICD-9 defines 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 Sixth Revision of the International Lists of Diseases and Causes of Death.

After data classified by pounds and ounces are converted to grams, median weights are computed and rounded before publication. 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 1/2 oz-3 lb 4 1/2 oz.

Births for which birthweight is not reported are excluded from the computation of percents and medians.

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.

Births occurring before 37 completed weeks of gestation are considered to be ``preterm" or ``premature" for purposes of classification. At 37-41 weeks gestation, births are considered to be ``term," and at 42 completed weeks and over, ``postterm." These distinctions are according to the ICD-9 definitions.

The 1989 revision of the U.S. Standard Certificate of Live Birth included a new item, ``clinical estimate of gestation," that is being compared with 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 clinical estimate also was used if the date of the LMP was not reported. The period of gestation for 4.1 percent of the births in 1994 was based on the clinical estimate of gestation. For 96 percent of these records the clinical estimate was used because the LMP date was not reported. For the remaining 4 percent the clinical estimate was used because it was compatible with the reported birthweight, whereas the LMP-computed gestation was not. In cases where the reported birthweight was inconsistent with both the LMP-computed gestation and the clinical estimate of gestation, the LMP-computed gestation was used if it was within 5 weeks of the clinical estimate and birthweight was reclassified as ``not stated." If the reported birthweight was inconsistent with both the LMP-computed gestation and the clinical estimate of gestation, gestation and birthweight were classified as "not stated" if the LMP-computed gestation was not within 5 weeks of the clinical estimate. These changes result in only a very small discontinuity in the data. For further information on the use of the clinical estimate of gestation see ``Computer Edits for Natality Data, Effective 1989," NCHS Instruction Manual , Part 12, pages 34-36.

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. Each such record is assigned the gestational period in weeks of the preceding record that has a complete LMP date with the same computed months of gestation and the same 500-gram birthweight interval. The effect of the imputation procedure is to increase slightly the proportion of preterm births and to lower the proportion of births at 39, 40, 41, and 42 weeks of gestation. A more complete discussion of this procedure and its implications is presented in a previous report (13).

Because of postconception bleeding or menstrual irregularities, the presumed date of LMP may be in error. In these instances the computed gestational period may be longer or shorter than the true gestational period, but the extent of such errors is unknown.

Month of pregnancy prenatal care began

For those records in which the name of the month is entered for this item, instead of first, second, third, and so forth, the month of pregnancy in which prenatal care began is determined from the month named and the month last normal menses began. For these births, if the item ``Date last normal menses began" is not stated, the month of pregnancy in which prenatal care began is tabulated as not stated.

Number of prenatal visits

Tabulations of the number of prenatal visits were presented for the first time in 1972. Beginning in 1989 these data were collected from the birth certificates of all States. Percent

distributions and the median number of prenatal visits exclude births to mothers who had no prenatal care.

Apgar score

One- 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. The Apgar score is a useful 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 10 is optimum, and a low score raises some doubts about the survival and subsequent health of the infant. In 1994 the reporting area for the 1- and 5-minute Apgar scores was comprised of 48 States and the District of Columbia, accounting for 78 percent of all births in the United States. California and Texas did not have information on Apgar scores on their birth certificate.

Tobacco and alcohol use during pregnancy

The checkbox format allows for classification of a mother as a smoker or drinker during pregnancy and for reporting the average number of cigarettes smoked per day or drinks consumed per week. When smoking and/or drinking status is not reported or is inconsistent with the quantity of cigarettes or drinks reported, the status is changed to be consistent with the amount reported. For example, if the drinking status is reported as ``no" but one or more average drinks a week are reported, the mother is classified as a drinker. If the number of cigarettes smoked per day is reported

as one or more, the mother is considered a smoker. When one (or a fraction of one) drink a week is recorded, the mother is classified as a drinker. For records on which the number of drinks or number of cigarettes is reported as a span, for example, 10-15, the lower number is used. The number of drinkers and number of drinks reported on birth certificates are believed to underestimate actual alcohol use.

Data on tobacco use were collected by 46 States, the District of Columbia, and New York City in 1994. This reporting area accounted for 79 percent of all births in the U.S. in 1994. Information on alcohol use was included on the certificates of 48 States and the District of Columbia, accounting for 85 percent of all U.S. births in 1994. California and South Dakota did not include items on alcohol use of their birth certificates.

Weight gained during pregnancy

Weight gain is reported in pounds. A loss of weight is reported as zero gain. Computations of median weight gain were based on ungrouped data. This item was included on the certificates of 49 States and the District of Columbia; California did not report this information. This reporting area excluding California accounted for 86 percent of all births in the United States in 1994.

Medical risk factors for this pregnancy

In 1994 an item on medical risk factors was included on the birth certificates of all States and the District of Columbia, but two States did not report all of the 16 risk factors. Texas did not report genital herpes or uterine bleeding while Kansas did not report Rh sensitization.

The format allows for the designation of more than one risk factor and includes a choice of

``None." Accordingly, if the item is not completed, it is classified as ``Not stated."

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials for the Association for Vital Records and Health Statistics (14).

Definitions of medical terms

Anemia--Hemoglobin level of less than 10.0 g/dL during pregnancy or a hematocrit of less than 30 percent during pregnancy.

Cardiac disease--Disease of the heart.

Acute or chronic lung disease--Disease of the lungs during pregnancy.

Diabetes--Metabolic disorder characterized by excessive discharge of urine and persistent thirst; includes juvenile onset, adult onset, and gestational diabetes during pregnancy.

Genital herpes--Infection of the skin of the genital area by herpes simplex virus.

Hydramnios/Oligohydramnios--Any noticeable excess (hydramnios) or lack (oligohydramnios) of amniotic fluid.

Hemoglobinopathy--A blood disorder caused by alteration in the genetically determined molecular structure of hemoglobin (for example, sickle cell anemia).

Hypertension, chronic--Blood pressure persistently greater than 140/90, diagnosed prior to onset of pregnancy or before the 20th week of gestation.

Hypertension, pregnancy-associated--An increase in blood pressure of at least 30 mm Hg systolic or 15 mm Hg diastolic on two measurements taken 6 hours apart after the 20th week of gestation.

Eclampsia--The occurrence of convulsions and/or coma unrelated to other cerebral conditions in

women with signs and symptoms of pre-eclampsia.

Incompetent cervix--Characterized by painless dilation of the cervix in the second trimester or early in the third trimester of pregnancy, with prolapse of membranes through the cervix and ballooning of the membranes into the vagina, followed by rupture of membranes and subsequent expulsion of the fetus.

Previous infant 4,000+ grams--The birthweight of a previous live-born child was over 4,000 grams (8 lbs 13 oz).

Previous preterm or small-for-gestational-age infant--Previous birth of an infant prior to term (before 37 completed weeks of gestation) or of an infant weighing less than the 10th percentile for gestational age using a standard weight-for-age chart.

Renal disease--Kidney disease.

Rh sensitization--The process or state of becoming sensitized to the Rh factor as when an Rh-negative woman is pregnant with an Rh-positive fetus.

Uterine bleeding--Any clinically significant bleeding during the pregnancy, taking into consideration the stage of pregnancy; any second or third trimester bleeding of the uterus prior to the onset of labor.

Obstetric procedures

This item includes six specific obstetric procedures. Birth records with ``Obstetric procedures" left blank are considered ``not stated." Data on obstetric procedures were reported by all States and the District of Columbia.

The following definitions are adapted and abbreviated from a set of definitions compiled by

a committee of Federal and State health statistics officials for the National Association for Public Health Statistics and Information Systems (NAPHSIS), formerly the Association for Vital Records and Health Statistics (14).

Definitions of medical terms

Amniocentesis--Surgical transabdominal perforation of the uterus to obtain amniotic fluid to be used in the detection of genetic disorders, fetal abnormalities, and fetal lung maturity.

Electronic fetal monitoring--Monitoring with external devices applied to the maternal abdomen or with internal devices with an electrode attached to the fetal scalp and a catheter through the cervix into the uterus, to detect and record fetal heart tones and uterine contractions.

Induction of labor--The initiation of uterine contractions before the spontaneous onset of labor by medical and/or surgical means for the purpose of delivery.

Stimulation of labor--Augmentation of previously established labor by use of oxytocin.

Tocolysis--Use of medications to inhibit preterm uterine contractions to extend the length of pregnancy and therefore avoid a preterm birth.

Ultrasound--Visualization of the fetus and placenta by means of sound waves.

Complications of labor and/or delivery

The checkbox format allows for the selection of 15 specific complications and for the designation of more than 1 complication where appropriate. A choice of ``None" is also included. Accordingly, if the item is not completed, it is classified as ``not stated."

All States and the District of Columbia included this item on their birth certificates. However, not all of the complications were reported by all reporting States (see table A).

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials. (14).

Definitions of medical terms

Febrile--A fever greater than 100 degrees F. or 38 C. occurring during labor and/or delivery.

Meconium, moderate/heavy--Meconium consists of undigested debris from swallowed amniotic fluid, various products of secretion, excretion, and shedding by the gastrointestinal tract; moderate to heavy amounts of meconium in the amniotic fluid noted during labor and/or delivery.

Premature rupture of membranes (more than 12 hours)--Rupture of the membranes at any time during pregnancy and more than 12 hours before the onset of labor.

Abruptio placenta--Premature separation of a normally implanted placenta from the uterus.

Placenta previa--Implantation of the placenta over or near the internal opening of the cervix.

Other excessive bleeding--The loss of a significant amount of blood from conditions other than abruptio placenta or placenta previa.

Seizures during labor--Maternal seizures occurring during labor from any cause.

Precipitous labor (less than 3 hours)--Extremely rapid labor and delivery lasting less than 3 hours.

Prolonged labor (more than 20 hours)--Abnormally slow progress of labor lasting more than 20 hours.

Dysfunctional labor--Failure to progress in a normal pattern of labor.

Breech/Malpresentation--At birth, the presentation of the fetal buttocks rather than the head, or other

malpresentation.

Cephalopelvic disproportion--The relationship of the size, presentation, and position of the fetal head to the maternal pelvis prevents dilation of the cervix and/or descent of the fetal head.

Cord prolapse--Premature expulsion of the umbilical cord in labor before the fetus is delivered.

Anesthetic complications--Any complication during labor and/or delivery brought on by an anesthetic agent or agents.

Fetal distress--Signs indicating fetal hypoxia (deficiency in amount of oxygen reaching fetal tissues).

Abnormal conditions of the newborn

This item provides information on eight specific abnormal conditions. More than one abnormal condition may be reported for a given birth or ``None" may be selected. If the item is not completed it is tabulated as ``not stated." This item was included on the birth certificates of all States and the District of Columbia in 1994. However, several States did not include all conditions (see table A).

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics. (14).

Definitions of medical terms

Anemia--Hemoglobin level of less than 13.0 g/dL or a hematocrit of less than 39 percent.

Birth injury--Impairment of the infant's body function or structure due to adverse influences that occurred at birth.

Fetal alcohol syndrome--A syndrome of altered prenatal growth and development occurring in infants

born of women who consumed excessive amounts of alcohol during pregnancy.

Hyaline membrane disease/RDS--A disorder primarily of prematurity, manifested clinically by respiratory distress and pathologically by pulmonary hyaline membranes and incomplete expansion of the lungs at birth.

Meconium aspiration syndrome--Aspiration of meconium by the fetus or newborn, affecting the lower respiratory system.

Assisted ventilation (less than 30 minutes)--A mechanical method of assisting respiration for newborns with respiratory failure.

Assisted ventilation (30 minutes or more)--Newborn placed on assisted ventilation for 30 minutes or longer.

Seizures--A seizure of any etiology.

Congenital anomalies of child

The data provided in this item relate to 21 specific anomalies or anomaly groups. It is well documented that congenital anomalies, except for the most visible and most severe, are incompletely reported on birth certificates. The completeness of reporting specific anomalies depends on how easily they are recognized in the short time between birth and birth registration. Forty-nine States and the District of Columbia included this item on their birth certificates (New Mexico and New York City did not). This reporting area included 96 percent of all births in the United States in 1994. The format allows for the identification of more than one anomaly including a choice of ``None" should no anomalies be evident. The category ``not stated" includes birth records for which the item is not completed.

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials. (14).

Definitions of medical terms

Anencephalus--Absence of the cerebral hemispheres.

Spina bifida/meningocele--Developmental anomaly characterized by defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude.

Hydrocephalus--Excessive accumulation of cerebrospinal fluid within the ventricles of the brain with consequent enlargement of the cranium.

Microcephalus--A significantly small head.

Other central nervous system anomalies--Other specified anomalies of the brain, spinal cord, and nervous system.

Heart malformations--Congenital anomalies of the heart.

Other circulatory/respiratory anomalies--Other specified anomalies of the circulatory and respiratory systems.

Rectal atresia/stenosis--Congenital absence, closure, or narrowing of the rectum.

Tracheo-esophageal fistula/Esophageal atresia--An abnormal passage between the trachea and the esophagus; esophageal atresia is the congenital absence or closure of the esophagus.

Omphalocele/gastroschisis--An omphalocele is a protrusion of variable amounts of abdominal viscera from a midline defect at the base of the umbilicus. In gastroschisis, the abdominal viscera protrude through an abdominal wall defect, usually on the right side of the umbilical cord insertion.

Other gastrointestinal anomalies--Other specified congenital anomalies of the gastrointestinal system.

Malformed genitalia--Congenital anomalies of the reproductive organs.

Renal agenesis--One or both kidneys are completely absent.

Other urogenital anomalies--Other specified congenital anomalies of the organs concerned in the production and excretion of urine, together with organs of reproduction.

Cleft lip/palate--Cleft lip is a fissure of elongated opening of the lip; cleft palate is a fissure in the roof of the mouth. These are failures of embryonic development.

Polydactyly/syndactyly/adactyly--Polydactyly is the presence of more than five digits on either hands and/or feet; syndactyly is having fused or webbed fingers and/or toes; adactyly is the absence of fingers and/or toes.

Club foot--Deformities of the foot, which is twisted out of shape or position.

Diaphragmatic hernia-- Herniation of the abdominal contents through the diaphragm into the thoracic cavity usually resulting in respiratory distress.

Other musculoskeletal/integumental anomalies--Other specified congenital anomalies of the muscles, skeleton, or skin.

Down's syndrome--The most common chromosomal defect with most cases resulting from an extra chromosome (trisomy 21).

Other chromosomal anomalies--All other chromosomal aberrations.

Method of delivery

The birth certificate contains a checkbox item on method of delivery. The choices include vaginal delivery, with the additional options of forceps, vacuum, and vaginal birth after previous cesarean section (VBAC), as well as a choice of primary or repeat cesarean. When only forceps,

vacuum, or VBAC is checked, a vaginal birth is assumed. In 1994 this information was collected from the birth certificates of all States and the District of Columbia.

Several rates are computed for method of delivery. The overall cesarean section rate or total cesarean rate is computed as the proportion of all births that were delivered by cesarean section. The primary cesarean rate is a measure that relates the number of women having a primary cesarean delivery to all women giving birth who have never had a cesarean delivery. The denominator for this rate includes all births, less those with method of delivery classified as repeat cesareans and vaginal birth after previous cesarean. The rate for 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 section. VBAC rates for first births exist because the rates are computed on the basis of previous pregnancies, not just live births.

Hispanic parentage

The 1989 revision of the U.S. Standard Certificate of Live Births includes items to identify the Hispanic origin of the parents. Concurrent with the 1978 revision of the U.S. Certificate of Live Birth, NCHS recommended that items to identify the Hispanic or ethnic origin of the newborn's parents be included on birth certificates and has tabulated and evaluated these data from the reporting States. All 50 States and the District of Columbia reported Hispanic origin of the parents for 1994.

In computing birth and fertility rates for the Hispanic population, births with origin of mother not stated are included with non-Hispanic births rather than being distributed. Thus, rates for the Hispanic population are underestimates of the true rates to the extent that the births with origin of mother not stated (1.1 percent in 1994) were actually to Hispanic mothers. The population with

origin not stated was imputed. The effect on the rates is believed to be small.

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

An estimated 99 percent of all births occurring in the United States in 1994 were registered; for white births registration was 99.4 percent complete and for all other births, 98.6 percent complete. These estimates are based on the results of the 1964-68 test of birth-registration completeness according to place of delivery (in or out of hospital) and race and on the 1989 proportions of births in these categories. The primary purpose of the test was to obtain current measures of registration completeness for births in and out of hospital by race on a national basis. Data for States were not available as they had been from the previous birth-registration tests in 1940 and 1950. A detailed discussion of the method and results of the 1964-68 birth-registration test is available (15).

The 1964-68 test has provided an opportunity to revise the estimates of birth-registration completeness for the years since the previous test in 1950 to reflect the improvement in registration. This has been done using registration completeness figures from the two tests by place of delivery and race. Estimates of registration completeness for four groups (based on place of delivery and race) for 1951-65 were computed by interpolation between the test results. (It was assumed that the data from the more recent test are for 1966, the midpoint of the test period.) The results of the 1964-68 test are assumed to prevail for 1966 and later years. These estimates were used with the proportions of births registered in these categories to obtain revised numbers of births adjusted for underregistration for each year. The overall percent of birth-registration completeness by race was then computed.

Data adjusted for underregistration for 1951-59 have been revised to be consistent with the 1964-68 test results and differ slightly from data shown in annual reports for years before 1969. For these years the published number of births and birth rates for both racial groups have been revised slightly downward because the 1964-68 test indicated that previous adjustments to registered births were slightly inflated. Because registration completeness figures by age of mother and by live-birth order are not available from the 1964-68 test, it must be assumed that the relationships among these variables have not changed since 1950.

Discontinuation of adjustment for underregistration, 1960--

Adjustment for underregistration of births was discontinued in 1960 when birth registration for the United States was estimated to be 99.1 percent complete. This removed a bias introduced into age-specific rates when adjusted births classified by age were used. Age-specific rates are calculated by dividing the number of births to an age group of mothers by the population of women in that age

group. Tests have shown that population figures are likely to be understated through census undercounts; these errors compensate for underregistration of births. Adjustment for underregistration of births, therefore, removes the compensating effect of underenumeration, biasing the age-specific rates more than when uncorrected birth and population data are used. (For further details see page 4-11 in the Technical Appendix of volume I, Vital Statistics of the United States, 1963.)

The age-specific rates used in the cohort fertility tables are an exception to the above statement. These rates are computed from births corrected for underregistration and population estimates adjusted for underenumeration and misstatement of age.

Adjusted birth and population estimates are used for the cohort rates because they are an integral part of a series of rates, estimated with a consistent methodology. It was considered desirable to maintain consistency with respect to the cohort rates, even though it means that they will not be precisely comparable with other rates shown for 5-year age groups.

Completeness of reporting

Interpretation of these data must include evaluation of item completeness. The percent ``not stated" is one measure of the quality of the data. Completeness of reporting varies among items and States. See table A for the percent of birth records on which specified items were not stated.

Quality control procedures

States in the Vital Statistics Cooperative Program are required to have an error rate of less

than 2.0 percent for each item for 3 consecutive data months during the initial qualifying period. Once a State is qualified, NCHS monitors the quality of data received. This was achieved through independent verification of a sample of records for some States as well as comparing the State data with data from previous years. In addition, there is verification at the State level before NCHS is sent the data.

After the coding is completed, counts of the taped records are balanced against control totals for each shipment of records from a registration area. Impossible codes are eliminated during the editing processes on the computer and corrected on the basis of reference to the source record or adjusted by arbitrary code assignment. All subsequent operations involved in tabulation and table preparation are verified during computer processing or by statistical clerks.

Small frequencies

The numbers of births reported for an area represent complete counts. As such, they are not subject to sampling error, although they are subject to errors in the registration process. However, when the figures are used for analytical purposes, such as the comparison of rates over a period of time or for different areas, the number of events that actually occurred may be considered as one of a large series of possible results that could have arisen under the same circumstances. The probable range of values may be estimated from the actual figures according to certain statistical assumptions.

In general, distributions of vital events may be assumed to follow the binomial distribution. Estimates of standard errors and tests of significance under this assumption are described in most standard statistics texts. When the number of events is large, the relative standard error, expressed as a percent of the number or rate, is usually small.

When the number of events is small (fewer than 100) and the probability of such an event is small, considerable caution must be observed in interpreting the conditions described by the figures. Events of rare nature may be assumed to follow a Poisson probability distribution. For this distribution, a simple approximation may be used to estimate the error as follows:

If N is the number of births and R is the corresponding rate, the chances are 19 in 20 that

1. The ``true" number of events lies between

$$N - 2\sqrt{N} \text{ and } N + 2\sqrt{N}$$

2. The ``true" rate lies between

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

If the rate R1 corresponding to N1 events is compared with the rate R2 corresponding to N2 events, the difference between the two rates may be regarded as statistically significant if it exceeds

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

For example, suppose that the observed birth rate for area A was 15.0 per 1,000 population and that this rate was based on 50 recorded births. Given prevailing conditions, the chances are 19 in 20 that the ``true" or underlying birth rate for that area lies between 10.8 and 19.2 per 1,000 population. Let it be further supposed that the birth rate for area A of 15.0 per 1,000 population is being compared with a rate of 20.0 per 1,000 population for area B, which is based on 40 recorded births. Although the difference between the rates for the two areas is 5.0, this difference is less than twice the standard error of the difference

$$2\sqrt{\frac{(15.0)^2}{50} + \frac{(20.0)^2}{40}}$$

of the two rates that is computed to be 7.6. From this, it is concluded that the difference between the rates for the two areas is not statistically significant.

Computation of rates and other measures

Population bases

The rates shown in this report were computed on the basis of population statistics prepared by the U.S. Bureau of the Census. Rates for 1940, 1950, 1960, 1970, 1980, and 1990 are based on the population enumerated as of April 1 in the censuses of those years. Rates for all other years are based on the estimated midyear (July 1) population for the respective years. Birth rates for the United States, individual States, and metropolitan areas are based on the total resident populations of the respective areas. Except as noted these populations exclude the Armed Forces abroad but include the Armed Forces stationed in each area.

The resident population of the birth- and death-registration States for 1900-32 and for the United States for 1900-94 is shown in table 4-1. In addition, the population including Armed Forces abroad is shown for the United States. Table B shows the sources for these populations.

In both the 1980 and 1990 censuses, a substantial number of persons did not specify a racial group that could be classified as any of the White, Black, American Indian, Eskimo, Aleut, Asian, or Pacific Islander categories on the census form (16). In 1980 the number of persons of ``other'' race was 6,758,319; in 1990 it was 9,804,847. In both censuses, the large majority of these persons were of Hispanic origin (based on response to a separate question on the form), and many wrote in their Hispanic origin, or Hispanic origin type (for example, Mexican, Puerto Rican) as their race. In both 1980 and 1990, persons of unspecified race were allocated to one of the four tabulated racial groups (white, black, American Indian, Asian or Pacific Islander), based on their response to the Hispanic origin question. These four race categories conform with the 1979 edition of OMB Directive 15 which mandates that race data must contain at least these 4 categories. These categories are also more consistent with the race categories in vital statistics.

In the allocation of unspecified race was carried out using cross-tabulations of age, sex, race, type of Hispanic origin, and county of residence. Persons of Hispanic origin and unspecified race were allocated to either white or black, based on their Hispanic origin type. Persons of ``other'' race and Mexican origin were categorically assumed to be white, while persons in other Hispanic categories were distributed to white and black pro rata within the county-age-sex group. For ``other-not-specified'' persons who were not Hispanic, race was allocated to white, black, or Asian and Pacific Islander, based on proportions gleaned from sample data. The 20-percent sample (respondents who were enumerated on the longer census form) provided a highly detailed coding of race, which allowed identification of otherwise unidentifiable responses with a specified race category. Allocation proportions were thus established at the State level, which were used to distribute the non-Hispanic persons of ``other'' race in the 100-percent tabulations.

In 1990 the race modification procedure was carried out using individual census records. Persons whose race could not be specified were assigned to a racial category using a pool of ``race donors,'' which was derived from persons of specified race and the identical response to the Hispanic origin question within the auspices of the same Census District Office. As in 1980, the underlying assumption was that the Hispanic origin response was the major criterion for allocating race. Unlike 1980, persons of Hispanic origin, including Mexican, could be assigned to any racial group, rather than white or black only, and the non-Hispanic component of ``other'' race was allocated primarily on the basis of geography (District Office), rather than detailed characteristic.

The means by which respondent's age was determined were fundamentally different in the two censuses; therefore, the problems that necessitated the modification were different. In 1980 respondents reported year of birth and quarter of birth (within year) on the census form. When census

results were tabulated, persons born in the first quarter of the year (before April 1) had age equal to 1980 minus year of birth, while persons born in the last three quarters had age equal to 1979 minus year of birth.

In 1990 the quarter year of birth was not reported on the census form, so that direct determination of age from year of birth was impossible. In 1990 census publications age is based on respondents' direct reports of age at last birthday. This definition proved inadequate for postcensal estimates, because it was apparent that many respondents had reported their age at time of either completion of the census form or interview by an enumerator, which could occur several months after the April 1 reference data. As a result, age was biased upward. Modification was based on a respecification of age, for most individual respondents, by year of birth, with allocation to first quarter (persons aged 1990 minus year of birth) and last three quarters (aged 1989 minus year of birth) based on a historical series of registered births by month. This process partially restored the 1980 logic for assignment of age. It was not considered necessary to correct for age overstatement and heaping in 1990, because the availability of age and year of birth on the census form provided elimination of spurious year-of-birth reports in the census data before modification occurred.

Populations for 1994–The population of the United States by age, sex, race, and Hispanic origin are shown in the Census Bureau report, United States population estimates by age, sex, race and Hispanic origin: 1990 to 1994. U.S. Bureau of the Census. PPL-21. Washington: U.S. Department of Commerce. 1995.

Populations for 1993--The population of the United States by age, sex, race and Hispanic origin are tabulated from Census file RESO793. Washington: U.S. Department of Commerce. 1995.

Populations for 1992--The population of the United States by age, sex, race and Hispanic origin are tabulated from census file RESPO792. Washington: U.S. Department of Commerce. 1994.

Populations for 1991--The population of the United States by age, race, and sex are shown in Current Population Reports, Series P-25, Number 1095. Monthly population figures were published in Current Population Reports, Series P-25, Number 1097.

Populations for 1990--The population of the United States by age, race, and sex, and the population for each State are shown in Current Population Reports, Series P-25, Number 1095. The figures have been modified as described above. Monthly population figures were published in Current Population Reports, Series P-25, Number 1094.

Population estimates for 1981-89--Birth rates for 1981-89 (except those for cohorts of women) have been revised, based on revised population estimates that are consistent with the 1990 census levels, and thus may differ from rates published in volumes of Vital Statistics of the United States for these years. The 1990 census counted approximately 1.5 million fewer persons than had earlier been estimated for April 1, 1990. The revised estimates for the United States by age, race, and sex were published by the U.S. Bureau of the Census in Current Population Reports, Series P-25, Number 1095. Population estimates by month are based on data published in Current Population Reports,

Series P-25, Number 1094 and unpublished data. Unpublished revised estimates for States were obtained from the U.S. Bureau of the Census.

Populations for 1980--The population of the United States by age, race, and sex, and the population for each State are shown in tables 4-2 and 4-3 of volume I, Vital Statistics of the United States, 1980. The figures by race have been modified as described above. Monthly population figures were published in Current Population Reports, Series P-25, Number 899.

Population estimates for 1971-79--Birth rates for 1971-79 (except those for cohorts of women) have been revised, based on revised population estimates that are consistent with the 1980 census levels, and thus may differ from rates published in volumes of Vital Statistics of the United States for these years. The 1980 census counted approximately 5.5 million more persons than had earlier been estimated for April 1, 1980 (17). The revised estimates for the United States by age, race, and sex were published by the U.S. Bureau of the Census in Current Population Reports, Series P-25, Number 917. Population estimates by month are based on data published in Current Population Reports, Series P-25, Number 899. Unpublished revised estimates for States were obtained from the U.S. Bureau of the Census.

Population estimates for 1961-69--Birth rates for 1961-69 are based on revised estimates of the population and thus may differ slightly from rates published before 1976. The revised estimates used in computing these rates were published in Current Population Reports, Series P-25, Number 519. The rates for 1961-64 are based on revised estimates of the population published in Current

Population Reports, Series P-25, Numbers 321 and 324 and may differ slightly from rates published in those years.

Population estimates for 1951-59--Final intercensal estimates of the population by age, race, and sex and total population by State for 1951-59 are shown in tables 4-4 and 4-5 of volume I, Vital Statistics of the United States, 1966. Beginning with 1963 these final estimates have been used to compute birth rates for 1951-59 in all issues of Vital Statistics of the United States.

Net census undercounts and overcounts

The U.S. Bureau of the Census has conducted extensive research to evaluate the coverage of the U.S. population (including undercount, overcount, and misstatement of age, race, and sex) in the last five decennial censuses 1950, 1960, 1970, 1980, and 1990. These studies provide estimates of the national population, that were not enumerated or overenumerated in the respective censuses, by age, race, and sex (17-19). The report for 1990 (20) includes estimates of net underenumeration and overenumeration for age, sex, and racial subgroups of the national population, modified for race consistency with previous population counts as described in the section ``Population bases."

These studies indicate that there are differential coverages in the censuses among the population subgroups; that is, some age, race, and sex groups are more completely enumerated than others. To the extent that these estimates of overcounts or undercounts are valid, that they are substantial, and that they vary among subgroups and geographic areas, census miscounts can have consequences for vital statistics measures (18). However, the effects of undercounts in the census are reduced to the extent that there is underregistration of births. If these two factors are of equal

magnitude, rates based on unadjusted populations are more accurate than those based on adjusted populations because the births have not been adjusted for underregistration.

The impact of net census miscounts on vital statistics measures includes the effects on levels of the rates and effects on differentials among groups.

If adjustments were made for persons who were not counted in the census of population, the size of the denominators would generally increase and the rates would be smaller than without an adjustment. Adjusted rates for 1990 can be computed by multiplying the reported rates by ratios of the 1990 census-level population adjusted for the estimated net census miscounts, which are shown in table C. A ratio of less than 1.0 indicates a net census undercount and would result in a corresponding decrease in the rate. A ratio in excess of 1.0 indicates a net census overcount and would result in a corresponding increase in the rate.

Enumeration of white females in the childbearing ages was at least 97 percent complete for all ages. Among black women, the undercount ranged up to 5 percent. Generally, females in the childbearing ages were more completely enumerated than males for similar race-age groups.

If vital statistics measures were calculated with adjustments for net census miscounts for each of these subgroups, the resulting rates would have been differentially changed from their original levels; that is, rates for those groups with the greatest estimated overcounts or undercounts would show the greatest relative changes due to these adjustments. Thus the racial differential in fertility between the white and the ``All other" population can be affected by such adjustments.

Cohort fertility tables

The various fertility measures shown for cohorts of women are computed from births adjusted

for underregistration and population estimates corrected for underenumeration and misstatement of age. Data published after 1974 use revised population estimates prepared by the U.S. Bureau of the Census and have been expanded to include data for the two major racial groups. Heuser has prepared a detailed description of the methods used in deriving these measures as well as more detailed data for earlier years (21).

Parity distribution--The percent distribution of women by parity (number of children ever born alive to mother) is derived from cumulative birth rates by order of birth. The percent of zero-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 percent of women at seventh 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.

Age-sex-adjusted birth rates

The age-sex-adjusted birth rates are computed by the direct method. The age distribution of women aged 10-49 years as enumerated in 1940 and the total population of the United States for that year are used as the standard populations. The age-sex-adjusted birth rates show differences in the level of fertility independent of differences in the age and sex composition of the population. It is important not to confuse these adjusted rates with the crude rates shown in other tables.

Total fertility rate

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 are the same number of women in each age group. The rate of 2,036 in 1994, 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 1994, they would have a total of 2,036 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.

Intrinsic vital rates

The intrinsic vital rates are calculated from a stable population. A stable population is that hypothetical population, closed to external migration, that would become fixed in age-sex structure after repeated applications of a constant set of age-sex specific birth and death rates. For the mathematical derivation of intrinsic vital rates, see pages 4-13 and 4-14 in the Technical Appendix of volume I, Vital Statistics of the United States, 1962. The technique of calculating intrinsic vital rates is described by Barclay (22).

Seasonal adjustment of rates

The seasonally adjusted birth and fertility rates are computed from the X-11 variant of Census Method II (23). This method of seasonal adjustment 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 percents, medians, and means

Percent distributions, medians, and means are computed using only events for which the characteristic is reported. The ``Not stated'' category is subtracted from the total before computation of these measures. The asterisk (*) indicates that the numerator and/or denominator number is less than 20.

References

1. World Health Organization. Official records; no 28 (Third World Health Assembly 3.6). Geneva: World Health Organization, 16-17. 1950.

2. National Office of Vital Statistics. International recommendations on definitions of live birth and fetal deaths. Washington: Public Health Service. 1950.

3. Statistical Office of the United Nations. Principles for vital statistics system: Recommendations for the improvement and standardization of vital statistics. Doc. ST/STAT/SER.M/19. New York: United Nations. 1953.

4. National Office of Vital Statistics. Births and birth rates in the entire United States, 1909 to 1948. Vital Statistics--Special reports; vol 33 no 8. Washington: Public Health Service. 1950.

5. U.S. Bureau of the Census. Population of metropolitan areas and component geography: 1990 and 1980 (6-30-90 definitions). 1990 CPH-L-10. Washington: U.S. Department of Commerce. 1991.

6. U.S. Department of Commerce. Metropolitan statistical area classification. Federal Register; vol 45 no 2. Washington: U.S. Government Printing Office, 956-62. 1980.

7. U.S. Office of Management and Budget. Standard metropolitan statistical areas. Rev. ed. Washington: U.S. Government Printing Office, 89-90. 1975.

8. U.S. Bureau of the Census. 1990 Census of Population. General population characteristics; (1990 CP-1-1). Washington: U.S. Department of Commerce. 1992.

9. Martin JA. Birth characteristics for Asian or Pacific Islander subgroups, 1992. Monthly vital statistics report; vol 43 no 10, suppl. Hyattsville, Maryland: National Center for Health Statistics.

1995.

10. Schachter J. Matched record comparison of birth certificate and census information in the United States, 1950. Vital statistics--Special Reports; vol 47 no12. Washington: Public Health Service. 1962.

11. Office of the State Registrar. Michigan Department of Public Health. Unpublished tabulation. 1995.

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

13. 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). 1982.

14. Brockert JE, Stockbauer JW, Senner JW, et al. Recommended standard medical definitions for the U.S. Standard Certificate of Live Birth, 1989 revision. Paper presented at annual meeting of the Association for the Vital Record and Health Statistics. June 1990.

15. U.S. Bureau of the Census. 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.

16. U.S. Bureau of the Census. U.S. population estimates, by age, sex, race, and Hispanic origin, 1980-91. Current population reports; series P-25, no 1095. Washington: U.S. Department of Commerce. 1993.

17. U.S. Bureau of the Census. Coverage of the national population in the 1980 census by age, sex, and race. Preliminary estimates by demographic analysis. Current population reports; series P-23, no 115. Washington: U.S. Department of Commerce. 1982.

18. U.S. Bureau of the Census. Estimates of coverage of the population by sex, race, and

age--Demographic analysis. 1970 census of population and housing; PHC (E)-4. Evaluation and Research Program. Washington: U.S. Department of Commerce. 1974.

19. U.S. Bureau of the Census. Developmental estimates of the coverage of the population of States in the 1970 census-demographic analysis. Current population reports; series P-23, no 65. Washington: U.S. Department of Commerce. 1977.

20. Robinson JG, Ahmed B, Das Gupta P, et al. Estimation of population coverage in the 1990 United States census based on demographic analysis. JASA 88(423):1061-71. 1993.

21. Heuser R. Fertility tables for birth cohorts by color: United States, 1917-73. Washington: National Center for Health Statistics. 1976.

22. Barclay GW. Techniques of population analysis. New York: John Wiley & Sons, Inc., 216-22. 1958.

23. U.S. Bureau of the Census. The X-11 variant of the Census Method II Seasonal Adjustment Program. Technical paper; no 15, 1967 rev. Washington: U.S. Department of Commerce. 1967.

Table A. Percent of Birth Records on Which Specified Items Were Not Stated: United States and Each State, Puerto Rico, Virgin Islands, and Guam: 1995

[By place of residence]

Area	Number of births	Place of birth	Attendant at birth	Mother's birth-place	Father's age	Father's race	Hispanic Origin		Educational attainment	Live-birth order	Length of Gestation	Month prenatal care began	Number of pre-natal visits
							Mother	Father	Mother				
Total of reporting areas 1/	3,899,589	0.0	0.2	0.2	15.2	15.2	1.5	16.0	1.5	0.7	0.9	2.4	3.4
Alabama	60,329	-	0.0	0.1	27.1	27.1	-	27.1	0.5	0.0	0.1	0.7	1.1
Alaska	10,244	0.0	.0	.2	11.7	14.5	.4	12.9	2.1	.2	.3	1.1	1.1
Arizona	72,463	.0	.1	.3	28.1	30.2	.3	30.4	2.6	.2	.2	1.9	5.6
Arkansas	35,175	.0	.1	.4	19.5	19.6	.2	19.6	.8	.1	.4	2.2	3.2
California	552,045	.0	.9	.0	6.3	3.8	.4	3.5	.9	.1	2/ 4.3	.3	2.3
Colorado	54,332	.0	.0	.2	11.8	12.8	.4	13.8	1.4	.3	.0	1.5	2.3
Connecticut	44,334	.0	.0	.4	9.9	11.5	4.0	13.2	5.8	11.0	3.5	7.0	9.2
Delaware	10,266	.0	.0	.4	25.7	32.4	.1	31.8	.3	.2	.1	.7	1.1
District of Columbia	9,014	.0	-	1.2	50.7	55.5	.7	50.6	6.0	.6	.4	10.5	10.9
Florida	188,723	.0	-	.2	19.5	19.5	.0	20.5	.3	.0	.1	.8	2.1
Georgia	112,282	.0	.0	.3	19.5	20.0	.5	19.9	1.0	.2	.1	1.5	1.1
Hawaii	18,595	-	.0	.1	10.6	10.7	.1	9.8	.3	.0	2.3	3.0	3.5
Idaho	18,035	.0	.0	.2	8.0	10.5	.6	10.1	3.0	.9	1.0	2.7	4.6
Illinois	185,812	.1	.0	.1	17.4	17.9	.0	17.5	.6	.1	.2	1.7	2.0
Indiana	82,835	.0	.1	.2	13.5	13.2	.2	13.2	1.3	.2	.1	1.7	2.7
Iowa	36,810	.0	.0	.2	13.1	14.5	.7	14.9	1.6	.2	.2	1.4	4.2
Kansas	37,201	-	.1	.0	11.0	11.3	1.0	12.5	.2	.0	.1	.5	.8
Kentucky	52,377	.0	.0	-	19.8	19.8	.1	28.3	.2	.4	.1	.9	1.0
Louisiana	65,641	.0	.0	.0	26.4	26.5	.0	26.4	.1	.1	.1	.4	.7
Maine	13,896	-	.0	.0	16.2	17.2	1.6	18.5	.5	.1	.2	.6	.6
Maryland	72,396	.0	.0	.9	8.1	9.0	1.1	6.4	3.2	4.7	.8	7.9	14.4
Massachusetts	81,648	.0	.0	.5	10.6	9.5	.7	9.6	.6	.4	.2	.4	.7
Michigan	134,642	.0	.3	.1	19.1	21.3	4.9	25.0	.9	.5	.1	2.8	5.0
Minnesota	63,263	.1	.0	.3	9.6	12.5	8.7	19.2	2.6	.4	.9	3.9	3.4
Mississippi	41,344	.0	.0	.2	27.6	27.3	.1	27.4	.2	.0	.2	.7	.7
Missouri	73,028	.0	.0	.2	18.8	22.1	.1	21.8	1.0	.9	.2	1.9	2.5
Montana	11,142	-	.4	.0	9.6	11.2	3.5	14.4	.2	.1	.1	.3	.6
Nebraska	23,243	-	.0	.0	12.4	12.9	1.8	14.1	.1	.0	.0	.2	.4
Nevada	25,056	-	.0	.7	23.0	23.4	.3	22.5	1.9	.4	.5	2.0	6.5
New Hampshire	14,665	.0	.0	.1	8.7	9.5	3.6	12.2	.7	.1	.3	2.0	2.7
New Jersey	114,828	.1	.1	.4	9.9	11.1	.7	10.6	3.8	1.9	.9	5.6	8.0
New Mexico	26,920	.0	.0	1.0	26.9	26.4	.0	26.4	3.4	.6	.3	3.7	4.6
New York	271,369	.1	.1	.4	18.8	18.9	11.4	27.6	3.2	1.1	.3	8.2	5.5
North Carolina	101,592	-	.0	.0	18.4	18.4	.0	18.4	.2	.0	.1	.5	.6
North Dakota	8,476	-	-	.0	9.4	10.7	1.4	11.9	.2	.0	.1	.5	.5
Ohio	154,064	.0	.0	.3	13.5	13.9	.2	12.0	.4	.0	.1	1.1	1.3
Oklahoma	45,672	-	.0	.1	17.4	19.6	.1	19.5	3.2	.5	2.7	8.1	9.2
Oregon	42,811	-	.7	.1	14.5	5.6	.1	5.8	.8	.0	.0	.3	.5
Pennsylvania	151,850	.0	.0	.7	6.7	2.9	.2	2.3	2.0	.1	.2	1.9	2.2
Rhode Island	12,776	-	-	.2	14.8	15.3	13.9	24.7	2.6	2.0	.5	7.7	8.4
South Carolina	50,926	.0	.0	.2	30.9	31.0	.1	30.7	3.5	.1	.1	.8	1.1
South Dakota	10,475	-	.1	2.7	10.4	11.1	.1	12.8	.3	.0	.1	.6	.6
Tennessee	73,173	-	.0	.1	16.6	16.6	.0	16.6	.2	.0	.2	1.3	1.5
Texas	322,753	.0	.0	.4	16.6	16.5	.2	16.4	1.1	1.9	.6	2.8	5.5
Utah	39,577	.0	.0	.1	8.6	9.0	.2	5.7	1.6	.6	.1	.6	.6
Vermont	6,783	-	-	.0	4.5	5.2	5.6	9.5	2.2	.2	.1	2.7	1.1
Virginia	92,578	.0	.0	.1	20.0	20.3	.1	20.0	.5	.3	.1	.7	1.1
Washington	77,228	.0	.0	.5	13.4	12.2	3.4	13.8	10.3	3.9	1.3	7.5	11.3
West Virgin	21,162	-	-	.1	14.0	17.2	.0	17.1	.6	.1	.2	3.3	2.6
Wisconsin	67,479	.0	-	.0	17.5	27.0	.0	27.0	.1	.0	.0	.2	.3
Wyoming	6,261	-	.0	.1	13.1	13.7	.1	13.4	.3	.1	.0	.4	.3
Puerto Rico	63,419	.0	.0	-	2.6	...	...	...	.4	.0	.1	.5	.2
Virgin Islands	2,032	-	.3	-	26.4	27.0	1.3	26.7	2.1	.8	1.4	.6	3.2
Guam	4,179	-	.3	.4	27.6	27.8	.4	27.3	1.2	.9	.6	3.3	3.7

Table A. Percent of Birth Records on Which Specified Items Were Not Stated: United States and Each State, Puerto Rico, Virgin Islands, and Guam: 1995
(Page 2 of 2)
[By place of residence]

Area	Number of births	Birth weight	5-minute Apgar score	Medical risk factors	Tobacco use	Alcohol use	Weight gain	Obstetric procedures	Complications of labor and/or delivery	Method of delivery	Abnormal conditions of newborn	Congenital anomalies
Total of reporting areas 1/	3,899,589	0.1	0.7	1.2	1.5	1.6	9.0	0.8	1.0	0.7	1.3	1.6
Alabama	60,329	0.1	0.3	0.3	0.4	0.5	5.9	0.3	0.3	0.1	0.5	0.0
Alaska	10,244	.3	.7	.2	.5	.6	2.2	.1	.1	.3	.2	.2
Arizona	72,463	.2	.5	.0	.5	.5	13.4	.0	.0	.3	.0	.4
Arkansas	35,175	.2	3.9	.6	.7	.8	7.3	.4	.6	.7	.6	1.0
California	552,045	.0	---	.0	...	...	...	.0	.1	.0	.1	.1
Colorado	54,332	.0	.4	.0	.8	.7	6.7	.0	.0	.0	.0	.1
Connecticut	44,334	.0	4.2	13.5	11.6	11.6	27.6	12.5	13.8	7.9	20.1	21.9
Delaware	10,266	.0	.3	.0	.2	.2	1.2	.0	.0	.0	.0	.1
District of Columbia	9,014	.2	.6	.0	.5	.5	11.4	.0	-	.0	.0	.0
Florida	188,723	.0	.3	.0	.1	.1	4.3	.0	.0	.4	.0	.0
Georgia	112,282	.0	.4	.5	.3	.3	4.9	.1	.0	.1	.0	.0
Hawaii	18,595	.5	1.8	1.1	.2	.2	12.4	.1	1.1	1.4	1.3	1.2
Idaho	18,035	.1	.6	5.3	.6	.9	13.1	5.1	5.3	.3	5.8	5.8
Illinois	185,812	.0	.3	.1	1.0	.2	4.9	.1	.0	.3	.1	.1
Indiana	82,835	.3	.6	.3	...	.5	3.4	.2	.2	.3	.4	.2
Iowa	36,810	.0	.6	.2	1.8	2.1	5.6	.1	.1	.4	.2	.2
Kansas	37,201	.0	.3	3/1.5	1.6	1.6	.8	3.7	1.4	3.1	1.4	1.4
Kentucky	52,377	.1	.4	4.7	3.7	3.5	7.4	3.2	4.9	3.5	5.4	4.9
Louisiana	65,641	.0	.3	.1	.3	1.0	6.0	.1	.1	.1	.1	.1
Maine	13,896	.2	.5	.5	2.8	3.7	2.6	.2	.4	.6	.7	.6
Maryland	72,396	.1	.5	.0	2.9	3.1	13.0	.0	.1	.2	.1	.2
Massachusetts	81,648	.2	.3	.6	.3	3.0	.8	.4	.6	.4	6/1.0	.9
Michigan	134,642	.3	.7	.2	1.5	1.2	8.3	.2	.2	.7	.3	.2
Minnesota	63,263	.1	.8	4.8	4.3	4.5	16.1	2.7	4.0	2.5	5.5	5.8
Mississippi	41,344	.1	.6	.2	.4	.4	5.9	.2	.2	.2	.2	.2
Missouri	73,028	.0	.6	.1	.7	.7	3.7	.1	.1	.4	.1	.1
Montana	11,142	.1	.4	.1	.5	.5	1.0	.1	.1	.3	.1	.1
Nebraska	23,243	.0	.1	.0	1.0	1.0	1.4	.0	.0	.2	6/.0	.0
Nevada	25,056	.0	2.9	.9	1.3	1.5	9.9	.3	.9	.7	1.9	2.0
New Hampshire	14,665	.3	.4	.1	.1	.4	4.6	.1	.1	.2	.1	.1
New Jersey	114,828	.4	.5	.9	1.4	1.3	18.4	.7	.9	.5	2.5	4.2
New Mexico	26,920	.2	3.1	.1	.7	.7	8.8	.0	.0	.5	.0	...
New York	271,369	.1	1.2	3.6	8/5.7	3.1	17.2	2.5	3.1	.9	7/2.7	8/9.3
North Carolina	101,592	.1	.4	.0	.1	.1	3.0	.0	.0	.3	.0	.0
North Dakota	8,476	.1	.3	.5	.9	1.0	1.7	.1	.5	.2	.6	.6
Ohio	156,064	.1	.4	.1	.6	.4	4.4	.2	.2	.4	.2	.3
Oklahoma	45,672	.6	4.2	25.2	20.0	20.4	30.7	22.3	25.5	18.8	30.3	31.0
Oregon	42,811	.0	.5	.7	.5	.6	2.8	.0	.0	.2	.0	.0
Pennsylvania	151,850	.1	.4	.1	.5	.2	4.3	.0	.1	.3	.3	.4
Rhode Island	12,776	.2	.6	4.9	1.8	2.0	8.1	4.8	4.9	.3	12.9	13.3
South Carolina	50,926	.0	.4	.0	.2	.2	1.8	.0	.0	.4	.0	.0
South Dakota	10,475	.1	.4	.2	...	...	2.3	.2	.2	.2	.3	.3
Tennessee	73,173	.1	.4	.1	.3	.3	3.2	.0	.1	.5	.1	.1
Texas	322,753	.1	...	5/1.6	.3	.4	10.6	.1	9/.1	.5	6/.1	.1
Utah	39,577	.1	.9	.2	.2	.2	1.9	.0	.1	.2	.3	.6
Vermont	6,783	.1	.4	.1	.7	1.7	1.5	.1	.1	.1	.1	.2
Virginia	92,578	.1	.3	.1	.2	.3	5.2	.1	.1	.4	.8	.1
Washington	77,228	.2	.4	.1	2.8	9.5	17.2	.1	.1	.3	.1	.1
West Virginia	21,162	.0	.2	.4	.9	3.2	7.1	.2	.5	.2	.9	.6
Wisconsin	67,479	.0	.5	.1	.1	.1	1.2	.0	.1	.1	10/.1	.1
Wyoming	6,261	-	.5	.0	1.1	1.2	1.6	.0	.0	.1	.0	.1
Puerto Rico	63,419	.0	.3	.1	.0	.0	.2	.1	.1	.0	.0	.0
Virgin Islands	2,032	.4	3.5	28.9	2.0	2.3	15.6	12.0	27.5	4.4	31.7	31.5
Guam	4,179	.3	1.7	2.1	2.7	3.0	25.6	2.3	2.9	2.5	2.2	2.1

1/ Excludes data for Puerto Rico, Virgin Islands, and Guam.
2/ California reports date last normal menses began but does not report clinical estimate of gestation.
3/ Kansas does not report Rh sensitization.
4/ New York city (but not New York State) reports tobacco use.
5/ Texas does not report genital herpes and uterine bleeding.
6/ Massachusetts, Nebraska, and Texas do not report birth injury.
7/ New York city does not report assisted ventilation less than 30 minutes and assisted ventilation of 30 minutes or more.
8/ New York State (but not New York city) reports congenital anomalies.
9/ Texas does not report anesthetic complications and fetal distress.
10/ Wisconsin does not report fetal alcohol syndrome.

Area	Occurrence	Residence
Total	3,903,012	3,903,012
United States	3,903,012	3,899,589
Alabama	59,518	60,329
Alaska	10,127	10,244
Arizona	72,363	72,463
Arkansas	33,644	35,175
California	552,322	552,045
Colorado	54,569	54,332
Connecticut	44,250	44,334
Delaware	10,770	10,266
District of Columbia	16,198	9,014
Florida	188,966	188,723
Georgia	113,165	112,282
Hawaii	18,635	18,595
Idaho	17,700	18,035
Illinois	182,635	185,812
Indiana	82,740	82,835
Iowa	36,869	36,810
Kansas	35,527	37,201
Kentucky	50,858	52,377
Louisiana	65,812	65,641
Maine	13,690	13,896
Maryland	67,901	72,396
Massachusetts	82,647	81,648
Michigan	133,273	134,642
Minnesota	63,044	63,263
Mississippi	40,720	41,344
Missouri	75,981	73,028
Montana	11,049	11,142
Nebraska	23,551	23,243
Nevada	24,672	25,056
New Hampshire	14,158	14,665
New Jersey	111,887	114,828
New Mexico	26,607	26,920
New York State only	141,287	145,316
New York city only	131,009	126,053
North Carolina	102,163	101,592
North Dakota	9,736	8,476
Ohio	154,996	154,064
Oklahoma	44,722	45,672
Oregon	44,609	42,811
Pennsylvania	152,776	151,850
Rhode Island	13,787	12,776
South Carolina	49,105	50,926
South Dakota	10,632	10,475
Tennessee	77,899	73,173
Texas	326,587	322,753
Utah	40,535	39,577
Vermont	6,448	6,783
Virginia	90,594	92,578
Washington	75,678	77,228
West Virginia	22,181	21,162
Wisconsin	66,565	67,479
Wyoming	5,855	6,261

Area	Occurrence	Residence
Foreign Residents	-	3,423
Puerto Rico	-	21
Virgin Islands	-	27
Guam	-	14
Canada	-	107
Cuba	-	5
Mexico	-	2,645
Remainder of world	-	604

TECHNICAL APPENDIX FROM

VITAL STATISTICS OF UNITED STATES

1994

MORTALITY

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES

CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR HEALTH STATISTICS

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A copy of the technical appendix may be obtained by contacting the National Center for Health Statistics, Mortality Statistics Branch at 301-436-8884.

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Sources of data

Death and fetal-death statistics

Mortality statistics for 1994 are, as for all previous years except 1972, based on information from records of all deaths occurring in the United States. Fetal-death statistics for every year are based on all reports of fetal death received by the National Center for Health Statistics (NCHS).

The death-registration system and the fetal-death reporting system of the United States encompass the 50 States, the District of Columbia, New York City (which is independent of New York State for the purpose of death registration), Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Marianas. In statistical tabulations, United States refers only to the aggregate of the 50 States (including New York City) and the District of Columbia. Data for Guam, Puerto Rico, and the Virgin Islands are presented separately from data for the United States. No data are included for American Samoa or the Commonwealth of the Northern Marianas.

The Virgin Islands was admitted to the registration area for deaths in 1924; Puerto Rico, in 1932; and Guam, in 1970. Tabulations of death statistics for Puerto Rico and the Virgin Islands were regularly shown in *Vital Statistics of the United States* from the year of their admission through 1971 except for the years 1967-69, and tabulations for Guam were included for 1970 and 1971. Death statistics for Puerto Rico, the Virgin Islands, and Guam were not included in *Vital Statistics of the United States* for 1972 but have been included each year since 1973. Information for 1972 for these three areas was published in the respective annual vital statistics reports of the Department of Health of the Commonwealth of Puerto Rico, the Department of Health of the Virgin Islands, and the Department of Public Health and Social Services of the Government of Guam.

Procedures used by NCHS to collect death statistics have changed over the years. Before 1971 tabulations of deaths and fetal deaths were based solely on information obtained by NCHS from copies of the original certificates. The information from these copies was edited, coded, and tabulated. For 1960-70 all mortality information taken from these records was transferred by NCHS to magnetic tape for computer processing.

Beginning with 1971 an increasing number of States have provided NCHS, via the Vital Statistics Cooperative Program (VSCP), with electronic files of data coded according to NCHS specifications. The year in which State-coded demographic data were first transmitted in electronic data files to NCHS is shown below for each of the States, New York City, the District of Columbia, Puerto Rico, and the Virgin Islands, all of which now furnish demographic or nonmedical data in electronic data files.

1971	1972	1973
Florida	Maine	Colorado
	Missouri	Michigan
	New Hampshire	New York (except New York
	Rhode Island	City)
	Vermont	

1974
Illinois
Iowa
Kansas
Montana
Nebraska
Oregon
South Carolina

1975
Louisiana
Maryland
North Carolina
Oklahoma
Tennessee
Virginia
Wisconsin

1976
Alabama
Kentucky
Minnesota
Nevada
Texas
West Virginia

1977
Alaska
Idaho
Massachusetts
New York City
Ohio
Puerto Rico

1978
Indiana
Utah
Washington

1979
Connecticut
Hawaii
Mississippi
New Jersey
Pennsylvania
Wyoming

1980
Arkansas
New Mexico
South Dakota

1982
North Dakota

1985
Arizona
California
Delaware
Georgia
District of Columbia

1994
Virgin Islands

For Guam, mortality statistics for 1994 are based on information obtained directly by NCHS from copies of the original certificates received from the registration office.

In 1974 States began coding medical (cause-of-death) data in electronic data files according to NCHS specifications. The year in which State-coded medical data were first transmitted to NCHS is shown below for the 40 States now furnishing such data. In 1994 Maine, Montana, North Dakota, and Wyoming contracted with a private company to provide precoded medical data to NCHS. Kansas provided the medical data for Alaska. The remaining 10 VSCP States, New York City, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam submitted copies of the original certificates from which NCHS coded the medical data.

1974	1975	1980
Iowa	Louisiana	Colorado
Michigan	Nebraska	Kansas
	North Carolina	Massachusetts
	Virginia	Mississippi
	Wisconsin	New Hampshire
		Pennsylvania
		South Carolina

1981	1983	1984
Maine	Minnesota	Maryland
		New York (except New York City)
		Vermont

1986	1988	1989
California	Alaska	Georgia
Florida	Delaware	Indiana
Texas	Idaho	Washington
	North Dakota	
	Wyoming	

1991	1992	1993
Arkansas	Montana	Alabama
		Connecticut
		Hawaii
		Nevada
		Oregon
		South Dakota

1994
Oklahoma
Rhode Island

For 1994 and previous years except 1972, NCHS coded the medical information from copies of the original certificates received from the registration offices for all deaths occurring in those States that were not furnishing NCHS with medical data coded according to NCHS specifications. For 1981 and 1982, these procedures were modified because of a coding and processing backlog resulting from personnel and budgetary restrictions. To produce the mortality files on a timely basis with reduced resources, NCHS used State-coded underlying cause-of-death information supplied by 19 States for 50 percent of the records; for the other 50 percent of the records for these States as well as for 100 percent of the records for the remaining 21 registration areas, NCHS coded the medical information. Mortality statistics for 1972 were based on information obtained from a 50-percent sample of death records instead of from all records as in other years. The sample resulted from personnel and budgetary

restrictions. Sampling variation associated with the 50-percent sample is described in "Estimates of errors arising from 50-percent sample for 1972" under "Quality control procedures".

In 1994, 43 States, New York City, the District of Columbia, Puerto Rico, and the Virgin Islands provided NCHS, via the VSCP, electronic data files of fetal-death data coded according to NCHS specifications. The remaining seven States--Arizona, California, Louisiana, Nevada, Ohio, Pennsylvania, and Wyoming--and Guam submitted photocopies of original reports of fetal deaths. For the registration areas submitting photocopies, the demographic items were coded by NCHS.

Standard certificates and reports

For many years, the U.S. Standard Certificate of Death and the U.S. Standard Report of Fetal Death, issued by the Public Health Service, have been used as the principal means to attain uniformity in the contents of documents used to collect information on these events. They have been modified in each State to the extent required by the particular needs of the State or by special provisions of the State vital statistics law. However, the certificates or reports of most States conform closely in content and arrangement to the standards.

The first issue of the U.S. Standard Certificate of Death appeared in 1900. Since then, it has been revised periodically by the national vital statistics agency through consultation with State health officers and registrars; Federal agencies concerned with vital statistics; national, State, and county medical societies; and others working in such fields as public health, social welfare, demography, and insurance. This revision procedure has ensured careful evaluation of each item in terms of its current and future usefulness for legal, medical and health, demographic, and research purposes. New items have been added when necessary, and old items have been modified to ensure better reporting; or in some cases, items have been dropped when their usefulness appeared to be limited.

The current versions of the U.S. Standard Certificate of Death and the U.S. Standard Report of Fetal Death were recommended for State use beginning on January 1, 1989. The U.S. Standard Certificate of Death and the U.S. Standard Report of Fetal Death are shown in figures 7-A and 7-B, respectively (1).

History

The first death statistics published by the Federal Government concerned events in 1850 and were based on statistics collected during the decennial census of that year. In 1880 a national "registration area" was created for deaths. Originally, this area consisted of Massachusetts, New Jersey, the District of Columbia, and several large cities that had efficient systems for death registration. The death-registration area continued to expand until 1933, when it included for the first time the entire United States. Tables showing data for death-registration States include the District of Columbia for all years; registration cities in nonregistration States are not included. For more details on the history of the death-registration area, see *U.S. Vital Statistics System: Major Activities and Developments, 1950-95* (2). Statistics on fetal deaths were first published for the birth-registration area in 1918 and then every year beginning with 1922.

Classification of data

The principal value of vital statistics data is realized through the presentation of rates, which are computed by relating the vital events of a class to the population of a similarly defined class. Vital statistics and population statistics must therefore be classified according to similarly defined systems and tabulated in comparable groups. Even when the variables common to both, such as geographic area, age, sex, and race, have been similarly classified and tabulated, differences between the enumeration method of obtaining population data and the registration method of obtaining vital statistics data may result in significant discrepancies.

The general rules used in the classification of geographic and personal items for deaths and fetal deaths for 1994 are set forth in two NCHS instruction manuals (3,4). A discussion of the classification of certain important items is presented below.

Classification by occurrence and residence

Tabulations for the United States and specified geographic areas are classified by place of residence unless stated as by place of occurrence. Before 1970 resident mortality statistics for the United States included all deaths occurring in the States and the District of Columbia, with deaths of nonresidents assigned to place of death. For the United States (50 States and the District of Columbia), deaths of nonresidents refers to deaths that occur in the United States of nonresident aliens; nationals residing abroad; and residents of Puerto Rico, the Virgin Islands, Guam, and other territories of the United States. Similarly, for Puerto Rico and for the Virgin Islands, deaths of nonresidents refers to deaths that occurred to a resident of any place other than Puerto Rico and the Virgin Islands, respectively. For Guam, however, deaths of nonresidents refers to deaths that occurred to a resident of any place other than Guam or the United States. Beginning with 1970 deaths of nonresidents are not included in tables by place of residence.

Deaths by place of occurrence, on the other hand, include deaths of both residents and nonresidents of the United States. Consequently, for each year beginning with 1970, the total number of deaths in the United States by place of occurrence was somewhat greater than the total by place of residence. For 1994 this difference amounted to 3,295 deaths.

Before 1970 except for 1964 and 1965, deaths of nonresidents of the United States occurring in the United States were treated as deaths of residents of the exact place of occurrence, which in most instances was an urban area. In 1964 and 1965, deaths of nonresidents of the United States occurring in the United States were allocated as deaths of residents of the balance of the county in which they occurred.

Residence error--Results of a 1960 study showed that the classification of residence information on the death certificates corresponded closely to the residence classification of the census records for the decedents whose records were matched (5).

A comparison of the results of this study of deaths with those for a previous matched record study of births (6) showed that the quality of residence data had improved considerably between 1950 and 1960. Both studies found that events in urban areas were overstated by the NCHS classification in comparison with the U.S. Bureau of the Census classification. The magnitude of the difference was substantially less for deaths in 1960 than it was for births in 1950.

The improvement is attributed to an item added in 1956 to the U.S. Standard Certificates of Birth and of Death, asking whether residence was inside or outside city limits. This new item aided in properly allocating the residence of persons living near cities but outside the corporate limits. Although this may have improved the quality of data, accurate determination of place of residence appears to be a continuing problem.

Geographic classification

The rules followed in the classification of geographic areas for deaths and fetal deaths are contained in the two instruction manuals referred to previously (3,4). The geographic codes assigned by NCHS on birth, death, and fetal-death records are given in another instruction manual (7). Beginning with 1994 data, the geographic codes were modified to reflect results of the 1990 census. For 1982-93 codes are based on the results of the 1980 census and for 1970-81 on the 1970 census.

Metropolitan statistical areas--The Metropolitan statistical areas (MSA's) and Primary metropolitan statistical areas (PMSA's) are those established by the U.S. Office of Management and Budget as of April 1, 1990, and used by the U.S. Bureau of the Census (8), except in the New England States.

Outside the New England States, an MSA has either a city with a population of at least 50,000 or a U.S. Bureau of the Census urbanized area of at least 50,000 and a total MSA population of at least 100,000. A PMSA consists of a large urbanized county or cluster of counties that demonstrate very strong internal economic and social links and has a population over one million. When PMSA's are defined, the larger area of which they are component parts is designated a Consolidated Metropolitan Statistical Area (CMSA) (9).

In the New England States, the U.S. Office of Management and Budget uses towns and cities rather than counties as geographic components of MSA's and PMSA's. However, NCHS cannot use this classification for these States because its data are not coded to identify all towns. Instead, NCHS uses New England County Metropolitan Areas (NECMA's). Made up of county units, these areas are established by the U.S. Office of Management and Budget (10).

Metropolitan and nonmetropolitan counties--Independent cities and counties included in MSA's and PMSA's or in NECMA's are included in data for metropolitan counties; all other counties are classified as nonmetropolitan.

Population-size groups--In 1994 vital statistics data for cities and certain other urban places were classified according to the population enumerated in the 1990 Census of Population. Data are available for individual cities and other urban places of 10,000 or more population. As a result of changes in the enumerated population between 1980 and 1990, some urban places are no longer identified separately and other urban places have been added. Data for the remaining areas not separately identified appear under the heading “balance of area” or “balance of county.” For the years 1982-93 classification of areas was determined by the population enumerated in the 1980 Census of Population and for the years 1970-81 in the 1970 Census of Population.

Urban places other than incorporated cities include the following:

- Each town in New England, New York, and Wisconsin and each township in Michigan, New Jersey, and Pennsylvania that had no incorporated municipality as a subdivision and had either 25,000 inhabitants or more, or a population of 10,000 to 25,000 and a density of 1,000 persons or more per square mile.
- Each county in States other than those indicated above that had no incorporated municipality within its boundary and had a density of 1,000 persons or more per square mile. (Arlington County, Virginia, is the only county classified as urban under this rule.)
- Each place in Hawaii with a population of 10,000 or more. (There are no incorporated cities in the State.)

Before 1964 places were classified as “urban” or “rural.” Technical appendixes for earlier years discuss the previous classification system.

State or country of birth

Mortality statistics by State or country of birth became available beginning with 1979. State or country of birth of a decedent is assigned to 1 of the 50 States or the District of Columbia; or to Puerto Rico, the Virgin Islands, or Guam--if specified on the death certificate. The place of birth is also tabulated for Canada, Cuba, Mexico, and for the remainder of the world. Deaths for which information on State or country of birth was unknown, not stated, or not classifiable accounted for a small proportion of all deaths in 1994, about 0.6 percent.

Early mortality reports published by the U.S. Bureau of the Census contained tables showing nativity of parents as well as nativity of decedent. Publication of these tables was discontinued in 1933. Mortality data showing nativity of decedent were again published in annual reports for 1939-41 and for 1950.

Age

The age recorded on the death record is the age at last birthday, the same as the age classification used by the U.S. Bureau of the Census. For 1994 data, 414 resident death records (0.02 percent) contained not-stated age. For computation of age-specific and age-adjusted death rates, deaths with age not stated are excluded. For life table computation, deaths with age not stated are distributed proportionately.

Race

For vital statistics in the United States in 1994, deaths are classified by race--white, black, American Indian, Chinese, Hawaiian, Japanese, Filipino, and Other Asian or Pacific Islander. Beginning with 1992 data, an expanded code structure was used for seven States showing five additional Asian or Pacific Islander groups. These groups are Asian Indian, Korean, Samoan, Vietnamese, and Guamanian. These groups are coded only for deaths occurring in California, Hawaii, Illinois, New Jersey, New York, Texas, and Washington. In 1990, at least two-thirds of the U.S. population of each of these groups lived in this seven-State reporting area: Asian Indian, Korean, and Vietnamese, 63-66 percent; Guamanian, 74 percent; and Samoan, 84 percent (11). This additional race detail is available on the mortality public-use data tapes (12,13) and in tabular form. Beginning with 1992 data, all records coded as “other races” (0.01 percent of the total deaths in 1994) were assigned to the specified race of the previous record rather than to a separate category called “other races.” Mortality data for Filipino and Other Asian or Pacific Islander were shown for the first time in 1979.

The white category includes, in addition to persons reported as white, those reported in the race item on the death certificate as Hispanic, Mexican, Puerto Rican, Cuban, and all other Caucasians. The American Indian category includes North, Central, and South American Indian, Eskimo, and Aleut. If the racial entry on the death certificate indicates a mixture of Hawaiian and any other race, the entry is coded to Hawaiian. If the race is given as a mixture of white and any other race, the entry is coded to the appropriate nonwhite race. If a mixture of races other than white is given (except Hawaiian), the entry is coded to the first race listed. This procedure for coding the first race listed has been used since 1969. Before 1969 if the entry for race was a mixture of black and any other race except Hawaiian, the entry was coded to black.

Race not stated--For 1994 the number of death records for which race was unknown, not stated, or not classifiable was 2,319 or 0.1 percent of the total deaths. Beginning in 1992 death records with race not stated were assigned to the specified race of the previous record with known race. From 1965 to 1991 death records with race entry not stated were assigned to a racial designation as follows: If the preceding record was coded white, the code assignment was made to white; if the code was other than white, the assignment was made to black. Before 1964 all records with race not stated were assigned to white except records of residents of New Jersey for 1962-64.

New Jersey, 1962-64--New Jersey omitted the race item from its certificates of live birth, death, and fetal death in the beginning of 1962. The item was restored during the latter part of 1962. However, the certificate revision without the race item was used for most of 1962 as well as 1963. Therefore, figures by race for 1962 and 1963 exclude New Jersey. For 1964, 6.8 percent of the death records used for residents of New Jersey did not contain the race item.

Adjustments made in vital statistics to account for the omission of the race item in New Jersey for part of the certificates filed during 1962-64 are described in the Technical Appendix of *Vital Statistics of the United States* for each of those data years.

Quality of race data--A number of studies have been conducted on the reliability of race reported on the death certificate. These studies compare race reported on the death certificate with that reported on another data collection instrument such as the census or a survey. Race information on the death certificate is reported by the funeral director as provided by an informant, often the surviving next of kin, or, in the absence of an informant, on the basis of observation. In contrast, race on the census or the Current Population Survey (CPS) is self-reported and, therefore, may be considered more valid. A high level of agreement between the death certificate and the census or survey report is essential to ensure unbiased death rates by race.

In one study a sample of approximately 340,000 death certificates was compared with census records for a 4-month period in 1960 (14). Percent agreement was 99.8 percent for white decedents, and 98.2 percent for black decedents; but less for the smaller minority groups (table A). In another study 29,713 death certificates were compared with responses to the race questions from a total of 12 CPS's conducted by the U.S. Bureau of the Census for the years 1979-85 (15). In this study, entitled the National Longitudinal Mortality Study, agreement for white decedents was 99.2 and for black decedents, 98.2; agreement was less for the smaller race groups. In 1986 the National Mortality Followback Survey, conducted by NCHS, listed a question about the race of decedents 25 years old and over. The total sample was 18,733 decedents (16). The rates of agreement were similar to those observed in the other studies.

All of these studies show that persons self-reported as American Indian or Asian on census and survey records (and by informants in the Followback Survey) were sometimes reported as white on the death certificate. The net effect of misclassification is an underestimation of deaths and death rates for the smaller minority races.

Hispanic origin

Mortality statistics for the Hispanic-origin population are based on information for those States and the District of Columbia that included items on the death certificate to identify Hispanic or ethnic origin of decedents. Data for 1994 were obtained from the District of Columbia and all States except Oklahoma, which was excluded because its death certificate did not include an item to identify Hispanic or ethnic origin.

Hispanic mortality data were published for the first time in 1984. Generally, the reporting States used items similar to one of two basic formats recommended by NCHS. The first format is directed specifically toward the Hispanic population and appears on the U.S. Standard Certificate of Death as follows:

- Was decedent of Hispanic origin?
  (Specify No or Yes--If Yes, specify Cuban, Mexican, Puerto Rican, etc.)
  ____ No ____ Yes
  Specify:

The second format is a more general ancestry item and appears as follows:

- Ancestry--Mexican, Puerto Rican, Cuban, African, English, Irish, German, Hmong, etc., (specify)

Death rates --Death rates for the total Hispanic population, selected Hispanic subgroups, and race for non-Hispanic origin utilize demographically-derived population estimates produced by the Bureau of the Census (17, 18). By comparison, population estimates for Mexicans, Puerto Ricans, Cubans, and Other Hispanics are based in part on the Current Population Survey. Rates using the latter, therefore, are subject to sampling variation as well as random variation (see "Random variation and sampling errors").

The 49 States and the District of Columbia accounted for about 99.6 percent of the Hispanic population in the United States in 1990. This included about 99.5 percent of the Mexican population, 99.8 percent of the Puerto Rican population, 99.9 percent of the Cuban population, and 99.7 percent of the "Other Hispanic" population (11). For qualifications regarding infant mortality of the Hispanic-origin population, see "Infant deaths."

In 1994 New York City instituted the use of a revised death certificate where the race and ethnic items were to be completed by the funeral director. Previously these items were completed by the physician or medical examiner. In 1994, of the 71022 deaths occurring in New York City, only 4 percent were coded to Unknown origin whereas 23 percent were coded to Unknown origin in 1993. Between 1993 and 1994 the number of deaths occurring in New York City decreased 69 percent for Other and unknown Hispanic and 83 percent for Unknown origin. As a result of increased specificity in reporting ethnic origin, the number of deaths increased substantially in 1994 for Non-Hispanic and for each of the specified Hispanic subgroups.

Quality of data on Hispanic origin--A study (15) examined the reliability of Hispanic origin reported on 43,520 death certificates with that reported on a total of 12 CPS's conducted by the U.S. Bureau of the Census for the years 1979-85. In this study, agreement was 89.7 percent for any report of Hispanic origin. The ratio of deaths for CPS divided by deaths for death certificate was 1.07 percent indicating net underreporting of Hispanic origin on death certificates as compared with self-reports on the surveys. The sample was too small to assess the reliability of specified Hispanic groups.

Marital status

Mortality statistics by marital status have been published annually since 1979. They were previously published in the annual volumes for 1949-51 and 1959-61. Several reports analyzing mortality by marital status have been published, including the special study based on 1959-61 data (19). Reference to earlier reports is given in the appendix of part B of the 1959-61 special study.

Mortality statistics by marital status are tabulated separately for never married, married, widowed, and divorced. Certificates on which the marriage is specified as being annulled are classified as never married. Where marital status is specified as separated or common-law marriage, it is classified as married. Of the 2,231,606 resident deaths 15 years of age and over in 1994, 9,555 certificates (0.4 percent) had marital status not stated.

Death rates -- Death rates for marital status use population estimates produced by the Bureau of the Census based on the Current Population Survey (18). Because these population estimates are subject to sampling variation, death rates based on them are subject to both sampling variation as well as random variation (see "Random variation and sampling errors").

Educational attainment

Beginning with the 1989 data year, mortality data on educational attainment have been tabulated from information reported on the death certificate. As a result of the revisions of the U.S. Standard Certificate of Death (1), this item was added to the certificates of a large number of States:

- Decedent's Education (Specify only highest grade completed)
  Elementary/Secondary (0-12)
  College (1-4 or 5+)

Mortality data on educational attainment for 1994 were reported by 46 States and the District of Columbia. Georgia, Oklahoma, Rhode Island, and South Dakota did not include an educational attainment item on their death certificate.

Selected mortality tables on educational attainment are based on deaths to residents of 45 States and the District of Columbia whose data were approximately 80 percent or more complete on a place-of- occurrence basis. In addition to the four States mentioned previously, data for Kentucky are excluded from these tables because more than 20 percent of their death certificates were classified to "unknown educational attainment." Data for New York City are excluded because the education item on its death certificate provided only grouped educational attainment data, and did not provide the level of detail of educational attainment in single years of age needed by NCHS.

Place of death and status of decedent

Mortality statistics by type of place of death have been shown annually in *Vital Statistics of the United States* since 1979. Before that year they were published in 1958 (tables 1-30--1-32). In addition, mortality data also were available for the first time in 1979 for the status of decedent when death occurred in a hospital or medical center. The 1994 data were obtained from the following two items appearing on the revised U.S. Standard Certificate of Death (1):

- Item 9a. Place of Death (check only one)
  Hospital: Inpatient
  ER/Outpatient
  DOA
  Other: Nursing Home
  Residence
  Other (specify)

- Item 9b. Facility Name (If not institution, give street and number)

Before the 1989 revision of the Standard Certificate of Death, information on place of death and status of decedent could be determined if hospital or institution indicated Inpatient, Outpatient, ER, or DOA, and if the

name of the hospital or institution, which was used to determine the kind of facility, appeared on the certificate. The change to a checkbox format in many States for this item may affect the comparability of data for 1989 and subsequent years with data for years before 1989.

Except for Oklahoma, all of the States (including New York City) and the District of Columbia have item 9 (or its equivalent) on their certificates. For all reporting States and the District of Columbia in the VSCP, NCHS accepts the State definition, classification, or code for hospitals, medical centers, nursing homes, or other institutions.

Effective with data for 1980, the coding of place of death and status of decedent was modified. A new coding category was added: "Dead on arrival--hospital, clinic, or medical center." Had the 1979 coding categories been used, these deaths would have been coded to "Place unknown."

California--For the first 5 months of data year 1989, California coded "residence" to "other" for "Place of death."

Mortality by month and date of death

Deaths by month have been tabulated regularly and are available for each year since 1900. Deaths from selected causes by date of death have been published each year since 1972 and are available for 1962.

Numbers of deaths by date of death are produced for the total number of deaths and for the numbers of deaths for the following three causes, for which the greatest interest in date of occurrence of death has been expressed: Motor vehicle accidents, Suicide, and Homicide and legal intervention.

These data show the frequency distribution of deaths for the selected causes by day of week. They also make it possible to identify holidays with peak numbers of deaths from specified causes.

Report of autopsy

Before 1972 the last year for which autopsy data were tabulated was 1958. Beginning in 1972 all registration areas requested information on the death certificate as to whether an autopsy was performed. For 1994 autopsies were reported on 213,879 death certificates, 9.4 percent of the total.

Cause of death

Cause-of-death classification--Since 1949 cause-of-death statistics have been based on the underlying cause of death, which is defined as "(a) the disease or injury which initiated the train of events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury" (20).

For each death the underlying cause is selected from an array of conditions reported in the medical certification section on the death certificate. This section provides a format for entering the cause of death sequentially. The conditions are translated into medical codes through use of the classification structure and the selection and modification rules contained in the applicable revision of the *International Classification of Diseases* (ICD), published by the World Health Organization (WHO). Selection rules provide guidance for systematically identifying the underlying cause of death. Modification rules are intended to improve the usefulness of mortality statistics by giving preference to certain classification categories over others and/or to consolidate two conditions or more on the certificate into one classification category.

As a statistical datum, underlying cause of death is a simple, one-dimensional statistic; it is conceptually easy to understand and a well-accepted measure of mortality. It identifies the initiating cause of death and is therefore most useful to public health officials in developing measures to prevent the onset of the chain of events leading to death. The rules for selecting the underlying cause of death are included in ICD as a means of

standardizing classification, which contributes toward comparability and uniformity in mortality medical statistics among countries.

Tabulation lists--Beginning with data year 1979, the cause-of-death statistics published by NCHS have been classified according to the Ninth Revision of the *International Classification of Diseases* (ICD-9) (20). In addition to specifying that ICD-9 be used, WHO also recommends how the data should be tabulated to promote international comparability. The recommended system for tabulating data in ICD-9 allows countries to construct their mortality and morbidity tabulation lists from the rubrics of the WHO Basic Tabulation List (BTL) if the rubrics from the WHO mortality and morbidity lists, respectively, are included. This tabulation system for the Ninth Revision is more flexible than that of the Eighth Revision, in which specific lists were recommended for tabulating mortality and morbidity data.

The BTL recommended under the Ninth Revision consists of 57 two-digit rubrics that when added equal the "all causes" total. Identified within each two-digit rubric are up to nine three-digit rubrics that are numbered from zero to eight and whose total does not equal the two-digit rubric. The two-digit BTL rubrics 01-46 are used for the tabulation of nonviolent deaths according to ICD categories 001-799. Rubrics relating to chapter 17 (nature-of-injury causes 47-56) are not used by NCHS for selecting underlying cause of death; rather, preference is given to rubrics E47-E56. The 57th two-digit rubric (VO) is the Supplementary Classification of Factors Influencing Health Status and Contact with Health Services and is not appropriate for the tabulation of mortality data. The WHO Mortality List, a subset of the titles contained in the BTL, consists of 50 rubrics that are the minimum necessary for the national display of mortality data.

Five lists of causes have been developed for tabulation and publication of mortality data--the Each-Cause List, List of 282 Selected Causes of Death, List of 72 Selected Causes of Death, List of 61 Selected Causes of Infant Death, and List of 34 Selected Causes of Death. These lists were designed to be as comparable as possible with the NCHS lists used under the Eighth Revision. However, complete comparability could not always be achieved.

The Each-Cause List is made up of each three-digit category of the WHO Detailed List to which deaths may be validly assigned and most four-digit subcategories. This list is used for the tabulation of data for the entire United States. The Each-Cause table in *Vital Statistics of the United States* does not show the four-digit or special five-digit subcategories provided for Motor vehicle accidents (E810-E825). The four-digit subcategories that identify persons injured and the five-digit subcategories that identify place of accident for deaths from nontransport accidents are tabulated separately.

The List of 282 Selected Causes of Death is constructed from BTL rubrics 01-46 and E47-E56. Each of the 56 BTL two-digit titles can be obtained either directly or by combining titles in the List. The three-digit level of the BTL is modified more extensively. Where more detail was desired, categories not shown in the three-digit rubrics were added to the List of 282 Selected Causes of Death. Where less detail was needed, the three-digit rubrics were combined. Moreover, each of the 50 rubrics of the WHO Mortality List can be obtained from the List of 282 Selected Causes of Death. This list is used for tabulating both State and national mortality data.

The List of 72 Selected Causes of Death was, in part, constructed by combining titles in the List of 282 Selected Causes of Death. It is used in tabulating data for the entire United States and each State and for Metropolitan statistical areas and for ranking leading causes of death excluding infants. (See "Cause-of-death ranking".)

The List of 61 Selected Causes of Infant Death shows more detailed titles for Congenital anomalies and Certain conditions originating in the perinatal period than any other list except the Each-Cause List, and is used for ranking infant causes of death. (See "Cause-of-death ranking".)

The List of 34 Selected Causes of Death was created by combining titles in the List of 72 Selected Causes. This list is used for tabulating data by detailed geographic area.

Beginning with data for 1987, changes were made in these lists to accommodate the introduction in the United States of new categories *042-*044 for Human immunodeficiency virus (HIV) infection. The changes are described in the Technical Appendix from *Vital Statistics of the United States*, 1987. To facilitate data use,

beginning with data for 1994, the categories for HIV infection (*042-*044) and Alzheimer's disease (ICD-9 No. 331.0) are included separately at the bottom of tables showing the List of 72 Selected Causes of Death and the List of 282 Selected Causes of Death. They are also inclusions in the body of each table.

Effect of list revisions--The International Lists, or adaptations of them, used in the United States since 1900, have been revised approximately every 10 years so the disease classifications may be consistent with advances in medical science and with changes in diagnostic practice. Each revision of the International Lists has produced some break in comparability of cause-of-death statistics. Cause-of-death statistics beginning with 1979 are classified by NCHS according to ICD-9 (20). For a discussion of each of the classifications used with death statistics since 1900, see *Vital Statistics of the United States*, 1979, Volume II, Mortality, Part A, section 7, pages 9-14.

A dual coding study was undertaken in which the Ninth and the Eighth Revisions were compared to measure the extent of discontinuity in cause-of-death statistics resulting from introducing the new revision. A study for the List of 72 Selected Causes of Death and the List of 10 Selected Causes of Infant Death has been published (21). The List of 10 Selected Causes of Infant Death is a basic NCHS tabulation list used for provisional data in the *Monthly Vital Statistics Report*, another NCHS publication. Comparability studies were also undertaken between the Eighth and Seventh, Seventh and Sixth, and Sixth and Fifth Revisions. For additional information about these studies, see the Technical Appendix from *Vital Statistics of the United States*, 1979.

Significant coding changes under the Ninth Revision--Since the implementation of ICD-9 in the United States, effective with mortality data for 1979, several coding changes have been introduced. The more important changes are discussed as follows: In early 1983 a change that affected data from 1981 to 1986 was made in the coding of Acquired immunodeficiency syndrome and HIV infection. Also effective with data year 1981 was a coding change for Poliomyelitis. For data year 1982, the definition of child was changed (which affects the classification of deaths to a number of categories, including Child battering and other maltreatment), and guidelines for coding deaths to the category Child battering and other maltreatment (ICD-9 No. E967) were changed also. During the calendar year 1985, detailed instructions for coding Motor vehicle accidents involving all-terrain vehicles were implemented to ensure consistency in coding these accidents. Effective with data year 1986, "Primary" and "Invasive" tumors, unspecified, were classified as "Malignant"; these neoplasms had been classified to Neoplasms of unspecified nature (ICD-9 No. 239).

Beginning with data for 1987, NCHS introduced new category numbers *042-*044 for classifying and coding HIV infection, formerly referred to as Human T-cell lymphotropic virus-III/lymphadenopathy associated virus (HTLV-III/LAV) infection. The asterisks appearing before the categories indicate these codes are not part of ICD-9. Also changed effective with data year 1987 were coding rules for the conditions "Dehydration" and "Disseminated intravascular coagulopathy." Effective with data year 1988, minor content changes were made to the classification for HIV infection. Detailed discussion of these changes may be found in the Technical Appendix from *Vital Statistics of the United States*, 1988.

Coding in 1994--The rules and instructions used in coding 1994 mortality medical data remained essentially the same as those used for the 1993 data.

Medical certification--The use of a standard classification list, although essential for State, regional, and international comparison, does not ensure strict comparability of the tabulated figures. A high degree of comparability among areas could be attained only if all records of cause of death were reported with equal accuracy and completeness. The medical certification of cause of death can be made only by a qualified person, usually a physician, a medical examiner, or a coroner. Therefore, the reliability and accuracy of cause-of-death statistics are, to a large extent, governed by the ability of the certifier to make the proper diagnosis and by the care with which he or she records this information on the death certificate.

A number of studies have been undertaken on the quality of medical certification on the death certificate. In general, these have been for relatively small samples and for limited geographic areas. A bibliography prepared by NCHS (22), covering 128 references over 23 years, indicates no definitive conclusions have been reached about

the quality of medical certification on the death certificate. No country has a well-defined program for systematically assessing the quality of medical certifications reported on death certificates or for measuring the error effects on the levels and trends of cause-of-death statistics.

One index of the quality of reporting causes of death is the proportion of death certificates coded to the Ninth Revision, Chapter XVI, Symptoms, signs, and ill-defined conditions (ICD-9 Nos. 780-799). Although deaths occur for which it is impossible to determine the underlying cause, this proportion indicates the care and consideration given to the certification by the medical certifier. This proportion also may be used as a rough measure of the specificity of the medical diagnoses made by the certifier in various areas. In 1994, 1.1 percent of all reported deaths in the United States were assigned to this category. The percent of deaths assigned to this category remained stable at 1.5 percent from 1981 to 1987, but has declined slightly since then.

Automated selection of underlying cause of death--Before data for 1968, mortality medical data were based on manual coding of an underlying cause of death for each certificate in accordance with WHO rules. Effective with data year 1968, NCHS converted to computerized coding of the underlying cause and manual coding of all causes (multiple causes) on the death certificate. In this system, called Automated Classification of Medical Entities (ACME) (23), the multiple cause codes serve as inputs to the computer software that employs WHO rules to select the underlying cause. Many States also have implemented ACME and provide multiple cause and underlying cause data to NCHS in electronic form.

The ACME system applies the same rules for selecting the underlying cause as would be applied manually by a nosologist; however, under this system, the computer consistently applies the same criteria, thus eliminating intercoder variation in this step of the process.

The ACME computer program requires the coding of all conditions shown on the medical certification. These codes are matched automatically against decision tables that consistently select the underlying cause of death for each record according to the international rules. The decision tables provide the comprehensive relationships among the conditions classified by ICD when applying the rules of selection and modification.

The decision tables were developed by NCHS staff on the basis of their experience in coding underlying causes of death under the earlier manual coding system and as a result of periodic independent validations. These tables periodically are updated to reflect additional new information on the relationship among medical conditions. For data year 1988, these tables were amended to incorporate minor changes to the previously mentioned classification for HIV infection (*042-*044) that originally had been implemented with data year 1987. Coding procedures for selecting the underlying cause of death by using the ACME computer program, as well as by using the ACME decision tables, are documented in NCHS instruction manuals (23,24,25).

Beginning with data year 1990, another computer system was implemented for automating cause-of-death coding. This system, called Mortality Medical Indexing, Classification, and Retrieval (MICAR) (26,27), automates coding multiple causes of death. Because MICAR automates multiple-cause coding rules, errors in recognizing terms, applying coding rules, and using the ICD index are eliminated. The use of the MICAR system ensures consistent application of multiple-cause coding rules, which is especially important for rules that are complex and infrequently applied. In addition, MICAR ultimately will provide more detailed information on the conditions reported on death certificates than is available through the ICD category structure (28). In the first year of implementation, only about 5 percent (94,372) of the Nation's death records were coded using MICAR with subsequent processing through ACME. This percentage increased from 26 percent in 1991 to 35 percent in 1992, 59 percent in 1993, and 72 percent in 1994. States whose data were coded by MICAR in 1994 included Alabama, Arizona, Arkansas, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York (excluding New York City), New York City, North Carolina, Ohio, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, and Wisconsin. For these States, MICAR processed about 88 percent of the mortality records with an average system error rate of 0.33 on an underlying

cause basis, and a rate of 0.58 on a multiple-cause basis. Records that MICAR was unable to process were coded manually and then processed using ACME.

Beginning with data year 1993, another computer system was implemented for automating cause-of-death coding. This system, called SuperMICAR, is an enhancement of the MICAR system, which allows for total literal entry of the multiple cause-of-death text as reported by the certifier. This information is automatically coded by the MICAR and ACME computer systems. In the first year of implementation, about 9 percent of the Nation's death records were coded using SuperMICAR with subsequent processing through MICAR and ACME. This percentage increased from 9 percent in 1993 to 12 percent in 1994. States using SuperMICAR in 1994 included Colorado, Connecticut, Hawaii, Idaho, Michigan, Minnesota, Oklahoma, Oregon, Rhode Island, and South Carolina. In 1994, for these States, SuperMICAR processed about 75 percent of the mortality records with an average system error rate of 0.50 on an underlying cause basis, and a rate of 1.03 on a multiple-cause basis. Records that SuperMICAR was unable to process were coded manually and then processed using ACME.

Cause-of-death ranking--Cause-of-death ranking except for infants is based on numbers of deaths assigned to categories in the List of 72 Selected Causes of Death, Human immunodeficiency virus infection (*042-*044), and Alzheimer's disease (ICD-9 No. 331.0). Added to the list of rankable causes was HIV infection, effective with data year 1987 and Alzheimer's disease, effective with data year 1994. Cause-of-death ranking for infants is based on the List of 61 Selected Causes of Infant Death and HIV infection (added to the list of rankable causes of infant death effective with data year 1987).

The group titles Major cardiovascular diseases and Symptoms, signs, and ill-defined conditions from the List of 72 Selected Causes of Death are not ranked; Certain conditions originating in the perinatal period and Symptoms, signs, and ill-defined conditions from the List of 61 Selected Causes of Infant Death are not ranked. In addition, category titles beginning with the words "Other" or "All other" are not ranked to determine the leading causes of death. When one of the titles representing a subtotal is ranked (such as Tuberculosis), its component parts (in this case, Tuberculosis of respiratory system and Other tuberculosis) are not ranked.

Maternal deaths

Maternal deaths are those for which the certifying physician has designated a maternal condition as the underlying cause of death. Maternal conditions are those assigned to Complications of pregnancy, childbirth, and the puerperium (ICD-9 Nos. 630-676). In the Ninth Revision, WHO for the first time defined a maternal death as follows:

> A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Under the Eighth Revision, maternal deaths were assigned to the category "Complications of pregnancy, childbirth, and the puerperium" (*Eighth Revision International Classification of Diseases, Adapted for Use in the United States* (ICDA-8) Nos. 630-678). Although WHO did not define maternal mortality, an NCHS classification rule existed that limited the definition of a maternal death to a death that occurred within a year after termination of pregnancy from any "maternal cause," that is, any cause within the range of ICDA-8 Nos. 630-678. This rule applied only if a duration was given for the condition. If no duration was specified and the underlying cause of death was a maternal condition, the duration was assumed to be within a year and the death was coded by NCHS as a maternal death. The change from an under-1-year limitation for duration used in the Eighth Revision to an under-42-days limitation used in the Ninth Revision did not have much effect on the comparability of maternal mortality statistics. However, comparability was affected by the following classification change: Under the Ninth

Revision, maternal causes of death have been expanded to include Indirect obstetric causes (ICD-9 Nos. 647-648). These causes include Infective and parasitic conditions as well as other conditions present in the mother and classifiable elsewhere but that complicate pregnancy, childbirth, and the puerperium, such as Syphilis, Tuberculosis, Diabetes mellitus, Drug dependence, and Congenital cardiovascular disorders.

Maternal mortality rates are computed on the basis of the number of live births. The maternal mortality rate indicates the likelihood of a pregnant woman dying of maternal causes. The number of live births used in the denominator is an approximation of the population of pregnant women who are at risk of a maternal death.

Race--Beginning with the 1989 data year, NCHS changed the method of tabulating live birth and fetal death data by race from race of parents to race of mother. This resulted in a discontinuity in maternal mortality rates by race between 1989-94 and previous years; see "Change in tabulation of race data for live births and fetal deaths," under "Infant deaths" in the Technical Appendix from *Vital Statistics of the United States*, 1990, or the series report, "Effect on Mortality Rates of the 1989 Change in Tabulating Race" (29).

Infant deaths

Age--Infant death is defined as a death under 1 year of age. The term excludes fetal deaths. Infant deaths usually are divided into two categories according to age, neonatal and postneonatal. Neonatal deaths are those that occur during the first 27 days of life; postneonatal deaths are those that occur between 28 days and 1 year of age. Generally, it has been believed that different factors influencing the child's survival predominate in these two periods: Factors associated with prenatal development, heredity, and the birth process were considered dominant in the neonatal period; environmental factors, such as nutrition, hygiene, and accidents, were considered more important in the postneonatal period. Recently, however, the distinction between these two periods has blurred due in part to advances in neonatology, which have enabled more very small premature infants to survive the neonatal period.

Rates--Infant mortality rates are the most commonly-used indices for measuring the risk of dying during the first year of life; they are calculated by dividing the number of infant deaths in a calendar year by the number of live births registered for the same period and are presented as rates per 1,000 or per 100,000 live births. Infant mortality rates use the number of live births in the denominator to approximate the population at risk of dying before the first birthday. This measure is an approximation because some live births will not have been exposed to a full year's risk of dying and some of the infants who die during a year will have been born in the previous year. The error introduced in the infant mortality rate by this inexactness is usually small, especially when the birth rate is relatively constant from year to year (30,31). Other sources of error in the infant mortality rate have been attributed to differences in applying the definitions for infant death and fetal death when registering the event (32,33,34).

In contrast to infant mortality rates based on live births, infant death rates are based on the estimated population under 1 year of age. Infant death rates, which appear in tabulations of age-specific death rates, are calculated by dividing the number of infant deaths in a calendar year by the estimated midyear population of persons under 1 year of age and are presented as rates per 100,000 population in this age group. Patterns and trends in the infant death rate may differ somewhat from those of the more commonly used "infant mortality rate," mainly because of differences in the nature of the denominator and in the time reference. Whereas the population denominator for the infant death rate is estimated using data on births, infant deaths, and migration for the 12-month period of July-June, the denominator for the infant mortality rate is a count of births occurring during the 12 months of January-December. The difference in the time reference can result in different trends between the two indices during periods when birth rates are moving up or down markedly.

The infant death rate also is subject to greater imprecision than is the infant mortality rate because of problems of enumerating and estimating the population under 1 year of age (33).

Change in tabulation of race data for live births and fetal deaths--Beginning with the 1989 data year, NCHS changed the method of tabulating live-birth and fetal-death data by race from race of parents to race of mother. As in previous years, race for infant and maternal deaths (the numerator of the rate) is tabulated by the race of the decedent. Because live births comprise the denominator of infant and maternal mortality rates, this change resulted in a discontinuity in rates between 1989-94 data, and that for previous years. For fetal and perinatal mortality rates, the numerator and the denominator of the rates are affected, resulting in a slightly smaller discontinuity. For additional information, see the Technical Appendix from *Vital Statistics of the United States*, 1990, or the series report, "Effect on Mortality Rates of the 1989 Change in Tabulating Race" (29).

Comparison of race data from birth and death certificates--Regardless of whether vital events are tabulated by race of mother or by race of parents, studies in which race on the birth and death certificates for the same infant were compared find inconsistencies in reporting race between birth and death certificates (35).

These reporting inconsistencies can result in systematic biases in infant mortality rates by specified race, in particular, underestimates for specified races other than white or black. In the computation of race-specific infant mortality rates, the race item for the numerator comes from the death certificate, and for the denominator, from the birth certificate. Biases in the rates may arise because of possible inconsistencies in reporting race on these two vital records. Race of the mother and father is reported on the birth certificate by the mother at the time of delivery; whereas race of the deceased infant is reported on the death certificate by the funeral director based on observation or on information supplied by an informant, such as a parent. Previous studies have noted the race for an infant who died and was of a smaller minority race group is sometimes reported as white on the death certificate but is reported as the minority race group on the birth certificate, resulting, in the aggregate, in understatement of infant mortality for smaller race groups (35).

Estimates can be made of the degree of bias in race-specific infant mortality rates by comparing rates for birth cohorts based on the linked birth and infant death data set (36,37) with period rates based on mortality data for the same year(s). The period rates are unlinked because the infant death certificates have not been linked to the corresponding birth certificates.

The comparison of linked and unlinked rates is somewhat affected by small differences in the events included in the numerators of the two rates. The numerator of the linked rate is comprised of infant deaths to the cohort of infants born in a calendar year whereas the numerator of the unlinked rate is comprised of infant deaths occurring in the calendar year.

Based on data comparing infant mortality rates from the linked data set for the birth cohorts of 1989-91 with unlinked rates for the period 1989-91, bias in the rates for the two major race groups--white and black--is small (table B). However, linked rates for the smaller race groups are estimated to be higher than unlinked rates by 2 to 56 percent.

The exception to this pattern is for Hawaiians, where linked rates are 17 percent lower than unlinked rates. This may reflect the slightly different race coding rules used for Hawaiians than those used for other races (see "Race" under "Classification of data"). For mortality data, in cases of mixed Hawaiian and other race parentage, race is always classified as "Hawaiian." In contrast, the race data from the birth certificate is classified according to the race of the mother. The race data from the birth certificate is used in the denominator of the unlinked infant mortality rates, and in the numerator and denominator of the linked infant mortality rates. This difference leads to slightly fewer infant deaths being classified as Hawaiian in the linked data, compared to the unlinked data. The linked infant mortality rate for Hawaiians is considered to be more accurate, because the numerator and denominator data come from the same data source and are coded in the same manner.

Cohort infant mortality rates from the linked file have not been adjusted to reflect the 2 to 3 percent of infant death records that were not linked to their corresponding birth records. Because of systematic underestimation of infant mortality rates based on unlinked data, the national linked files should be used to measure infant mortality for races other than black and white. For the white and black populations, unlinked data are a close approximation of the rates based on linked files.

Hispanic origin--Infant mortality rates for the Hispanic-origin population are based on numbers of resident infant deaths reported to be of Hispanic origin (see "Hispanic origin") and numbers of resident live births by Hispanic origin of mother for the 49 States and the District of Columbia. Data for Oklahoma were excluded, because Oklahoma did not include an item on Hispanic origin on its death certificate. In computing infant mortality rates, deaths and live births of unknown origin are not distributed among the specified Hispanic and non-Hispanic groups. Because the percent of infant deaths of unknown origin for 1994 was 1.3 percent and the percent of live births of unknown origin was 1.1 percent, infant mortality rates by specified Hispanic origin and race for non-Hispanic origin may be slightly underestimated.

Small numbers of infant deaths for specific Hispanic-origin groups can result in infant mortality rates subject to relatively large random variation (see "Random variation and sampling errors").

Tabulation list--Causes of death for infants are tabulated according to a list of causes that is different from the list of causes for the population of all ages, except for the Each Cause List. (See "Cause-of-death classification" under "Cause of death.")

Fetal deaths

In May 1950 WHO recommended the following definition of fetal death be adopted for international use:

> Death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles (38).

The term "fetal death" was defined on an all-inclusive basis to end confusion arising from the use of such terms as stillbirth, spontaneous abortion, and miscarriage.

Shortly thereafter, this definition was adopted by NCHS as the nationally recommended standard. All registration areas except Puerto Rico have definitions similar to the standard definition (39). Puerto Rico has no formal definition.

As another step toward increasing comparability of data on fetal deaths for different countries, WHO recommended that for statistical purposes fetal deaths be classified as early, intermediate, and late. These groups are defined as follows:

Less than 20 completed weeks of gestation
(early fetal deaths).....Group I
20 completed weeks of gestation but less than 28
(intermediate fetal deaths).....Group II
28 completed weeks of gestation and over
(late fetal deaths).....Group III
Gestation period not classifiable in groups I, II, and III.....Group IV

Group IV consists of fetal deaths with gestation not stated but presumed to be 20 weeks or more.

Until 1939 the nationally recommended procedure for registration of a fetal death required the filing of a live-birth certificate and a death certificate. In 1939 a separate Standard Certificate of Stillbirth (fetal death) was created to replace the former procedure. This was revised in 1949, 1956, 1968, 1978, and 1989. The 1989 U.S. Standard Report of Fetal Death is shown as figure 7-B.

The 1977 revision of the *Model State Vital Statistics Act and Model State Vital Statistics Regulations* (40) recommended spontaneous fetal deaths at a gestation of 20 weeks or more or a weight of 350 grams or more be reported and further be reported on separate forms. These should be considered legally required statistical reports rather than legal documents. The 1992 revision of the *Model State Vital Statistics Act and Regulations* (41) recommended all spontaneous fetal deaths weighing 350 grams or more, or if weight is unknown, fetal deaths of 20 completed weeks of gestation be reported.

Beginning with fetal deaths reported in 1970, procedures were implemented that attempted to separate reports of spontaneous fetal deaths from those of induced terminations of pregnancy. These procedures were implemented because the health implications of spontaneous fetal deaths are different from those of induced terminations of pregnancy. These procedures are still used.

Comparability and completeness of data--Registration area requirements for reporting fetal deaths vary. Most of the areas require reporting of fetal death at gestations of 20 weeks or more. Table C shows the minimum period of gestation required by each State to report a fetal death in 1994. Substantial evidence exists that indicates some fetal deaths for which reporting is required are not reported (42,43).

Underreporting of fetal deaths is most likely to occur in the earlier part of the required reporting period for each State (42). Thus, for States requiring reporting of all periods of gestation, fetal deaths occurring under 20 weeks of gestation are less completely reported; for States requiring reporting of fetal deaths of 20 weeks or more, fetal deaths occurring at 20-23 weeks are less completely reported. Thus, reporting of fetal deaths at 20-23 weeks of gestation may be more complete for those States that report fetal deaths at all periods of gestation than for others.

To maximize the comparability of data by year and by State, most of the tables on fetal deaths are based on fetal deaths occurring at gestations of 20 weeks or more. These tabulations also include fetal deaths for which gestation is not stated for those States requiring reporting at 20 weeks of gestation or more only. Beginning with 1969 fetal deaths of not stated gestation were excluded for States requiring reporting of all products of conception except for those with a stated birthweight of 500 grams or more. In 1994 this rule was applied to the following States: Georgia, Hawaii, New York (including New York City), Rhode Island, and Virginia. Each year there are exceptions to this procedure.

Delaware--Beginning in July 1992, Delaware changed its reporting requirements for spontaneous fetal deaths from 20 weeks of gestation or more to 350 grams or more (table C). If weight is unknown, all fetal deaths of 20 weeks of gestation or more should be reported.

Montana--Beginning in October 1991, Montana changed its reporting requirements for spontaneous fetal deaths from 20 weeks of gestation or more to 20 weeks of gestation or more or 500 grams (table C).

New York City--As a result of local efforts to improve reporting, a combined total of 10,470 additional 1990 and 1991 fetal death records were sent from New York City hospitals after the data files had been processed and tabulated. Most of these records are for fetal deaths under 20 weeks of gestation or not-stated gestation. Tables for 1991 may exclude the additional deaths.

Revised Report of Fetal Death for 1989--Beginning with data for 1989, new items were added to the U.S. Standard Report of Fetal Death, including Hispanic origin of the mother and father, medical and other risk factors of pregnancy, obstetric procedures, and method of delivery. In addition, questions on complications of labor and/or delivery and congenital anomalies of fetus were changed from an open-ended question to a checkbox format to ensure more complete reporting of information (44).

Interpretation of these data must include evaluation of the item completeness of reporting. The percent "not stated" is one measure of the quality of the data. Completeness of reporting varies among items and States. See table D for the percent of fetal death records on which specified items were not stated.

The tabulation of items is limited to those States whose reporting is sufficiently complete. For fetal deaths before data year 1991, data were published when a State had a response for the item on at least 20 percent of the records. Beginning in data year 1991, tabulations of prenatal care and educational attainment include only those

States with a response for that specific item on at least 80 percent of the fetal death records. For other tabulations of fetal death, item completion is high (table D) and no reporting criterion is used to exclude States.

Period of gestation--The period of gestation is the number of completed weeks elapsed between the first day of the last normal menstrual period (LMP) and the date of delivery. The first day of 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 LMP. Data on period of gestation are computed from information on "date of delivery" and "date last normal menses began." If "date last normal menses began" is not on the record or if the calculated gestation falls beyond a duration considered biologically plausible, the "Physician's estimate of gestation" is used.

To improve data quality, beginning with data for 1989, NCHS instituted a new computer edit to check for consistency between gestation and birthweight (45). Briefly, if LMP gestation is inconsistent with birthweight, and the physician's estimate is consistent, the physician's estimate is used; if both are inconsistent with birthweight but are consistent with each other, LMP gestation is used, and birthweight is assigned to unknown. When the period of gestation is reported in months on the report, it is allocated to gestational intervals in weeks as follows:

1-3 months to under 16 weeks
4 months to 16-19 weeks
5 months to 20-23 weeks
6 months to 24-27 weeks
7 months to 28-31 weeks
8 months to 32-35 weeks
9 months to 40 weeks
10 months and over to 43 weeks and over

All areas reported LMP in 1994, and all areas except California, Louisiana, Maryland, and Oklahoma reported physician's estimate of gestation.

Birthweight--Most of the 55 registration areas do not specify how weight should be given, that is, in pounds and ounces or in grams. In the tabulation and presentation of birthweight data, the metric system (grams) has been used to facilitate comparison with other data published in the United States and internationally. Birthweight specified in pounds and ounces is assigned the equivalent of the gram intervals, as follows:

Less than 350 grams = 0 lb 12 oz or less
350-499 grams = 0 lb 13 oz-1 lb 1 oz
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 14 oz-9 lb 14 oz
4,500-4,999 grams = 9 lb 15 oz-11 lb 0 oz
5,000 grams or more = 11 lb 1 oz or more

With the introduction of ICD-9, the birthweight classification intervals for perinatal mortality statistics were shifted downward by 1 gram as shown above. Previously, the intervals were, for example, 1,001-1,500, 1,501-2,000, and so forth. Beginning in 1989 NCHS instituted a consistency check between birthweight and gestation; see previous section on gestation.

Race--Beginning with data for 1989, NCHS changed the method of tabulating fetal death, perinatal, and live birth data by race from race of parents to race of mother. When the race of the mother is unknown, the mother is assigned the father's race; when information for both parents is missing, the race of the mother is assigned to the specific race of the mother of the preceding record with known race.

The change in tabulation of race has resulted in a discontinuity in fetal mortality rates by race for data year 1989-94 relative to previous years; see "Change in tabulation of race data for live births and fetal deaths," under "Infant deaths" or the series report, "Effect on Mortality Rates of the 1989 Change in Tabulating Race" (29).

Hispanic origin of mother--Fetal mortality data for the Hispanic-origin population are based on fetal deaths to mothers of Hispanic origin who were residents of those States and the District of Columbia that included items on the report of fetal death to identify Hispanic or ethnic origin of mother. Data for 1994 were obtained from 46 States and the District of Columbia; areas not supplying data were Louisiana, Maryland, Massachusetts, and Oklahoma. Of the reporting areas, only 42 States and the District of Columbia had an item on Hispanic or ethnic origin on the death certificate, birth certificate, and report of fetal death whose data for all three files were at least 80 percent complete on a place-of-occurrence basis and considered to be sufficiently comparable to be used for analysis. These 42 States and the District of Columbia accounted for about 96 percent of the Hispanic population in 1990, including 99 percent of the Mexican population, 87 percent of the Puerto Rican population, 97 percent of the Cuban population, and 93 percent of the "Other Hispanic" population (11). (See also "Hispanic origin" under "Classification of data.") The States excluded are Connecticut, Louisiana, Maine, Maryland, Massachusetts, New Hampshire, Oklahoma, and Rhode Island.

Total-birth order--Total-birth order refers to the sum of live births and other terminations (including spontaneous fetal deaths and induced terminations of pregnancy) a woman has had, including the fetal death being recorded. For example, if a woman has given birth to two live babies and to one born dead, the next fetal death to occur is counted as number four in total-birth order.

Beginning with implementation of the 1989 revision of the U.S. Standard Report of Fetal Death, total-birth order is calculated from three items on pregnancy history: Number of previous live births now living; number of previous live births now dead; and number of other terminations (spontaneous and induced at anytime after conception). For prior years total-birth order was calculated from four items, see the Technical Appendix from *Vital Statistics of the United States*, 1988.

Although all registration areas use the two standard items pertaining to number of previous live births, registration areas phrase the item pertaining to other terminations of pregnancy differently. Total-birth order for all areas is calculated from the sum of available information. Thus, information on total-birth order may not be completely comparable among the registration areas. In addition, there may be substantial underreporting of other terminations of pregnancy on the fetal-death report.

Marital status--Fetal deaths and fetal mortality rates by mother's marital status are based on data from 43 States and the District of Columbia. Reports of fetal death for the remaining seven States--California, Connecticut, Maryland, Michigan, Nevada, New York (including New York City), and Texas--did not include an item on marital status.

Beginning with data for 1989, fetal-death reports with marital status not stated are shown as not stated in frequencies, but are proportionally distributed for rate computations into either the married or unmarried categories according to the percent of fetal-death reports with stated marital status that fall into each category for the reporting States. Before 1989 fetal-death reports with not-stated marital status were assigned to the married category. Because of this change, fetal-death frequencies and rates by marital status for 1989-94 are not strictly comparable with those for previous years.

No quantitative data exist on the characteristics of unmarried women who do not report, misreport their marital status, or fail to register fetal deaths. Underreporting may be greater for the unmarried group than for the married group.

Age of mother--Beginning with data for 1989, the U.S. Standard Report of Fetal Death asks for the mother's date of birth. Age of mother is computed from the mother's date of birth and the date of the termination of the pregnancy. For those States whose certificates do not contain an item for the mother's date of birth, reported age of the mother (in years) is used. The age of the mother is edited in NCHS for upper and lower limits. When mothers are reported to be under 10 years of age or 50 years of age and over, the age of the mother is considered not stated and is assigned as follows: Age on all fetal-death records with age of mother not stated is assigned according to the age appearing on the record previously processed for a mother of identical race and having the same total-birth order (total of live births and other terminations).

Sex of fetus--Beginning with data for 1989, for all fetal deaths of 20 weeks of gestation or more, not-stated sex of fetus is assigned the sex of the fetus from the previous record. Before 1989 no such assignment was made.

Plurality--All registration areas except Louisiana report the plurality of the fetus. Although Louisiana has not reported this item for many years, before 1989, data for Louisiana were erroneously converted to a plurality of 1 (single birth) and included in United States totals. Beginning with 1989 data, Louisiana is excluded from tables reporting plurality of the fetus. For reporting areas, not-stated plurality of the fetus is assigned to single births.

Perinatal mortality

Perinatal definitions--Beginning with data year 1979, perinatal mortality data have been published for the United States and each State. WHO recommends in ICD-9, “national perinatal statistics should include all fetuses and infants delivered weighing at least 500 grams (or when birthweight is unavailable, the corresponding gestational age (22 weeks) or body length (25 cm crown-heel)), whether alive or dead. . . .” It further recommends, “countries should present, solely for international comparisons, ‘standard perinatal statistics’ in which both the numerator and denominator of all rates are restricted to fetuses and infants weighing 1,000 grams or more (or, where birthweight is unavailable, the corresponding gestational age (28 weeks) or body length (35 cm crown-heel)).” Because birthweight and gestational age are not reported on the death certificate in the United States, NCHS was unable to adopt these definitions. Three definitions of perinatal mortality are used by NCHS: Perinatal Definition I, generally used for international comparisons, which includes fetal deaths of 28 weeks of gestation or more and infant deaths under 7 days; Perinatal Definition II, which includes fetal deaths of 20 weeks of gestation or more and infant deaths under 28 days; and Perinatal Definition III, which includes fetal deaths of 20 weeks of gestation or more and infant deaths under 7 days.

Variations in fetal death reporting requirements and practices have implications for comparing perinatal rates among States. Because reporting is generally sporadic near the lower limit of the reporting requirement, States that require reporting of all products of pregnancy, regardless of gestation, are likely to have more complete reporting of fetal deaths at 20 weeks or more than those States that do not. The larger number of fetal deaths reported for these “all periods” States may result in higher perinatal mortality rates than those rates reported for States whose reporting is less complete. Accordingly, reporting completeness may account, in part, for differences among the State perinatal rates, particularly differences for Definitions II and III, which use data for fetal deaths at 20-27 weeks.

Not stated--Fetal deaths with gestational age not stated are presumed to be of 20 weeks of gestation or more if the State requires reporting of all fetal deaths at a gestational age of 20 weeks or more or the fetus weighed 500 grams or more in those States requiring reporting of all fetal deaths, regardless of gestational age. For Definition I, fetal deaths at a gestation not stated but presumed to have been of 20 weeks or more are allocated to the category 28 weeks or more, according to the proportion of fetal deaths with stated gestational age that falls into that category. For Definitions II and III, fetal deaths at a presumed gestation of 20 weeks or more are included with those at a stated gestation of 20 weeks or more.

The allocation of not-stated gestational age for fetal deaths is made individually for each State, for metropolitan and nonmetropolitan areas, and separately for the entire United States. Accordingly, the sum of

perinatal deaths for the areas according to Definition I may not equal the total number of perinatal deaths for the United States.

Race--Beginning with the 1989 data year, NCHS changed the method of tabulating fetal-death and live-birth data by race from race of parents to race of mother. This has resulted in a discontinuity in perinatal mortality rates by race between 1989-94 data and those for previous years; see "Change in tabulation of race data for live births and fetal deaths" under "Infant deaths."

Hispanic origin--See "Hispanic origin of mother" under "Fetal deaths."

Quality of data

Completeness of registration

All States have adopted laws requiring the registration of births and deaths and the reporting of fetal deaths. It is believed that more than 99 percent of the births and deaths occurring in this country are registered.

Reporting requirements for fetal deaths vary from State to State (see "Comparability and completeness of data"). Overall reporting is not as complete for fetal deaths as for births and deaths, but it is believed to be relatively complete for fetal deaths at a gestation of 28 weeks or more. National statistical data on fetal deaths include only fetal deaths occurring at a stated or presumed gestation of 20 weeks or more.

Massachusetts data--The 1964 statistics for deaths exclude approximately 6,000 deaths registered in Massachusetts, primarily to residents of that State. Microfilm copies of these records were not received by NCHS. Figures for the United States and the New England Division are affected also.

Amended records for Alaska--Numbers of deaths occurring in Alaska for 1994 are in error for all causes of death combined and for selected causes because NCHS did not receive changes resulting from amended records. An estimate of the effect of these omissions can be derived by comparing NCHS counts of records processed through the VSCP with counts prepared by Alaska as shown in table E. Differences are concentrated among selected causes of death, principally Symptoms, signs, and ill-defined conditions (ICD-9 Nos. 780-799) and external causes.

Quality control procedures

Demographic items on the death certificate--As previously indicated, for 1994 the mortality data for these items were obtained from two sources--photocopies of the original certificates furnished by Guam and electronic data records furnished by the 50 States, the District of Columbia, New York City, Puerto Rico, and the Virgin Islands. For Guam, which sent only copies of the original certificates, the demographic items were coded for 100 percent of the death certificates. The demographic coding for 100 percent of the certificates was independently verified.

For areas sending electronic data records, a sample of 70-80 records per month for each registration area is used to monitor quality of coding. Under this procedure, each sample record is independently coded by NCHS staff and compared to the State code assignments. NCHS/State differences are adjudicated to ascertain the source of the error and need for corrective action. The estimated average outgoing error rate for all demographic items in 1994 was 0.25 percent. The error rate is a combined measure of State coding, key entry and processing errors made in the process of preparing the statistical file. These types of errors are not necessarily randomly distributed in the file and may therefore escape detection through sample verification. To reduce some systematic errors other NCHS procedures such as detailed computer edits, tabular evaluation, and procedure review are used.

Medical items on the death certificate--The same procedures used for demographic data are used for the medical items. For the 40 States sending electronic files, the average outgoing error rate in 1994 was estimated at 2.6 percent for underlying cause data, and 5.2 percent for multiple cause-of-death data.

For the remaining 10 States, the District of Columbia, New York City, Puerto Rico, the Virgin Islands, and Guam, NCHS coded the medical items for all the death records. A 1-percent sample of the records was coded independently for quality control purposes. The estimated average error rate for these areas was 4.3 percent.

Demographic items on the report of fetal death---As previously indicated, for 1994 the fetal-death demographic data were obtained from two sources: Coded records in electronic form from 47 registration areas and photocopies of the original certificates furnished by the remaining registration areas. For the eight registration areas submitting photocopies, NCHS coded the records. State-coded records may incorporate corrections made to the records as a result of queries whereas items from photocopies would be less likely to incorporate all corrections.

Beginning with data year 1993, quality control for fetal-death data was limited to computer edit checks, code validations, and comparisons of tabulated data with that for the previous year. Dual-coding of a sample of fetal-death records was not performed because of resource constraints.

Other control procedures--After coding and data entry are completed, record counts are balanced against control totals for each shipment of records from a registration area. Editing procedures ensure that records with inconsistent or impossible codes are modified. Inconsistent codes are those, for example, indicating a contradiction between cause of death and age or sex of the decedent. Records so identified during the computer editing process are either corrected by reference to the source record or adjusted by arbitrary code assignment (46). Further, conditions specified on a list of infrequent or rare causes of death are confirmed by the certifier or a State health officer. All subsequent operations in tabulating and in preparing tables are verified during the computer processing or by statistical clerks.

Estimates of errors arising from 50-percent sample for 1972--Death statistics for 1972 (excluding fetal-death statistics) are based on a 50-percent sample of all deaths occurring in the 50 States and the District of Columbia. A description of the sample design and a table of the percent errors of the estimated numbers of deaths by size of estimate and total deaths in the area are shown in the Technical Appendix from *Vital Statistics of the United States*, 1972.

Computation of rates and other measures

Population bases

Population bases from which death rates are computed are prepared by the U.S. Bureau of the Census. Rates for 1940, 1950, 1960, 1970, 1980, and 1990 are based on the population enumerated as of April 1 in the censuses for those years. Rates for all other years use the estimated midyear (July 1) population. Death rates for the United States, individual States, and metropolitan areas are based on the total resident populations of the respective areas. Except as noted, these populations exclude the Armed Forces abroad but include the Armed Forces stationed in each area.

The resident populations of the birth- and death-registration States for 1900-32, and of the United States for 1933-94 are shown in Table F. In addition, the population including Armed Forces abroad is shown for the United States. Table G lists the sources for these populations.

Populations for 1994--Population estimates of the United States by age, race, and sex for 1994 are shown in Table H. The 1994 estimates are consistent with those for 1990-93. Population estimates for each State by age for 1994 are shown in Table I. Since these population estimates are based on demographic analysis, they are not subject to sampling variability.

In addition the following estimates are shown:

- Estimated population by 5-year age groups, specified Hispanic origin, race for non-Hispanic origin, and sex: Total of 49 States and the District of Columbia, 1994 (see Table J)
- Estimated population for ages 15 years and over by 5-year age groups, marital status, race, and sex: United States, 1994 (see Table K)
- Estimated population for ages 15 years and over by 5-year age groups, marital status, Hispanic origin, race for non-Hispanic origin, and sex: Total of 49 States and the District of Columbia, 1994 (see Table L)

Population estimates by specified Hispanic origin, by educational attainment, and by marital status groups are based on the Bureau of the Census' Current Population Survey (a sample-based survey) adjusted to control totals. As a result, these estimates are subject to sampling variation (see "Random variation and sampling errors").

Population for 1990--In the 1980 and 1990 censuses, a substantial number of persons did not specify a racial group that could be classified as any of the white, black, American Indian, Eskimo, Aleut, Asian, or Pacific Islander categories on the census form (47). In 1980 the number of persons of "Other" race was 6,758,319; in 1990, it was 9,804,847. In both censuses the large majority of these persons were of Hispanic origin (based on responses to a separate question on the form), and many wrote in their Hispanic origin (for example, Mexican and Puerto Rican) as their race. In 1980 and 1990 persons of unspecified race were allocated to one of the four tabulated racial groups (white, black, American Indian, Asian or Pacific Islander) based on their response to the Hispanic origin question. These four race categories conform with OMB Directive 15 (the standards for recordkeeping, collection, and presentation of data on race and ethnicity in Federal statistical activities and program administrative reporting) (48) and are more consistent with the race categories in vital statistics.

In 1980 the allocation of unspecified race was determined using cross-tabulations of age, sex, race, specified Hispanic origin, and county of residence. Persons of Hispanic origin and unspecified race were allocated to either white or black based on their specific Hispanic origin. Persons of "Other" race and Mexican origin were categorically assumed to be white, while persons in other Hispanic categories were distributed to white and black pro rata within the county-age-sex group. For "Other race-not-specified" persons who were not Hispanic, race was allocated to white, black, or Asian or Pacific Islander based on proportions gleaned from sample data. The 20-percent sample (respondents who were enumerated on the longer census form) provided a highly detailed coding of race, which allowed identification of otherwise unidentifiable responses with a specified race category. Thus, allocation proportions were established at the State level and were used to distribute the non-Hispanic persons of "Other" race in the 100-percent tabulations.

In 1990 the race modification procedure was implemented using individual census records. Persons whose race could not be specified were assigned to a racial category using a pool of "race donors" that consisted of persons of specified race who had the identical responses to the Hispanic origin question and who were within the auspices of the same census district office. As in the 1980 census, it appeared that the underlying assumption made in the 1990 census was that the Hispanic origin response was the major criterion for allocating race. Unlike those responding to the 1980 census who could be assigned only to the racial group white or black, persons of Hispanic origin, including Mexicans, responding to the 1990 census could be assigned to any racial group. Also, in the 1990 census, the non-Hispanic component of "Other" race was allocated primarily on the basis of geography (district office), rather than detailed characteristic.

The means by which respondent's age was determined were fundamentally different for the two censuses; therefore, the problems that necessitated the modification were different. In 1980 respondents reported year of birth and quarter of birth (within year) on the census form. When census results were tabulated, persons born in the first quarter of the year (before April 1) had age equal to 1980 minus year of birth, while persons born in the last three quarters had age equal to 1979 minus year of birth.

In 1990 quarter year of birth was not reported on the census form, so direct determination of age from year of birth was not possible. In 1990 census publications, age is based on respondents' direct reports of age at last birthday. This definition proved inadequate for postcensal estimates as it was apparent that many respondents had reported their age at time of either completion of the census form or interview by an enumerator that could occur several months after the April 1 reference date. As a result, age was biased upward. For most respondents, modification was based on a respecification of age, by year of birth, with allocation to first quarter (persons aged 1990 minus year of birth) and last three quarters (aged 1989 minus year of birth) based on a historical series of registered births by month. This process partially restored the 1980 logic for assignment of age. It was not considered necessary to correct for age overstatement and heaping in 1990, because the availability of age and year of birth on the census form had provided for the elimination of spurious year-of-birth reports in the census data before modification occurred.

Population estimates for 1981-89--Death rates for 1981-89 are based on revised populations that are consistent with the 1990 census level (47). They are, therefore, not comparable with death rates published in *Vital Statistics of the United States* for 1981-89, and in other NCHS publications for those years. The 1990 census counted approximately 1.5 million fewer persons than had been estimated earlier for April 1, 1990.

Populations for 1980--Death rates for 1980 are based on the population enumerated as of April 1 in the 1980 census (49). The figures by race have been modified as described.

Population estimates for 1971-79--Death rates for 1971-79 used revised population estimates that are consistent with the 1980 census levels. The 1980 census enumerated approximately 5.5 million more persons than had been estimated for April 1, 1980 (50). These revised estimates for the United States by age, race, and sex are published by the U.S. Bureau of the Census in *Current Population Reports*, Series P-25, Number 917. Unpublished revised estimates for States were obtained from the U.S. Bureau of the Census. For Puerto Rico, the Virgin Islands, and Guam, revised estimates are published in *Current Population Reports*, Series P-25, Number 919.

Population estimates for 1961-69--Death rates for 1961-69 are based on revised estimates of the population and thus may differ slightly from rates published before 1976. Rates, life table values, and population estimates for each year during 1961-69 have been revised to reflect modified population bases as published in the U.S. Bureau of the Census, *Current Population Reports*, Series P-5, Number 519.

Rates and ratios based on live births--Infant and maternal mortality rates and fetal-death and perinatal mortality ratios are computed on the basis of the number of live births. Fetal-death and perinatal mortality rates are computed on the basis of the number of live births and fetal deaths. Counts of live births are published annually in *Vital Statistics of the United States*.

New Jersey--As previously indicated, data by race are not available for New Jersey for 1962 and 1963. Therefore, for 1962 and 1963, NCHS estimated a population by age, race, and sex that excluded New Jersey for rates shown by race. The methodology used to estimate the revised population excluding New Jersey is discussed in the Technical Appendixes of the 1962 and 1963 volumes.

Net census undercount

Errors can be introduced into the annual rates as a result of underenumeration of deaths and the misreporting of demographic characteristics. Errors in rates can also result from enumeration errors in the latest decennial census. This is because annual population estimates for the postcensal interval, which are used in the denominator for calculating death rates, are computed using the decennial census count as a base (47). Net census undercount results from the miscounting and misreporting of demographic characteristics such as age. Age-specific death rates are affected by the net census undercount and the misreporting of age on the death certificate (51). To the extent that the net undercount is substantial and that it varies among subgroups and geographic areas, it may have important consequences for vital statistics measures.

Because death rates based on a population adjusted for net census undercount may be more accurate than rates based on an unadjusted population, the possible impact of net census undercount on death rates must be considered. This can be done on a national basis using results of studies conducted by the U.S. Bureau of the Census on the completeness of coverage of the U.S. population (including underenumeration and misstatement of age, race, and sex). Such studies were conducted in the last five decennial censuses--1950, 1960, 1970, 1980, and 1990. From this work have come estimates of the national population that were not counted by age, race, and sex (52-55). The reports for 1990 (unpublished data from the U.S. Bureau of the Census) include estimates of net underenumeration and overenumeration for age, sex, and racial subgroups of the national population modified for race consistency with previous population counts as described in the section "Population bases." These studies indicate that, although coverage was improved over previous censuses, there was differential coverage among the population subgroups; that is, some age, race, and sex groups were more completely counted than others.

Because estimates of net census undercount are not available by age, race, and sex for individual States and counties, it is not feasible to adjust for net census undercount when presenting rates in routine tabulations. Nevertheless, it is important to be aware that net census undercounts can affect levels of observed vital rates.

Age, race, and sex--If adjustments were made for net census undercount, the size of denominators of the death rates generally would increase and the rates, therefore, would decrease. The adjusted rates for 1994 can be computed by multiplying the reported rates by ratios of the census-level resident population to the resident population adjusted for the estimated net census undercount (table M). A ratio of less than 1.0 indicates a net census undercount and, when applied, results in a corresponding decrease in the death rate. A ratio greater than 1.0--indicating a net census overcount--when multiplied by the reported rate results in an increase in the death rate.

Coverage ratios for all ages show that, in general, females were more completely enumerated than males and the white population more completely enumerated than the black population in the 1990 Census of Population. Underenumeration varied by age group for the total population, with the greatest differences found for persons aged 85 years and over. All other age groups were overcounted or undercounted by less than 4.0 percent. Among the age-sex-race groups, underenumeration was highest (13.3 percent) for black males aged 25-34 years. In contrast, white females in this age group were underenumerated by 2.5 percent.

If vital statistics measures were calculated with adjustments for net census undercounts for each population subgroup, the resulting rates would be differentially reduced from their original levels; that is, rates for those groups with the greatest estimated undercounts would show the greatest relative reductions due to these adjustments. Similar effects would be evident in the opposite direction for groups with overcounts. Consequently, the ratio of mortality between the rates for males and females and between the rates for the white population and the black population usually would be reduced.

Similarly, the differences between the death rates among subgroups of the population by cause of death would be affected by adjustments for net census undercounts. For example, in 1990 for the age group 35-39 years, the ratio of the unadjusted death rate for Homicide and legal intervention for black males to that for white males is 7.54, whereas the ratio of the death rates adjusted for net census undercount is 6.92. For Ischemic heart disease for males aged 40-44 years, the ratio of the death rate for the black population to that for the white population is 1.38 using the unadjusted rates, but it is 1.26 when adjusted for estimated underenumeration.

Summary measures--The effect of net census undercount on age-adjusted death rates and life table values depends on the underenumeration of each age group and on the distribution of deaths by age. Thus, the age-adjusted death rate in 1990 for All causes would decrease from 520.2 to 512.7 per 100,000 population if the age-specific death rates were corrected for net census undercount (table N). For Diseases of heart, the age-adjusted death rate for white males would decrease from 202.0 to 198.2 per 100,000 population, a decline of 2.0 percent. For black males, the change from an unadjusted rate of 275.9 to an adjusted rate of 256.7 would amount to a decrease of 7.0 percent. For HIV infection, the rate for black males would decrease from 44.2 to 39.0 and for white males from 15.0 to 14.4.

If death rates by age were adjusted, the corresponding life expectancy at birth computed from these rates would change. When calculating life expectancy, the impact of an undercount or overcount is greatest at the younger ages. In general, the effect of correcting the death rates is to increase the estimate of life expectancy at birth. For example, adjustment for net census undercount would increase life expectancy in 1990 by an estimated 0.2 years, from 75.4 years to 75.6 years for the total U.S. population.

Adjustment for differential underenumeration among race-sex groups would lead to greater changes in life expectancy for some groups than for others. For males and females, increases would be 0.3 and 0.1 years, respectively; for the black population and white population, 0.6 and 0.2 years, respectively. The largest increase would be for black males, 1.2 years, followed by white males (0.3 years), black females (0.2 years), and white females (0.2 years).

Age-adjusted death rates

Age-adjusted death rates are used to compare relative mortality risk across groups and over time. However, they should be viewed as constructs or indexes rather than as direct or actual measures of mortality risk. Statistically, they are weighted averages of the age-specific death rates, where the weights represent the fixed population proportions by age (56). Age-adjusted death rates were computed by the direct method, that is, by applying age-specific death rates for a given cause of death to the U.S. standard population (relative age distribution of 1940 enumerated population of the United States totaling 1,000,000 (31)). By using the same standard population, the rates for the total population and for each race-sex group were adjusted separately. It is important not to compare age-adjusted death rates with crude rates. The U.S. standard population and corresponding weights (w_i) are as follows:

Age	Number	Weights (w_i)
All ages.....	1,000,000	1.000000
Under 1 year.....	15,343	0.015343
1-4 years.....	64,718	0.064718
5-14 years.....	170,355	0.170355
15-24 years.....	181,677	0.181677
25-34 years.....	162,066	0.162066
35-44 years.....	139,237	0.139237
45-54 years.....	117,811	0.117811
55-64 years.....	80,294	0.080294
65-74 years.....	48,426	0.048426
75-84 years.....	17,303	0.017303
85 years and over.....	2,770	0.002770

Age-adjusted death rates by marital status are computed using the age groups 25 years and over. Therefore, the United States standard population aged 25 years and over and corresponding weights (w_i) are as follows:

Age	Number	Weights (w_i)
25 years and over	567,907	1.000000
25-34 years	162,066	0.285374
35-44 years	139,237	0.245176
45-54 years	117,811	0.207448
55-64 years	80,294	0.141386
65-74 years	48,426	0.085271
75 years and over	20,073	0.035346

Life tables

U.S. abridged life tables are constructed by reference to a standard table (57). Life tables for the decennial period 1979-81 are used as the standard life tables in constructing the 1980-94 abridged life tables. Life table values for 1981-89 are based on revised intercensal estimates of the populations for those years. Therefore, these life table values may differ from life table values of those years published previously.

Life tables for the decennial period 1969-71 are used as the standard life tables in constructing the 1970-79 abridged life tables. Life table values for 1970-73 were first revised in *Vital Statistics of the United States*, 1977; before 1977, life table values for 1970-73 were constructed using the 1959-61 decennial life tables. In addition, life table values for 1951-59, 1961-69, and 1971-79 are based on revised intercensal estimates of the populations for those years. As such, these life table values may differ from life table values previously published.

The annual abridged life table series was initiated for selected race-sex groups in 1945. Because of the increased interest in the average length of life ($^{o}e_{o}$) for years prior to 1945, estimates were prepared for the following race and sex groups and data years (58).

Years	*Race and sex groups*
1900-45	Total
1900-47	Male
1900-47	Female
1900-50	White
1900-44	White, male
1900-44	White, female
1900-50	All other
1900-44	All other, male
1900-44	All other, female

The geographic areas covered in life tables before 1929-31 were limited to the death-registration areas. Life tables for 1900-02 and 1909-11 were constructed using mortality data from the 1900 death-registration States--10 States and the District of Columbia, and for 1919-21, from the 1920 death-registration States--34 States and the District of Columbia. The tables for 1929-31 through 1958 cover the conterminous United States. Decennial life table values for the 3-year period 1959-61 were derived from data that include Alaska and Hawaii for each year. Data for each year include Alaska beginning in 1959 and Hawaii beginning in 1960. It is believed that the inclusion of these two States does not materially affect life table values.

Random variation and sampling errors

Deaths--The number of deaths reported for an area represent complete counts of such events (except for 1972 when the data were based on a 50-percent sample because of resource constraints). As such, they are not subject to sampling error, although they are subject to non-sampling errors in the registration process. However, when the figures are used for analytical purposes, such as the comparison of rates over time or for different areas, the number of events that actually occurred may be considered as one of a large series of possible results that could have arisen under the same circumstances (59). The probable range of values may be estimated from the actual figures according to certain statistical assumptions.

In general, distributions of vital events may be assumed to follow the binomial distribution. When the number of events is large, the relative standard error is usually small. When the number of events is small (perhaps less than 100) and the probability of such an event is small, considerable caution must be observed in interpreting the data. Such infrequent events may be assumed to follow a Poisson probability distribution. As a result, the numbers of deaths, death rates, and mortality rates are subject to random variation. Estimates of relative standard errors (RSE)--a measure of variability--, 95-percent confidence intervals, and tests of statistical significance under this assumption are shown below. Mortality data may also be subject to non-sampling errors.

Populations-Population estimates of the United States and for each State by age, race, total Hispanic origin, and sex for 1994 are based on demographic methods and, therefore, are not subject to sampling variability. However, population estimates by specified Hispanic origin (Mexicans, Puerto Ricans, Cubans, and Other Hispanics) and by specified marital status groups (never married, married, widowed, and divorced) are based on the Bureau of the Census' Current Population Survey (CPS) adjusted to control totals and, therefore, are subject to sampling variation. As a result, death rates based on the CPS-based population estimates are subject to both random variation of the deaths and sampling error of the population estimates. Estimates of relative standard errors, 95-percent confidence intervals, and tests of statistical significance under these assumptions are shown below. All population estimates may also be subject to non-sampling errors.

Computation of population-based death rates--Death rates for a single calendar year are computed by dividing the number of deaths for a class for that year by the population of a similarly-defined class for the same year and multiplying that result by 100,000 (or 1,000). Rates thus computed are per 100,000 (or 1,000) estimated population residing in selected areas of the United States. The 3-year average death rates are computed by dividing the total number of deaths for a class for a three-year period by the sum of the population estimates of a similarly defined class for the same period and multiplying that result by 100,000 (or 1,000).

Computation of live birth-based mortality rates--Maternal mortality rates and infant mortality rates are computed by dividing the number of deaths for a class for a specified year by the number of live births of a similarly defined class for that year and multiplying that result by 100,000 (or 1,000). Rates thus computed are per 100,000 (or 1,000) live births residing in selected areas of the United States. The 3-year average infant mortality rates for the three-year period are computed by dividing the total number of infant deaths for a class for that period by the sum of the live births of a similarly defined class for the three-year period and multiplying that result by 100,000 (or 1,000).

Relative Standard Errors and 95% Confidence Intervals--Formulas for computing approximate RSE's and confidence intervals (CI's) for crude, age-specific death rates, and age-adjusted death rates are shown below.

Beginning with 1989 data, an asterisk has been shown in place of a rate based on fewer than 20 deaths, which is the equivalent of an RSE of 22.94 percent or more. An RSE of this magnitude is considered statistically unreliable. That procedure has been used for mortality data except death rates based on CPS-based population estimates, for which sampling variation must be considered in addition to random variation. Statistical reliability testing for death rates based on sample population estimates were introduced beginning with specified Hispanic-origin data for 1994. This reliability testing is also applicable to rates by marital status.

VITAL STATISTICS OF THE UNITED STATES: MORTALITY, 1994
TECHNICAL APPENDIX

The formulas below are shown separately for rates based on demographically estimated populations, sample-based populations, and rates based on live births. Further, separate discussions are provided for rates based on less than 100 events, and rates based on 100 events or more. Specific examples are given to illustrate the use of the formulas.

*The following formulas are used for demographically-estimated population-based death rates for all races, white, black, American Indian, Asian or Pacific Islander, all origins, total Hispanic, total non-Hispanic, non-Hispanic white, non-Hispanic black for **all** marital status groups combined*:

Age-specific and crude death rates--

$$RSE(R) = RSE(D) = 100\sqrt{\frac{1}{D}}$$

Approximate 95% Confidence Interval: 100 or more deaths
Lower: R - 1.96 * S(R)
Upper: R + 1.96 * S(R)

Approximate 95% Confidence Interval: 1-99 deaths
Lower: R * L(1- α =.95,D)
Upper: R * U(1- α =.95,D)

where

R = rate (deaths per 100,000 population)
D = total number of deaths upon which rate is based

$$S(R) = R * \frac{RSE(R)}{100} = \textit{standard error of rate}$$

L(1- α =.95,D) and U(1- α =.95,D) are lower and upper 95% confidence limit factors and are shown in Table O

Age-adjusted death rates--

$$RSE(R'') = 100 \frac{\sqrt{\sum\left\{ w_i^2 \; R_i^2 \left(\frac{1}{D_i} \right) \right\}}}{R''}$$

Approximate 95% Confidence Interval: 100 or more deaths
Lower: R'' - 1.96 * S(R'')
Upper: R'' + 1.96 * S(R'')

Approximate 95% Confidence Interval: 1-99 deaths
Lower: R'' * L(1- α =.95,D_{adj})
Upper: R'' * U(1- α =.95,D_{adj})

where

R'' = age-adjusted rate (per 100,000 population) = $\sum w_i R_i$
w_i = i^{th} age-specific Standard Population such that $\sum(w_i) = 1.0$
R_i = age-specific rate (per 100,000) for the i^{th} age group
D_i = total number of deaths for the i^{th} age group upon which age-specific rate is based

$$S(R'') = R'' * \frac{RSE(R'')}{100} = \textit{standard error of age-adjusted rate}$$

L(1- α =.95,D_{adj}) and U(1- α =.95,D_{adj}) are lower and upper 95% confidence limit factors and are shown in Table O

$$D_{adj} = \frac{1}{\left(\frac{RSE(R'')}{100} \right)^2} \textit{ adjusted number of deaths rounded to nearest integer}$$

*The following formulas are used for CPS population-based death rates for all races, white, black, American Indian, Asian or Pacific Islander, all origins, total Hispanic, total non-Hispanic, non-Hispanic white, non-Hispanic black by **specified** marital status group (never married, married, widowed, and divorced)*
OR
*for Mexican, Puerto Rican, Cuban, Other Hispanic for **all** marital status groups combined and by **specified** marital status group (never married, married, widowed, and divorced):*

Age-specific and crude death rates--

$$RSE(R) = 100\sqrt{\left(\frac{1}{D}\right) + f\left(a + \frac{b}{P}\right)}$$

Approximate 95% Confidence Interval: 100 or more deaths
Lower: R-1.96*S(R)
Upper: R+1.96*S(R)

Approximate 95% Confidence Interval: 1-99 deaths

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

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

where

R = rate (deaths per 100,000 population).
D = total number of deaths upon which rate is based
f = factor that depends on whether the population estimate is based on demographic analysis or CPS and the number of years used (see below)
a and b factors are CPS standard error parameters (see below)
P = total estimated population upon which rate is based (if rate is based on a 3-year average, then an approximate P would be three times the population for the most recent year)

$$S(R) = R * \frac{RSE(R)}{100} = standard\ error\ of\ rate$$

L(1- α =.96,D) and U(1- α =.96,D) are lower and upper 96% confidence limit factors and are shown in Table O

Age-adjusted death rates--

$$RSE(R'') = 100 \frac{\sqrt{\sum\left(w_i^2 * R_i^2 \left(\frac{1}{D_i} + f\left(a + \frac{b}{P_i}\right)\right)\right)}}{R''}$$

Approximate 95% Confidence Interval: 100 or more deaths
Lower: R'' - 1.96 * S(R'')
Upper: R'' + 1.96 * S(R'')

Approximate 95% Confidence Interval: 1-99 deaths
Lower: R'' * L(1- α =.96,D_{adj}) * (1 -2.576 * RSE(P_{adj}))
Upper: R'' * U(1- α =.96,D_{adj}) * (1+2.576 * RSE(P_{adj}))

where

R'' = age-adjusted rate (per 100,000 population) = $\sum w_i R_i$
w_i = i^{th} age-specific Standard Population such that $\sum(w_i) = 1.0$
R_i = age-specific rate (per 100,000)for the i^{th} age group
D_i = total number of deaths for the i^{th} age group upon which age-specific rate is based
f = factor that depends on whether the population estimate is based on demographic analysis or CPS and the number of years used (see below)
a and b factors are CPS standard error parameters (see below)
P_i = total estimated population for the i^{th} age group upon which the rate is based (if rate is based on 3-year average, then combined P_i would be three times the population for the most recent year)

$$S(R'') = R'' * \frac{RSE(R'')}{100} = \textit{standard error of age-adjusted rate}$$

L(1- α =.96,D_{adj}) and U(1- α =.96,D_{adj}) are lower and upper 96% confidence limit factors and are shown in Table O

P_{adj} =$\sum(w_i * P_i)$ = adjusted estimated population rounded to nearest integer

$$RSE(P_{adj}) = \frac{\sqrt{\sum\left(w_i^2 * P_i^2 * f\left(a + \frac{b}{P_i}\right)\right)}}{P_{adj}}$$

$$D_{adj} = \text{smaller of } \sum(D_i) \text{ or } \frac{1}{RSE(R'')^2 - RSE(P_{adj})^2} = \begin{array}{c}\text{adjusted number of deaths} \\ \text{rounded to the} \\ \text{nearest integer}\end{array}$$

If D_{adj} is negative, set D_{adj} to $\sum(D_i)$

Shown below are the "*a*", "*b*", and "*f*" factors for various race, origin, and marital status classifications, by whether the population-based rate was based on a single year or 3-year average:

Race, origin, and marital status	*Rate based on 1 year*	*Rate based on 3 years*
All races, white, American Indian, all origins, total Hispanic, total non-Hispanic, non-Hispanic white; by never married, married, widowed, divorced	*f* = 0.670 *a* = -0.000017 *b*= 4,786	*f* = 0.440 *a* = -0.000017 *b* = 14,358
Black, non-Hispanic black; by never married, married, widowed, divorced	*f* = 0.670 *a* = -0.000204 *b*= 6,865	*f* = 0.440 *a* = -0.000204 *b* = 20,595
Asian or Pacific Islander; by never married, married, widowed, divorced	*f* = 0.670 *a* = -0.000719 *b*= 6,865	*f* = 0.440 *a* = -0.000719 *b* = 20,595
Mexican, Puerto Rican, Cuban, Other Hispanic; all marital status groups combined, never married, married, widowed, divorced	*f* = 0.670 *a* = -0.000297 *b*= 6,865	*f* = 0.440 *a* = -0.000297 *b* = 20,595

The following formulas may be used for live birth-based mortality rates:

The formulas for the RSE and 95-percent CI's of an infant mortality rate (IMR) are as follows:

$$RSE(IMR) = 100\sqrt{\frac{1}{D} + \frac{1}{B}}$$

Approximate 95% Confidence Interval: 100 or more infant deaths
Lower: *IMR* - 1.96 * S(*IMR*)
Upper: *IMR* + 1.96 * S(*IMR*)

Approximate 95% Confidence Interval: 1-99 infant deaths
Lower: IMR * L(1- α =.95,D_{adj})
Upper: IMR * U(1- α =.95,D_{adj})

where

IMR = infant mortality rate (infant deaths per 100,000 live births)
D = total number of infant deaths upon which rate is based
B = total number of live births upon which IMR is based

$$S(IMR) = IMR * \frac{RSE(IMR)}{100} = \textit{standard error of infant mortality rate}$$

L(1- α =.95,D_{adj}) and U(1- α =.95,D_{adj}) are lower and upper 95% confidence limit factors and are shown in Table O

$$D_{adj} = \frac{D * B}{D + B} = \textit{adjusted number of infant deaths that takes into account the RSE of the number of infant deaths and live births}$$

Statistical tests

For testing the equality of two rates, R_1 and R_2, the *z*-test may be used (when both rates are based on 100 deaths or more) or the overlap of 95% CI's of the rates may be used (when either or both of the rates are based on less than 100 deaths).

The *z*-test is determined as follows:

$$z = \frac{R_1 - R_2}{\sqrt{R_1^2\left(\frac{RSE(R_1)}{100}\right)^2 + R_2^2\left(\frac{RSE(R_2)}{100}\right)^2}}$$

to define a significance test statistic. If $|z|$ is greater than or equal 1.96, then the difference would be considered statistically significant at the 0.05 level; and if $|z|$ is less than 1.96, the difference is not statistically significant.

As a hypothetical example, if the three-year average death rate for Mexicans, R_1, is 36.4 (based on D=120 deaths and P=330,000 population for the three years combined) and the three-year rate for non-Hispanic whites, R_2, is 13.8 (based on D=180 deaths and P=1,300,000 population for the three years combined), then using the formulas above the RSE's and *z*-test are computed as follows:

$$RSE(R_1) = 100\sqrt{\frac{1}{120} + 0.440 * \left(-.000297 + \frac{20{,}595}{330{,}000}\right)} = 18.88\%$$

$$RSE(R_2) = 100\sqrt{\frac{1}{180}} = 7.45\%$$

and

$$z = \frac{36.4 - 13.8}{\sqrt{36.4^2\left(\frac{18.88}{100}\right)^2 + 13.8^2\left(\frac{7.45}{100}\right)^2}} = 3.25$$

Since $|z|$ is greater than 1.96, the difference between the two rates is statistically significant at the 0.05 level of significance.

If either of two rates is based on less than 100 deaths, then one may determine if the 95% CI's overlap as an indication of a statistically significant or non-significant difference.

As a hypothetical example, if the three-year average death rate for Cubans, R_3, is 26.7 (based on D=40 deaths and P=150,000 population for the three years combined) and the three-year rate for non-Hispanic blacks, R_4, is 61.5 (based on D=400 deaths and P=650,000 population for the three years combined), then the 95% CI's are computed using information from the following formulas and Table O:

95% CI for R_3

$$Lower: = 26.7 * 0.70266 \left(1 - 2.576 \sqrt{0.44 * \left(-.000297 + \frac{20{,}595}{150{,}000} \right)} \right) = 6.9$$

$$Upper: = 26.7 * 1.37991 \left(1 + 2.576 \sqrt{0.44 * \left(-.000297 + \frac{20{,}595}{150{,}000} \right)} \right) = 60.1$$

95% CI for R_4

$$RSE(R_4) = 100 \sqrt{\frac{1}{400}} = 5.00\%$$

$$Lower = 61.5 - \left(1.96 * 61.5 * \frac{5.00}{100} \right) = 55.5$$

$$Upper = 61.5 + \left(1.96 * 61.5 * \frac{5.00}{100} \right) = 67.5$$

Since the CI's overlap, the difference between R_3 and R_4 is not statistically significant.

References

1. Tolson GC, Barnes JM, Gay GA, Kowaleski JL. The 1989 revision of the U.S. standard certificates and reports. National Center for Health Statistics. Vital Health Stat 4(28). 1991.
2. Hetzel AM. U.S. vital statistics system: major activities and developments, 1950-95. National Center for Health Statistics. 1997.
3. National Center for Health Statistics. Vital statistics, classification, and coding instructions for fetal death records, 1994. NCHS instruction manual; part 3b. Hyattsville, Maryland: Public Health Service. Published annually.
4. National Center for Health Statistics. Vital statistics, demographic classification, and coding instructions for death records, 1994. NCHS instruction manual; part 4. Hyattsville, Maryland: Public Health Service. Published annually.
5. McCarthy MA. Comparison of the classification of place of residence on death certificates and matching census records: United States, May-August 1960. National Center for Health Statistics. Vital and Health Stat 2(30). 1969.
6. National Vital Statistics Division. Matched record comparison of birth certificate and census information, United States, 1950. Vital statistics-Special reports; vol 47 no 12. Washington: Public Health Service. 1962.
7. National Center for Health Statistics. Vital statistics, vital records geographic classification, 1994. NCHS instruction manual; part 8. Hyattsville, Maryland: Public Health Service. 1993.
8. U.S. Bureau of the Census. Population of metropolitan areas and component geography: 1990 and 1980 (6-30-93 definitions). CPH-L-145. Washington: U.S. Department of Commerce. 1993.
9. U.S. Department of Commerce. Metropolitan statistical areas classification. Federal register; vol 45 no 2. Washington: U.S. Government Printing Office, 956-62. 1980.
10. U.S. Office of Management and Budget. Standard metropolitan statistical areas, rev. ed. Washington: U.S. Government Printing Office, 89-90. 1975.
11. U.S. Bureau of the Census. 1990 Census of population. General population characteristics; (1990 CP-1-1). Washington: U.S. Department of Commerce. 1992.
12. National Center for Health Statistics. Public-use data tape documentation: Mortality detail 1994 data. Washington: Public Health Service. 1996.
13. National Center for Health Statistics. Public-use data tape documentation: Multiple cause of death for ICD-9 1994 data. Washington: Public Health Service. 1996.
14. Hambright TZ. Comparability of marital status, race, nativity, and country of origin on the death certificate and matching census record: United States, May-August 1960. National Center for Health Statistics. Vital Health Stat 2(34). 1969.
15. Sorlie PD, Rogot E, Johnson NJ. Validity of demographic characteristics on the death certificate. Epidemiology 3(2):181-4. 1992.
16. Poe GS, Powell-Griner E, McLaughlin JK, et al. Comparability of the death certificate and the 1986 national mortality followback survey. National Center for Health Statistics. Vital Health Stat 2(118). 1993.
17. U.S. Bureau of the Census. U.S. population estimates by age, sex, race, and Hispanic origin: 1994. Census file E94SASUS. 1995.
18. U.S. Bureau of the Census. Population estimates based on unpublished tabulations prepared by the Housing and Household Economic Statistics Division. 1996.
19. Klebba AJ. Mortality from selected causes by marital status: United States, parts A and B. National Center for Health Statistics. Vital Health Stat 20(8a) and 20(8b). 1970.

20. World Health Organization. Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the recommendations of the Ninth Revision Conference, 1975. Geneva: World Health Organization. 1977.
21. National Center for Health Statistics. Estimates of selected comparability ratios based on dual coding of 1976 death certificates by the Eighth and Ninth Revisions of the International Classification of Diseases. Monthly vital statistics report; vol 28 no 11, suppl. Hyattsville, Maryland: Public Health Service. 1980.
22. Gittelsohn A, Royston PN. Annotated bibliography of cause-of-death validation studies, 1958-80. National Center for Health Statistics. Vital Health Stat 2(89). 1982.
23. National Center for Health Statistics. Vital statistics, ICD-9 ACME decision tables for classifying underlying causes of death, 1991. NCHS instruction manual; part 2c. Hyattsville, Maryland: Public Health Service. Published annually.
24. National Center for Health Statistics. Instructions for classifying multiple causes of death. NCHS instruction manual; part 2b. Hyattsville, Maryland: Public Health Service. Published annually.
25. National Center for Health Statistics. Nonindexed terms, standard abbreviations, and state geographic codes used in mortality data classification. NCHS instruction manual; part 2e. Hyattsville, Maryland: Public Health Service. Published annually.
26. National Center for Health Statistics. Vital statistics, data entry instructions for the mortality medical indexing, classification, and retrieval system (MICAR). NCHS instruction manual; part 2g. Hyattsville, Maryland: Public Health Service. Published annually.
27. National Center for Health Statistics. Vital statistics, dictionary of valid terms for the mortality medical indexing, classification, and retrieval system (MICAR). NCHS instruction manual; part 2h. Hyattsville, Maryland: Public Health Service. Published annually.
28. Harris KW, Rosenberg HM, Kochanek KD, et al. Evaluation of an automated multiple causes of death coding system. In: American Statistical Association. 1993 Proceedings of the social statistics section. Alexandria, Virginia: American Statistical Association. 262-5. 1993.
29. Hoyert DL. Effect on mortality rates of the 1989 change in tabulating race. National Center for Health Statistics. Vital Health Stat 20(25). 1994.
30. Guralnick L, Winter ED. A note on cohort infant mortality rates. Public Health Rep 80:692-4. 1965.
31. Grove RD, Hetzel AM. Vital statistics rates in the United States, 1940-60. National Center for Health Statistics. Washington: Public Health Service. 1968.
32. McCarthy B, Terry J, Rochat R, et al. The underregistration of neonatal deaths: Georgia 1974-77. Am J Public Health 70:977-82. 1980.
33. Linder FE, Grove RD. Vital statistics rates in the United States, 1900-40. Washington: National Office of Vital Statistics. 1947.
34. Chase HC, Weiner L, Garfinkel J. Vital signs present at birth. National Center for Health Statistics. Vital and Health Stat 2(46). 1972.
35. Frost F, Shy KK. Racial differences between linked birth and infant death records in Washington State. Am J Public Health 70:974-6. 1980.
36. Prager K, Flinchum GA, Johnson DP. The NCHS pilot project to link birth and infant death records: Stage 1. Public Health Rep 102:216-23. 1987.
37. National Center for Health Statistics. Public-use data tape documentation. Linked birth/infant death data set: 1989-91 birth cohorts. Hyattsville, Maryland: Public Health Service. 1995.
38. National Office of Vital Statistics. International recommendations on definitions of live birth and fetal death. Washington: Public Health Service. 1950.
39. National Center for Health Statistics. State definitions and reporting requirements for live births, fetal deaths, and induced terminations of pregnancy. Washington: Public Health Service. 1981.

40. National Center for Health Statistics. Model state vital statistics act and model state vital statistics regulations. Washington: Public Health Service. 1978.
41. National Center for Health Statistics. Model state vital statistics act and model state vital statistics regulations. Washington: Public Health Service. 1995.
42. Greb AE, Pauli RM, Kirby RS. Accuracy of fetal death reports: Comparison with data from an independent stillbirth assessment program. Am J Public Health 77:1202-6. 1987.
43. Goldhaber MK. Fetal death ratios in a prospective study compared to State fetal death certificate reporting. Am J Public Health 79(9):1268-70. 1989.
44. Hoyert DL. Medical and lifestyle risk factors affecting fetal mortality, 1989-90. National Center for Health Stat. Vital Health Stat (20)(31). 1996.
45. National Center for Health Statistics. Editing specifications for fetal death records. Unpublished manuscript. Hyattsville, Maryland: Public Health Service. 1991.
46. National Center for Health Statistics. Vital statistics, computer edits for mortality data, effective 1989. NCHS instruction manual; part 11. Hyattsville, Maryland: Public Health Service. 1989.
47. U.S. Bureau of the Census. U.S. population estimates by age, sex, race, and Hispanic origin: 1980-91. Current population reports; series P-25, no 1095. Washington: U.S. Department of Commerce. 1993.
48. Executive Office of the President. Office of Management and Budget. Statistical Policy Directive No. 15. Race and ethnic standards for federal statistics and administrative reporting.
49. National Center for Health Statistics. Technical appendix. Vital statistics of the United States, 1980, vol II, mortality, part A. Washington: Public Health Service. 1985.
50. U.S. Bureau of the Census. Coverage of the national population in the 1980 census by age, sex, and race. Preliminary estimates by demographic analysis. Current population reports; series P-23, no 115. Washington: U.S. Department of Commerce. 1982.
51. Hambright TZ. Comparability of age on the death certificate and matching census records: United States, May-August 1960. National Center for Health Statistics. Vital Health Stat 2(29). 1968.
52. U.S. Bureau of the Census. Estimates of coverage of the population by sex, race, and age--demographic analysis: 1970 census of population and housing. PHC(E)-4. Washington: U.S. Department of Commerce. 1974.
53. U.S. Bureau of the Census. Developmental estimates of the coverage of the population of States in the 1970 census--demographic analysis. Current population reports; series P-23, no 65. Washington: U.S. Department of Commerce. 1977.
54. Passel JS, Robinson JG. Revised demographic estimates of the coverage of the population by age, sex, and race in the 1980 Census. Unpublished memorandum, U.S. Bureau of the Census. Washington: U.S. Department of Commerce. 1985.
55. U.S. Bureau of the Census. Estimates of population of the United States by age, sex, and race: 1980 to 1985. Current population reports; series P-25, no 985. Washington: U.S. Department of Commerce. 1986.
56. Feinleib M, Zarate AO, eds. Reconsidering age adjustment procedures: Workshop proceedings. National Center for Health Statistics. Vital Health Stat 4(29). 1992.
57. Sirken MG. Comparison of two methods of constructing abridged life tables by reference to a “standard” table. National Center for Health Statistics. Vital Health Stat 2(4). 1966.
58. Greville TNE, Carlson GA. Estimated average length of life in the death-registration States. Vital statistics-Special reports. vol 33 no 9. National Center for Health Statistics. Washington: Public Health Service. 1951.
59. Chiang CL. Standard error of the age-adjusted death rate. Vital statistics-Special reports. vol 47 no 9. National Center for Health Statistics. Washington: Public Health Service. 1961.
60. Pearson, ES, Hartley, HO. Biometrika tables for statisticians, vol I. Cambridge University Press. 1966.

SYMBOLS USED IN TABLES

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Category not applicable	...
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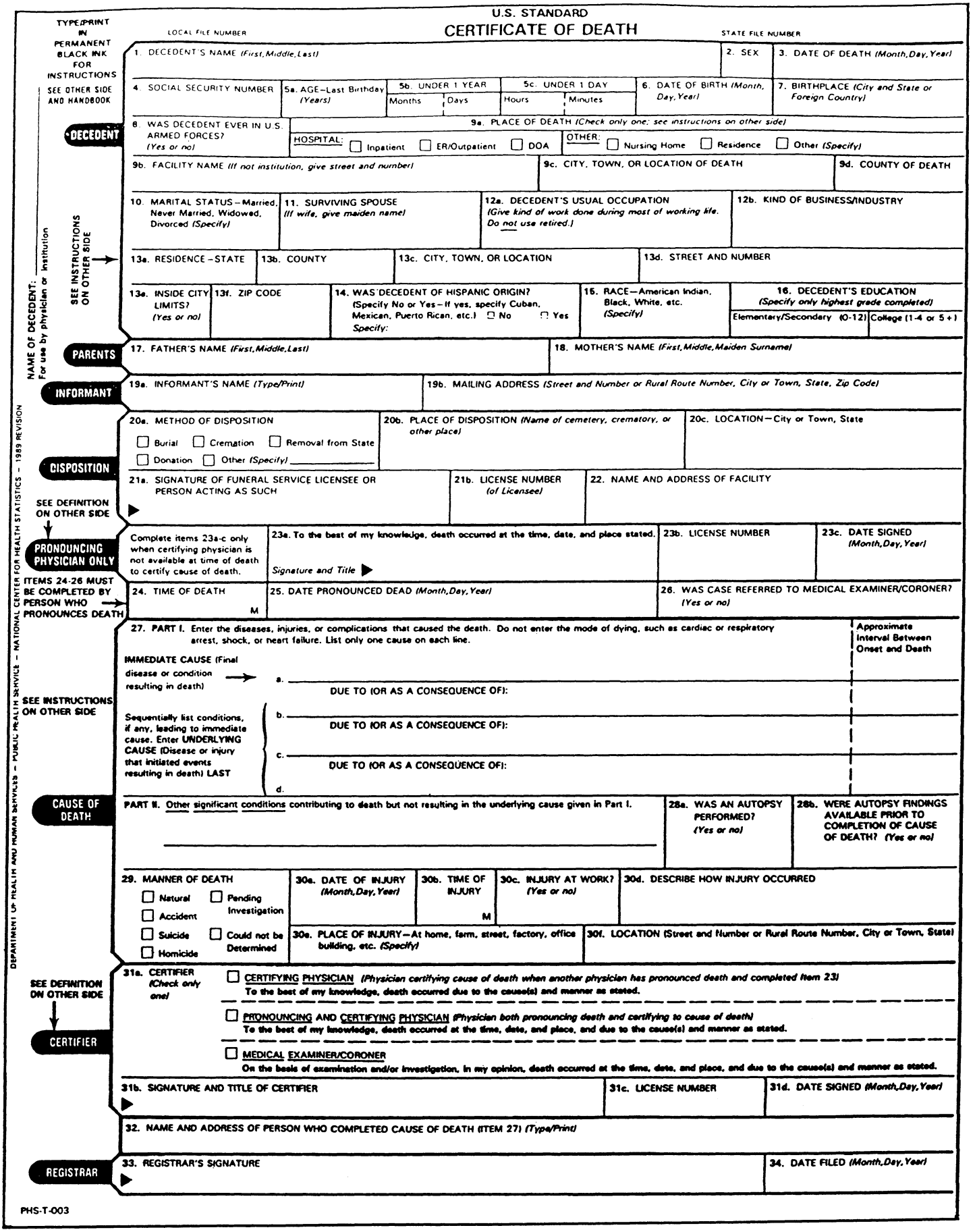
Quantity more than 0 but less than 0.05	0.0
Figure does not meet standards of reliability or precision	*



U.S. STANDARD
CERTIFICATE OF DEATH

TYPE/PRINT IN PERMANENT BLACK INK FOR INSTRUCTIONS SEE OTHER SIDE AND HANDBOOK

LOCAL FILE NUMBER

STATE FILE NUMBER

NAME OF DECEDENT: For use by physician or institution

SEE INSTRUCTIONS ON OTHER SIDE

DECEDENT

1. DECEDENT'S NAME (First, Middle, Last)
2. SEX
3. DATE OF DEATH (Month, Day, Year)
4. SOCIAL SECURITY NUMBER
5a. AGE—Last Birthday (Years)
5b. UNDER 1 YEAR — Months / Days
5c. UNDER 1 DAY — Hours / Minutes
6. DATE OF BIRTH (Month, Day, Year)
7. BIRTHPLACE (City and State or Foreign Country)
8. WAS DECEDENT EVER IN U.S. ARMED FORCES? (Yes or no)
9a. PLACE OF DEATH (Check only one; see instructions on other side)
HOSPITAL: ☐ Inpatient ☐ ER/Outpatient ☐ DOA
OTHER: ☐ Nursing Home ☐ Residence ☐ Other (Specify)
9b. FACILITY NAME (If not institution, give street and number)
9c. CITY, TOWN, OR LOCATION OF DEATH
9d. COUNTY OF DEATH
10. MARITAL STATUS—Married, Never Married, Widowed, Divorced (Specify)
11. SURVIVING SPOUSE (If wife, give maiden name)
12a. DECEDENT'S USUAL OCCUPATION (Give kind of work done during most of working life. Do not use retired.)
12b. KIND OF BUSINESS/INDUSTRY
13a. RESIDENCE—STATE
13b. COUNTY
13c. CITY, TOWN, OR LOCATION
13d. STREET AND NUMBER
13e. INSIDE CITY LIMITS? (Yes or no)
13f. ZIP CODE
14. WAS DECEDENT OF HISPANIC ORIGIN? (Specify No or Yes—If yes, specify Cuban, Mexican, Puerto Rican, etc.) ☐ No ☐ Yes Specify:
15. RACE—American Indian, Black, White, etc. (Specify)
16. DECEDENT'S EDUCATION (Specify only highest grade completed)
Elementary/Secondary (0-12) / College (1-4 or 5+)

PARENTS

17. FATHER'S NAME (First, Middle, Last)
18. MOTHER'S NAME (First, Middle, Maiden Surname)

INFORMANT

19a. INFORMANT'S NAME (Type/Print)
19b. MAILING ADDRESS (Street and Number or Rural Route Number, City or Town, State, Zip Code)

DISPOSITION

20a. METHOD OF DISPOSITION
☐ Burial ☐ Cremation ☐ Removal from State
☐ Donation ☐ Other (Specify) _____
20b. PLACE OF DISPOSITION (Name of cemetery, crematory, or other place)
20c. LOCATION—City or Town, State
21a. SIGNATURE OF FUNERAL SERVICE LICENSEE OR PERSON ACTING AS SUCH
21b. LICENSE NUMBER (of Licensee)
22. NAME AND ADDRESS OF FACILITY

SEE DEFINITION ON OTHER SIDE

PRONOUNCING PHYSICIAN ONLY

Complete items 23a-c only when certifying physician is not available at time of death to certify cause of death.
23a. To the best of my knowledge, death occurred at the time, date, and place stated. Signature and Title
23b. LICENSE NUMBER
23c. DATE SIGNED (Month, Day, Year)

ITEMS 24-26 MUST BE COMPLETED BY PERSON WHO PRONOUNCES DEATH

24. TIME OF DEATH M
25. DATE PRONOUNCED DEAD (Month, Day, Year)
26. WAS CASE REFERRED TO MEDICAL EXAMINER/CORONER? (Yes or no)

CAUSE OF DEATH

27. PART I. Enter the diseases, injuries, or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock, or heart failure. List only one cause on each line.

Approximate Interval Between Onset and Death

IMMEDIATE CAUSE (Final disease or condition resulting in death) → a. _____ DUE TO (OR AS A CONSEQUENCE OF):

SEE INSTRUCTIONS ON OTHER SIDE

Sequentially list conditions, if any, leading to immediate cause. Enter UNDERLYING CAUSE (Disease or injury that initiated events resulting in death) LAST

b. _____ DUE TO (OR AS A CONSEQUENCE OF):
c. _____ DUE TO (OR AS A CONSEQUENCE OF):
d. _____

PART II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I.

28a. WAS AN AUTOPSY PERFORMED? (Yes or no)
28b. WERE AUTOPSY FINDINGS AVAILABLE PRIOR TO COMPLETION OF CAUSE OF DEATH? (Yes or no)

29. MANNER OF DEATH
☐ Natural ☐ Pending Investigation
☐ Accident
☐ Suicide ☐ Could not be Determined
☐ Homicide
30a. DATE OF INJURY (Month, Day, Year)
30b. TIME OF INJURY M
30c. INJURY AT WORK? (Yes or no)
30d. DESCRIBE HOW INJURY OCCURRED
30e. PLACE OF INJURY—At home, farm, street, factory, office building, etc. (Specify)
30f. LOCATION (Street and Number or Rural Route Number, City or Town, State)

SEE DEFINITION ON OTHER SIDE

CERTIFIER

31a. CERTIFIER (Check only one)

☐ CERTIFYING PHYSICIAN (Physician certifying cause of death when another physician has pronounced death and completed Item 23)
To the best of my knowledge, death occurred due to the cause(s) and manner as stated.

☐ PRONOUNCING AND CERTIFYING PHYSICIAN (Physician both pronouncing death and certifying to cause of death)
To the best of my knowledge, death occurred at the time, date, and place, and due to the cause(s) and manner as stated.

☐ MEDICAL EXAMINER/CORONER
On the basis of examination and/or investigation, in my opinion, death occurred at the time, date, and place, and due to the cause(s) and manner as stated.

31b. SIGNATURE AND TITLE OF CERTIFIER
31c. LICENSE NUMBER
31d. DATE SIGNED (Month, Day, Year)

32. NAME AND ADDRESS OF PERSON WHO COMPLETED CAUSE OF DEATH (ITEM 27) (Type/Print)

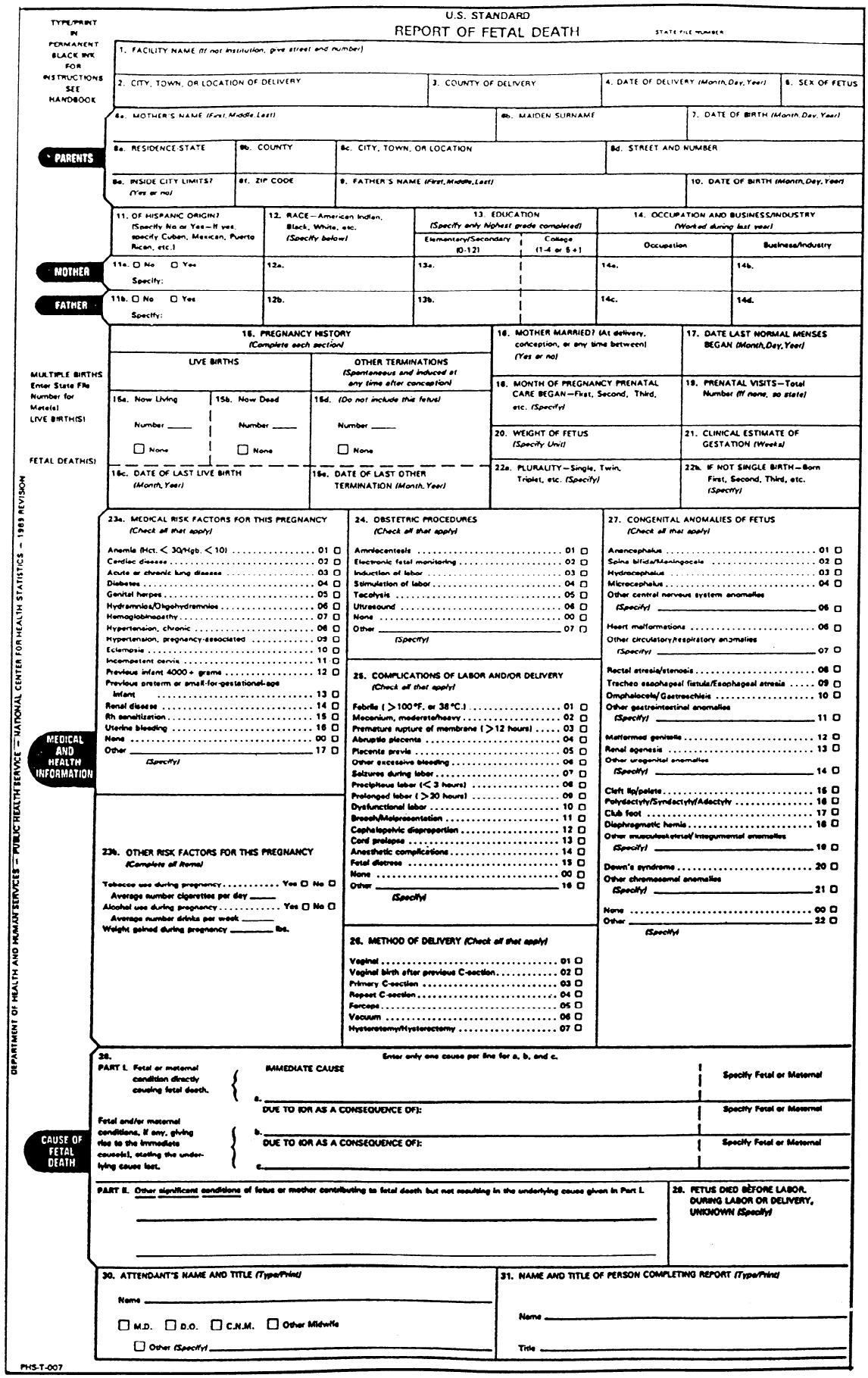
REGISTRAR

33. REGISTRAR'S SIGNATURE
34. DATE FILED (Month, Day, Year)

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

PHS-T-003

Figure 7-A. U.S. Standard Certificate of Death



U.S. STANDARD
REPORT OF FETAL DEATH

TYPE/PRINT IN PERMANENT BLACK INK FOR INSTRUCTIONS SEE HANDBOOK

STATE FILE NUMBER

1. FACILITY NAME (If not institution, give street and number)

2. CITY, TOWN, OR LOCATION OF DELIVERY | 3. COUNTY OF DELIVERY | 4. DATE OF DELIVERY (Month, Day, Year) | 5. SEX OF FETUS

PARENTS

6a. MOTHER'S NAME (First, Middle, Last) | 6b. MAIDEN SURNAME | 7. DATE OF BIRTH (Month, Day, Year)

8a. RESIDENCE-STATE | 8b. COUNTY | 8c. CITY, TOWN, OR LOCATION | 8d. STREET AND NUMBER

8e. INSIDE CITY LIMITS? (Yes or no) | 8f. ZIP CODE | 9. FATHER'S NAME (First, Middle, Last) | 10. DATE OF BIRTH (Month, Day, Year)

	11. OF HISPANIC ORIGIN? (Specify No or Yes—If yes, specify Cuban, Mexican, Puerto Rican, etc.)	12. RACE—American Indian, Black, White, etc. (Specify below)	13. EDUCATION (Specify only highest grade completed)		14. OCCUPATION AND BUSINESS/INDUSTRY (Worked during last year)	
			Elementary/Secondary (0-12)	College (1-4 or 5+)	Occupation	Business/Industry
MOTHER	11a. ☐ No ☐ Yes Specify:	12a.	13a.		14a.	14b.
FATHER	11b. ☐ No ☐ Yes Specify:	12b.	13b.		14c.	14d.

MULTIPLE BIRTHS Enter State File Number for Mate(s)

LIVE BIRTH(S)

FETAL DEATH(S)

15. PREGNANCY HISTORY (Complete each section)			16. MOTHER MARRIED? (At delivery, conception, or any time between) (Yes or no)	17. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)
LIVE BIRTHS		OTHER TERMINATIONS (Spontaneous and induced at any time after conception)		
15a. Now Living Number ____ ☐ None	15b. Now Dead Number ____ ☐ None	15d. (Do not include this fetus) Number ____ ☐ None	18. MONTH OF PREGNANCY PRENATAL CARE BEGAN—First, Second, Third, etc. (Specify)	19. PRENATAL VISITS—Total Number (If none, so state)
			20. WEIGHT OF FETUS (Specify Unit)	21. CLINICAL ESTIMATE OF GESTATION (Weeks)
15c. DATE OF LAST LIVE BIRTH (Month, Year)		15e. DATE OF LAST OTHER TERMINATION (Month, Year)	22a. PLURALITY—Single, Twin, Triplet, etc. (Specify)	22b. IF NOT SINGLE BIRTH—Born First, Second, Third, etc. (Specify)

MEDICAL AND HEALTH INFORMATION

23a. MEDICAL RISK FACTORS FOR THIS PREGNANCY (Check all that apply)

Anemia (Hct. < 30/Hgb. < 10) ..... 01 ☐
Cardiac disease ..... 02 ☐
Acute or chronic lung disease ..... 03 ☐
Diabetes ..... 04 ☐
Genital herpes ..... 05 ☐
Hydramnios/Oligohydramnios ..... 06 ☐
Hemoglobinopathy ..... 07 ☐
Hypertension, chronic ..... 08 ☐
Hypertension, pregnancy-associated ..... 09 ☐
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 ☐

23b. 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.

24. OBSTETRIC PROCEDURES (Check all that apply)

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

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

Febrile (>100°F. or 38°C.) ..... 01 ☐
Meconium, moderate/heavy ..... 02 ☐
Premature rupture of membrane (>12 hours) ..... 03 ☐
Abruptio placenta ..... 04 ☐
Placenta previa ..... 05 ☐
Other excessive bleeding ..... 06 ☐
Seizures during labor ..... 07 ☐
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 ☐

26. METHOD OF DELIVERY (Check all that apply)

Vaginal ..... 01 ☐
Vaginal birth after previous C-section ..... 02 ☐
Primary C-section ..... 03 ☐
Repeat C-section ..... 04 ☐
Forceps ..... 05 ☐
Vacuum ..... 06 ☐
Hysterotomy/Hysterectomy ..... 07 ☐

27. CONGENITAL ANOMALIES OF FETUS (Check all that apply)

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

CAUSE OF FETAL DEATH

28. Enter only one cause per line for a, b, and c.

PART I. Fetal or maternal condition directly causing fetal death.
a. IMMEDIATE CAUSE — Specify Fetal or Maternal

Fetal and/or maternal conditions, if any, giving rise to the immediate cause(s), stating the underlying cause last.
b. DUE TO (OR AS A CONSEQUENCE OF): — Specify Fetal or Maternal
c. DUE TO (OR AS A CONSEQUENCE OF): — Specify Fetal or Maternal

PART II. Other significant conditions of fetus or mother contributing to fetal death but not resulting in the underlying cause given in Part I.

29. FETUS DIED BEFORE LABOR, DURING LABOR OR DELIVERY, UNKNOWN (Specify)

30. ATTENDANT'S NAME AND TITLE (Type/Print)
Name
☐ M.D. ☐ D.O. ☐ C.N.M. ☐ Other Midwife
☐ Other (Specify)

31. NAME AND TITLE OF PERSON COMPLETING REPORT (Type/Print)
Name
Title

DEPARTMENT OF HEALTH AND HUMAN SERVICES — PUBLIC HEALTH SERVICE — NATIONAL CENTER FOR HEALTH STATISTICS — 1989 REVISION

PHS-T-007

Figure 7-B. U.S. Standard Report of Fetal Death

Table A. Comparison of percent agreement and ratio of deaths for census or survey record to deaths by race for matching death certificate: 1960 and 1979-85

Race	Census		NLMS[1]	
	Percent agreement	Ratio census/ death certificate	Percent agreement	Ratio NLMS/ death certificate
White.....	99.8	1.00	99.2	1.00
Black.....	98.2	1.00	98.2	1.00
American Indian.....	79.2	1.12	73.6	1.22
Asian.....	---	...	82.4	1.12
Japanese.....	97.0	1.04	...	...
Chinese	90.3	1.07	...	...
Filipino	72.6	1.28	...	...

--- Data not available.

... Category not applicable.

[1] NLMS is defined as National Longitudinal Mortality Study.

SOURCES: Hambright TZ. Comparability of marital status, race, nativity, and country of origin on the death certificate and matching census record: U.S., May-August 1960. National Center for Health Statistics. Vital Health Stat 2(34). 1969; Sorlie PD, Rogot E, Johnson NJ. Validity of demographic characteristics on the death certificate. Epidemiology 3(2):181-4. 1992.

Table B. Infant mortality rates by race of mother from linked and unlinked data, 1989-91; and ratio of linked to unlinked rates: United States

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

Race	Unlinked period rate 1989-91	Linked birth cohort rate 1989-91	Ratio linked/ unlinked rates
All races	9.3	9.0	0.97
White	7.6	7.4	0.97
Black	18.0	17.1	0.95
American Indian	11.2	12.6	1.13
Chinese	5.0	5.1	1.02
Japanese	4.4	5.3	1.20
Hawaiian	10.9	9.0	0.83
Filipino	4.1	6.4	1.56
Other Asian or Pacific Islander	5.6	7.0	1.25

NOTE: Births for race not stated are not distributed.

Table C. Period of gestation at which fetal-death reporting is required: Each reporting area, 1994

Area	All periods of gestation	16 weeks	20 weeks	20 weeks or 350 grams	20 weeks or 400 grams	20 weeks or 500 grams	5 months	350 grams	500 grams
Alabama			X						
Alaska			X						
Arizona				X					
Arkansas	X[1]								
California			X						
Colorado	X[1]								
Connecticut			X						
Delaware								X[2]	
District of Columbia						X			
Florida			X						
Georgia	X								
Hawaii	X								
Idaho				X					
Illinois			X						
Indiana			X						
Iowa			X						
Kansas								X	
Kentucky				X					
Louisiana				X					
Maine			X						
Maryland			X[3]						
Massachusetts				X					
Michigan					X				
Minnesota			X						
Mississippi				X					
Missouri				X					
Montana						X			
Nebraska			X						
Nevada			X						
New Hampshire				X					
New Jersey			X						
New Mexico									X
New York									
New York excluding New York City	X								
New York City	X								
North Carolina			X						
North Dakota			X						
Ohio			X						
Oklahoma			X						

Table C. Period of gestation at which fetal-death reporting is required: Each reporting area, 1994

Area	All periods of gestation	16 weeks	20 weeks	20 weeks or 350 grams	20 weeks or 400 grams	20 weeks or 500 grams	5 months	350 grams	500 grams
Oregon			X						
Pennsylvania		X							
Rhode Island	X								
South Carolina				X					
South Dakota									X
Tennessee									X[4]
Texas			X						
Utah			X						
Vermont			X[5]						
Virginia	X								
Washington			X						
West Virginia			X						
Wisconsin				X					
Wyoming			X						
Puerto Rico							X		
Virgin Islands	X								
Guam			X						

[1]Although State law requires the reporting of fetal deaths of all periods of gestation, only data for fetal deaths of 20 weeks of gestation or more are provided to NCHS.

[2]If weight is unknown, 20 completed weeks of gestation or more.

[3]If gestational age is unknown, weight of 500 grams or more.

[4]If weight is unknown, 22 completed weeks of gestation or more.

[5]If gestational age is unknown, weight of 400 grams or more, 15 ounces or more.

Table D. Percent of fetal death records on which specified items were not stated: Each State, 1994

[By place of occurrence. Records include only those with stated or presumed period of gestation of 20 weeks or more]

Area	Length of gestation[1]	Marital status	Place of delivery	Birth-weight	Month prenatal care began	Number of prenatal visits	Hispanic origin of mother	Mother's educational attainment	Medical risk factors[2]	Tobacco use	Alcohol use	Obstetric procedures	Complications of labor and/or delivery[3]	Congenital anomalies
Alabama	0.9	0.7	-	4.4	7.7	8.3	0.2	6.3	1.6	3.2	3.2	1.1	2.5	2.5
Alaska	2.4	2.4	-	4.8	2.4	4.8	2.4	11.9	-	4.8	2.4	-	-	2.4
Arizona	2.0	0.9	-	5.9	8.9	12.3	2.7	11.6	3.2	9.1	9.5	3.4	2.7	3.4
Arkansas	0.4	-	-	2.6	15.7	17.0	0.4	9.6	0.9	3.9	3.5	0.9	0.4	0.9
California	10.8	---	-	1.3	6.4	7.0	1.6	6.5	2.6	---	---	2.6	2.3	4.2
Colorado	-	1.1	-	17.0	17.6	21.4	-	17.6	-	19.7	20.8	-	-	-
Connecticut	4.9	---	-	14.0	48.2	49.5	22.5	76.2	34.9	37.5	39.4	31.3	33.9	54.4
Delaware	-	-	-	7.7	-	1.9	-	3.8	13.5	11.5	11.5	11.5	13.5	11.5
District of Columbia	4.1	11.2	0.6	11.2	22.5	23.1	4.7	30.8	37.3	58.6	59.2	39.1	41.4	52.7
Florida	3.0	3.8	-	8.8	14.5	15.6	2.8	10.2	5.3	6.7	7.6	4.2	4.9	5.3
Georgia	0.9	0.3	-	16.8	17.7	19.0	8.8	30.7	5.2	6.9	7.6	1.7	2.7	3.0
Hawaii	0.7	-	-	33.1	34.5	32.4	17.3	38.8	---	---	---	---	---	---
Idaho	-	-	1.1	4.5	4.5	3.4	2.3	8.0	5.7	8.0	9.1	4.5	4.5	15.9
Illinois	3.9	5.8	0.1	6.7	14.7	15.6	4.8	8.8	15.2	2.4	1.6	12.2	16.2	18.9
Indiana	1.3	1.5	0.2	12.5	9.6	13.8	5.9	9.2	7.2	---	15.3	5.7	4.8	7.0
Iowa	2.4	0.9	-	4.7	1.9	4.2	-	2.4	0.9	1.4	1.9	0.5	0.5	1.9
Kansas	2.2	0.4	0.4	-	3.5	4.8	1.3	3.1	10.1	14.1	10.1	8.8	8.8	18.1
Kentucky	0.8	0.5	-	1.1	0.8	3.2	0.5	2.7	23.6	18.0	18.8	18.6	23.6	38.2
Louisiana	23.0	0.7	-	5.4	11.9	14.7	---	13.4	---	---	---	---	---	---
Maine	21.1	21.1	-	31.6	-	22.8	28.1	24.6	17.5	19.3	21.1	15.8	17.5	17.5
Maryland	42.6	---	1.0	34.7	37.0	---	---	34.5	---	---	---	---	---	---
Massachusetts	0.2	-	0.4	1.8	1.6	2.2	---	22.4	---	---	---	---	---	---
Michigan	0.7	---	0.6	2.2	8.8	11.5	16.0	13.2	3.5	8.3	9.7	2.6	3.2	3.6
Minnesota	0.8	14.9	-	5.8	2.7	7.4	3.7	10.3	11.1	11.7	15.4	7.7	13.3	13.5
Mississippi	1.4	-	0.2	2.3	7.8	11.8	-	6.4	3.9	6.4	6.6	1.6	2.5	3.1
Missouri	1.1	-	-	4.8	9.3	8.8	1.4	9.1	1.6	2.9	3.6	1.1	2.0	1.6
Montana	-	-	-	4.0	6.0	4.0	10.0	10.0	2.0	4.0	4.0	0.0	2.0	0.0
Nebraska	-	0.7	-	4.2	2.8	1.4	4.9	2.1	1.4	2.1	2.1	0.7	0.7	0.7
Nevada	3.5	---	-	29.2	28.5	31.9	5.6	10.4	40.3	46.5	47.9	25.7	34.7	41.0
New Hampshire	-	-	-	2.5	2.5	3.8	23.8	11.2	-	1.2	1.2	1.2	0.0	0.0
New Jersey	9.2	3.4	0.3	21.4	18.0	21.0	2.3	20.9	7.1	7.5	8.9	5.6	7.8	8.6
New Mexico	-	2.8	-	6.5	12.1	7.5	-	38.3	4.7	2.8	2.8	0.9	0.9	---
New York State	1.9	---	0.1	34.7	25.5	27.5	11.8	38.6	-	---	16.1	-	15.7	-
New York City	2.8	---	-	25.5	47.0	35.6	16.8	38.4	19.6	22.0	24.2	18.7	22.2	---
North Carolina	2.0	0.8	-	6.1	4.6	6.9	1.3	5.0	1.4	3.9	4.0	1.4	1.6	2.1
North Dakota	4.9	-	-	8.2	3.3	8.2	8.2	3.3	6.6	8.2	11.5	3.3	3.3	3.3
Ohio	0.7	32.0	0.1	11.2	11.9	15.4	2.9	8.2	9.7	11.0	13.2	9.0	10.2	10.4

Table D. Percent of fetal death records on which specified items were not stated: Each State, 1994

[By place of occurrence. Records include only those with stated or presumed period of gestation of 20 weeks or more]

Area	Length of gestation[1]	Marital status	Place of delivery	Birth-weight	Month prenatal care began	Number of prenatal visits	Hispanic origin of mother	Mother's educational attainment	Medical risk factors[2]	Tobacco use	Alcohol use	Obstetric procedures	Complications of labor and/or delivery[3]	Congenital anomalies
Oklahoma	53.3	25.7	0.6	32.0	48.5	49.1	---	43.7	---	---	---	---	---	---
Oregon	-	-	-	3.3	1.7	1.7	1.2	7.9	-	1.2	1.2	-	-	-
Pennsylvania	2.1	2.1	0.1	10.4	14.0	15.3	1.3	16.8	2.9	7.1	8.6	2.0	2.8	6.8
Rhode Island	2.5	82.7	-	19.8	98.8	98.8	96.3	97.5	70.4	84.0	84.0	67.9	69.1	81.5
South Carolina	0.4	1.1	-	2.6	2.8	3.0	0.8	8.9	0.8	2.1	2.1	0.6	0.9	1.3
South Dakota	4.3	-	-	2.1	2.1	2.1	-	2.1	-	---	---	-	-	-
Tennessee	0.2	0.2	-	0.7	8.2	12.9	2.2	8.0	2.5	5.7	6.0	2.7	4.2	5.0
Texas	4.1	---	-	11.2	11.9	12.6	0.3	11.4	12.5	10.2	11.5	2.1	5.4	5.5
Utah	-	0.9	-	6.6	5.2	4.7	0.9	7.1	3.3	3.8	3.8	0.5	2.8	17.9
Vermont	-	-	-	14.8	14.8	14.8	-	3.7	3.7	-	3.7	-	-	3.7
Virginia	1.1	0.9	-	28.7	21.9	26.6	7.3	35.9	26.1	28.6	29.6	23.7	29.7	34.7
Washington	3.1	2.2	0.2	17.3	15.1	16.3	15.1	21.1	3.1	6.2	10.8	3.4	3.4	4.3
West Virginia	-	1.3	-	2.5	8.8	8.2	1.3	7.5	-	8.2	9.4	-	-	-
Wisconsin	-	-	-	0.5	0.7	0.2	0.2	0.9	-	0.5	0.5	0.2	0.2	0.2
Wyoming	-	-	-	3.3	3.3	-	-	3.3	3.3	-	3.3	3.3	-	6.7

- Quantity zero.

--- Data not available.

[1] California, Louisiana, Maryland, and Oklahoma report date last normal menses began but do not report clinical estimate of gestation.

[2] Kansas and South Dakota do not report Rh sensitization; New York State does not report previous infant 4,000 grams or more; Texas does not report genital herpes and uterine bleeding.

[3] Texas does not report cephalopelvic disproportion, anesthetic complications, and fetal distress.

Table E. Numbers of deaths and ratios of deaths for selected causes as tabulated by State of occurrence and NCHS, 1994

[Data by place of occurrence include deaths of nonresidents. Numbers after causes of death are category numbers of the Ninth Revision, International Classification of Diseases, 1975]

Causes	Alaska	NCHS	Ratio AK/NCHS
All causes	2,446	2,472	0.99
Symptoms, signs, and ill-defined conditions 780-799	47	59	0.80
Accidents and adverse effects E800-E949	308	380	0.81
Motor vehicle accidents E810-E825	91	91	1.00
All other accidents and adverse effects E800-E807,E826-E949	217	289	0.75
Suicide E950-E959	146	120	1.22
Homicide and legal intervention E960-E978	45	38	1.18
All other external causes E980-E999	8	5	1.60

Table F. Population of Birth- and Death-Registration States, 1900-1932, and United States, 1933-1994

[Population enumerated as of April 1 for 1940, 1950, 1960, 1970, 1980, and 1990 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 States [2]	Population residing in area	Number of States [2]	Population residing in area
1994	260,650,842	260,340,990							
1993	258,119,768	257,783,004	1946	141,389,000	140,054,000	...	...	...	...
1992	255,457,501	255,077,536	1945	139,928,000	132,481,000	...	...	...	...
1991	252,688,000	252,177,000	1944	138,397,000	132,885,000	...	...	...	...
1990	249,225,000	248,709,873	1943	136,739,000	134,245,000	...	...	...	...
1989	247,342,000	246,819,000	1942	134,860,000	133,920,000	...	...	...	...
1988	245,021,000	244,499,000	1941	133,402,000	133,121,000	...	...	...	...
1987	242,804,000	242,289,000	1940	131,820,000	131,669,275	...	...	...	...
1986	240,651,000	240,133,000	1939	131,028,000	130,879,718	...	...	...	...
1985	238,466,000	237,924,000	1938	129,969,000	129,824,939	...	...	...	...
1984	236,348,000	235,825,000	1937	128,961,000	128,824,829	...	...	...	...
1983	234,307,000	233,792,000	1936	128,181,000	128,053,180	...	...	...	...
1982	232,188,000	231,664,000	1935	127,362,000	127,250,232	...	...	...	...
1981	229,966,000	229,466,000	1934	126,485,000	126,373,773	...	...	...	...
1980	227,061,000	226,545,805	1933	125,690,000	125,578,763	...	...	...	...
1979	225,055,000	224,567,000	1932	124,949,000	124,840,471	47	118,903,899	47	118,903,899
1978	222,585,000	222,095,000	1931	124,149,000	124,039,648	46	117,455,229	47	118,148,987
1977	220,239,000	219,760,000	1930	123,188,000	123,076,741	46	116,544,946	47	117,238,278
1976	218,035,000	217,563,000	1929	---	121,769,939	46	115,317,450	46	115,317,450
1975	215,973,000	215,465,000	1928	---	120,501,115	44	113,636,160	44	113,636,160
1974	213,854,000	213,342,000	1927	---	119,038,062	40	104,320,830	42	107,084,532
1973	211,909,000	211,357,000	1926	---	117,399,225	35	90,400,590	41	103,822,683
1972	209,896,000	209,284,000	1925	---	115,831,963	33	88,294,564	40	102,031,555
1971	207,661,000	206,827,000	1924	---	114,113,463	33	87,000,295	39	99,318,098
1970	204,270,000	203,211,926	1923	---	111,949,945	30	81,072,123	38	96,788,197
1969	202,677,000	201,385,000	1922	---	110,054,778	30	79,560,746	37	92,702,901
1968	200,706,000	199,399,000	1921	---	108,541,489	27	70,807,090	34	87,814,447
1967	198,712,000	197,457,000	1920	---	106,466,420	23	63,597,307	34	86,079,263
1966	196,560,000	195,576,000	1919	105,063,000	104,512,110	22	61,212,076	33	83,157,982
1965	194,303,000	193,526,000	1918	104,550,000	103,202,801	20	55,153,782	30	79,008,412
1964	191,889,000	191,141,000	1917	103,414,000	103,265,913	20	55,197,952	27	70,234,775
1963	189,242,000	188,483,000	1916	---	101,965,984	11	32,944,013	26	66,971,177
1962	186,538,000	185,771,000	1915	---	100,549,013	10	31,096,697	24	61,894,847
1961	183,691,000	182,992,000	1914	---	99,117,567	...	...	24	60,963,309
1960	179,933,000	179,323,175	1913	---	97,226,814	...	...	23	58,156,740
1959	177,264,000	176,513,000	1912	---	95,331,300	...	...	22	54,847,700
1958	174,141,000	173,320,000	1911	---	93,867,814	...	...	22	53,929,644
1957	171,274,000	170,371,000	1910	---	92,406,536	...	...	20	47,470,437
1956	168,221,000	167,306,000	1909	---	90,491,525	...	...	18	44,223,513
1955	165,275,000	164,308,000	1908	---	88,708,976	...	...	17	38,634,759
1954	162,391,000	161,164,000	1907	---	87,000,271	...	...	15	34,552,837
1953	159,565,000	158,242,000	1906	---	85,436,556	...	...	15	33,782,288
1952	156,954,000	155,687,000	1905	---	83,819,666	...	...	10	21,767,980
1951	154,287,000	153,310,000	1904	---	82,164,974	...	...	10	21,332,076
1950	151,132,000	150,697,361	1903	---	80,632,152	...	...	10	20,943,222
1949	149,188,000	148,665,000	1902	---	79,160,196	...	...	10	20,582,907
1948	146,631,000	146,093,000	1901	---	77,585,128	...	...	10	20,237,453
1947	144,126,000	143,446,000	1900	---	76,094,134	...	...	10	19,965,446

[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. Bureau of the Census; see text.

Table G. Source for resident population and population including Armed Forces abroad: Birth- and death-registration States, 1900-32, and United States, 1933-94

Year	Source
1994	U.S. Bureau of the Census, Electronic Data File, RESD0794, and unpublished data.
1993	U.S. Bureau of the Census, Electronic Data File, RESP0793, and unpublished data.
1992	U.S. Bureau of the Census, Electronic Data File, RESP0792, and unpublished data.
1991	U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 1095, 1993.
1990	U.S. Bureau of the Census, Unpublished data from the 1990 census, 1990 CPH-L-74 and unpublished data consistent with *Current Population Reports*, Series P-25, No. 1095.
1981-89 . . .	U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 1095, 1993.
1980	U.S. Bureau of the Census, *U.S. Census of Population: 1980, Number of Inhabitants*, PC-80-1A1, United States Summary, 1983.
1971-79 . . .	U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 917, July 1982.
1970	U.S. Bureau of the Census, *U.S. Census of Population: 1970, Number of Inhabitants*, Final Report PC(1)-A1, United States Summary, 1971.
1961-69 . . .	U.S. Bureau of the Census, Current Population *Reports*, Series P-25, No. 519, April 1974.
1960	U.S. Bureau of the Census, *U.S. Census of Population: 1960, Number of Inhabitants*, PC(1)-A1, United States Summary, 1964.
1951-59 . . .	U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 310, June 30, 1965.
1940-50 . . .	U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 499, May 1973.
1930-39 . . .	U.S. Bureau of the Census, *Current Population Reports*, Series P-25, No. 499, May 1973,
1930	and National Office of Vital Statistics, *Vital Statistics Rates in the United States*, 1900-1940, 1947.
1920-29 . . .	National Office of Vital Statistics, *Vital Statistics Rates in the United States*, 1900-1940, 1947.
1917-19 . . .	Same as for 1930-39.
1900-16 . . .	Same as for 1920-29.

Table H. Estimated Population of the United States, by 5-Year Age Groups, Race, and Sex: July 1, 1994

[Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Age	All races			White			All other					
							Total			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	260,340,990	127,076,429	133,264,561	216,469,961	106,138,931	110,331,030	43,871,029	20,937,498	22,933,531	32,672,217	15,491,454	17,180,763
Under 1 year	3,870,185	1,980,754	1,889,431	3,041,063	1,559,695	1,481,368	829,122	421,059	408,063	618,864	313,961	304,903
1-4 years	15,856,964	8,113,681	7,743,283	12,550,842	6,434,998	6,115,844	3,306,122	1,678,683	1,627,439	2,499,743	1,267,070	1,232,673
5-9 years	18,858,601	9,657,111	9,201,490	14,996,992	7,695,193	7,301,799	3,861,609	1,961,918	1,899,691	2,938,728	1,490,611	1,448,117
10-14 years	18,752,722	9,602,417	9,150,305	14,921,052	7,660,715	7,260,337	3,831,670	1,941,702	1,889,968	2,863,539	1,451,593	1,411,946
15-19 years	17,616,398	9,036,127	8,580,271	14,035,447	7,221,620	6,813,827	3,580,951	1,814,507	1,766,444	2,733,243	1,384,651	1,348,592
20-24 years	18,326,487	9,311,333	9,015,154	14,722,038	7,526,853	7,195,185	3,604,449	1,784,480	1,819,969	2,667,909	1,312,684	1,355,225
25-29 years	19,176,882	9,618,804	9,558,078	15,593,101	7,894,278	7,698,823	3,583,781	1,724,526	1,859,255	2,618,942	1,250,103	1,368,839
30-34 years	22,177,231	11,057,956	11,119,275	18,292,421	9,218,027	9,074,394	3,884,810	1,839,929	2,044,881	2,836,592	1,329,836	1,506,756
35-39 years	21,960,620	10,920,180	11,040,440	18,237,462	9,165,149	9,072,313	3,723,158	1,755,031	1,968,127	2,733,291	1,279,845	1,453,446
40-44 years	19,698,738	9,728,390	9,970,348	16,516,349	8,250,188	8,266,161	3,182,389	1,478,202	1,704,187	2,308,036	1,069,224	1,238,812
45-49 years	16,679,272	8,180,810	8,498,462	14,248,637	7,063,917	7,184,720	2,430,635	1,116,893	1,313,742	1,739,645	793,262	946,383
50-54 years	13,191,287	6,410,309	6,780,978	11,354,553	5,572,327	5,782,226	1,836,734	837,982	998,752	1,339,715	602,088	737,627
55-59 years	10,935,600	5,243,920	5,691,680	9,436,286	4,573,463	4,862,823	1,499,314	670,457	828,857	1,110,390	487,162	623,228
60-64 years	10,081,994	4,739,572	5,342,422	8,772,602	4,172,030	4,600,572	1,309,392	567,542	741,850	984,064	423,640	560,424
65-69 years	9,970,437	4,499,772	5,470,665	8,791,670	3,998,114	4,793,556	1,178,767	501,658	677,109	905,759	386,145	519,614
70-74 years	8,741,229	3,789,886	4,951,343	7,839,769	3,420,459	4,419,310	901,460	369,427	532,033	693,810	278,611	415,199
75-79 years	6,574,030	2,655,470	3,918,560	5,948,708	2,414,395	3,534,313	625,322	241,075	384,247	499,085	187,827	311,258
80-84 years	4,350,701	1,550,082	2,800,619	3,961,954	1,412,147	2,549,807	388,747	137,935	250,812	316,282	106,765	209,517
85 years and over	3,521,612	979,855	2,541,757	3,209,015	885,363	2,323,652	312,597	94,492	218,105	264,580	76,376	188,204

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

Table I. Estimated Population, by Age, for the United States, Each Division and State, Puerto Rico, Virgin Islands, and Guam: July 1, 1994

[Figures include Armed Forces stationed in each area, and exclude Armed Forces stationed outside the United States]

Division and State	Total	Under 5 years	5-19 years	20-44 years	45-64 years	65 years and over
United States	260,340,990	19,727,149	55,227,721	101,339,958	50,888,153	33,158,009
Geographic divisions:						
New England	13,270,369	920,863	2,582,666	5,301,138	2,617,594	1,848,108
Middle Atlantic	38,125,343	2,760,074	7,523,908	14,644,656	7,806,890	5,389,815
East North Central	43,183,850	3,157,071	9,300,374	16,627,550	8,529,300	5,569,555
West North Central	18,210,216	1,287,111	4,070,216	6,806,616	3,508,486	2,537,787
South Atlantic	46,398,204	3,344,692	9,291,465	18,129,816	9,300,566	6,331,665
East South Central	15,889,937	1,135,448	3,430,520	6,055,830	3,236,546	2,031,593
West South Central	28,404,010	2,306,187	6,592,767	10,967,745	5,370,518	3,166,793
Mountain	15,214,246	1,228,990	3,576,587	5,790,142	2,892,512	1,726,015
Pacific	41,644,815	3,586,713	8,859,218	17,016,465	7,625,741	4,556,678
New England:						
Maine	1,240,209	77,670	260,458	476,002	253,379	172,700
New Hampshire	1,136,820	80,055	237,985	466,407	216,620	135,753
Vermont	580,209	37,983	122,410	232,159	117,172	70,485
Massachusetts	6,041,123	422,674	1,138,566	2,458,457	1,172,152	849,274
Rhode Island	996,757	71,021	191,789	392,377	186,514	155,056
Connecticut	3,275,251	231,460	631,458	1,275,736	671,757	464,840
Middle Atlantic:						
New York	18,169,051	1,382,421	3,583,621	7,109,815	3,699,728	2,393,466
New Jersey	7,903,925	578,702	1,543,106	3,062,042	1,642,282	1,077,793
Pennsylvania	12,052,367	798,951	2,397,181	4,472,799	2,464,880	1,918,556
East North Central:						
Ohio	11,102,198	783,760	2,371,761	4,223,553	2,232,438	1,490,686
Indiana	5,752,073	407,236	1,230,216	2,223,459	1,156,632	734,530
Illinois	11,751,774	915,046	2,480,116	4,580,308	2,295,125	1,481,179
Michigan	9,496,147	701,129	2,082,797	3,669,134	1,863,382	1,179,705
Wisconsin	5,081,658	349,900	1,135,484	1,931,096	981,723	683,455
West North Central:						
Minnesota	4,567,267	326,599	1,033,112	1,775,649	859,551	572,356
Iowa	2,829,252	187,597	620,223	1,021,767	562,697	436,968
Missouri	5,277,640	375,974	1,143,800	1,964,941	1,047,723	745,202
North Dakota	637,988	42,760	147,690	235,668	117,984	93,886
South Dakota	721,164	54,111	175,733	254,120	131,236	105,964
Nebraska	1,622,858	115,637	372,482	596,355	308,803	229,581
Kansas	2,554,047	184,433	577,176	958,116	480,492	353,830
South Atlantic:						
Delaware	706,351	50,985	141,214	285,360	139,360	89,432
Maryland	5,006,265	378,990	1,001,961	2,059,358	1,006,486	559,470
District of Columbia	570,175	42,655	86,751	252,321	111,471	76,977
Virginia	6,551,522	469,069	1,307,695	2,728,578	1,320,985	725,195
West Virginia	1,822,021	108,249	376,289	655,694	401,679	280,110
North Carolina	7,069,836	509,993	1,435,026	2,806,272	1,433,574	884,971
South Carolina	3,663,984	273,914	784,309	1,439,646	730,866	435,249
Georgia	7,055,336	548,576	1,539,830	2,900,099	1,357,294	709,537
Florida	13,952,714	962,261	2,618,390	5,002,488	2,798,851	2,570,724
East South Central:						
Kentucky	3,826,794	260,858	821,779	1,468,252	787,348	488,557
Tennessee	5,175,240	365,657	1,071,737	1,998,044	1,081,449	658,353
Alabama	4,218,792	301,848	901,945	1,600,493	862,137	552,369
Mississippi	2,669,111	207,085	635,059	989,041	505,612	332,314
West South Central:						
Arkansas	2,452,671	172,042	540,517	874,728	503,112	362,272
Louisiana	4,315,085	337,446	1,031,349	1,629,309	823,364	493,617
Oklahoma	3,258,069	237,352	736,844	1,181,966	659,236	442,671
Texas	18,378,185	1,559,347	4,284,057	7,281,742	3,384,806	1,866,233
Mountain:						
Montana	856,047	58,834	203,853	301,486	178,036	113,838
Idaho	1,133,034	87,443	289,596	407,322	216,694	131,979
Wyoming	475,981	33,055	119,616	175,366	95,309	52,635
Colorado	3,655,647	270,190	796,765	1,482,176	739,063	367,453
New Mexico	1,653,521	139,517	406,675	612,010	314,243	181,076
Arizona	4,075,052	344,032	903,067	1,529,454	752,659	545,840
Utah	1,907,936	181,365	562,217	704,684	291,338	168,332
Nevada	1,457,028	114,554	294,798	577,644	305,170	164,862
Pacific:						
Washington	5,343,090	393,961	1,153,742	2,126,472	1,050,714	618,201
Oregon	3,086,188	208,735	655,468	1,164,999	635,049	421,937
California	31,430,697	2,833,355	6,653,996	12,998,690	5,598,225	3,346,431
Alaska	606,276	55,608	154,229	258,007	110,358	28,074
Hawaii	1,178,564	95,054	241,783	468,297	231,395	142,035
Puerto Rico	3,687,158	---	---	---	---	---
Virgin Islands	---	---	---	---	---	---
Guam	---	---	---	---	---	---

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

Table J. Estimated Population by 5-Year Age Groups, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, July 1, 1994

[Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Sex and age	All origins	Hispanic					Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Other Hispanic [1]	Total [2]	White	Black
Both sexes									
All ages	257,022,091	25,957,544	16,709,711	2,666,754	1,101,295	5,479,784	231,064,547	189,980,887	30,987,597
Under 1 year . .	3,826,553	637,225	460,489	52,377	11,626	112,733	3,189,328	2,422,087	577,905
1-4 years	15,649,659	2,439,593	1,730,777	230,102	41,595	437,119	13,210,066	10,152,827	2,345,795
5-9 years	18,612,036	2,512,924	1,770,249	263,081	58,919	420,675	16,099,112	12,518,618	2,771,956
10-14 years . . .	18,458,328	2,341,989	1,589,479	269,921	60,895	421,694	16,116,339	12,544,977	2,716,560
15-19 years . . .	17,378,508	2,190,079	1,453,191	251,386	47,934	437,568	15,188,429	11,834,584	2,596,785
20-24 years . . .	18,125,684	2,329,325	1,576,773	179,682	63,165	509,705	15,796,359	12,444,014	2,513,919
25-29 years . . .	18,937,634	2,473,517	1,625,899	218,263	69,342	560,013	16,464,117	13,136,810	2,466,911
30-34 years . . .	21,927,234	2,446,535	1,558,787	240,023	81,837	565,888	19,480,699	15,845,047	2,685,626
35-39 years . . .	21,702,610	2,051,868	1,251,355	212,596	89,336	498,581	19,650,742	16,157,327	2,595,652
40-44 years . . .	19,449,122	1,624,486	995,465	174,049	75,958	379,014	17,824,636	14,840,160	2,182,925
45-49 years . . .	16,470,278	1,223,038	694,659	156,311	77,009	295,059	15,247,240	12,952,412	1,661,157
50-54 years . . .	13,009,080	909,369	514,562	115,981	67,117	211,709	12,099,711	10,368,235	1,277,790
55-59 years . . .	10,774,948	735,774	411,394	90,474	71,122	162,784	10,039,174	8,618,169	1,061,992
60-64 years . . .	9,954,135	615,071	331,847	72,438	71,724	139,062	9,339,064	8,090,286	946,428
65-69 years . . .	9,844,512	520,245	297,559	42,365	67,188	113,133	9,324,267	8,197,128	874,057
70-74 years . . .	8,625,821	382,199	190,648	44,444	55,336	91,771	8,243,622	7,383,408	666,024
75-79 years . . .	6,488,094	242,418	109,633	21,286	46,292	65,207	6,245,676	5,647,421	480,264
80-84 years . . .	4,291,895	160,094	87,045	17,929	19,753	35,367	4,131,801	3,757,112	307,305
85 years + ...	3,495,960	121,795	59,900	14,046	25,147	22,702	3,374,165	3,070,265	258,546
Male									
All ages	125,465,333	13,150,296	8,642,375	1,250,872	529,548	2,727,501	112,315,037	92,774,299	14,653,073
Under 1 year . .	1,958,722	327,484	250,049	21,662	6,648	49,125	1,631,238	1,241,361	293,196
1-4 years	8,010,152	1,245,663	870,605	112,648	23,255	239,155	6,764,489	5,212,612	1,190,782

Table J. Estimated Population by 5-Year Age Groups, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, July 1, 1994

[Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Sex and age	All origins	Hispanic					Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Other Hispanic [1]	Total [2]	White	Black
5-9 years	9,537,937	1,286,710	880,397	146,201	27,381	232,731	8,251,227	6,434,844	1,404,375
10-14 years . . .	9,453,210	1,194,629	806,861	143,720	26,780	217,268	8,258,581	6,450,658	1,375,747
15-19 years . . .	8,912,271	1,123,218	747,124	130,009	26,918	219,167	7,789,053	6,087,546	1,316,983
20-24 years . . .	9,213,696	1,240,355	849,045	81,830	30,809	278,671	7,973,341	6,316,413	1,235,851
25-29 years . . .	9,503,238	1,328,114	908,570	95,541	32,327	291,676	8,175,124	6,588,179	1,171,633
30-34 years . . .	10,931,280	1,281,142	839,600	103,950	40,655	296,937	9,650,138	7,937,673	1,251,103
35-39 years . . .	10,796,885	1,053,394	663,103	94,296	51,415	244,580	9,743,491	8,109,236	1,208,177
40-44 years . . .	9,602,045	812,197	531,662	72,552	32,749	175,234	8,789,848	7,411,586	1,008,039
45-49 years . . .	8,089,769	601,040	363,112	69,718	39,036	129,174	7,488,729	6,436,452	753,284
50-54 years . . .	6,310,983	435,944	251,966	58,450	37,475	88,053	5,875,039	5,089,060	571,562
55-59 years . . .	5,165,263	345,669	193,160	35,086	35,081	82,342	4,819,594	4,183,550	465,950
60-64 years . . .	4,679,923	284,601	165,178	28,288	28,403	62,732	4,395,322	3,855,182	407,157
65-69 years . . .	4,434,137	230,215	133,775	21,734	29,495	45,211	4,203,922	3,724,693	371,594
70-74 years . . .	3,740,147	166,859	89,149	18,674	27,679	31,357	3,573,288	3,218,024	269,995
75-79 years . . .	2,621,013	96,046	45,138	6,238	20,462	24,208	2,524,967	2,295,265	178,656
80-84 years . . .	1,529,641	56,609	33,976	5,057	5,694	11,882	1,473,032	1,339,488	103,854
85 years + ...	975,021	40,407	19,905	5,218	7,286	7,998	934,614	842,477	75,135
Female									
All ages	131,556,758	12,807,248	8,067,336	1,415,882	571,747	2,752,283	118,749,510	97,206,588	16,334,524
Under 1 year . .	1,867,831	309,741	210,440	30,715	4,978	63,608	1,558,090	1,180,726	284,709
1-4 years	7,639,507	1,193,930	860,172	117,454	18,340	197,964	6,445,577	4,940,215	1,155,013
5-9 years	9,074,099	1,226,214	889,852	116,880	31,538	187,944	7,847,885	6,083,774	1,367,581
10-14 years . . .	9,005,118	1,147,360	782,618	126,201	34,115	204,426	7,857,758	6,094,319	1,340,813
15-19 years . . .	8,466,237	1,066,861	706,067	121,377	21,016	218,401	7,399,376	5,747,038	1,279,802
20-24 years . . .	8,911,988	1,088,970	727,728	97,852	32,356	231,034	7,823,018	6,127,601	1,278,068
25-29 years . . .	9,434,396	1,145,403	717,329	122,722	37,015	268,337	8,288,993	6,548,631	1,295,278

Table J. Estimated Population by 5-Year Age Groups, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, July 1, 1994

[Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Sex and age	All origins	Hispanic					Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Other Hispanic [1]	Total [2]	White	Black
30-34 years . . .	10,995,954	1,165,393	719,187	136,073	41,182	268,951	9,830,561	7,907,374	1,434,523
35-39 years . . .	10,905,725	998,474	588,252	118,300	37,921	254,001	9,907,251	8,048,091	1,387,475
40-44 years . . .	9,847,077	812,289	463,803	101,497	43,209	203,780	9,034,788	7,428,574	1,174,886
45-49 years . . .	8,380,509	621,998	331,547	86,593	37,973	165,885	7,758,511	6,515,960	907,873
50-54 years . . .	6,698,097	473,425	262,596	57,531	29,642	123,656	6,224,672	5,279,175	706,228
55-59 years . . .	5,609,685	390,105	218,234	55,388	36,041	80,442	5,219,580	4,434,619	596,042
60-64 years . . .	5,274,212	330,470	166,669	44,150	43,321	76,330	4,943,742	4,235,104	539,271
65-69 years . . .	5,410,375	290,030	163,784	20,631	37,693	67,922	5,120,345	4,472,435	502,463
70-74 years . . .	4,885,674	215,340	101,499	25,770	27,657	60,414	4,670,334	4,165,384	396,029
75-79 years . . .	3,867,081	146,372	64,495	15,048	25,830	40,999	3,720,709	3,352,156	301,608
80-84 years . . .	2,762,254	103,485	53,069	12,872	14,059	23,485	2,658,769	2,417,624	203,451
85 years + ...	2,520,939	81,388	39,995	8,828	17,861	14,704	2,439,551	2,227,788	183,411

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

Table K. Estimated Population for Ages 15 Years and Over, by 5-Year Age Groups, Marital Status, Race, and Sex: United States, 1994

[Figures may be subject to large sampling variability. Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Race, sex, and marital status	15 years and over	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years
White, male									
Never married	23,717,985	4,350,262	2,767,381	5,969,411	3,772,993	2,417,463	1,587,356	995,114	632,635
Married	50,819,122	19,096	73,938	1,473,452	3,759,322	6,028,795	6,546,668	6,167,831	5,477,822
Widowed	1,985,198	770	1,438	1,461	7,754	6,878	25,386	26,922	45,702
Divorced	6,266,022	5,564	3,166	82,531	354,207	764,890	1,005,735	1,060,323	907,742
White, female									
Never married	18,053,554	4,051,454	2,432,466	4,530,340	2,362,162	1,453,515	895,796	592,070	386,264
Married	51,361,741	54,027	250,718	2,453,904	4,740,333	6,612,498	6,837,056	6,359,127	5,439,451
Widowed	10,326,316	-	800	9,526	24,228	58,108	95,996	103,609	222,178
Divorced	8,430,081	7,048	17,316	201,419	572,104	950,265	1,243,468	1,211,360	1,136,827
Black, male									
Never married	5,168,827	845,522	529,081	1,166,265	820,870	659,942	470,878	262,348	160,603
Married	4,622,817	2,851	4,392	134,688	386,288	575,367	665,503	642,607	493,484
Widowed	314,577	-	-	2,097	-	-	7,110	8,573	11,875
Divorced	861,998	2,807	-	9,634	42,946	94,527	136,352	155,700	127,301
Black, female									
Never married	5,032,523	815,495	515,406	1,109,548	819,810	630,367	449,095	268,948	159,430
Married	4,838,822	4,457	11,532	221,934	480,286	673,653	718,645	666,507	538,057
Widowed	1,418,268	-	1,335	2,749	-	13,846	24,920	38,164	47,821
Divorced	1,493,510	-	368	20,993	68,742	188,892	260,791	265,195	201,077
American Indian, male									
Never married	286,566	60,738	34,309	74,383	41,436	30,311	18,649	10,726	6,391
Married	366,642	1,074	1,648	21,526	43,577	48,515	53,101	49,705	39,985
Widowed	12,908	-	-	-	-	476	-	-	-
Divorced	90,555	-	-	447	6,670	13,999	13,563	12,947	11,739
American Indian, female									
Never married	234,316	59,156	32,277	48,230	40,989	24,616	11,674	5,965	4,760
Married	379,786	580	2,590	34,464	39,660	52,993	61,127	53,719	34,168
Widowed	74,711	-	728	-	-	2,149	300	3,732	3,916
Divorced	99,712	-	-	7,909	5,884	14,045	15,310	14,435	18,762
Asian or Pacific Islander, male									
Never married	1,183,397	202,043	128,837	339,209	251,935	129,650	67,295	25,248	12,818
Married	1,916,604	759	445	36,239	125,833	279,595	306,480	295,591	241,987
Widowed	30,780	-	-	-	-	-	-	-	1,170
Divorced	78,492	-	-	-	4,964	7,552	16,103	14,760	9,546
Asian or Pacific Islander, female									
Never married	943,086	194,005	120,416	286,742	148,711	64,399	47,686	27,188	13,878
Married	2,157,757	968	5,966	84,645	250,667	358,862	338,000	326,621	243,276
Widowed	259,568	961	-	496	-	1,509	8,222	4,486	17,217
Divorced	176,329	-	199	2,254	4,504	19,558	32,367	29,246	31,380

Table K. Estimated Population for Ages 15 Years and Over, by 5-Year Age Groups, Marital Status, Race, and Sex: United States, 1994 -- Con.

[Figures may be subject to large sampling variability. Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Race, sex, and marital status	50-54 years	55-59 years	60-64 years	65-69 years	70-74 years	75-79 years	80-84 years	85 years and over
White, male								
Never married	285,979	244,573	164,278	201,004	139,366	90,735	51,310	48,125
Married	4,627,808	3,723,592	3,480,440	3,250,493	2,766,177	1,887,829	1,021,051	514,808
Widowed	64,519	91,693	146,566	276,894	342,165	345,012	298,943	303,095
Divorced	594,031	513,602	380,752	269,729	172,756	90,815	40,843	19,336
White, female								
Never married	260,042	180,538	167,205	147,682	181,064	139,117	106,940	166,899
Married	4,332,516	3,553,752	3,204,032	2,919,262	2,278,829	1,332,015	656,212	338,009
Widowed	287,589	447,085	711,524	1,348,047	1,665,495	1,904,190	1,688,835	1,759,106
Divorced	902,083	681,452	517,806	378,564	293,922	158,988	97,828	59,631
Black, male								
Never married	79,548	60,075	51,145	16,109	21,054	13,127	3,451	8,809
Married	399,263	359,021	264,706	287,218	189,630	120,256	66,959	30,584
Widowed	17,761	11,445	53,726	45,952	41,649	44,378	33,033	36,978
Divorced	105,508	56,618	54,067	36,870	26,280	10,069	3,319	-
Black, female								
Never married	73,922	57,803	43,653	31,984	28,806	8,383	8,752	11,121
Married	417,270	347,047	270,203	219,570	133,130	78,705	42,134	15,692
Widowed	86,693	121,562	161,159	201,859	203,388	212,512	146,032	156,228
Divorced	159,738	96,813	85,404	66,199	49,877	11,658	12,602	5,161
American Indian, male								
Never married	3,155	4,045	467	-	1,173	-	-	783
Married	33,418	23,415	14,043	16,671	12,844	5,728	426	966
Widowed	-	808	1,206	946	493	3,418	2,817	2,744
Divorced	6,866	5,346	10,782	3,355	1,320	749	2,772	-
American Indian, female								
Never married	1,899	2,114	333	478	-	1,825	-	-
Married	29,539	24,061	15,732	11,625	8,734	6,382	4,412	-
Widowed	8,368	3,301	11,859	11,893	10,311	5,695	5,148	7,311
Divorced	7,379	7,714	2,461	1,577	1,440	575	218	2,003
Asian or Pacific Islander, male								
Never married	6,287	1,088	2,967	6,951	3,206	1,674	-	4,189
Married	174,463	135,249	110,673	84,605	60,864	34,097	21,159	8,565
Widowed	632	4,354	1,058	2,992	8,124	7,585	3,996	869
Divorced	11,074	8,991	2,706	-	2,796	-	-	-
Asian or Pacific Islander, female								
Never married	12,465	2,816	1,227	9,490	4,738	3,147	5,098	1,080
Married	164,253	139,715	99,130	78,018	37,839	18,849	7,050	3,898
Widowed	19,688	13,961	33,409	40,158	48,236	36,241	19,374	15,610
Divorced	17,531	11,951	17,271	4,254	5,534	280	-	-

SOURCE: Population estimates based on unpublished tabulations prepared by the Housing and Household Economic Statistics Division, U.S. Bureau of the Census; see text.

Table L. Estimated Population for Ages 15 Years and Over, by 5-Year Age Groups, Marital Status, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, 1994

[Figures may be subject to large sampling variability. Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Hispanic origin, race for non-Hispanic origin, sex, and marital status	15 years and over	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years
Mexican, male									
Never married	2,265,009	431,881	289,458	622,418	431,488	204,559	130,495	66,581	37,463
Married	3,124,230	9,604	14,182	223,916	439,383	579,241	456,784	420,346	279,113
Widowed	99,318	-	-	-	193	1,146	2,528	2,404	4,623
Divorced	345,902	2,000	-	2,718	37,506	54,645	73,296	42,326	41,914
Mexican, female									
Never married	1,540,797	410,501	215,300	371,069	210,398	140,681	71,441	36,678	20,061
Married	3,101,182	17,408	61,705	341,667	473,500	526,328	433,777	357,219	258,838
Widowed	313,158	-	524	1,433	670	3,714	9,783	13,987	14,383
Divorced	369,106	-	625	13,556	32,765	48,464	73,254	55,915	38,267
Puerto Rican, male									
Never married	344,487	77,626	48,937	64,380	45,831	43,343	20,239	13,644	16,456
Married	396,797	-	2,199	16,788	45,233	54,355	63,725	49,104	46,629
Widowed	22,291	-	-	-	897	-	-	-	-
Divorced	63,059	1,249	-	663	3,582	6,251	10,331	9,802	6,633
Puerto Rican, female									
Never married	341,754	75,688	35,051	64,902	47,961	41,760	24,456	17,249	12,743
Married	498,270	3,574	7,065	29,991	69,514	75,081	72,221	65,947	59,985
Widowed	77,317	-	-	562	408	3,331	1,018	2,640	3,983
Divorced	107,280	-	-	2,399	4,840	15,899	20,602	15,662	9,881
Cuban, male									
Never married	124,140	14,672	11,362	24,653	17,211	12,561	15,474	5,441	7,676
Married	275,144	-	883	6,156	12,330	26,210	32,816	23,499	26,265
Widowed	13,101	-	-	-	-	-	-	-	-
Divorced	33,102	-	-	-	2,786	1,886	3,126	3,806	5,095
Cuban, female									
Never married	78,066	14,401	6,402	20,772	10,273	5,129	3,297	366	3,044
Married	270,034	-	213	9,787	22,719	28,129	28,029	32,230	27,071
Widowed	61,783	-	-	-	-	846	-	1,398	2,504
Divorced	72,895	-	-	1,798	4,023	7,079	6,594	9,214	5,355
Other Hispanic, male									
Never married	835,780	134,549	80,826	233,524	165,065	100,154	60,129	20,048	17,386
Married	1,025,419	360	1,904	43,551	117,826	175,981	169,785	132,605	103,719
Widowed	27,622	-	-	-	-	-	360	-	1,696
Divorced	100,404	-	1,527	1,593	8,781	20,804	14,306	22,586	6,373
Other Hispanic, female									
Never married	614,816	113,682	89,808	149,679	91,762	51,288	30,765	27,247	17,804
Married	1,147,602	2,486	11,964	74,625	162,775	198,021	185,548	146,163	113,284
Widowed	149,884	-	-	572	552	1,931	7,123	2,945	8,054
Divorced	186,042	317	144	6,158	13,254	17,707	30,564	27,424	26,745

Table L. Estimated Population for Ages 15 Years and Over, by 5-Year Age Groups, Marital Status, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, 1994 -- Con.

[Figures may be subject to large sampling variability. Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Hispanic origin, race for non-Hispanic origin, sex, and marital status	15 years and over	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years
White Non-Hispanic, male									
Never married	20,230,558	3,690,101	2,329,720	5,061,451	3,142,157	2,063,960	1,380,493	888,035	559,993
Married	45,709,925	8,965	52,606	1,176,028	3,142,367	5,193,272	5,804,008	5,515,487	4,994,121
Widowed	1,807,579	786	1,460	1,495	6,812	5,183	20,382	24,747	39,230
Divorced	5,686,736	2,247	1,667	77,433	296,843	675,261	904,353	983,321	843,088
White Non-Hispanic, female									
Never married	15,573,971	3,432,840	2,090,026	3,964,787	2,021,326	1,227,769	778,881	510,771	336,098
Married	46,070,210	29,317	170,608	1,980,180	3,998,041	5,776,790	6,096,721	5,743,533	4,931,961
Widowed	9,636,051	-	818	6,542	22,975	49,455	76,503	81,411	190,993
Divorced	7,627,307	6,834	16,606	176,092	506,287	853,356	1,095,980	1,092,861	1,056,903
Black Non-Hispanic, male									
Never married	4,883,203	803,650	503,591	1,101,595	771,288	622,143	442,368	246,565	149,530
Married	4,383,425	2,772	4,243	122,793	360,308	539,753	629,570	606,364	470,355
Widowed	305,610	-	-	2,048	-	-	6,940	8,318	11,549
Divorced	816,737	2,727	-	9,409	40,035	89,206	129,294	146,796	121,859
Black Non-Hispanic, female									
Never married	4,771,374	772,575	492,501	1,042,293	777,196	602,576	427,164	250,444	155,625
Married	4,612,320	4,292	8,763	212,641	451,625	638,505	684,669	630,954	513,802
Widowed	1,370,164	-	1,310	2,679	-	11,777	24,275	36,453	46,784
Divorced	1,432,554	-	361	20,456	66,457	181,662	251,366	257,040	191,660
Other Non-Hispanic, male									
Never married	1,322,941	234,415	146,363	373,176	251,406	154,306	78,732	33,028	17,457
Married	2,066,767	1,509	2,234	47,383	152,535	285,355	321,496	313,336	261,897
Widowed	40,868	-	-	-	-	523	-	-	386
Divorced	155,117	-	-	517	11,368	21,177	25,847	23,861	19,252
Other Non-Hispanic, female									
Never married	1,070,678	224,918	138,372	300,572	177,823	83,872	53,707	35,563	13,150
Married	2,319,074	1,253	7,152	111,642	260,522	365,513	368,513	346,871	260,505
Widowed	307,405	843	-	445	-	3,494	7,942	7,623	18,353
Divorced	249,088	-	-	4,694	6,741	35,780	41,523	41,278	42,667

Table L. Estimated Population for Ages 15 Years and Over, by 5-Year Age Groups, Marital Status, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, 1994 -- Con.

[Figures may be subject to large sampling variability. Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Hispanic origin, race for non-Hispanic origin, sex, and marital status	50-54 years	55-59 years	60-64 years	65-69 years	70-74 years	75-79 years	80-84 years	85 years and over
Mexican, male								
Never married	13,320	13,617	5,858	4,440	3,352	1,949	952	7,178
Married	201,178	151,860	132,492	96,874	65,397	27,060	20,136	6,664
Widowed	10,533	5,679	12,001	15,036	17,365	10,892	10,853	6,065
Divorced	26,936	22,006	14,826	17,427	3,032	5,237	2,033	-
Mexican, female								
Never married	15,434	15,528	6,893	7,981	7,022	4,386	2,286	5,138
Married	195,804	156,337	96,353	98,305	50,673	14,301	15,291	3,676
Widowed	13,356	28,534	41,910	44,065	35,342	41,148	34,496	29,813
Divorced	37,998	17,837	21,515	13,430	8,458	4,659	996	1,367
Puerto Rican, male								
Never married	6,342	1,951	771	1,326	3,641	-	-	-
Married	39,924	25,698	24,917	12,141	7,140	4,032	3,631	1,281
Widowed	1,946	-	626	4,741	7,619	1,099	1,426	3,937
Divorced	10,237	7,436	1,974	3,525	271	1,105	-	-
Puerto Rican, female								
Never married	4,972	4,252	3,693	3,271	1,756	1,980	421	1,599
Married	38,039	28,582	22,951	7,226	8,239	6,435	2,283	1,137
Widowed	3,364	12,535	7,918	8,292	11,122	5,881	10,169	6,094
Divorced	11,152	10,013	9,590	1,841	4,651	750	-	-
Cuban, male								
Never married	4,060	6,774	2,184	371	362	1,339	-	-
Married	28,486	27,279	23,759	23,564	20,188	13,436	5,089	5,184
Widowed	-	-	-	1,483	4,191	5,243	605	1,579
Divorced	4,929	1,028	2,462	4,077	2,937	446	-	524
Cuban, female								
Never married	1,203	1,498	1,336	1,881	2,332	970	3,492	1,670
Married	19,598	28,102	30,330	19,917	9,301	8,697	2,565	3,346
Widowed	536	-	6,059	5,480	13,249	13,964	8,003	9,744
Divorced	8,306	6,439	5,598	10,415	2,777	2,198	-	3,099
Other Hispanic, male								
Never married	5,184	9,552	3,971	3,423	741	305	923	-
Married	74,440	59,602	51,232	36,650	25,713	15,901	10,729	5,421
Widowed	-	8,544	3,162	2,425	2,818	6,039	-	2,578
Divorced	8,427	4,645	4,371	2,715	2,085	1,962	229	-
Other Hispanic, female								
Never married	11,632	3,531	8,609	4,044	6,881	6,159	1,289	636
Married	80,015	45,167	44,633	37,824	23,957	12,039	7,636	1,465
Widowed	11,070	14,581	15,430	16,977	24,967	18,966	14,115	12,601
Divorced	20,937	17,163	7,659	9,078	4,611	3,836	445	-

Table L. Estimated Population for Ages 15 Years and Over, by 5-Year Age Groups, Marital Status, Specified Hispanic Origin, Race for Non-Hispanic Origin, and Sex: Total of 49 States and the District of Columbia, 1994 -- Con.

[Figures may be subject to large sampling variability. Figures include Armed Forces stationed in the United States and exclude those stationed outside the United States]

Hispanic origin, race for non-Hispanic origin, sex, and marital status	50-54 years	55-59 years	60-64 years	65-69 years	70-74 years	75-79 years	80-84 years	85 years and over
White Non-Hispanic, male								
Never married	255,767	212,022	154,229	187,205	129,466	87,460	49,045	39,454
Married	4,241,554	3,423,774	3,220,550	3,044,615	2,622,093	1,803,306	970,178	497,001
Widowed	51,943	76,460	127,454	250,781	306,791	321,982	285,041	287,032
Divorced	539,792	471,298	352,940	242,091	159,670	82,518	35,221	18,993
White Non-Hispanic, female								
Never married	227,842	158,698	146,102	130,841	164,228	127,292	99,156	157,314
Married	3,969,981	3,263,924	2,985,549	2,735,492	2,161,417	1,276,415	622,241	328,040
Widowed	260,435	390,686	635,907	1,263,628	1,567,036	1,800,285	1,601,700	1,687,677
Divorced	820,907	621,312	467,543	342,474	272,706	148,170	94,521	54,755
Black Non-Hispanic, male								
Never married	76,952	56,166	48,269	15,369	20,811	12,824	3,415	8,667
Married	377,018	345,829	254,457	276,175	184,775	113,618	65,306	30,089
Widowed	17,396	11,258	52,143	45,006	39,500	42,381	32,693	36,378
Divorced	100,191	52,698	52,292	35,041	24,912	9,836	2,441	-
Black Non-Hispanic, female								
Never married	69,438	54,458	41,407	30,968	26,916	7,933	8,706	11,174
Married	401,769	331,840	260,882	213,066	126,591	77,869	40,040	15,012
Widowed	83,642	115,235	153,988	196,204	196,914	205,164	143,698	152,041
Divorced	151,377	94,510	82,991	62,229	45,615	10,641	11,004	5,185
Other Non-Hispanic, male								
Never married	8,370	4,679	3,107	5,764	6,192	1,643	-	4,303
Married	189,014	147,628	113,745	93,752	66,777	39,112	23,064	7,930
Widowed	566	4,797	2,081	4,983	7,547	9,777	5,440	4,768
Divorced	16,465	12,990	14,051	3,136	4,755	512	1,186	-
Other Non-Hispanic, female								
Never married	13,428	3,458	1,481	8,974	4,491	4,641	4,908	1,320
Married	176,333	151,066	105,545	85,729	41,119	23,414	9,134	4,763
Widowed	25,776	14,386	42,061	45,379	57,439	38,611	23,470	21,583
Divorced	23,734	20,006	20,278	5,368	5,870	280	182	687

Table M. Ratio of Census-Level Resident Population to Resident Population Adjusted for Estimated net Census Undercount by Age, Sex, and Race: April 1, 1990

Age	All races			White			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	0.9815	0.9721	0.9906	0.9802	0.9728	0.9873	0.9432	0.9151	0.9699
Under 5 years	0.9632	0.9634	0.9629	0.9677	0.9685	0.9669	0.9160	0.9139	0.9182
Under 1 year	.9686	.9684	.9689	.9730	.9734	.9725	.9239	.9214	.9264
1-4 years	.9617	.9621	.9613	.9664	.9672	.9654	.9139	.9119	.9159
5-14 years	.9761	.9768	.9753	.9740	.9750	.9730	.9410	.9402	.9418
5-9 years	.9649	.9655	.9642	.9657	.9665	.9649	.9241	.9230	.9252
10-14 years	.9882	.9891	.9873	.9830	.9841	.9818	.9591	.9586	.9595
15-24 years	1.0081	1.0088	1.0073	1.0032	1.0053	1.0010	.9789	.9723	.9855
15-19 years	1.0166	1.0198	1.0133	1.0094	1.0128	1.0059	.9988	1.0016	.9959
20-24 years	1.0002	.9987	1.0017	.9975	.9985	.9966	.9593	.9432	.9753
25-34 years	.9639	.9463	.9821	.9614	.9480	.9755	.9126	.8666	.9580
25-29 years	.9591	.9439	.9748	.9558	.9441	.9681	.9123	.8732	.9510
30-34 years	.9687	.9487	.9892	.9669	.9518	.9828	.9129	.8599	.9651
35-44 years	.9842	.9689	.9996	.9816	.9700	.9935	.9350	.8867	.9810
35-39 years	.9790	.9628	.9954	.9764	.9643	.9888	.9303	.8808	.9778
40-44 years	.9901	.9758	1.0044	.9875	.9764	.9988	.9410	.8943	.9850
45-54 years	.9780	.9628	.9929	.9772	.9649	.9894	.9322	.8805	.9799
45-49 years	.9775	.9633	.9916	.9762	.9648	.9877	.9302	.8807	.9762
50-54 years	.9785	.9623	.9944	.9784	.9651	.9914	.9346	.8802	.9844
55-64 years	.9824	.9640	.9995	.9828	.9684	.9962	.9545	.8875	1.0138
55-59 years	.9794	.9609	.9968	.9801	.9656	.9941	.9426	.8790	.9999
60-64 years	.9854	.9671	1.0020	.9853	.9712	.9982	.9675	.8969	1.0287
65-74 years	.9960	.9784	1.0101	.9935	.9781	1.0060	1.0211	.9704	1.0596
65-69 years	.9980	.9776	1.0152	.9943	.9762	1.0096	1.0336	.9786	1.0773
70-74 years	.9934	.9795	1.0040	.9926	.9807	1.0017	1.0049	.9589	1.0376
75-84 years	1.0021	1.0046	1.0006	1.0038	1.0066	1.0021	.9971	.9913	1.0004
75-79 years	1.0082	1.0064	1.0094	1.0077	1.0065	1.0085	1.0258	1.0126	1.0337
80-84 years	.9927	1.0015	.9881	.9978	1.0068	.9931	.9524	.9547	.9512
85 years and over	.9411	.9592	.9342	.9512	.9696	.9444	.8503	.8827	.8373

SOURCE: Unpublished data from the U.S. Bureau of the Census.

Table N. Age-adjusted death rates for selected causes by race and sex, unadjusted and adjusted for estimated net census undercount: United States, 1990

[Based on age-specific death rates per 100,000 population in specified group. Age-adjusted death rates per 100,000 U.S. standard population. Numbers after causes of deaths are numbers of the Ninth Revision, International Classification of Diseases, 1975. Beginning 1987 includes category numbers *042-*044. See section "Cause of death"]

Race, sex, and adjustment for net census undercount	All causes	Human immunodeficiency virus infection (*042-*044)	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	Diabetes mellitus (250)	Diseases of heart (390-398,402, 404-429)	Cerebrovascular diseases (430-438)	Homicide and legal intervention (E960-E978)
All races							
Both sexes:							
Unadjusted	520.2	9.8	135.0	11.7	152.0	27.7	10.2
Adjusted	512.7	9.6	133.3	11.5	149.9	27.3	10.1
Male:							
Unadjusted	680.2	17.7	166.3	12.3	206.7	30.2	16.3
Adjusted	664.3	17.0	162.4	12.1	202.1	29.6	15.9
Female:							
Unadjusted	390.6	2.1	112.7	11.1	108.9	25.7	4.2
Adjusted	387.9	2.1	112.6	11.0	107.9	25.4	4.2
White							
Both sexes:							
Unadjusted	492.8	8.0	131.5	10.4	146.9	25.5	5.9
Adjusted	485.9	7.8	129.9	10.2	145.0	25.2	5.7
Male:							
Unadjusted	644.3	15.0	160.3	11.3	202.0	27.7	8.9
Adjusted	631.0	14.4	156.9	11.1	198.2	27.3	8.7
Female:							
Unadjusted	369.9	1.1	111.2	9.5	103.1	23.8	2.8
Adjusted	367.0	1.0	110.8	9.5	102.2	23.5	2.7
Black							
Both sexes:							
Unadjusted	789.2	25.7	182.0	24.8	213.5	48.4	39.5
Adjusted	760.0	23.9	177.0	24.1	207.2	46.9	37.4
Male:							
Unadjusted	1,061.3	44.2	248.1	23.6	275.9	56.1	68.7
Adjusted	980.8	39.0	230.9	21.9	256.7	52.3	62.9
Female:							
Unadjusted	581.6	9.9	137.2	25.4	168.1	42.7	13.0
Adjusted	579.4	9.7	138.4	25.7	168.2	42.7	12.7

Table O. Lower and upper 95% and 96% confidence limit factors for a death rate based on a Poisson variable of 1 through 99 deaths, D or D_{adj}

D or D_{adj}	L(1- a=.95,D)	U(1- a =.95,D)	L(1- a =.96,D) or L(1- a =.96,D_{adj})	U(1- a =.96,D) or U(1- a =.96,D_{adj})
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

Table O. Lower and upper 95% and 96% confidence limit factors for a death rate based on a Poisson variable of 1 through 99 deaths, D or D_{adj}

D or D_{adj}	L(1- a=.95,D)	U(1- a =.95,D)	L(1- a =.96,D) or L(1- a =.96,D_{adj})	U(1- a =.96,D) or U(1- a =.96,D_{adj})
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

Table O. Lower and upper 95% and 96% confidence limit factors for a death rate based on a Poisson variable of 1 through 99 deaths, D or D_{adj}

D or D_{adj}	L(1- a=.95,D)	U(1- a =.95,D)	L(1- a =.96,D) or L(1- a =.96,D_{adj})	U(1- a =.96,D) or U(1- a =.96,D_{adj})
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
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

Table O. Lower and upper 95% and 96% confidence limit factors for a death rate based on a Poisson variable of 1 through 99 deaths, D or D_{adj}

D or D_{adj}	L(1- a=.95,D)	U(1- a =.95,D)	L(1- a =.96,D) or L(1- a =.96,D_{adj})	U(1- a =.96,D) or U(1- a =.96,D_{adj})
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

Table O. Lower and upper 95% and 96% confidence limit factors for a death rate based on a Poisson variable of 1 through 99 deaths, D or D_{adj}

D or D_{adj}	L(1- a=.95,D)	U(1- a =.95,D)	L(1- a =.96,D) or L(1- a =.96,D_{adj})	U(1- a =.96,D) or U(1- a =.96,D_{adj})
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

NOTE: Table O was generated using the SAS® code below. Users can compute other level Confidence Intervals by changing the alpha-value. Table O is a modified version of Table 40 (60).

```
* Program to compute confidence intervals for expectations of Poisson variables ;
* Specify alpha for alpha*100% Confidence Interval  ;

%let alpha = .95;

data CI ;

    alo  = (1-&alpha)/2 ;
    ahi  = (&alpha+1)/2 ;

do n = 1 to 99;

   L = Gaminv ( alo,n )/n ;
   U = Gaminv (ahi,n+1)/n ;

 output;
 end;

proc print data= CI;
   var n  L U ;

run;
```